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Mark Gordon, Governor

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Todd Parfitt, Director

TO: Steve Lenz, Chairman, Environmental Quality Council

FROM: Todd Parfitt, Director, Department of Environmental Quality

DATE: August 31, 2022

SUBJECT: Hearing Request for Water Quality Rules Chapter 12

The Department of Environmental Quality (Department), Water Quality Division (WQD) is proposing revisions to Chapter 12, Design and Construction Standards for Public Water Supplies, and is requesting that the Environmental Quality Council review the proposal and consider the adoption of these rules at your November 15, 2022 hearing.

The Water Quality Division presented the proposed revisions to the Water and Waste Advisory Board (WWAB) as follows:

- The WQD presented proposed revisions to the WWAB on December 21, 2021.
  - The December 21, 2021 discussion focused on comments received during the public comment period that began on November 21, 2021 and comments from WWAB members.
  - The WWAB requested a 45-day extension of the public comment period and voted unanimously to not recommend that WQD proceed to EQC for rulemaking.
  - The public comments are included in the enclosed document "Analysis of Comments Received Prior to February 14, 2022 Notice Period End Date related to the December 21, 2021 and March 15, 2022 Water and Waste Advisory Board Meetings."
  - The WWAB comments are included in the enclosed document "Water and Waste Advisory Board Comments, December 21, 2021 Meeting, Chapter 12."
- Following the December 21, 2021 WWAB meeting, the WQD:
  - Provided additional notice of the comment period extension;
  - Provided each commenter with the comment analysis and an offer to discuss any outstanding concerns;
  - Followed up with each commenter to review and discuss the comment analysis and address any questions or remaining concerns; and
  - Conducted a webinar to discuss an overview of the proposed revisions and an additional online question and answer session to provide further opportunity for commenters to note concerns or questions.
- The WQD presented the proposed updated revisions to the WWAB on March 15, 2022.
  - The March 15, 2022 discussion focused on the response to public comments and response to WWAB comments.

  - One member of the public, Wyoming Association of Rural Water Systems, provided comments during the March 15 meeting, included in the enclosed document "Analysis of Comments Received at the March 15, 2022 Water and Waste Advisory Board Meeting."
  - The WWAB noted areas on which they still had concerns, identified in the enclosed document, "Water and Waste Advisory Board Comments, March 15, 2022 Meeting."
  - The WWAB unanimously voted to not recommend that WQD proceed with the rulemaking to the EQC and asked to see it again at their next meeting or a special meeting to address WWAB comments.
  - The WWAB stated that they did not think another public comment period was necessary prior to Chapter 12 being re-presented to the WWAB.
- The WQD presented proposed revisions to the WWAB at a special meeting held on May 3, 2022.
  - The May 3, 2022 discussion focused on the changes made to the Chapter since the March 15, 2022 meeting.
  - The WWAB noted areas on which they still had concerns, identified in the enclosed document, "Water and Waste Advisory Board Comments, May 3, 2022 Meeting."
  - The WWAB voted 2-2 on the motion to advise WQD to continue to the EQC with the changes made to Chapter 12 at the March 15 and May 3, 2022 meetings.

The Department sought and has been granted approval by the Governor's Office on August 19, 2022 to proceed with the proposed rule. The Department provided supplemental information to the Governor's Office, identified in the enclosed document, "Supplemental Information Related to Proposed Rules for Wyoming Department of Environmental Quality, Water Quality, Chapter 12."

The enclosed statement of principal reasons for adoption and public notice summarize the nature of the revisions.

We have enclosed one hard copy of the rule package including:

- Water Quality Rules Chapter 12, clean copy
- Water Quality Rules Chapter 12, strike and underline copy
- Statement of Principal Reasons for Adoption
- Governor Gordon's permission to proceed memo signed April 6, 2022
- Notice of Intent to Adopt Rules
- Takings Checklist and accompanying analysis
- Attorney General's Statutory Authority Review
- Supplemental Information Related to Proposed Rules for Wyoming Department of Environmental Quality, Water Quality, Chapter 12
- December 21, 21 Meeting transcript
- Analysis of Comments Received Prior to February 14, 2022 Notice Period End Date related to the December 21, 2021 and March 15, 2022 Water and Waste Advisory Board Meetings.

- Water and Waste Advisory Board Comments, December 21, 2021 Meeting, Chapter 12
- March 15, 2022 Meeting transcript
- Analysis of Comments Received at the March 15, 2022 Water and Waste Advisory Board Meeting
- Water and Waste Advisory Board Comments, March 15, 2022 Meeting
- May 3, 2022 Meeting transcript
- Water and Waste Advisory Board Comments, May 3, 2022 Meeting

cc: Jennifer Zygmunt, WQD Administrator
Gina Thompson, WQD

Enclosures

CHAPTER 12

Design and Construction Standards for Public Water Supplies

Section 1. Authority.

These standards are promulgated pursuant to the Wyoming Environmental Quality Act, specifically, § 35-11-302.

Section 2. Applicability.

(a) This Chapter contains the minimum standards for the design and construction of public water supplies that are required to obtain a permit under Wyoming Statute (W.S.) § 35-11-301(a)(iii) and Water Quality Rules Chapter 3.

(i) All applicants for a Water Quality Rules Chapter 3 permit to construct, install, modify, or operate a public water supply facility shall comply with all minimum standards of this Chapter.

(ii) No permit to construct, install, modify, or operate a public water supply facility shall be issued to a facility that does not comply with the minimum standards of this Chapter.

(iii) All public water supply facilities shall be constructed, installed, and operated in accordance with permits issued pursuant to this Chapter.

(b) The construction, installation, or modification of any component of a public water supply facility requires a permit to construct.

Section 3. Timing of Compliance with These Regulations.

Any facility covered by an individual or general permit issued pursuant to Water Quality Rules, Chapter 3, prior to the effective date of this Chapter shall remain covered under that permit. New construction or modification of existing permitted facilities must obtain authorization under a new permit, in accordance with Water Quality Rules Chapter 3, Section 4(d) or Section 5(e), subject to the requirements of this Chapter.

Section 4. Incorporation By Reference of Recommended Standards for Water Works 2018 Edition.

(a) This Chapter incorporates sections of the Recommended Standards for Water Works, A Report of the Water Supply Committee of the Great Lakes--Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2018 Edition, referred to as "2018 TSS," as noted in Section 8(a), Section 9(a), Section 10(a), Section 11(a), Section 12(a), Section 13(a), Section 14(a), Section 15(a), Section 16(a), Section 17(a), and Section 19(a)(lviii) of this Chapter.

(b) The State term "Administrator" shall replace the term "reviewing authority" used in the Recommended Standards for Water Works 2018 Edition.

(c) The State term "shall" shall replace the term "should" used in the Recommended Standards for Water Works 2018 Edition.

Section 5. Definitions.

(a) The following definitions supplement those contained in W.S. § 35-11-103 of the Wyoming Environmental Quality Act.

(b) "Auxiliary source of supply" means any water supply on or available to the water user's system other than an approved public water supply acceptable to the water supplier. These auxiliary waters may include water from another supplier's public potable water supply or any natural source(s), such as a well, spring, river, stream, harbor, and so forth; used waters; or industrial fluids. These waters may be contaminated or polluted, they may be objectionable or they may be from a water source that the water supplier is uncertain of sanitary control.

(c) "Average daily demand" means the total annual water use divided by the number of days the system was in operation.

(d) "Backflow" means the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution system of the public water supply from any other source or sources.

(e) "Backflow incident" means any identified backflow to a public water supply distribution system or to the potable water piping within the water user's system benefitting from a water service connection to the public water supply distribution system.

(f) "Back-pressure" means a form of backflow caused when the pressure of the water user's system is greater than that of the water supply system whether caused by a pump, elevated tank, elevated piping, boiler, pressurized process, pressurized irrigation system, or air pressure.

(g) "Back-siphonage" means a form of backflow caused by negative or reduced pressure in the water supply system whether caused by loss of pressure due to high water demands, a line break, or excessive firefighting flows.

(h) "Calculated Dose" means the reduction equivalent dose (RED) calculated using the dose-monitoring equation that was developed through validation testing.

(i) "Contamination" means an impairment of a public water supply by the introduction or admission of any foreign substance that degrades the quality of the potable water or creates a health hazard.

(j) "Cross-connection" means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce contamination into the system.

(k) "Degree of hazard" means either a high or low hazard situation where a substance may be introduced into a public water supply through a cross-connection. The degree of hazard or threat to public health is determined by a hazard classification.

(l) "Domestic services" means services using potable water for ordinary living processes.

(m) "Dual check" means a device conforming to American Association of Sanitary Engineers (ASSE) Standard #1024 consisting of two independently acting check valves.

(n) "Groundwater source" includes all water obtained from dug, drilled, bored, jetted, or driven wells; springs that are developed so that the water does not flow on the ground and that are protected to preclude the entrance of surface contamination; and collection wells.

(o) "Hazard classification" means a determination by a Hazard Classification Surveyor as to high hazard or low hazard and the potential cause of backflow as either back-pressure or back-siphonage.

(p) "Hazard Classification Survey" means inspection of a premises to identify the potable water systems, the location of any potential cross-connections to the potable water systems, the hazard of the potential backflow, the physical identification of any backflow devices or methods present, and the inspection status of any backflow devices or methods recorded and certified by a qualified Hazard Classification Surveyor.

(q) "Hazard Classification Surveyor" means an individual certified by the USC-Foundation for Cross-Connection Control and Hydraulic Research as Cross Connection Control Specialist (USC-FCCCHR), the ASSE as a Cross-Connection Control Surveyor, or another state certification program submitted with the permit application and approved by the Administrator, or an individual who is a water distribution system operator also certified as a backflow device tester employed by the public water supplier for the service where the survey is being conducted.

(r) "High hazard" means a situation created when any substance that is or may be introduced into a public water supply poses a threat to public health through poisoning, the spread of disease or pathogenic organisms, or any other public health concern.

(s) "Isolated" when referring to cross-connections means the properly approved backflow prevention devices have been installed at each point of cross-connection within the water user's system.

(t) "Low hazard" means a situation created when any substance that is or may be introduced into a public water supply does not pose a threat to public health but that does adversely affect the aesthetic quality of the potable water.

(u) "Maximum daily demand" means the demand for water exerted on the system over a period of 24 consecutive hours, for the period during which such demand is greatest.

(v) "Maximum hourly demand" means the highest single-hour demand exerted on the system. This may or may not occur on the maximum day.

(w) "Mechanical sludge equipment" means the equipment used to physically remove solids from a water treatment process. This may include mechanical drives that use scrapers or differential water levels to collect the sludge.

(x) "Mineralized water" means any water containing more than 500 mg/L total dissolved solids.

(y) "Minor field change" means any in-field adjustment due to previously unknown physical constraints of the project site that do not affect the project's scope. Minor field changes still allow full compliance with the requirements of this Chapter and are shown on the submitted, post-construction as-built plan set for the Division in red.

(zz) "Primary disinfection" means disinfection that kills or inactivates bacteria, viruses, and other potentially hamful organisms in drinking water.

(aa) "Reduction Equivalent Dose" means the ultraviolet (UV) dose derived by entering the log inactivation measured during full-scale reactor testing into the UV dose-response curve that was derived through collimated beam testing. RED values are always specific to the challenge microorganism used during experimental testing and the validation test conditions for full-scale reactor testing.

(bb) "Required Dose" means the UV dose in units of mJ/cm2 req needed to achieve the target log inactivation for the target pathogen.

(cc) "Secondary disinfection" means disinfection that provides longer lasting water treatment as the water moves through pipes to consumers.

(dd) "Stabilized drawdown" means a water level that has not fluctuated by more than plus or minus 0.5 foot for each 100 feet of water in the well over at least a six-hour period of constant pumping flow rate. The water column is measured from pre-test static water level to the top of the deepest water bearing fracture that contributes at least 10 percent of total well yield, and plotted measurements that have not shown a trend of decreasing water level.

(ee) "Surface water source" includes all tributary streams and drainage basins, natural lakes, and artificial reservoirs or impoundments upstream from the point of the water supply intake.

(ff) "Validated Dose" means the UV dose in units of mJ/cm^2 delivered by the UV reactor as determined through validation testing that is compared to the required dose to determine log inactivation credit.

(gg) "Water service connection" means any water line or pipe connected to a distribution supply main or pipe for the purpose of conveying water to a water user's system.

(hh) "Water supplier" means any entity that owns or operates a public water supply, whether public or private.

(ii) "Water user" means any entity, whether public or private, with a water service connection to a public water supply and includes customers of a public water supplier.

(jj) "Water user's system" means that portion of the user's water system between the water service connection and the point of use. This system includes all pipes, conduits, tanks, fixtures, and appurtenances used to convey, store, or use water provided by the public water supply.

Section 6. Facilities and Systems not Specifically Covered by these Standards.

(a) Each application for a permit to construct a facility under this section shall be evaluated on a case-by-case basis using the best available technology. The Administrator may approve applications demonstrating the constructed facility can meet the purpose of the Wyoming Environmental Quality Act and this Chapter.

(b) The following information shall be included with the application for a permit to construct, install, modify, or operate a public water supply facility not specifically covered by these standards:

(i) Data obtained from:

(A) A full scale, comparable installation that demonstrates the acceptability of the design; or

(B) A pilot plant operated under the design condition for a sufficient length of time to demonstrate the acceptability of the design; or

(C) A theoretical evaluation of the design that demonstrates a reasonable probability the facility will meet the design objectives.

(ii) An evaluation of the flexibility of making corrective changes to the constructed facility in the event it does not function as planned.

(c) If an applicant wishes to construct a pilot plant to provide the data necessary to meet the requirements of this Section, the applicant must obtain a permit to construct.

Section 7. Permits, Permit Application, and Recordkeeping Requirements.

(a) Applications for a permit to construct, install, modify, or operate a public water supply shall comply with the requirements of Water Quality Rules Chapter 3, Section 6.

(b) The application shall include the following components:

(i) An engineering design report that meets the requirements of Section 9 of this Chapter;

(ii) A construction plan that meets the applicable requirements of Sections 8, 10, 11, 12, 13, 14, 15, 16, and 17 of this Chapter;

(iii) An operation and maintenance plan that meets the requirements of Section 18 of this Chapter; and

(iv) Any additional information required by the Administrator.

(c) The application and components required by this Chapter shall be submitted to the Division in a format required by the Administrator.

(d) The application shall include certification under penalty of perjury that the applicant has secured and will maintain permission for Department personnel and their invitees to access the facility, including permission to:

(i) Access the land where the facility is located;

(ii) Collect resource data as defined by W.S. § 6-3-414(e)(iv); and

(iii) Enter and cross all properties necessary to access the facility if the facility cannot be directly accessed from a public road.

(e) Sections of permit applications that represent engineering work shall be sealed, signed, and dated by a licensed professional engineer as required by W.S. § 33-29-601.

(f) Sections of permit applications that represent geologic work shall be sealed, signed, and dated by a licensed professional geologist as required by W.S. § 33-41-115.

(g) The Administrator may allow an alternative two-step permitting and application procedure for wells and water storage tank project applicants that meet the following requirements:

(ii) For applications that include wells, the Department will issue one permit with the following phased authorizations:

(A) The issued permit will authorize the well to be constructed, developed, and tested;

(B) Applicants shall then submit well test data and water quality data for Administrator review; and

(C) Upon the Administrator's approval of the well test data and water quality data, the Director-shall modify the issued permit to authorize connection of the distribution system to the well.

(iii) Applicants for water storage tanks may follow an alternative procedure when the final plans and specifications for the tank cannot be submitted with the initial permit application due to project bidding constraints. In these instances, the Department will issue a permit through the following phased authorizations:

(A) The issued permit will authorize the project to initiate the bidding process. Applicants shall ensure the project bidding documentation includes a requirement that the final water storage tank design complies with the requirements of this Chapter.

(B) Applicants shall then submit final documentation and specifications for the water storage tank that demonstrate the design is consistent with the requirements of this Chapter. Upon the Administrator's approval of the final tank documentation specifications, the Director shall modify the issued permit to authorize the construction of the water storage tank and foundation.

(iv) Applicants that use phased authorization procedures in this paragraph (g) shall request a pre-application meeting with the applicable Division district engineer prior to submission of the permit application package to ensure efficient coordination of the submittals of all reports, plans, and specifications, and Division review timelines.

Section 8. Plans and Specifications.

(a) 2018 TSS, part 1.2-1.2.2(r), plans; 1.3-1.3(e), specifications; 1.4-1.4(m), design criteria; 1.5, revisions to approved plans; and 1.6, additional information required; are herein incorporated by reference.

(b) All plans for waterworks and treatment facilities shall also include the name of the real estate owner, the owner of the project, and the location of the project.

(c) Plans for transmission and distribution lines shall include:

(i) The information required in paragraph (a) of this Section;

(ii) A detailed plan view at a legible scale of each reach of the water line showing all existing and proposed streets, adjacent structures, physical features, and existing locations of utilities that indicates:

(A) The location and size of all water lines, valves, access manholes, air-vacuum release stations, thrust blocking, and other appurtenances; and

(B) Pertinent elevations.

(iii) Profiles of all water lines that are shown on the same sheet as the plan view at legible horizontal and vertical scales and that show:

(A) Profiles of:

(I) Existing and finished surfaces;

(II) Pipe size and material; and

(III) Valve size, material, and type.

(B) The location of all special features such as access manholes, concrete encasements, casing pipes, blowoff valves, and air-vacuum relief valves.

(iv) Special detail drawings scaled and dimensioned to show the following:

(A) The bottom of the stream, the elevation of the high- and low-water levels, and other topographical features at points where the water line:

(I) Is located within 10 feet of streams or lakes; or

(II) Crosses streams or lakes.

(B) A cross-section drawing of the pipe bedding; and

(C) Additional features of the pipe or its installation that are not otherwise covered by specifications.

(v) The location of any sewer lines within 30 feet horizontally of water lines. Sewers that cross water lines shall be shown on the profile drawings.

(d) Plans for storage tanks, pumping stations, and water treatment facilities shall show the relation of the proposed project to the remainder of the system and shall include:

(i) The information required in paragraph (a) of this Section;

(ii) The seal and signature of the Wyoming Professional Engineer providing the design;

(iii) The site location and layout including:

(A) Topographic and physical features, including embankments;

(B) The proposed arrangement of pumping or treatment units;

(C) Existing facilities;

(D) Existing and proposed piping and valving arrangements;

(E) The route to access the facility;

(F) The power supply;

(G) Fencing; and

(H) The proposed location of clearwells, waste ponds, and sludge ponds.

(iv) Schematic flow diagram(s) and hydraulic profile(s) for facility-treated water;

(v) A flow diagram for sludge and wastewater flows; and

(vi) Plan(s) and section view(s) of each treatment facility process unit with specific construction details, features, and pertinent elevations including but not limited to the following:

(A) Inlet and outlet devices;

(B) Baffles;

(C) Valves;

(D) Arrangement of automatic control devices;

(E) Mixers;

(F) Motors;

(G) Chemical feeders;

(H) Sludge scrapers;

(I) Sludge disposal; or

(J) Other mechanical devices.

(e) Plans for well construction shall include:

(i) The information required in paragraph (a) of this Section;

(ii) Assembled order, size, and length of casing and liners;

(iii) The well test method and allowable tolerance;

(iv) The locations of all caisson construction joints and porthole assemblies on drawings, if a radial water collector is proposed;

(v) From the ground surface to the total depth of the drilled borehole, the elevation and designation of geological formations, water levels, formations penetrated, and other details to describe the proposed well completely;

(vi) Screen locations, size of screen openings, and screen intervals;

(vii) The location of any blast charges, if available; and

(viii) Existing well test data, including:

(A) Test pump capacity-head characteristics;

(B) Static water level;

(C) Depth of test pump setting;

(D) Time of starting and ending each test cycle;

(E) Pumping rate;

(F) Pumping water level;

(G) Drawdown; and

(H) Water recovery rate and levels.

(f) Plans for water lines, pump stations, treatment facilities, wells, storage, or additions/modifications to existing systems or facilities shall be accompanied by technical specifications that include:

(i) The information required in paragraph (a) of this Section;

(ii) Identification of construction materials;

(iii) When applicable, the type, size, strength, operating characteristics, rating or requirements for all mechanical and electrical equipment, including machinery, valves, piping, electrical apparatus, wiring, and meters; laboratory fixtures and equipment; operating tools; special appurtenances; and chemicals;

(iv) Construction and installation procedure for materials and equipment;

(v) Requirements and tests of materials and equipment to meet design standards;

(vi) Performance tests for the operation of completed works and component units;

(vii) Specialized requirements for tests, analyses, disinfection techniques, and other special needs;

(viii) A demonstration that all water service connections will be provided with backflow prevention devices in accordance with the requirements of Section 16(m) of this Chapter; and

(ix) If technical specifications have been independently permitted by the Department for statewide use, the title, date, and permit approval identification number in lieu of providing technical specifications.

Section 9 Engineering Design Report.

(a) 2018 TSS, parts 1.1.1-1.1.1(d), engineers report, general information; 1.1.2-1.1.2(c), engineers report, extent of water works system; 1.1.4-1.1.4(c), engineers report, soil, groundwater conditions, and foundation problems; 1.1.5-1.1.5(f), engineers report, water use data; 1.1.6-1.1.6(b), engineers report, flow requirements; 1.1.7.1-1.1.7.1(f), engineers report, surface water sources; 1.1.7.2-1.1.7.2(g), engineers report, groundwater; 1.1.8, engineers report, proposed treatment processes; 1.1.9, engineers report, sewerage system available; 1.1.10, engineers report, waste disposal; 1.1.15-1.1.15(d), engineers report, pumping facilities; 1.1.16-1.1.16(c), engineers report, storage facilities; and 1.1.17-1.1.17(d), engineers report, security, contingency planning, and emergency preparedness; are herein incorporated by reference.

(b) An engineering design report shall be submitted with each application and shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description by narrative, analyses, and calculations of the project purpose and intent in order to support the project plans and specifications;

(iii) A description of known or suspected problems, needs, or requirements, and the reasoning used to arrive at the proposed solution;

(iv) An identification of problems and solutions related to but not limited to the following:

(A) Water quantity and quality;

(B) Compliance with the Safe Drinking Water Act, 42 U.S.C. §300f et seq.; and

(C) Operational requirements, redundancy, maintenance, and reliability.

(v) A determination of the degree of hazard of all known or anticipated water service connections to be connected to the proposed project. A hazard classification shall be identified for each connection and recommended mitigation measures shall be described for each hazard.

(c) The engineering design report for all new water distribution system extensions shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description of the service area including scaled vicinity plan map(s) of the project with regard to adjacent and proposed development, elevations, and topographic features; and

(iii) Current and projected system water use data and flow requirements to include maximum hourly demand and per capita maximum daily flows;

(iv) Information on fire protection and fire flow capabilities of the proposed system.

(d) The engineering design report for all treatment facilities shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description of the facility site and location, including a scaled site plan, and:

(A) Present and projected facility property boundaries;

(B) Flood protection indicating predicted elevation of 25- and 100-year flood stages;

(C) Present and proposed access for the purpose of operation, maintenance, and compliance inspection;

(D) Distances from:

(I) Current habitation;

(II) The closest major treated water transmission line;

(III) The closest treated water storage facility; and

(IV) The water source.

(E) Fencing and security;

(F) Topographic features and contours with indicated datum; and

(G) Soil and subsurface geological characteristics, including a soils investigation report of the proposed site suitable for structural design of the proposed facilities.

(iii) A description of the service area, including scaled vicinity plan map(s) of the project with regard to adjacent and proposed development, elevations, and topographic features;

(iv) A detailed description of the recycle flows and procedures for reclamation of recycle streams; and

(v) A detailed description of disposal techniques for settled solids, including a description of the ultimate disposal of sludge.

(e) Engineering design reports for new surface water sources shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description of water quantity available during average and driest years of record that contains details of:

(A) Any diversion records; and

(B) Diversion dams, impoundments, or reservoirs that may impact design considerations or long-term water availability.

(iii) A tabulation of water quality data that describes the biological, radiological, and chemical water quality sufficient to determine necessary treatment processes that:

(A) For surface water source testing, include at least one sampling event during spring runoff and at least one sampling event during late summer or early fall low flow; and

(B) Includes data that are sufficient for the Division to determine that the processes safely and reliably comply with water quality standards required by 40 CFR Part 141.

(f) Engineering design reports for new groundwater sources shall include:

(i) The information required in paragraph (a) of this Section;

(ii) A description of the geology of the aquifer(s) and overlying strata;

(iii) Tabulated water quality testing data for biological, radiological, and chemical water quality sufficient to determine necessary treatment processes and sufficient for the Administrator to determine that the processes safely and reliably meet water quality standards required by 40 CFR Part 141;

(iv) If known, a summary of the likely drilling and completion challenges that will be faced, including a description of the engineering design, management, monitoring, and drilling and completion practices that will be used to successfully construct the well in accordance with this Chapter; and

(v) For wells that will be drilled through multiple aquifers, applicants shall request a pre-application meeting with the applicable Division district engineer to discuss:

(A) The boring advancement, well sealing, well development, and methods used to determine the adequacy of the well seal; and

(B) The methods that will be used to overcome lost circulation, bore instability, and deviations from vertical alignment.

(g) Engineering design reports for conversion of an existing well into a public water supply well shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) The information required in paragraph (f) of this Section;

(iii) The submission of the State Engineer’s Office (SEO) Statement of Completion and Description of Well; and

(iv) A video log of the well inspection accompanied by a written description of the location, shape, and estimated size of any holes, breaches, corroded areas in the casing, if any, that includes:

(A) If any damage to the casing is found, a descripition of how defective areas will be repaired and if there is a need for additional well bond logging; or

(B) If well bond logging is not recommended, a descripition of the technical justification and an alternative means of certifying the adequacy of the well seal to protect the water source.

(h) Engineering design reports for new water treatment facilities shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description of all water treatment chemical requirements, including dosage and feed rates, delivery, handling, and storage;

(iii) A description of automatic operation and control systems, including basic operation, manual override operation, and maintenance requirements; and

(iv) A description of the on-site laboratory facilities and a summary of those tests to be conducted on-site. If no on-site laboratory is provided, a description of plant control and water quality testing requirements, and where the testing will be conducted shall be included.

(i) Engineering design reports for water treatment facility modifications shall describe:

(i) The information required in paragraph (a) of this Section;

(ii) The purpose of the facility modification;

(iii) All proposed new equipment, tankage, and chemical treatment processes, including a description of the modification’s effect on treatment system reliability, water quantity and quality; and

(iv) A listing of the new equipment design criteria and the associated chemicals.

(j) Engineering design reports for water main upsizing or looping projects shall describe the purpose of the water main upsizing or looping project and shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) Hydraulic analysis that demonstrates how peak hour, average day, maximum day, and maximum day plus fire flows, if fire flows are available, will be improved by upsizing; and

(iii) A table that summarizes the hydraulic model results.

(k) Engineering design reports for water main removal and replacements shall describe the purpose of the replacement and identify the existing main size, material type, and condition, and shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) For any main replacement(s), the replacement main size, material type, and dimension ratio;

(iii) For projects that consist of main replacements in multiple discrete locations, an aerial image that shows all replacement pipeline segments, including new valves, with called-out pipe diameters and lengths;

(iv) A description of the protective measures that will be taken at locations where the new water main will cross a sewer or storm sewer when standard horizontal and vertical separations cannot be met; and

(v) For projects where asbestos cement may be encountered, a discussion of the disposal, or abandonment method to be used.

(l) Engineering design reports for new water mains shall describe the purpose of the new water main and shall include the information required in paragraph (a) of this Section. If the water main will provide service to a new development the engineering design report shall include the following required elements:

(i) The modeling result from a hydraulic analysis that demonstrates that the design will meet the requirements of Section 16(d)(i-ii) of this Chapter;

(ii) A demonstration that the hydraulic model was calibrated based on existing fire hydrant test flow data, when available, or based on modeling; and

(iii) Identification of any impacts the new fire flow demand will have on finished storage and pumping systems over the required fire flow duration.

Section 10. Design Requirements for Preliminary Treatment and Redundancy.

(a) 2018 TSS, parts 2.9-2.9(c), monitoring equipment; 2.10, sample taps; 2.11, facility water supply; and 2.14, piping color code are herein incorporated by reference.

(b) The proposed design shall demonstrate that the capacity of the water treatment or water production system is designed for the maximum daily demand at the design year based on historical usage records.

(i) Where water use records are not available to establish water use, the design shall include an equivalent per capita water use of at least 125 gallons per day (gpd) for average daily water demand and 340 gpd for maximum daily water demand.

(ii) The plant capacity design shall demonstrate consideration of:

(A) Maximum daily water demand;

(B) Agricultural water use;

(C) Industrial water use; and

(D) Filter backwash quantities. In the absence of data, filter backwash quantity shall be five percent of the maximum daily demand.

(c) The structural design shall demonstrate consideration of:

(i) The seismic zone;

(ii) Groundwater; and

(iii) Soil support that demonstrates:

(A) The applicant has conducted soils investigations or has included documentation of adequate previous soils investigations used to develop the structural design;

(B) Basin slabs have been designed to successfully resist the hydrostatic uplift pressure or include an area dewatering system; and

(C) Consideration of long-span breakage in basins designed to resist uplift.

(d) Proposed treatment facilities locations shall demonstrate that:

(i) No sources of pollution will affect the quality of the water supply or treatment system;

(ii) The facility location is not within 500 feet of landfills, garbage dumps, or wastewater treatment systems; and

(iii) All treatment process structures, mechanical equipment, and electrical equipment will be protected, accessible, and remain fully operational during the maximum flood of record or the 100-year flood, whichever is greater.

(e) Proposed treatment shall demonstrate that the facility will produce potable water that is bacteriologically, chemically, radiologically, and physically safe, as required by 40 CFR Part 141.

(f) Designs for proposed treatment facilities with 100,000 gpd capacity and over shall include duplicate units, as a minimum, for chemical feed, flocculation, clarification, sedimentation, filtration, and disinfection.

(g) Designs for proposed treatment facilities under 100,000 gpd capacity shall include:

(i) Duplicate units as described in paragraph (f) of this Section; or

(ii) Finished water system storage equal to twice the maximum daily demand; and

(iii) Demonstration of consideration of plant design flexibility to account for future changes in source water quality, unexpected need to modify process piping, service area expansion, changing treatment technologies, and equipment life cycles and upgrades.

(h) All treatment facility pumping shall provide the maximum daily demand flow with the largest single-unit not in service. Finished water pumping in combination with finished water storage that floats on the distribution systems shall provide the maximum hourly demand with the largest single-unit not in service. For designs that include fire protection, pumping, and finished water storage that floats on the system shall provide the fire demand plus the maximum daily demand, or the maximum hourly demand, whichever is greater.

(i) Where the finished water storage volume that floats on the distribution system is not capable of supplying the maximum daily demand, the proposed design shall include alternative power for the finished water pumps that demonstrates:

(i) The combined finished water storage volume and pumping capacity supplied by alternative power will be at least adequate to provide the maximum daily demand; and

(ii) The alternative power source will include engine generators, engine drive pumps, or a second independent electrical supply that will provide sufficient power to run the system.

(j) Process equipment, filters and appurtenances, disinfection, chemical feed and storage, electrical and controls, and pipe galleries shall be located in suitable structures.

(k) All equipment not required to be in or on open basins, such as clarifier drives and flocculators, shall be located in heated, lighted, and ventilated structures.

(l) Piping shall be buried below frost level, placed in heated structures, or provided with heat and insulated.

(m) Structure entrances shall be above grade.

(n) Selected construction materials shall provide water tightness, corrosion protection, and resistance to weather variations.

(o) NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021 certified coatings used to protect structures, equipment, and piping shall be suitable for atmospheres containing moisture and low concentrations of chlorine.

(p) Surfaces exposed in chemical areas shall be protected from chemical attack.

(q) Paints shall not contain lead, mercury, or other toxic metals or chemicals.

(r) All enclosed spaces shall be provided with forced ventilation, except pumping station wetwells or clearwells that meet the following requirements:

(i) In areas where there are open treatment units exposed to the room, ventilation shall be provided to limit relative humidity to less than 85 percent but not less than six air changes per hour; and

(ii) Ventilation in electrical and equipment rooms shall limit the temperature rise in the room to less than 15 degrees Fahrenheit above ambient with at least six air changes per hour.

(s) Service transformers and other critical electrical equipment shall be located above the 100-year flood and above grade. Transformers shall be located so that they are remote or protected by substantial barriers from traffic. Motor controls shall be located in superstructures and in rooms that do not contain corrosive atmospheres.

(t) All treatment facilities shall have a flow-measuring device provided for raw water influent and clear well effluent and each shall provide totalized flow. The accuracy of the device shall be at least plus or minus two percent of span and shall meet the following requirements:

(i) Automatic controls shall be designed to permit manual override; and

(ii) The meter shall also record the instantaneous flow rate.

(u) Water treatment plants with a capacity of 500,000 gpd or more shall be provided with continuous water turbidimeters (including recorders) that demonstrate compliance with the

Guidance Manual for Compliance with the Surface Water Treatment Rules, Turbidity Provisions.

Section 11. Source Development.

(a) 2018 TSS, parts 3.1.4.1-3.1.4.1(i), surface water, structures, design of intake structures; 3.1.4.3-3.1.4.3(f) surface water, structures, offstream raw water storage reservoir; 3.1.6-3.1.6.3, surface water, impoundments and reservoirs; 3.2.3.2, groundwater, location, continued sanitary protection; 3.2.4-3.2.4.14(b)(4), groundwater, general well construction; 3.2.5-3.2.5.4, groundwater, testing and records; 3.2.6.1-3.2.6.1(c), groundwater, aquifer types and construction methods--special conditions, sand or gravel wells; 3.2.6.2-3.2.6.2(b)(7), groundwater, aquifer types and construction methods--special conditions, gravel pack material; 3.2.6.4-3.2.6.4(d),groundwater, aquifer types and construction methods--special conditions, infiltration lines; 3.2.6.5-3.2.6.5(b), groundwater, aquifer types and construction methods--special conditions, limestone or sandstone wells; 3.2.7.3-3.2.7.3(c)(3), groundwater, well pumps, discharge piping and appurtenances, discharge piping; 3.2.7.4-3.2.7.4(d), groundwater, well pumps, discharge piping and appurtenances, pitless well units; 3.2.7.6, groundwater, well pumps, discharge piping and appurtenances, casing vent; 3.2.7.7-3.2.7.7(b), groundwater, well pumps, discharge piping and appurtenances, water level measurement; 3.2.7.8-3.2.7.8(b), groundwater, well pumps, discharge piping and appurtenances, observation wells; are herein incorporated by reference.

(b) Surface water intake structures that operate in the winter shall be capable of minimizing the formation of ice on the intake.

(c) Transmission lines and interconnecting process piping shall be capable of withstanding the forces and conditions they will be subject to and comply with the following specifications for water service, as applicable:

(i) AWWA C200;

(ii) AWWA C207;

(iii) AWWA C208;

(iv) AWWA C220;

(v) AWWA C228;

(vi) AWWA C300;

(vii) AWWA C301;

(viii) AWWA C302;

(ix) AWWA C303;

(x) AWWA C304;

(xi) AWWA C900;

(xii) AWWA C901;

(xiii) AWWA C903;

(xiv) AWWA C904;

(xv) AWWA C906;

(xvi) AWWA C907;

(xvii) AWWA C909;

(xviii) AWWA C950;

(xix) ASTM A53;

(xx) ASTM A134;

(xxi) ASTM A135;

(xxii) ASTM A139;

(xxiii) ASTM D2846;

(xxiv) ASTM F480;

(xxv) ASTM F645;

(xxvi) ASTM F877;

(xxvii) ASTM F23891;

(xxviii) ASTM F2806;

(xxix) ASTM F2855;

(xxx) ASTM F2969;

(xxxi) API 5L:

(A) Grade B;

(B) Grade X42;

(C) Grade X46;

(D) Grade X52;

(E) Grade X56;

(F) Grade X60;

(G) Grade X65;

(H) Grade X70; or

(I) Grade X80.

(d) Designs shall not include any customer service connection from the raw water transmission line to the treatment plant unless there are provisions to treat the water to meet the requirements of this Chapter, or the sole purpose of the service is for irrigation or agricultural water use. For irrigation agricultural services, applicants shall conduct a hazard classification and implement appropriate backflow prevention.

(e) Designs that include groundwater source development shall comply with the following requirements:

(i) Proposed designs shall include a minimum of:

(A) Two wells that are each capable of supplying the average daily demand with the largest producing well out of service;

(B) One well and finished water storage that together equal twice the maximum daily demand; or

(C) For public water supplies that are not community water systems or nontransient noncommunity water systems, as determined by the Administrator, one well that is capable of supplying the maximum daily demand.

(ii) Wells shall maintain the following minimum isolation distances:

(A) If domestic wastewater is the only wastewater present and the design domestic sewage flow is less than 2,000 gpd, the following minimum isolation distance shall be maintained:

Table 1. Isolation Distances for Domestic Sewage Flows Less than 2,000 gpd

Source of Domestic Wastewater	*Minimum Distance to Well*
Storm and Sanitary Sewer Collection Systems	50 feet
Septic tank	100 feet
Absorption system	200 feet

(B) If domestic wastewater is the only wastewater present and the design domestic sewage flow is greater than 2,000 gpd but less than 10,000 gpd, the following minimum isolation distances shall be maintained:

Table 2. Isolation Distances for Domestic Sewage Flows Greater than 2,000 gpd

Source of Domestic Wastewater	*Minimum Distance to Well*
Storm and Sanitary Sewer Collection Systems	50 feet
Septic tank	100 feet
Absorption system	500 feet

(C) If domestic wastewater is the only wastewater present and the design domestic sewage flow is greater than 10,000 gallons per day or non-domestic wastewater is present the required isolation distance shall be determined by a subsurface study, in accordance with the requirements of Water Quality Rules Chapter 3, Section 17(b), but shall not be less than those required in Tables 1 and 2 of this Section.

(iii) Wells shall maintain the following minimum isolation distances from buildings and property lines:

(A) When a well is outside of a building, the well shall be located so that the the surface casing has a clearance radius of a minimum of 10 feet horizontally and will clear any projection from the building;

(B) When a well is located inside a building:

(I) The top of the casing and any other well opening shall not terminate in the basement of the building, or in any pit or space that is below natural ground surface unless the well is completed with a properly protected submersible pump or provided with provisions for drainage to the ground surface that is not subject to flooding by surface water;

(II) Wells located in a structure shall be accessible to pull the casing, pipe, or pump; and

(III) The structure shall have overhead access.

(C) Wells shall be located at least 50 feet from any property line.

(iv) Applicants for wells shall complete testing and maintain records as follows:

(A) Yield and drawdown tests shall be performed on every production well after construction or subsequent treatment and prior to placement of the permanent pump. The test methods shall be clearly indicated in the specifications. The test pump capacity, at maximum anticipated drawdown, shall be at least 1.5 times the design rate anticipated. The well shall be test pumped at the desired yield (design capacity) of the well for at least 24 consecutive hours after stabilized drawdown. Alternatively, the well may be pumped at a rate of 150 percent of the desired yield for at least six continuous hours after stabilized drawdown.

(B) Every well shall be tested for plumbness and alignment in accordance with AWWA A100.

(v) In addition to meeting the requirements of Section 8 of this Chapter, plans for wells developed through acidizing activities shall also include the following elements:

(A) Information on the geology of the area that contains descriptions of:

(I) Known or potential faults, fractures, springs, karst features (such as sinkholes and other similar features) within a one-mile radius of the proposed well; and

(II) Faults and fractures that may extend from the acidized zone into overlying and underlying geologic formations and a description of any measures that will be taken to ensure that the acidized solution does not migrate into any of those geologic formations.

(B) For wells developed within a radius of one mile of existing wells, applicants shall submit plans that analyze the risk and mitigation measures to be taken to prevent impacts to those wells and the risk and mitigation measures for any potential effects to each existing well;

(C) Existing information on the location of other wells (such as water supply, oil and gas, mineral development wells) within a one-mile radius of the proposed well, including any wells that intercept the acidized zone, and for wells that intercept the acidized zone:

(I) An analysis of whether or not those wells that intercept the acidized zone have been properly plugged and abandoned;

(II) An analysis of whether or not those wells have been properly cased and cemented; and

(III) A description of what measures will be or have been taken to prevent the acidized solution from migrating vertically in the annular space or casing of the existing wells into overlying or underlying geologic formations.

(D) A description of the borehole drilling phase and what measures will be taken to minimize the introduction of lost circulation materials into aquifers when encountering under-pressured geologic formations or other factors that may lead to a loss of circulation;

(E) A description of the acid injection process and the measures that will be taken to ensure that injection pressures do not create fractures in the overlying and underlying geologic formations and through which the acidized solution may migrate;

(F) A description of the volume and content of the acid and any other chemical compounds to be used during acidizing activities, including the management of the acid and chemical compounds prior to acidizing and final disposition of any acid, water, or chemical mixtures recovered from the well after acidizing activities are completed;

(G) A description of the measures that will be or have been taken to ensure that the recovery of the acidized solution is of sufficient duration and volume to eliminate the potential for acidic impacts to other wells completed within the injection zone; and

(H) A description of the methods to be performed to establish the placement and integrity of the annular seal and casing prior to acidization of the well.

(vi) During any well construction or modification, the well and surrounding area shall be adequately protected to prevent any groundwater contamination. Surface water shall be diverted away from the construction area.

(vii) All wells shall comply with the following construction standards:

(A) Dug wells shall be constructed according to the State Engineer's standards;

(B) Drilled, driven, jetted, or bored wells shall have an unperforated casing that extends from a minimum of 12 inches above the concrete surface and 18 inches above natural ground surface and the design shall demonstrate compliance with Water Quality Rules, Chapter 26, Section 8;

(C) In gravel-packed wells or artificial filter-packed wells, aquifers containing inferior quality water shall be sealed by pressure grouting, or with special packers or seals, to prevent such water from moving vertically in gravel-packed portions of the well. Gravel-packed wells shall meet the following sealing requirements:

(I) If a permanent surface casing is not installed, the annular opening between the casing and the drill hole shall be sealed in the top 10 feet with concrete or cement grout; or

(II) If a permanent surface casing is installed, it shall extend to a depth of at least 10 feet. The annular opening between this outer casing and the inner casing shall be covered with a metal or cement seal.

(D) When naturally flowing water is encountered in a well, unperforated casing shall extend into the confining layer overlying the water-bearing zone. This casing shall be adequately sealed with cement grout into the confining zone and shall extend at least 10 feet into the target aquifer to prevent both surface and subsurface leakage from the water-bearing zone. The method of construction shall be such that during the placing of the grout and the time required for it to set, no water shall flow through or around the annular space outside the casing, and no water pressure sufficient to disturb the grout prior to final set shall occur. Drilling operations shall not be continued into the water-bearing zone until the grout has set completely. If leakage occurs around the well casing or adjacent to the well, the well shall be recompleted with any seals, packers, or casing necessary to eliminate the leakage completely.

(I) Flowing wells shall be constructed to control the flow of water from the well. The well grouting shall be engineered to prevent the movement of water along the well casing and to prevent the migration of pressurized water into upper aquifers. A flow control device shall be installed into the wellhead to control the flow of water from the well. The well discharge or overflow line installations must connect to the well casing at least 12 inches above ground and be valved. The size of the air gap between the overflow line from the well to drainage structure shall be twice the diameter of the well overflow pipe. Overflow water must be drained and diverted to prevent ponding around the well casing.

(II) There shall be no direct connection between any discharge pipe and a sewer or other source of pollution.

(E) If mineralized water or water known to be polluted is encountered during the construction of a well, the aquifer or aquifers containing such inferior quality of water shall be adequately cased or sealed off to prevent water from entering the well and to prevent water from moving up or down the annular space.

(I) For wells that penetrate multiple aquifers, mineralized water shall be excluded from the well if water is taken from other, non-mineralized aquifers.

(II) Applicants that propose to use mineralized water as a public water supply shall demonstrate that any necessary treatment will comply with the drinking water quality standards required by 40 CFR Part 141.

(F) Existing oil or gas wells, private water wells, or exploration test holes that can be completed to conform to all minimum construction standards required by this

Chapter may be converted for use as a public water supply well. The permit application shall identify all actions to be completed to achieve compliance with this Chapter.

(viii) The minimum grout thickness for public water supply wells shall be determined in accordance with AWWA Standard A100, part 4.7.8.3.

(ix) Well seals shall meet the following requirements:

(A) The annular space shall be sealed to protect against contamination or pollution by the entrance of surface or shallow subsurface waters; and

(B) Annular seals shall be installed to provide protection for the casing against corrosion, to ensure the structural integrity of the casing, and to stabilize the upper formation.

(x) Upper terminal well designs that include a concrete floor shall demonstrate a slope of one inch per foot away from the casing.

(xi) Well pumps shall be located at a point above the top of the well screen.

(xii) An accessible check valve that is not located in the pump column shall be installed in the discharge line of each well between the pump and the shut-off valve. Additional check valves shall be located in the pump column as necessary to prevent negative pressures on the discharge piping.

(xiii) A pitless adaptor or well house shall be used where needed to protect the water system from freezing.

(xiv) A frost pit may be used only in conjunction with a properly protected pitless adaptor.

(xv) Wells with diameters that are greater than four inches shall be equipped with an air line for water level measurements or, in the case of a flowing artesian well, with a pressure gauge that will indicate pressure.

(xvi) An instantaneous and totalizing flow meter equipped with nonvolatile memory shall be installed on the discharge line of each well in accordance with the manufacturer's specifications. Meters installed on systems with variable frequency drives shall be capable of accurately reading the full range of flow rates.

(xvii) Test wells and groundwater sources that are sealed for plugging and abandonment in accordance with requirements of Water Quality Rules Chapter 26, Section 11 shall be sealed by filling with neat cement grout. The filling materials shall be applied to the well hole through a pipe, or tremie.

(xviii) Designs for groundwater sources that are subject to 40 CFR 141.402(a)(1)(i) and either 40 CFR 141.402(a)(1)(ii) or 40 CFR 141.402(a)(1)(iii) shall demonstrate compliance with 40 CFR 141.402(e).

(f) Facilities that include spring development shall meet the following requirements:

(i) Spring collection systems shall be constructed to collect spring water while preventing contamination of the source from the ground surface or other contaminant sources.

(ii) Seepage springs shall have a trench for the collection site that extends at least six inches into the impervious layer, but not entirely through the impervious layer. Concentrated springs shall be developed down to bedrock.

(iii) A bed of clean and disinfected rock that extends the width of the spring from which water is being collected shall be installed at the collection site.

(iv) The collection site shall:

(A) Be covered with 60 mil plastic sheeting or an equivalent puncture-proof and water-proof barrier; and

(B) Be protected from damage during back-fill and re-grading of the site to the original surface elevation with protective fabric or sand.

(v) Collecting walls shall be:

(A) Constructed immediately downstream of the collection site; and

(B) Made of concrete, or other material that meets the requirements of Section 15(b)(ii) of this Chapter;

(vi) The spring water collection pipe shall be installed in accordance with the USDA NRCS Part 631 National Engineering Handbook, Chapter 32, part 631.3201(b)(iii) for delivery pipes and shall meet the following requirements:

(A) The size of the collection pipe shall be sufficient to convey the flow of the spring; and

(B) Pipe material and appurtenances shall comply with allowable well construction material for water distribution in accordance with the standards listed in paragraph (c) of this Section.

(vii) Appropriate bedding and cover material shall protect the spring collection system from damage and freezing.

(viii) The Administrator shall determine the spring protection area, based on the information submitted in the engineering design report required by Section 8 of this Chapter, which shall be no less than the isolation distances in (e)(ii) of this Section. The Administrator may require additional setback distances if the engineering design report demonstrates the additional distance is required to prevent contamination of the source from the ground surface or other contaminant sources.

(ix) All potential sources of contamination shall be removed from the spring protection area.

(x) The spring collection site shall include fencing or other protective features that are constructed and secured to exclude large animals and unauthorized persons from entering the protection area.

(A) Fencing shall be designed to withstand animals and snow loading. Other protective systems may be proposed.

(B) Fencing shall include an entry point to allow access by authorized persons for inspection and maintenance activities.

(xi) The spring collection site shall include a diversion ditch that is constructed on the upstream side of the spring collection site to route surface water flows away from the collection area. The diversion ditch shall be located a minimum of 10 feet away from the collection wall.

(xii) The spring collection site shall be equipped to disinfect water prior to distribution and shall include sampling ports before and after the disinfection application point. The equipment shall be maintained and available to operate for its intended use.

(xiii) Spring box designs shall comply Section 15(a), (b), (f-j), and (l) of this Chapter. Combined spring box and finished water storage designs shall comply with Section 15 of this Chapter.

(xiv) All designs for the spring collector box and collecting walls shall be performed by a Wyoming registered professional engineer. The plans or contractor furnished information shall be signed and sealed by a Wyoming registered professional engineer.

Section 12. Treatment.

(a) 2018 TSS, parts 4.2.1(b), presedimentation, inlets; 4.2.1(c), presedimentation, bypass; 4.2.2, coagulation; 4.2.2(a), coagulation, mixing; 4.2.2(b), coagulation, equipment; 4.2.2(c), coagulation, location; 4.2.4(b), sedimentation, inlet devices: 4.2.4(c), sedimentation, velocity; 4.2.4(d)-4.2.4(d)(4), sedimentation, outlet devices; 4.3.1.1, rapid rate gravity filters, pretreatment; 4.3.1.4-4.3.1.4(o), rapid rate gravity filters, structural details and hydraulics; 4.3.1.6(a), filter material, total depth; 4.3.1.6(b), filter material, uniformity coefficient; 4.3.1.6(c), filter material, minimum; 4.3.1.6(d)(1)-4.3.1.6(d)(1)(f), filter material, types of filter media,

anthracite; 4.3.1.6(d)(2)-4.3.1.6(d)(2)(.d), filter material, types of filter media, sand filter; 4.3.1.6(d)(4)-4.3.1.6(d)(4)(.d), filter material, types of filter media, granular activated carbon (GAC); 4.3.1.6(e)(1)-4.3.1.6(e)(1)(.b), filter material, support media, topedo sand; 4.3.3.6-4.3.3.6(b), diatomaceous earth filtration, pre-coat; 4.3.3.7-4.3.3.7(c), diatomaceous earth filtration, body feed; 4.3.3.8-4.3.3.8(e), diatomaceous earth filtration, filtration; 4.3.3.10(a)(1), diatomaceous earth filtration, appurtenances, sampling taps; 4.3.3.10(a)(2), diatomaceous earth filtration, appurtenances, loss of head; 4.3.3.10(a)(3), diatomaceous earth filtration, appurtenances, rate of flow indicator; 4.3.3.10(a)(4), diatomaceous earth filtration, appurtenances, throttling valve; 4.3.4.2, slow sand filters, number; 4.3.4.4, slow sand filters, rates of filtration; 4.3.4.5, slow sand filters, underdrains; 4.3.4.6-4.3.4.6(e), slow sand filters, filter material; 4.3.4.7, slow sand filters, filter gravel; 4.3.4.8, slow sand filters, depth of water on filter beds; 4.3.4.9(b) and (e), slow sand filters, control appurtenances; 4.3.4.9(f), slow sand filters, control appurtenances; 4.4.1(a), disinfection, contact time, CT, and point(s) of application; 4.4.1(b), disinfection, contact time, CT, and point(s) of application; 4.4.3(a)-(d), disinfection, testing equipment; 4.4.4.3, chlorine, automatic switch-over; 4.4.4.7, chlorine, cross-connection protection; 4.4.4.8, chlorine, pipe material; 4.4.5, chloramines; 4.4.6.1, ozone, design considerations; 4.4.6.2, ozone, feed gas preparation; 4.4.6.3, ozone, ozone generator; 4.4.6.4, ozone, ozone contactors; 4.4.6.5, ozone, ozone destruction unit; 4.4.6.6, ozone, piping materials; 4.4.6.7, ozone, joints and connections; 4.4.6.8, ozone, instrumentation; 4.4.6.9, ozone, alarms; 4.4.6.11, ozone, construction considerations; 4.5.1, softening, lime or lime-soda process; 4.5.1.1, softening, lime or lime-soda process, hydraulics; 4.5.1.3, softening, lime or lime-soda process, chemical feed point; 4.5.1.4, softening, lime or lime-soda process, rapid mix; 4.5.1.5, softening, lime or lime-soda process, stabilization; 4.5.1.6-4.5.1.6(b), softening, lime or lime-soda process, sludge collection; 4.5.1.7, softening, lime or lime-soda process, sludge disposal; 4.5.1.8, softening, lime or lime-soda process, disinfection; 4.5.1.9, softening, lime or lime-soda process, plant start-up; 4.5.2.1, cation exchange process, pre-treatment requirements; 4.5.2.2, cation exchange process, design; 4.5.2.3, cation exchange process, design; 4.5.2.4, cation exchange process, depth of resin; 4.5.2.5, cation exchange process, flow rates; 4.5.2.7, cation exchange process, underdrains and supporting gravel; 4.5.2.8, cation exchange process, brine distribution; 4.5.2.9, cation exchange process, cross-connection control; 4.5.2.10, cation exchange process, bypass piping and equipment; 4.5.2.11, cation exchange process, additional limitations; 4.5.2.13(a)-4.5.2.13(f), cation exchange process, brine and salt storage tanks; 4.5.2.14, cation exchange process, salt and brine storage capacity; 4.5.2.15, cation exchange process, brine pump or eductor; 4.5.2.18, cation exchange process, construction materials; 4.5.2.19, cation exchange process, housing; 4.5.3, water quality test equipment; 4.6, anion exchange treatment; 4.6.1, anion exchange treatment, pre-treatment requirements; 4.6.2-4.6.2(b), anion exchange treatment, design; 4.6.3, anion exchange treatment, exchange capacity; 4.6.4, anion exchange treatment, number of units; 4.6.5, anion exchange treatment, type of resin; 4.6.6, anion exchange treatment, flow rates; 4.6.7, anion exchange treatment, free board; 4.6.8-4.6.8(b), anion exchange treatment, miscellaneous appurtenances; 4.6.9, anion exchange treatment, cross-connection control; 4.6.10, anion exchange treatment, construction materials; 4.6.11, anion exchange treatment, housing; 4.6.12, anion exchange treatment, pre-conditioning of the resin; 4.6.13, anion exchange treatment, waste disposal; 4.6.14, anion exchange treatment, water quality test equipment; 4.7, aeration; 4.7.1-4.7.1(i), aeration, natural draft aeration; 4.7.2-4.7.2(l), aeration, forced or induced draft aeration; 4.7.3-4.73.3(e), aeration, spray aeration; 4.7.4-4.7.4(b), aeration, pressure aeration; 4.7.5, aeration, packed tower aeration; 4.7.5.1-4.7.5.1(f), aeration, packed tower

aeration, process design; 4.7.5.2-4.7.5.2(b), aeration, packed tower aeration, materials of construction; 4.7.5.3-4.7.5.3(l), aeration, packed tower aeration, water flow system; 4.7.5.4-4.7.5.4(f), aeration, packed tower aeration, air flow system; 4.7.5.5-4.7.5.5(m), aeration, packed tower aeration, other features that shall be provided; 4.7.5.6-4.7.5.6(b), aeration, packed tower aeration, environmental factors; 4.7.6, aeration, other methods of aeration; 4.7.7, aeration, protection of aerators; 4.7.8, aeration, disinfection; 4.7.9, aeration, bypass; 4.7.10, aeration, corrosion control; 4.7.11, aeration, quality control; 4.8, iron and manganese control; 4.8.1, iron and manganese control, removal by oxidation, detention and filtration, oxidation; 4.8.1.2, iron and manganese control, removal by oxidation, detention and filtration, detention; 4.8.1.3, iron and manganese control, removal by oxidation, detention and filtration, filtration; 4.8.2, iron and manganese control, removal by the lime-soda softening process; 4.8.3-4.8.3(f), iron and manganese control, removal by manganese coated media filtration; 4.8.4, iron and manganese control, removal by ion exchange; 4.8.6-4.8.6(d), iron and manganese control, sequestration by polyphosphates; 4.8.7-4.8.7(e), iron and manganese control, sequestration by sodium silicates; 4.8.8, iron and manganese control, sampling taps; 4.9.3-4.9.3(e), stabilization and corrosion control, carbon dioxide addition; 4.9.5(c)-4.9.5(c)(9), stabilization and corrosion control, phosphates, design; 4.9.6, stabilization and corrosion control, pH/alkalinity adjustment; 4.9.6.1, stabilization and corrosion control, pH/alkalinity adjustment; 4.9.6.1(a), stabilization and corrosion control, pH/alkalinity adjustment, chemicals; 4.9.6.1(a)(1.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, caustic soda; 4.9.6.1(a)(2.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, soda ash; 4.9.6.1(a)(3.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, lime; 4.9.6.1(a)(4.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, sodium bicarbonate; 4.9.6.1(b)-4.9.6.1(b)(4.), stabilization and corrosion control, pH/alkalinity adjustment, simultaneous compliance; 4.9.6.1(c)-4.9.6.1(c)(4.), stabilization and corrosion control, pH/alkalinity adjustment, alkalinity/pH adjustment systems; 4.10, taste and odor control; 4.10.1, taste and odor control, flexibility; 4.10.2, taste and odor control, cholorination; 4.10.3, taste and odor control, chlorine dioxide; 4.10.4-4.10.4(f), taste and odor control, powdered activated carbon; 4.10.8, taste and odor control, potassium permanganate; 4.11, membrane technologies for public water supplies; 4.11.1-4.11.1(c), membrane technologies for public water supplies, pilot study/preliminary investigations; 4.11.2, membrane technologies for public water supplies, general design considerations; 4.11.2(a), membrane technologies for public water supplies, general design considerations, pretreatment; 4.11.2(b), membrane technologies for public water supplies, general design considerations, materials; 4.11.2(c), membrane technologies for public water supplies, general design considerations, useful life of membranes; 4.11.2(d), membrane technologies for public water supplies, general design considerations, membrane integrity and finished water monitoring; 4.11.2(e), membrane technologies for public water supplies, general design considerations, bypass water; 4.11.2(f)-4.11.2(f)(6.), membrane technologies for public water supplies, general design considerations, membrane cleaning; 4.11.2(g), membrane technologies for public water supplies, general design considerations, controls; 4.11.2(h)-4.11.2(h)(13.), membrane technologies for public water supplies, general design considerations, alarms; 4.11.2(i), membrane technologies for public water supplies, general design considerations, compressed air; 4.11.2(j), membrane technologies for public water supplies, general design considerations, operation frequency; 4.11.2(k), membrane technologies for public water supplies, general design considerations, cross connection control; 4.11.2(l)-4.11.2(l)(4.), membrane technologies for public water supplies, general design considerations, redundancy of

critical components; 4.11.3-4.11.3(h), membrane technologies for public water supplies, systems treating surface water or GWUDI; 5.4.7-5.4.7(f), specific chemicals, fluoride; 5.4.8, specific chemicals, activated carbon; 9.3, precipitative softening sludge; 9.3(a)-9.3(a)(2.), precipitative softening sludge, lagoons; 9.4.1-9.4.1(h), alum sludge, lagoons; 9.5, red water waste; 9.5.1-9.5.1(k), red water waste, sand filters; 9.5.2-9.5.2(g), red water waste, lagoons; 9.5.3, red water waste, discharge to community sanitary sewer; are herein incorporated by reference.

(b) The capacity of the water treatment or water production system shall be designed for the maximum daily demand at the design year.

(c) Presedimentation shall be required for raw waters that have episodes of turbidity in excess of 1,000 Nephelometric turbidity units (NTU) for a period of one week or longer.

(d) Basins shall meet the following requirements:

(i) Basins without mechanical sludge collection equipment shall have a minimum detention time of three days;

(ii) Basins with mechanical sludge collection equipment shall have a minimum detention time of three hours;

(iii) Basins shall have a bottom slope to drain of ¼ inch per foot without mechanical sludge collection equipment and two inches per foot with mechanical sludge collection equipment; and

(iv) Basins shall have a minimum of one, eight-inch drain line to completely dewater the facility.

(e) Rapid dispersal of chemicals throughout the water shall be accomplished by mechanical mixers, jet mixers, static mixers, or hydraulic jump and shall meet the following requirements:

(i) For mechanical mixers, the minimum Gt (velocity gradient (sec-1) x t (sec)) provided at maximum daily flow shall be 27,000;

(ii) The detention time in a flash mixing chamber shall not exceed 30 seconds at maximum daily flow conditions; and

(iii) The basin shall have a drain.

(f) Flocculation shall comply with the following requirements:

(i) Mechanical flocculators shall be used for low-velocity agitation of chemically treated water.

(ii) The minimum detention time of 10 minutes shall be provided.

(iii) Basins shall have a minimum of one drain line to dewater the facility.

(iv) The velocity gradient (G value) shall be adjustable through the use of variable speed drives. The velocity gradient for single basin systems shall be 30 sec-1, 20 sec-1 in the final basin of a two-stage system, and 10 sec-1 in the final basin of a three-stage system.

(v) The tip speed for a single-speed drive system shall not exceed 3 feet per second (ft/sec). Variable speed drives shall provide tip speeds between 0.5 and 3.0 ft/sec.

(vi) The velocity of flocculated water through pipes or conduits to settling basins shall not be less than 0.5 ft/sec or greater than 1.5 ft/sec.

(g) Sedimentation basins shall comply with the following requirements:

(i) The maximum diameter in circular basins shall be 80 feet.

(ii) The minimum basin side water depth shall be eight feet if mechanical sludge collection equipment is provided or basin sludge hopper segments are less than 100 square feet in surface area and 15 feet if basins are manually cleaned.

(iii) The outer walls of the settling basin shall extend at least 12 inches above the surrounding ground and provide at least 12 inches of freeboard to the water surface. Where the basin walls are less than four feet above the surrounding ground, a fence or other debris barrier shall be provided on the wall.

(iv) Basin bottoms shall slope toward the drain at not less than one inch per foot where mechanical sludge collection equipment is provided and ¼ inch per foot where no mechanical sludge collection equipment is provided.

(v) The basin overflow rate shall not exceed 1,000 gpd/ft^2 at design conditions.

(vi) Mechanical sludge collection shall be provided if settleable organics are present in the water or the source water exceeds secondary maximum contaminant levels identified at 40 CFR 143.3.

(vii) Pipes for removing sludge shall not be less than six inches in diameter and arranged to facilitate cleaning. Valves on sludge lines shall be located outside the tank.

(h) Facilities with softening sedimentation or clarification for softened groundwater sources shall meet the following requirements:

(i) The basin overflow rate shall not exceed 21,000 gpd/ft^2 at the design flow; and

(ii) Mechanical sludge removal shall be provided and shall be designed to handle a load of 40 lbs/ft of collector scraper arm length.

(i) Solids contact units are acceptable for combined softening and clarification of well water where water quality characteristics are not variable and flow rates are uniform and consistent. Solids contact units shall meet the requirements of paragraphs (c) and (e) of this Section and may be considered under the following circumstances:

(i) Solids contact units may be considered for use as clarifiers without softening when they are designed as conventional sedimentation units; and

(ii) Solids contact units may be used for other treatment processes such as rapid mixing or flocculation when the individual components of the units are designed for that specific treatment process.

(j) Tube clarifiers that are horizontal or steeply inclined may be used when designed as follows:

(i) The maximum flow rate shall be less than 2.0 gpm/ft^2 based on the surface area of the basin covered by the tubes;

(ii) The top of the tubes shall be more than 12 inches from the underside of the launder and more than 18 inches from the water surface and the spacing of the effluent launder shall not be more than three times the distance from the water surface to the top of the tube modules;

(iii) Sludge shall be removed using 45-degree or steeper hoppered bottoms, mechanical devices that move the sludge to hoppers, or devices that remove settled sludge from the basin floor using differential hydraulic level; and

(iv) A method of tube cleaning shall be provided that may include provisions for a rapid reduction in clarifier water surface elevation, a water jet spray system, or an air scour system. If cleaning is automatic, controls shall cease clarifier operation during tube cleaning and a 20-minute rest period.

(k) Filtration systems shall comply with the following requirements:

(i) Vertical or horizontal pressure filters shall not be used on surface waters. Pressure filters may be used for groundwater filtration, including iron and manganese removal;

(A) Slow rate sand filters may be used when maximum turbidity is less than 50 NTU and the turbidity present is not caused by colloidal clay; and

(B) Maximum color shall not exceed 30 units.

(ii) Washwater troughs shall comply with the following requirements:

(A) Washwater troughs shall not cover more than 25 percent of the filter area;

(B) The minimum distance between the bottom of the trough and the top of the unexpanded media shall be 12 inches;

(C) The minimum distance between the weir of the trough and the unexpanded media shall be 30 inches;

(D) There shall be no more than six feet clear distance between troughs;

(E) The trough and wastewater line shall be sized for a filter backwash rate of 20 gpm/ft^2 plus a surface wash rate of 2 gpm/ft^2;

(F) The backwash system shall be sized to provide a minimum backwash flowrate of 20 gpm/ft^2 or a rate necessary to provide a 50 percent expansion of the filter bed;

(G) The system and wash water storage shall be designed to provide two, 20-minute washes in rapid succession and shall meet the following requirements:

(I) If only one filter is provided, the backwash system needs to provide only one 20-minute backwash; and

(II) If pumps are used to convey water to the filter(s) or to the wash water tank, two equivalent pumps shall be provided.

(H) Washwater shall be filtered and disinfected;

(I) The washwater rate shall be controlled on the main wash water line and the flowrates shall be metered and indicated;

(J) Air-assisted backwash systems may be used when the design precludes disturbing the gravel support and the minimum flowrate for air-assisted backwash shall be 12 gpm/ft^2;

(K) A surface wash system shall be provided and shall meet the following requirements:

(I) The system shall be capable of supplying 0.5 gpm/ft^2 for a system with rotating arms and 2 gpm/ft^2 for fixed nozzles, at a minimum pressure of 50 psi; and

(II) The surface wash can be air-assisted.

(L) Both backwash and surface wash supply systems shall be provided with adequate backflow prevention;

(iii) Single media beds shall use either clean crushed anthracite or a sand and anthracite mixture, the media shall have an effective size of 0.45 – 0.55 mm and a uniformity coefficient not greater than 1.65, and shall meet the following requirements:

(A) When gravel is used as supporting media, it shall consist of coarse aggregate in which most of it is round and of similar size and shape;

(B) Gravel as supporting media shall have sufficient strength and hardness to resist degradation during handling and use, be free of harmful materials and exceed the minimum density requirements; and

(C) The gravel shall also comply with AWWA B100 specifications.

(iv) Dual media coal sand filters shall consist of a coarse layer of coal not less than 15 inches deep above a layer of fine sand not less than eight inches deep on a torpedo sand or garnet layer of support not less than three inches on gravel support.

(v) Filter bottoms and strainer systems shall be limited to pipe, perforated pipe laterals, tile block, and perforated tile block. Perforated plate bottoms or plastic nozzles shall not be used.

(vi) Every filter shall have:

(A) Influent and effluent taps;

(B) A head loss gauge;

(C) An indicating effluent turbidimeter;

(D) A waste drain for draining the filter component to waste;

(E) A filter rate flow meter;

(F) Polymer feed facilities including polymer mixing, storage tank and at least one feed pump for each filter compartment; and

(G) Recorders on the turbidimeters if the facility has a capacity in excess of 0.5 MGD.

(vii) Filter rate control shall be such that the filter is not surged. The filter rate of flow shall not change more than 0.3gpm/ft^2 per minute. A filter that stops and restarts during a cycle shall have a filter-to-waste system installed. Declining flow rate filters shall not be used

unless the flow rate for each filter is controlled to a rate less than allowed in paragraph (j)(iii) of this Section and there are four more individual filters.

(viii) A filter to waste cycle shall be provided after the filter backwash operation. The filter to waste cycle shall be at least 10 minutes.

(ix) Multi-media filter beds shall contain a depth of fine media made up of anthracite (specific gravity 1.5), silica sand (specific gravity 2.6), and garnet sand or ilemite (specific gravity 4.2-4.5). The bed depths and distribution shall be determined by the water quality and shall meet the following requirements:

(A) There shall not be less than 10 inches of fine sand and 24 inches of anthracite;

(B) The relative size of the media shall be such that the hydraulic grading of the material during backwash will result in a pore space that progressively goes from coarse to fine in the direction of flow;

(C) The multi-media shall be supported on two layers of special high-density gravel placed above the conventional silica gravel supporting bed;

(D) The special gravel shall have a specific gravity not less than 4.2;

(E) The bottom layer shall consist of particles passing U.S. Standard 5 mesh sieves and retained in U.S. Standard 12 mesh sieves and shall be 1 ½ inches thick; and

(F) The top layer shall consist of particles passing U.S. Standard 12 mesh sieves and retained in U.S. Standard 20 mesh sieves and shall be 1 ½ inches thick.

(x) Diatomaceous earth filtration shall comply with the following requirements:

(A) Diatomaceous earth filters may be used under the following circumstances:

(I) To remove turbidity from surface waters where turbidities entering the filters do not exceed 10 NTU and where total raw water coliforms do not exceed 100 organisms/100 mL;

(II) Where the raw water quality exceeds the previously mentioned limits when flocculation and sedimentation are used preceding the filters; and

(III) To remove iron from groundwaters.

(B) The proposed diatomaceous earth filtration shall include pressure or vacuum type units; and

(C) A precoating system shall be provided.

(D) The proposed diatomaceous earth filtration shall include a continuous monitoring turbidimeter with recorder on each filter effluent for plants treating surface water.

(l) All designs that propose supplies of surface water, groundwater under the direct influence of surface water, and groundwater that does not meet 40 CFR Part 141 or where other treatment is provided, shall include disinfection via one of the following methods:

(i) Chlorine;

(ii) Chloramines, recommended only for secondary disinfection;

(iii) Chlorine dioxide;

(iv) Ozone;

(v) Ultraviolet light; or

(vi) Other disinfecting agencts that demonstrate reliable application equipment is available and that include testing procedures for a residual that is recognized in Standard Methods for the Examination of Water and Wastewater 2018.

(m) All designs that require disinfection shall demonstrate that:

(i) The system will maintain a detectable residual throughout the distribution system; and

(ii) The applicant has considered the formation of disinfection byproducts when selecting the disinfection.

(n) Disinfection equipment shall comply with the following requirements:

(i) Chlorination equipment shall comply with NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021 and the following requirements:

(A) Positive displacement pumps shall be provided for solution feed gas chlorinators or hypochlorite feeders;

(B) The chlorine solution injector/diffuser shall provide a rapid and thorough mix with all the water being treated;

(C) If the application point is to a pipeline discharging to a clearwell, the chlorine shall be added to the center of the pipe at least 10 pipe diameters upstream of the discharge into the clearwell;

(D) Gas chlorinators shall comply with the following requirements:

(I) The injector/eductor shall be selected based on solution pressure, injector water flowrate, feed point backpressure, and chlorine solution line length and size;

(II) The maximum feed point backpressure shall not exceed 110 psi unless a chlorine solution pump is used; and

(III) Gauges shall be provided for chlorine solution pressure, feed water pressure, and chlorine gas pressure or vacuum.

(E) Standby equipment of sufficient capacity shall be available to replace the largest chlorinator unit. Well systems providing no treatment other than disinfection are exempt from the requirements of this paragraph (E) and are not required to provide standby chlorination equipment.

(ii) Points of application and contact time shall comply with the following requirements:

(A) Filtration types shall comply with the contact time and minimum chlorine residuals required in Table 3 of this Section after the appropriate baffling factor has been applied to the reactor. Contact times assume a baffling factor of 0.1 unless documentation justifying the use of a higher baffling factor is provided. Contact time requirements are based on worst-case operating conditions of water temperature of 32.9 degrees Fahrenheit and pH of 9.

Table 3. Required Contact Time and Residual by Filtration Type

Filtration Type	**Required Contact Time (minutes), 0.4 mg/L minimum chlorine residual**	**Required Contact Time (minutes), 1.0 mg/L minimum chlorine residual**
Conventional Filtration	162.5	73
Direct Filtration, Bag or Cartridge Filtration, Slow Sand Filtration, Diatomaceous Earth Filtration	325	146
Membrane Filtration (MF or UF)	30	12

(B) When chlorine is applied to a groundwater source to maintain a residual, no contact time is required.

(o) Systems that propose disinfection via ultraviolet light shall comply with the following requirements:

(i) Proposed designs for ultraviolet light shall include the following information in the ultraviolet reactor influent water quality analysis:

(A) Influent temperature (degrees Fahrenheit);

(B) UV transmittance (UVT) at a reported wavelength of 254 nm and a pathlength of 1 cm;

(C) A description of the UVT range over a 12-month period;

(D) Total hardness (mg/L as $CaCO_3$);

(E) pH;

(F) Alkalinity (mg/L as $CaCO_3$);

(G) Total iron (mg/L) influent < 0.3mg/L;

(H) Calcium (mg/L); and

(I) Total manganese (mg/L) influent <0.03 mg/L

(ii) Proposed designs for ultraviolet disinfection systems shall include the following information:

(A) The maximum, average, and minimum flowrates;

(B) A matrix that idenfies paired flow and ultraviolet treatment values;

(C) A description of the organisms targeted for inactivation;

(D) Log inactivation requirements;

(E) Operating approach (UV intensity vs. calculated dose);

(F) Maximum and minimum operating pressures;

(G) Maximum pressure at the UV reactor;

(H) UV system redundancy;

(I) Lamp cleaning strategy;

(J) Mercury trap for broken UV lamps;

(K) Maximum headloss through the UV reactor;

(L) A demonstration that the UV reactor(s) shall be hydrostatically tested to 1.5 times the rated operating pressure;

(M) A demonstration that the UV reactor(s) shall be designed to ensure that plant personnel can change lamps and the UV intensity meter without draining the reactor; and

(N) A demonstration that the units shall meet NSF/ANSI/CAN Standard 61.

(iii) Ultraviolet treatment systems shall be designed to comply with the Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR and the following dose requirements:

(A) The UV disinfection system shall deliver a validated dose that meets or exceeds the required dose at the end of lamp life, with fouled sleeves.

(B) The minimum required validated dose used for system design shall incorporate a Combined Age and Fouling Factor (CAF), calculated as:

CAF = EOLL x FF.

EOLL is the ratio of the lamp output at the end of life relative to the new lamp output

FF is the fouling factor.

(C) The EOLL shall be 75 percent of the new lamp output.

(D) The FF shall be:

(I) 0.5 for UV systems with no sleeve wiping system;

(II) 0.75 for UV systems with mechanical wiping only; or

(III) 0.95 for UV systems with a combined online chemical and mechanical cleaning.

(E) The validated dose that meets or exceeds the required dose shall be delivered under maximum flow and design (UVT) condition, when the larger UV unit is out of service.

(iv) Ultraviolet disinfection shall comply with the following validation requirements:

(A) The applicant shall submit the manufacturer's bioassay validation report for the proposed UV reactor with the permit application;

(B) The bioassay testing and results shall demonstrate validation by an independent third party in full compliance with the Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR;

(C) The owner and engineer shall submit a certification to the Administrator if validation requirements are adjusted and identify each of the equipment and system modifications required to ensure that the appropriate dosage is provided for the inactivation requirements;

(D) Bioassay testing shall evaluate reactor performance over the range of:

(I) Flowrates (maximum, average, and minimum);

(II) UVT from 70 percent to 98 percent (measured at 254 nm, 1 cm path length); and

(III) RED at maximum flowrate and design UVT conditions.

(E) The bioassay testing shall incorporate the range of design and operating conditions described in paragraph (o)(i) of this Section for UV Light;

(F) Extrapolations to flowrates, UV transmittance values, or UV doses outside the range actually tested, are not permitted; and

(G) Bioassay testing shall also verify that the head loss generated by the proposed reactor is less than or equal to the specified limits.

(v) Ultraviolet disinfection hydraulics shall comply with the following requirements:

(A) The inlet and outlet piping configuration to the UV reactor shall result in a UV dose delivery that is equal to or greater than the dose delivered when the UV reactor was validated;

(B) If the UV reactor validation is performed off-site, the applicant shall refer to the validation report to determine the validated inlet and outlet conditions that apply to the site-specific requirements; and

(C) Ultraviolet hydraulic piping shall comply with at least one of the following requirements:

(I) The piping configuration shall consist of a minimum of 10 pipe diameters of straight pipe upstream and five pipe diameters of straight pipe downstream of the UV reactors, with additional pipe diameters above the minimum if required by the manufacturer's guidelines for electromagnetic or other flowmeter installation;

(II) The inlet and outlet piping configurations shall be identical to those constructed for the UV reactor validation; or

(III) If on-site validation or custom off-site validation is planned, the inlet and outlet piping hydraulics must be designed according to the manufacturer's recommendations and to accommodate any site-specific constraints.

(vi) Ultraviolet control and measurement instrumentation for each reactor shall comply with the following requirements:

(A) Each reactor shall be capable of measuring UV intensity and lamp status (on/off);

(B) For systems that use the calculated dose monitoring strategy, each reactor shall be capable of measuring or calculating the UV transmittance;

(C) Piping for each UV reactor shall be sized and configured in accordance with the validated operating conditions and maintain equal head loss through each reactor over the range of validated flowrates. Each UV reactor shall not be by-passed;

(D) Each UV reactor train shall have a dedicated flow meter to confirm the validated operating conditions;

(E) UV lamps in the UV reactor shall be submerged at all times during operation;

(F) The specific configuration of the UV reactor(s) within a facility will dictate the use of air release, air/vacuum, or combination air valves to prevent air pockets and negative pressure conditions and the design shall verify that the UV manufacturer was consulted to determine any equipment-specific air release and pressure control valve requirements;

(G) Each UV reactor shall have the piping configured so that it can be isolated and removed from service while the other UV reactor(s) remain in service; and

(H) A booster pump shall be used if the head loss constraints indicate that a pump is necessary. The UV reactor shall be sized accordingly.

(vii) The applicant shall describe the dose monitoring strategy and the operational approach for the UV reactor that complies with the approaches described in Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR, part 3.5.2.

(viii) The cleaning system for each UV reactor shall comply with the following requirements:

(A) Each UV reactor shall be equipped with an automatic online mechanical lamp sleeve cleaning system and may include optional chemical cleaning;

(B) The UV sensor shall include mechanical cleaning capabilities with an automatically initiated and controlled cleaning cycle; and

(C) The UV reactor(s) shall be fully operational and shall provide validated dose requirements during system cleaning.

(ix) The minimum spare parts kept at a facility shall include the following:

(A) 20 percent of the UV Lamps;

(B) Five percent of the lamp sleeves; and

(C) One UV intensity sensor.

(p) Facilities that propose disinfection via fluoridation and defluoridation shall comply with the following requirements:

(i) Fluoride storage designs shall demonstrate that:

(A) Fluoride storage tanks shall be covered;

(B) All other storage shall be inside a building; and

(C) Storage tanks of hydrofluorosilicic acid shall be vented to the atmosphere at a point outside the building.

(ii) Fluoride feed equipment shall meet the following requirements:

(A) There shall be scales or weight loss recorders for dry chemical feeds and the feeders shall be accurate to within five percent of any desired feed rate;

(B) The application of hydrofluorosilicic acid, if into a horizontal pipe, shall be in the lower half of the pipe;

(C) Fluoride compounds shall not be added before lime soda or ion exchange softening;

(D) A fluoride solution shall be applied by a positive displacement pump;

(E) The solution shall not be injected into a point of negative pressure;

(F) All fluoride feed lines and dilution water lines shall be isolated from the potable water supplies by either an air gap above the solution tank or a reduced pressure principal backflow preventer;

(G) Water used for sodium fluoride solution shall have a hardness not exceeding 45 mg/L; and

(H) Flow meters for treated water flow and fluoride solution water shall be provided.

(iii) Provisions shall be made to allow the transfer of dry fluoride compounds from shipping containers to storage bins or hoppers that minimize the quantity of fluoride dust that enters the room where the equipment is installed and shall meet the following requirements:

(A) The transfer system shall be equipped with an exhaust fan and dust filter that places the hopper or storage bin under negative pressure;

(B) Air exhausted from fluoride handling equipment shall discharge through a dust filter to the atmosphere outside the building and shall not discharge within 50 feet of a fresh air intake for the building; and

(C) A floor drain shall be provided for cleaning equipment and maintenance.

(iv) The following methods are acceptable for fluoride removal:

(A) Activated alumina may be used in open gravity filters or pressure filter tanks;

(B) The minimum media depth shall be five feet;

(C) The loading rate shall not exceed 4 gpm/ft^2;

(D) The mesh size for the alumina media shall be between #28 and #48;

(E) Media regeneration facilities shall be provided and shall include both weak caustic and weak acid systems; and

(F) Bone char filtration or lime softening with magnesium addition may be used.

(v) Water that is unstable due either to natural causes or to subsequent treatment shall be stabilized.

(vi) Facilities shall have the capability of feeding both acid and alkalinity.

(vii) Unstable water created by ion exchange softening shall be stabilized by an alkali feed.

(viii) Laboratory equipment shall be provided to determine the effectiveness of stabilization treatment. This shall include testing equipment for hardness, calcium, alkalinity, pH, and magnesium at a minimum.

(q) Taste and odor control equipment shall comply with the following requirements:

(i) Open or closed, granular activated carbon adsorption units may be used to absorb organics for taste and odor control, subject to the following requirements:

(A) The loading rate shall not exceed 10 gpm/ft^2;

(B) The minimum empty bed contact time shall be 20 minutes;

(C) The pH of the water shall be less than 9.0 with a turbidity of less than 2 NTU when using packed beds;

(D) There shall be provisions for moving the carbon to and from the contactors;

(E) Contactors may be upflow or downflow design. A single unit is acceptable for countercurrent upflow designs. Downflow designs shall have two or more parallel units;

(F) Contactors shall be designed as open gravity or pressure bed;

(G) Pressure contactors shall have an air-vacuum relief valve fitted with a stainless-steel screen to prevent plugging;

(H) The contactor materials of construction shall be concrete, steel, or fiberglass-reinforced plastic and shall meet the following requirements:

(I) Steel vessels shall be protected against corrosion; and

(II) Inlet and outlet screens shall be made of stainless steel or other suitable materials.

(I) There shall be provisions for flow reversal and bed expansion that meet the following requirements:

(I) Backwashing facilities shall provide up to 50 percent bed expansion; and

(II) Backwashing facilities shall meet the backwash criteria as rapid filters.

(ii) If ozone is used for taste and odor control, there shall be at least 10 minutes of contact time to complete all reactions and the minimum applied feed rate of ozone shall be 1 mg/L, or the design shall identify a contact time and feed rate that demonstrate the application of ozone will not cause an exceedance of the maximum contaminant levels identified at 40 CFR 143.3.

(r) Designs that include the addition of phosphates for stabilization and corrosion control shall demonstrate the evaluation of reactions with aluminum and impacts on wastewater treatment plants to overcome the secondary impacts of phosphates that may potentially limit their use.

(s) Designs that propose anion-exchange treatment shall include a pH/alkalinity feed system unless other wise approved by the Administrator.

(t) Microscreens shall comply with the following requirements:

(i) A microscreen shall be allowed as a supplement to treatment, but it shall not be used in place of filtration or coagulation;

(ii) The screen shall be capable of removing suspended matter from the water by straining;

(iii) Screens shall be made of corrosion-resistant material;

(iv) Bypass piping around the unit shall be provided;

(v) There shall be protection against back siphonage when potable water is used for washing the screen; and

(vi) Wash water shall be wasted and not recycled to the microscreen.

(u) Membrane technologies shall comply with the following requirements:

(i) Proposed membrane treatment processes shall comply with the requirements of Section 6 of this Chapter. Protocols for pilot plant testing shall incorporate guidance or procedures from the US EPA Membrane Filtration Guidance Manual, Chapter 6.

(ii) All proposed membrane filters shall demonstrate third-party validation for the removal of Giardia or Cryptosporidium. Removal efficiency shall be determined through challenge testing as outlined in the US EPA Membrane Filtration Guidance Manual and one of the following:

(A) Membranes that are used as final compliance filters of a multiple treatment barrier approach shall meet the requirements of 40 CFR Part 141; or

(B) All surface water or groundwater under direct influence (GWUDI) systems using membrane technology shall demonstrate minimum disinfection that meets 4.0-log virus inactivation.

(v) Facilities that propose bag and cartridge filters shall comply with the procedures identified in Section 6 of this Chapter and the following requirements:

(i) Filter performance will be based on Cryptosporidium oocyst removal;

(ii) The filter shall demonstrate at least a 3-log removal of particle size 1 micron and above with an associated log reduction credit of 2-logs for Giardia and Cryptosporidium;

(iii) Removal efficiency shall be determined through challenge testing as outlined in Toolbox Guidance Manual, Chapter 8 and NSF/ANSI 419-2018;

(iv) The performance demonstration shall be specific to the corresponding housing and type or model of filter. Any other combination of housing and filter that could be used for treatment shall also demonstrate filter efficiency;

(v) Applicants shall include documentation that the proposed bag or cartridge filter has received third-party validation for the removal of Giardia and Cryptosporidium;

(vi) Filter and housing specifications shall include a description of the materials of construction, surface area per filter, and the minimum and maximum operating pressure, and the specifications shall meet the requirements of NSF/ANSI 419-2018 and the Toolbox Guidance Manual, Chapter 8;

(vii) System components such as housing, bags, cartridges, gaskets, and O-rings shall comply with NSF/ANSI/CAN 61 for leaching of contaminants;

(viii) A means for monitoring the performance of the filter shall be provided and shall include at a minimum flow meters and valves, pressure gauges, and sample taps;

(ix) The proposed design shall specify chemical compatibility limitations;

(x) A minimum of two filter housings shall be provided;

(xi) Bag or cartridge filters that are used as final compliance filters of a multiple treatment barrier approach shall meet the requirements of 40 CFR Part 141; and

(xii) All surface water or GWUDI systems using bag or cartridge filter technology shall provide at minimum disinfection that meets 4.0-log virus inactivation and 1.0-log Giardia inactivation or shall demonstrate that combined filtration and disinfection will provide 3-log removal.

(w) Pre-engineered water treatment plants shall comply with the following requirements:

(i) Pre-engineered water treatment plants shall be permitted on a case-by-case basis for specific process applications and flow rates. Multiple units may be installed in parallel to accommodate flow rates;

(ii) Pre-engineered water treatment plant equipment shall be designed in accordance with NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372;

(iv) Pre-engineered water treatment plants shall comply with the procedures in Section 6 of this Chapter to obtain data that demonstrates the treatment effectiveness of the treatment for the source water and the proposed application; and

(v) Each component and process of the pre-engineered water treatment plant shall demonstrate compliance with the applicable design criteria of the respective treatment processes of this Chapter.

(x) Wastes shall be handled and disposed of as follows:

(i) The sanitary and laboratory waste from water treatment plants, pumping stations, or well systems, shall not be recycled to any part of the water plant, and shall be discharged directly into a sanitary sewer when feasible or a permitted on-site disposal system;

(ii) Brine waste from ion exchange plants, demineralization plants, and other similar facilities may not be recycled to the water plant and shall meet the following requirements:

(A) Where discharging to a sanitary sewer, a holding tank shall be provided to prevent the overloading of the sewer and interference with the waste treatment process; and

(B) Where disposal to an off-site waste treatment system is proposed, the sewer and treatment facility shall have the required capacity and dilution capability.

(iii) Acceptable methods of treatment and disposal of lime softening sludge are:

(A) Sludge lagoons, provided that the design of sludge lagoons includes:

(I) The location of the lagoon shall be protected from the 100-year flood;

(II) A means of diverting surface water runoff so that it does not flow into the lagoon;

(III) The freeboard shall be a minimum of three feet;

(IV) An adjustable decanting device for recycling the overflow; and

(V) An accessible effluent sampling point.

(B) Land application of liquid lime softening sludge that demonstrates compliance with Water Quality Rules Chapter 11, Part E;

(C) Disposal at a landfill;

(D) Mechanical dewatering of sludge may be used;

(E) Recalcination of sludge may be used; and

(F) Lime sludge drying beds shall not be allowed.

(iv) Acceptable methods of treatment and disposal of alum sludge are as follows:

(A) Lagoons may be used as storage and interim disposal. Lagoons used for storage shall have a volume of at least 100,000 gallons for every 1,000,000 gpd of facility water treating capacity.

(B) Alum sludge may be discharged to the sanitary sewer only when the system is capable of handling the waste and with the approval of the owner of the sewer system.

(C) Mechanical dewatering may be used.

(D) Alum sludge drying beds may be used.

(E) Alum sludge may be acid-treated and recovered.

(F) Disposal at a landfill.

(v) Designs that propose disposal of waste filter wash water from iron and manganese removal plants that include sand filters shall demonstrate the inclusion of a separate structure, unless otherwise approved by the Administrator.

Section 13. Chemical Application.

(a) 2018 TSS, parts 5.0.2(f), chemical application, general, chemical application; 5.0.3-5.0.3(h), chemical application, general, general equipment design; 5.1.2-5.1.2(e)(4.), chemical application, feed equipment, control; 5.1.3-5.1.3(c), chemical application, feed equipment, dry chemical feeders; 5.1.4-5.1.4(d), chemical application, feed equipment, positive displacement solution feed pumps; 5.1.5-5.1.5(d), chemical application, feed equipment, liquid chemical feeders-siphon control; 5.1.6-5.1.6(d), chemical application, feed equipment, cross-connection control; 5.1.8-5.1.8(e), chemical application, feed equipment, in-plant water supply; 5.1.9(a)(1-3), (b), and (d), chemical application, feed equipment, storage of chemicals; 5.1.10-5.1.10(j), chemical application, feed equipment, bulk liquid storage tanks; 5.1.11-5.1.11(h), chemical application, feed equipment, day tanks; 5.1.12-5.1.12(e), chemical application, feed equipment, feed lines; 5.1.13-5.1.3(d); chemical application, feed equipment, handling; 5.1.14-5.1.14(b), chemical application, feed equipment, housing; 5.3.2, operator safety, respiratory protection equipment; 5.3.3, operator safety, chlorine gas leak detection; 5.4.1(d)(1-5) and (7-10), (f), and (h), specific chemicals, chlorine gas; 5.4.1(f) and (h), 5.4.2-5.4.2(b), specific chemicals, acids and caustics; 5.4.3-5.4.3(c)(5.), specific chemicals, sodium chlorite; 5.4.4-5.4.4(b)(5.), specific chemicals, sodium hypochlorite; are herein incorporated by reference.

(b) Chemical application facility designs shall comply with the following requirements:

(i) A separate feeder shall be used for each chemical applied; and

(ii) Chemical storage tanks shall be constructed of materials that are resistant to the chemicals stored. Tanks shall maintain structural integrity while in use.

(c) Chemical application facilities shall include an alarm for high effluent turbidity, low chlorine residual, and chlorine leaks when chlorine gas is used. The alarm shall be located at an attended location.

Section 14. Pumping Facilities

(a) 2018 TSS, parts 6.1-6.1.1(e), location; 6.2, 6.2(b-e), pumping stations; 6.2.1-6.2.1(d), pumping stations, suction well; 6.2.2, 6.2.2(a-b), pumping stations, equipment servicing; 6.3.2, pumps, pump priming; 6.6.1, appurtenances, valves; 6.6.3-6.6.3(d), appurtenances, gauges and meters; 6.6.4-6.6.4(b), appurtenances, water seals; 6.6.5, appurtenances, controls; 6.6.6, appurtenances, standby power; are herein incorporated by reference.

(b) Stairways or ladders shall be provided between all floors and in pits or compartments that must be entered.

(c) Pumping facilities shall be heated to maintain a minimum temperature of 40 degrees Fahrenheit if typically unoccupied and 50 degrees Fahrenheit if normally occupied.

(d) Pumping station ventilation designs shall demonstrate that:

(i) All areas of the pumping station that are accessible shall be ventilated;

(ii) Ventilation may be continuous or intermittent;

(iii) Drywell ventilation shall provide:

(A) At least six air changes per hour if continuous; and

(B) At least 30 air changes per hour if intermittent with an automatic start upon operator entry into the area.

(iv) Wetwell ventilation shall provide 12 continuous air changes per hour or 60 intermittent air changes per hour and be designed to permit the use of portable blowers that will exhaust the space and supply fresh air during the access periods.

(e) Dehumidification equipment shall be provided in below-ground pumping stations. The equipment shall be sized to maintain a dewpoint at least two degrees Fahrenheit below the coldest anticipated temperature of the water to be conveyed in the pipes.

(f) All pumping stations that are manned four or more hours per day shall be provided with potable water, lavatory, and toilet facilities. The waste shall be discharged to the sanitary sewer or an on-site waste treatment system.

(g) Pump design shall comply with the following requirements:

(i) At least two pumps shall be provided. With the largest pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping capacity of the system.

(ii) Pumps shall be selected such that the net positive suction head required (NPSHR) is less than the net positive suction head available (NPSHA) minus four feet based on hydraulic conditions and the altitude of the pump installation. If this condition cannot be satisfied, a means of priming shall be provided.

(iii) A surge analysis shall be provided to demonstrate if surge protection devices will be needed to protect the piping. Pressure relief valves are not acceptable as surge control.

(iv) The calculated total dynamic head for pumping units shall be based on pipe friction, pressure losses from pipe entrances, exits, appurtenances (such as valves and bends), and static head at the design flow.

(v) The station shall have a flow rate indicator and totalizing meter, and a method of recording the total water pumped.

(h) Booster pumps shall comply with the following requirements:

(i) Booster pumps shall not produce less than 5 psi in suction lines. If the suction line has service connections, the pressure shall be at least 35 psi during normal operation and shall have a low-pressure cutoff switch to maintain at least 20 psi.

(ii) For booster pumps used for fire suppression, no person shall install or maintain a water service connection to any premises where a fire pump has been installed on the service line to or within such premises unless the pump is equipped with one of the following:

(A) A low suction throttling valve or pilot-operated valve installed in the discharge piping that maintains positive pressure in the suction piping while monitoring pressure in the suction piping through a sensing line. The valve shall throttle the discharge of the pump when necessary so that suction pressure will not be reduced below 20 psi gauge when the pump is operating; or

(B) A variable-speed suction limiting control that is used to maintain a minimum positive suction pressure at the pump inlet by reducing the pump driver speed while monitoring pressure in the suction piping through a sensing line. The limiting control shall be set so that the suction pressure will not be reduced below 20 psi gauge while the pump is operating.

(iii) Automatic or remote-controlled pumps shall have a range between the start and cutoff pressure that will prevent the pump from cycling more than one start every 15 minutes.

(iv) In-line booster pumps shall be accessible for maintenance. There shall be access openings, as needed, to allow the removal of the pump.

(v) Individual home booster pumps shall not be allowed for any individual service from the public water supply main.

(vi) Un-manned or remotely controlled pump stations shall have an alarm at an operator attended location for any conditions that may affect the continuous delivery of water.

(i) Pumping facility valves shall comply with the following requirements:

(i) Air release valves shall be provided where the pipe crown is dropped in elevation. The discharge pipe from the valve shall have a minimum of an 8-inch air gap and shall be covered with a #24 mesh non-corrodible screen.

(ii) Each pump shall either have an individual suction line or the suction lines shall be manifolded such that they demonstrate similar hydraulic and operating conditions.

Section 15. Finished Water Storage

(a) 2018 TSS, parts 7.0.1-7.0.1(c), sizing; 7.0.2-7.0.2(b), location of finished water storage structures; 7.0.3, protection from contamination; 7.0.4, security; 7.0.5, drains; 7.0.6, stored water age; 7.0.10-7.0.10(f), roof and sidewall; 7.0.17-7.0.17(c), painting and/or cathodic protection; are herein incorporated by reference.

(b) Finished water storage structures shall comply with the following requirements:

(i) Water storage structures shall comply with the following standards for storage tanks, standpipes, ground storage reservoirs that are described in AWWA M42, clearwells, and elevated storage:

(A) AWWA D100;

(B) AWWA D102;

(C) AWWA D103;

(D) AWWA D104;

(E) AWWA D106;

(F) AWWA D107;

(G) AWWA D108;

(H) AWWA D110;

(I) AWWA D115;

(J) AWWA D120; and

(K) AWWA D121.

(ii) All tank and foundation design shall be performed by a Wyoming registered professional engineer. The plans or contractor-furnished information shall be signed and sealed by a Wyoming registered professional engineer.

(iii) All new or modified water storage tanks shall have the inlet and outlet connections separated from each other as much as is practical.

(c) Storage facility designs shall demonstrate:

(i) The average daily demand will require a daily fill of 20 percent of the total storage volume for surface water sources and 10 percent for groundwater sources.

(ii) For designs that demonstrate the storage tank has a small daily demand and a high fire water storage requirement, or the storage tank water age average is greater than two days, the design shall demonstrate that a volume equal to at least 20 percent of the tank volume will be delivered to the storage tank each time pumping is initiated.

(iii) For designs with well systems that provide a minimum of two wells that can supply either the maximum hourly demand or the fire demand, whichever is greater, storage is not required. These systems shall demonstrate that they will provide alternative power for the finished water pumps.

(d) Storage structure design shall eliminate short-circuiting.

(e) The minimum inlet velocity shall be 10 ft/sec unless demonstration of employed mixing system or lower inlet velocity addresses disinfection by-product formation, stratification, stagnation, freezing, and other water age issues.

(f) Overflow and drain lines shall:

(i) Be protected with a mechanical device such as:

(A) A sealed flapper valve or duckbill valve; or

(B) A #24 mesh non-corrodible screen.

(ii) For overflow lines that are protected with a mechanical device, include installation of a #4 mesh non-corrodible screen or finer to prevent the entrance of birds or rodents;

(iii) For overflow lines that are protected with #24 mesh non-corrodible screen, demonstrate prevention of screen clogging that would lead to structural storage tank damage;

(iv) Include installation of the screen within the overflow line at a location that is not susceptible to vandalism and that allows for the overflow line to be operational during an overflow event;

(v) Provide access to the screen with the smallest openings for replacement; and

(vi) Demonstrate that the screen with the smallest openings will be the outermost screen.

(g) Overflow designs shall demonstrate the provisions that will be included to prevent mechanical devices from freezing shut.

(h) Overflow lines shall not be considered as vents.

(i) Vents shall be designed to protect the tank from contaminants including but not limited to surface water, stormwater runoff, insects, rodents, and birds.

(i) All openings shall be protected with #24 mesh non-corrodible screen or a combination of #24 mesh and coarser mesh non-corrodible screen.

(ii) The design shall demonstrate consideration of site conditions, freezing, frosting, and provide justification including precautions for snow depth.

(A) The design shall demonstrate consideration of frost-free or frost-proof vents; and

(B) The design shall demonstrate consideration of pressure/vacuum, frost-proof release vents that will need to protect openings with #24 mesh non-corrodible screen.

(j) Down-turned vent openings shall be at least 24 inches above the nearest horizontal surface.

(k) Elevated tanks shall be designed to remove snow via tank geometry to prevent snow build-up clogging vents.

(l) Vent designs shall include calculations that verify the required volume of flow is achievable through the proposed vent pipe and screen combination.

(m) Finished water plant water storage shall comply with the following requirements:

(i) Clearwell storage shall be sized, in conjunction with distribution system storage, to relieve the filter of having to follow fluctuations in water use. Where water is pumped from clearwell storage to the system, an overflow shall be provided.

(ii) If unfinished water is stored in compartments adjacent to finished water, the unfinished and finished water shall be separated by double walls.

(iii) Receiving basins and wetwells shall be designed as finished water storage structures and shall comply with the requirements of this Section.

Section 16. Distribution Systems.

(a) 2018 TSS, parts 8.2-8.2.4(b), system design; 8.3, valves; 8.4-8.4.4(d), hydrants; 8.5-8.5.2(c), air relief valves; 8.6, valve, meter, and blow-off chambers; 8.7.3, installation of water mains, cover; 8.7.4, installation of water mains, blocking; 8.7.6, installation of water

mains, pressure and leakage testing; 8.7.7, installation of water mains, disinfection; 8.7.8, installation of water mains, external corrosion; 8.7.9, installation of water mains, separation from other utilities; 8.8.2-8.8.2(b), separation distances from contamination sources, parallel installation; 8.8.3-8.8.3(b), separation distances from contamination sources, crossings; 8.8.6, separation distances from contamination sources, sewer manholes, inlets, and structures; 8.9.1, surface water crossings, above-water crossings; 8.9.2-8.9.2(c); surface water crossings, under water crossings; 8.11.1, water services and plumbing, plumbing; 8.12, service meters; are herein incorporated by reference.

(b) Distribution systems shall be constructed of commercial pipe that conforms to the following standards:

(i) PVC pipe:

(A) Less than four inches diameter, ASTM D 2241; or

(B) Four inches and larger diameter, AWWA C900.

(ii) Ductile iron, AWWA C151;

(iii) Fiberglass pressure pipe, AWWA C950;

(iv) Polyethylene pipe:

(A) ¾ inch through three inches diameter, AWWA C901;

(B) Four inches through 65 inches diameter, AWWA C906; or

(v) Other material submitted with the permit application and approved by the Administrator.

(c) Flanged piping shall not be allowed for buried pipe except for connection to valves.

(d) New water mains shall be sized after the hydraulic analysis required by Section 9(l)(i) of this Chapter and the design shall demonstrate that:

(i) At maximum day demand plus current State of Wyoming-required fire flow, or the fire flow of an authority having jurisdiction, the pressure in the municipal distribution system will not fall below 20 pounds per square inch (psi); and

(ii) The normal system working pressure shall be greater than 35 psi.

(e) When fire protection is provided, the water main system shall be designed to also serve fire flows.

(f) Hydrants shall:

(i) Have hydrant leads that are a minimum of six inches in diameter;

(ii) Have valves installed;

(iii) Be protected from freezing at hydrant leads and barrels;

(iv) Where groundwater levels are above the gravel drain area, hydrants shall be pumped dry or otherwise dewatered and hydrant weep holes shall not be used; and

(v) Have drains that are not connected to or located within 10 feet of a sanitary sewer or storm drain.

(g) Fire hydrants or active service taps may be substituted for air relief in 6- and 8-inch lines.

(h) Where excavation is performed for distribution systems:

(i) The trench bottom shall be excavated for the bell of the pipe;

(ii) All rock shall be removed within six inches of the pipe; and

(iii) The trench shall be dewatered for all work.

(i) Distribution system bedding for rigid pipe shall be designed in accordance with ASTM C12 Classes A, B, or C. Flexible pipe bedding shall be designed in accordance with ASTM D2321 Class I, II, or III.

(j) Distribution system pipe shall be joined to ensure a watertight fitting and installed in accordance with the following standards, as applicable:

(i) For ductile iron pipe, AWWA C600;

(ii) For PVC pipe, AWWA M23; and

(iii) For HDPE pipe, AWWA M55.

(k) Backfill for distribution systems shall:

(i) Be performed without disturbing pipe alignment;

(ii) Not contain debris, frozen material, unstable material, or large clods;

(iii) Not contain rocks or stones that are greater than three inches in diameter within two feet of pipe; and

(iv) Be compacted to a density equal to or greater than the surrounding soil.

(l) Distribution systems shall meet the following requirements for separation of water mains from sanitary and storm sewers:

(i) Where the minimum vertical or horizontal separation distances required by incorporation by reference of 2018 TSS parts 8.8.2 and 8.8.3 of paragraph (a) of this Section cannot be met, the sewer or water line shall be placed in a separate conduit pipe or meet the flow-fill requirements of paragraphs (ii) and (iii) of this Paragraph (l);

(ii) Flow-fill for pipelines shall comply with the following:

(A) Cement-treated fill, non-shrink backfill, low-density concrete backfill, or structural backfill may be used as flow-fill when the material has a 28-day compressive strength of 30-60 psi;

(B) The pipe to be encased shall be laid on a four to six-inch of bed of washed gravel that has been widened, with the walls of the trench benched away from the center-line of the trench, so the pipe is uniformly supported over the length or supported on blocks no further than 10 feet apart;

(C) The flow-fill and washed gravel or blocks shall rest on an undisturbed trench bottom;

(D) The pipe shall not move laterally or float during placement of the flow-fill and the line and grade of the pipe shall be maintained; and

(E) The flow-fill shall extend from trench sidewall to trench sidewall and extend at least two inches above the top of the pipe.

(iii) Flow-fill for pipe crossings shall comply with the following:

(A) To the extent possible, there shall be no joints or taps within nine feet of the crossing;

(B) The flow-fill shall extend from undisturbed earth at the bottom of the lower pipe to at least two inches above the top of the upper pipe;

(C) The block of flow-fill shall be wide enough to ensure the structural integrity of the installation; and

(D) Pipes that cross one another shall be separated by a minimum of two inches when encased in flow-fill.

(m) Cross-connections shall comply with the following requirements:

(i) There shall be no water service connection installed or maintained between a public water supply and any water user whereby unsafe water or contamination may backflow into the public water supply.

(A) To protect all public water supplies from the possibility of the introduction of contamination due to cross-connections, the water supplier shall:

(I) Require backflow prevention devices for each water service connection in accordance with Table 4 of this Section, with the exception of (B)(I) residential water service connections and (B)(II) domestic non-residential water service connections;

(II) Take appropriate actions that may include:

1. Immediate disconnection for any water user that fails to maintain a properly installed backflow prevention device; or

2. Compliance with other measures as identified in this Section.

(III) Any high hazard non-residential connection to any public water supply shall be protected by the backflow prevention device required by Table 4.

(IV) Water suppliers shall establish record keeping and management procedures to ensure that requirements of this regulation for installation and maintenance of backflow prevention devices are being met.

(B) The method of backflow control, selected from Table 4, shall be determined based upon the degree of hazard of the cross-connection and the cause of the potential backflow. Hazards shall be classified as high hazard or low hazard. The potential cause of the backflow shall be identified as being back-siphonage or back-pressure.

(I) Residential water service connections shall be considered to be low hazard back-siphonage connections unless determined otherwise by a Hazard Classification.

(II) Domestic non-residential water service connections (such as schools without laboratories, churches, office buildings, warehouses, and motels) shall be considered to be low hazard back-pressure connections unless determined otherwise by a Hazard Classification conducted by the water supplier.

(III) Any water user’s system with an auxiliary source of supply shall be considered to be a high hazard, back-pressure cross-connection. A reduced pressure principle backflow device shall be installed at the water service connection to any water user’s system with an auxiliary source of supply.

(IV) All water loading stations shall be considered high hazard connections. A device, assembly, or method consistent with Table 4 shall be provided.

(V) Non-domestic commercial or industrial water service connections (such as restaurants, refineries, chemical mixing facilities, sewage treatment plants, mortuaries, laboratories, laundries, dry cleaners, irrigation systems, and facilities producing or using hazardous substances) shall be considered to be high hazard back-pressure connections unless determined otherwise by a Hazard Classification. For some of these service connections, a Hazard Classification may result in a determination of a back-siphonage or low hazard classification. The backflow prevention device required shall be appropriate to the degree of hazard established by the Hazard Classification. Where potential high hazards exist within the non-residential water user's system, even though such high hazards may be isolated at the point of use, an approved backflow prevention device shall be installed and maintained at the water service connection.

(C) Determination of the hazard classification of a water service connection is the responsibility of the water supplier. The water supplier may require the water user to furnish a Hazard Classification Survey to be used to determine the Hazard Classification.

(D) Hazard Classification Surveys that have been conducted by Hazard Classification Surveyors that have been certified by another state certification program shall include the following information for Administrator approval:

(I) Documentation that indicates the Hazard Classification Surveyor has received certification from the regulatory agency that issued the current certification that states the name of the Hazard Classification Surveyor, the status of their certification, the date originally issued, the expiration date, and the classification for which the Hazard Classification Surveyor is certified; and

(II) Any disciplinary action imposed against the applicant; if any.

(E) All backflow prevention devices shall be in-line serviceable (repairable), in-line testable except for devices meeting ASSE 1024, and installed in accordance with manufacturer instructions and applicable plumbing codes.

(F) All backflow prevention devices must have a certification by an approved third-party certification agency. Approved certification agencies are:

(I) American Society of Sanitary Engineers (ASSE);

(II) International Association of Plumbing/Mechanical officials (IAPMO); and

(III) Foundation for Cross-Connection Control and Hydraulic Research, University Of Southern California (USC-FCCCHR).

(G) Backflow prevention devices at water service connections shall be inspected and certified by a certified backflow assembly tester at the time of installation. Certification of the assembly tester shall be by one of the following:

(I) The American Society of Sanitary Engineers (ASSE); or

(II) American Backflow Prevention Association (ABPA).

(H) Backflow prevention devices installed at high hazard non-residential cross-connections shall be inspected and tested on an annual basis by a certified backflow assembly tester.

(I) If any device is found to be defective or functioning improperly, it shall be immediately repaired or replaced. Failure to make necessary repairs to a backflow prevention device will be cause for the water service connection to be terminated.

(J) All public water suppliers shall report any high hazard backflow incident within seven days to the Division. The backflow incident shall be reported on a form provided by the Administrator.

(ii) Neither steam condensate nor cooling water from engine jackets or other heat exchange devices shall be returned to the public water supply after it has passed through the water service connection.

Table 4. Backflow Prevention Devices, Assemblies and Methods

	Degree of Hazard				
Device, Assembly, or Method	Low Hazard		High Hazard		Notes
	Back-Siphonage	Back-Pressure	Back-Siphonage	Back-Pressure	
Airgap	X	X	X	X	See Note 1 and Note 2
Atmospheric Vacuum Breaker	X		X		Not allowed under continuous pressure
Spill-proof Pressure-type Vacuum	X		X		
Double Check Valve Backflow Preventer	X	X			
Pressure Vacuum Breaker	X		X		

Reduced Pressure Principal Backflow	X	X	X	X	See Note 2,
Dual Check	X				Restricted to residential services

Note 1: Minimum Airgap for Water Distribution. For spouts with an effective opening diameter of ½ inch or less, the minimum airgap when the discharge is not affected by side walls shall be one inch. The minimum airgap when the discharge is affected by sidewalls shall be 1 ½ inches. For effective openings greater than ½ inch, the minimum airgap shall be two times the effective opening diameter when the discharge is not affected by sidewalls. The minimum airgap when the discharge is affected by sidewalls shall be three times the effective opening diameter.

Note 2: Extreme Hazards. In the case of any water user's system where, in the opinion of the water supplier or the Administrator, an undue health threat is posed because of the presence of extremely toxic substances or potential back pressures in excess of the design working pressure of the device, the water supplier may require an airgap at the water service connection to protect the public water system.

Section 17. Laboratory Requirements.

(a) 2018 TSS, parts 2.8.1-2.8.1(h), testing equipment, is herein incorporated by reference.

(b) Test procedures for analysis of monitoring samples shall conform to the Standard Methods for the Examination of Water and Wastewater.

(c) All treatment plants shall have the capability to perform or contract for the self-monitoring analytical work required by the Safe Drinking Water Act, 42 U.S.C. §300f et seq. All plants shall, in addition, be capable of performing or contracting the analytical work required to ensure good management and control of plant operation and performance.

(d) All laboratories used for the tests, analysis, and monitoring required by this Section shall meet the following requirements:

(i) The laboratory shall be located away from vibrating machinery or equipment that might have adverse effects on the performance of laboratory instruments or the analyst and shall be designed to prevent adverse effects from vibration.

(ii) Walls shall have an easily cleaned, durable, and impervious surface.

(iii) Cabinet and storage space shall be provided for dust-free storage of instruments and glassware. Benchtop height shall be 30 inches. Benchtops shall be field joined into a continuous surface with acid, alkali, and solvent-resistant cement.

(iv) Fume hoods shall be provided where reflux or heating of toxic or hazardous materials is required. A hood shall not be situated near a doorway unless a secondary means of exit is provided. All fume hood switches, electrical outlets, and utility and baffle adjustment handles shall be located outside the hood. Light fixtures shall be explosion-proof. 24-hour continuous exhaust capability shall be provided. Exhaust fans shall be explosion-proof.

(v) The laboratory shall have a minimum of two sinks per 400 square feet (not including cup sinks). Sinks shall be double well with drainboards and shall be made of epoxy resin or plastic. All water fixtures shall have reduced pressure zone backflow preventers. Traps shall be constructed of glass, plastic, or lead and be accessible for cleaning.

(vi) Distilled water shall conform to the quality specified by Standard Methods for the Examination of Water and Wastewater 2018.

(e) Portable testing equipment shall be provided where necessary for operational control testing.

Section 18. Operation and Maintenance Manuals.

(a) Each new or modified treatment or pumping facility shall have an operation and maintenance manual (O & M Manual) located at the facility. The manuals shall provide the following information as a minimum:

(i) Introduction;

(ii) Description of facilities and unit processes within the plant from influent structures through effluent structures;

(A) The size, capacity, model number (where applicable), and intended loading rate of facilities and unit processes;

(B) A description of each unit, including the function, controls, lubrication, and maintenance schedule;

(C) A description of start-up operations, routine operations, abnormal operations, emergency or power outage operations, bypass procedures, and safety;

(D) Flow diagrams of the entire process, as well as individual unit processes that show the flow options under the various operational conditions listed in paragraph (a)(ii) of this Section; and

(E) The design criteria for each unit process, including the number, type, capacity, sizes, and other relevant information.

(iii) Plant control system;

(iv) Utilities and systems;

(v) Emergency procedures, including:

(A) Details of emergency operations procedures for possible foreseeable emergencies, such as power outage, equipment failure, development of unsafe conditions, and other emergency conditions;

(B) Emergency operations valve positions, flow control settings, and other information to ensure continued operation of the facility at maximum possible efficiency during emergencies; and

(C) Emergency notification procedures to be followed to protect health and safety under various emergency conditions.

(vi) Permit requirements and other regulatory requirements;

(vii) Staffing needs;

(viii) Index of manufacturers' manuals;

(ix) Index of equipment maintenance manuals; and

(x) General information on safety in and around the plant and its components, including the following safety information:

(A) Each unit process discussion shall include applicable safety procedures and precautions; and

(B) For unit processes or operations having extreme hazards (such as chlorine and closed tanks), the discussion shall detail appropriate protection, rescue procedures, and necessary safety equipment.

(b) Administrator approval of the final O & M Manual is required prior to plant startup.

(c) Public water supply facilities shall have an equipment maintenance manual located at the facility for each piece of equipment. Each equipment maintenance manual shall:

(i) Have a typewritten table of contents for each volume arranged in a systematic order;

(ii) Include the following general contents:

(A) Product data;

(B) Drawings;

(C) Written text as required to supplement product data for the particular installation;

(D) Copies of each warranty, bond, and service contract issued;

(E) Descriptions of unit and component parts;

(F) Operating procedures;

(G) Maintenance procedures and schedules;

(H) Service and lubrication schedule;

(I) Sequence of control operation;

(J) Parts list; and

(K) Recommended spare parts list.

(iii) Include a section on troubleshooting that shall include:

(A) Typical operation problems and solutions; and

(B) A telephone number for factory troubleshooting assistance.

(iv) Meet the requirements of the engineer and contractor for installation and startup of equipment.

Section 19. Incorporation by Reference.

(a) The following codes, standards, rules, and regulations referenced in this Chapter are incorporated by reference:

(i) American National Standards Institute/National Sanitation Foundation Standard 53, Drinking Water Treatment Units - Health Effects (2019), referred to as "NSF/ANSI 53," available at https://webstore.ansi.org/Standards/NSF/NSFANSI532020;

(ii) American National Standards Institute/National Sanitation Foundation Standard 55, Ultraviolet Microbiological Water Treatment Systems (2020), referred to as "NSF/ANSI 55," available at https://webstore.ansi.org/Standards/NSF/NSFANSI552021;

(iii) American National Standards Institute/National Sanitation Foundation Standard 61, Drinking Water System Components - Health Effects NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021, referred to as "NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021," available at https://webstore.ansi.org/Standards/NSF/NSFANSI612021600;

(iv) American National Standards Institute/National Sanitation Foundation Standard 372, Drinking Water System Components-Lead Content 372-20, referred to as "NSF/ANSI/CAN 372-20," available at https://webstore.ansi.org/Standards/NSF/NSFANSI3722020;

(v) American National Standards Institute/National Sanitation Foundation Standard 419, Public Drinking Water Equipment Performance – Filtration, referred to as "NSF/ANSI 419-2018," available at https://webstore.ansi.org/Standards/NSF/NSFANSI4192018;

(vi) American Petroleum Institute Specification 5L, Line Pipe, Forty-Sixth Edition (2019), referred to as "API 5L," available at https://www.techstreet.com/api/standards/api-spec-5l?gateway_code=api&product_id=2010552;

(vii) American Water Works Association Standard A100, Water Wells, A100-20, referred to as "AWWA A100-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/83080725;

(viii) American Water Works Association Standard C200, Steel Water Pipe, 6 In. (150 mm) and Larger, C200-17 (2017), referred to as "AWWA C200," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/63106282;

(ix) American Water Works Association Standard C300, Reinforced Concrete Pressure Pipe, Steel-Cylinder Type, C300-11 (2011), referred to as "AWWA C300," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/59483818;

(x) American Water Works Association Standard C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, C301-14 (2014), referred to as "AWWA C301," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/81647229;

(xi) American Water Works Association Standard C600, Installation of Ductile-Iron Mains and Their Appurtenances, C600-10 (2010), referred to as "AWWA C600," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/25724;

(xii) American Water Works Association Standard C601, AWWA Standard for Disinfecting Water Mains, C601-81 (1981), referred to as "AWWA C601," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/18646;

(xiii) American Water Works Association Standard C652, Disinfection of Water Storage Facilities, C652 (2011), referred to as "AWWA C652," available at ttps://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/81912774;

(xiv) American Water Works Association Standard C900, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm through 300 mm), for Water Transmission and Distribution, C900-07 (2007), referred to as "AWWA C900," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/18943;

(xv) American Water Works Association Standard C901, Polyethylene (PE) Pressure Pipe and Tubing, 3/4 in. (19 mm) through 3 in. (76 mm), for Water Service, C901- 20 (2020), referred to as "AWWA C901," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/86488411;

(xvi) American Water Works Association Standard C906, Polyethylene (PE) Pressure Pipe and Fittings, 4 in. through 65 In. (100 mm Through 1,650 mm), for Waterworks, C906-21 (2021), referred to as "AWWA C906," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/105341623;

(xvii) American Water Works Association Standard C950, Fiberglass Pressure Pipe, C950-13 (2013), referred to as "AWWA C950," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/34040472;

(xviii) American Water Works Association Standard D100, Welded Carbon Steel Tanks for Water Storage, D100-11 (2011), referred to as "AWWA D100-11," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/28162;

(xvix) American Water Works Association Standard D102, Coating Steel Water-Storage Tanks, D102-17 (2017), referred to as "AWWA D102-21," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/92298590;

(xx) American Water Works Association Standard D103, Factory-Coated Bolted Carbon Steel Tanks for Water Storage, D103-19, referred to as "AWWA D103-19," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/80453600;

(xxi) American Water Works Association Standard D104-17, Automatically Controlled, Impressed-Current Cathodic Protection for the Interior of Steel Water Storage, referred to as "AWWA D104-17," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/65522513;

(xxii) American Water Works Association Standard D106-20, Sacrificial anode Cathodic Protection Systems for the Interior Submerged Surfaces of Steel Water Storage Tanks, referred to as "AWWA D106-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/84700967;

(xxiii) American Water Works Association Standard D107-16, Composite Elevated Tanks for Water Storage, referred to as "AWWA D107-16," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/54635993;

(xxiv) American Water Works Association Standard D108-19, Aluminum Dome Roofs for Water Storage Facilities, referred to as "AWWA D108-19," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/80933896;

(xxv) American Water Works Association Standard D110-13 (R18), Wire- and Strand-Wound, Circular, Prestressed Concrete Water Tanks, referred to as "AWWA D110-13 (R18)," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/72304450;

(xxvi) American Water Works Association Standard D115-20, Tendon-Prestressed Concrete Water Tanks, referred to as "AWWA D115-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/83072907;

(xxvii) American Water Works Association Standard D120-19, Thermosetting Fiberglass-Reinforced Plastic Tanks, referred to as "AWWA D120-19," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/79004100;

(xxviii)American Water Works Association Standard D121-12, Bolted Aboveground Thermosetting Fiberglass Reinforced Plastic Panel-Type Tanks for Water Storage, referred to as "AWWA D121-12," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/29429;

(xxix) American Water Works Association Standard M23-20, PVC Pipe – Design and Installation, Third Edition, M23, referred to as "AWWA M23-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/81145714;

(xxx) American Water Works Association Standard M55-20, PE Pipe-Design and Installation, Second Edition, M55, referred to as "M55-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/84701177;

(xxxi) American Water Works Association Manual M42, Steel Water Storage Tanks, 2013, referred to as "AWWA M42," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/36253113;

(xxxii) American National Standards Institute ASSE Standard 1024, Dual Check Backflow Preventers, ASSE 1024-17 (2017), referred to as "ASSE 1024," available at https://webstore.ansi.org/Standards/ASSE-Sanitary/ASSEStandard10242017;

(xxxiii)ASTM International Standard A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, A53M-18 (2018), referred to as "ASTM A53, available at https://www.astm.org/a0053_a0053m-18.html;

(xxxiv) ASTM International Standard A134, Standard Specification for Pipe, Steel, Electric-Fusion (Arc)-Welded (Sizes NPS 16 and Over), A134M-18 (2018), referred to as "ASTM A134," available at https://webstore.ansi.org/standards/astm/astma134a134m18;

(xxxv) ASTM International Standard A135, Standard Specification for Electric-Resistance-Welded Steel Pipe, A135M-19 (2019), referred to as "ASTM A135," available at https://webstore.ansi.org/standards/astm/astma135a135m19;

(xxxvi) ASTM International Standard ASTM A139 / A139M – 16, Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over), (2016), referred to as "ASTM A139," available at https://www.astm.org/a0139_a0139m-16.html;

(xxxvii) ASTM International Standard A409, Standard Specification for Welded Large Diameter Austenitic Steel Pipe for Corrosive or High-Temperature Service, A409M-15 (2015), referred to as "ASTM A409," available at https://webstore.ansi.org/Standards/ASTM/ASTMA409A409M15;

(xxxviii) ASTM International Standard C12, Standard Practice for Installing Vitrified Clay Pipe Lines, C12-17 (2017), referred to as "ASTM C12," available at https://webstore.ansi.org/standards/astm/astmc1217;

(xxxix) ASTM International Standard C14, Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe, C14-15a (2015), referred to as "ASTM C14," available at https://webstore.ansi.org/standards/astm/astmc1415a?gclid=Cj0KCQiA95aRBhCsARIsAC2xvfxIaQ66MqCuC40LMUwG0WMe0kbvHUvuxW6F3Nc7jy92bGyVdNFHiaoaAo-uEALw_wcB;

(xl) ASTM International Standard C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, C76-19a (2019), referred to as "ASTM C76," available at https://webstore.ansi.org/Standards/ASTM/ASTMC7619a;

(xli) ASTM International Standard D2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications, D2321-18 (2018), referred to as "ASTM D2321," available at https://webstore.ansi.org/Standards/ASTM/ASTMD232118;

(xlii) ASTM International Standard D2846, Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems, ASTM D2846/D2846M-19A (2019), referred to as "ASTM D2846," available at https://webstore.ansi.org/Standards/ASTM/ASTMD2846D2846M19a;

(xliii) ASTM International Standard D2996, Standard Specification for Filament-Wound "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe, D2996-17 (2017), referred to as "ASTM D2996," available at https://webstore.ansi.org/Standards/ASTM/ASTMD299617;

(xliv) ASTM International Standard D2997, Standard Specification for Centrifugally Cast "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe, D2997-15 (2015), referred to as "ASTM D2997," available at https://webstore.ansi.org/Standards/ASTM/ASTMD299715;

(xlv) ASTM International Standard D3517, Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pressure Pipe, D3517-19 (2019), referred to as "ASTM D3517," available at https://webstore.ansi.org/Search/Find?in=1&st=ASTM+D3517-19;

(xlvi) ASTM International Standard F480, Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80, F480-14 (2014), referred to as "ASTM F480," available at https://webstore.ansi.org/Standards/ASTM/ASTMF48014;

(xlvii) ASTM International Standard F645, Standard Guide for Selection, Design, and Installation of Thermoplastic Water- Pressure Piping Systems, ASTM F645-18b, (2018), referred to as "ASTM F645," available at https://webstore.ansi.org/Standards/ASTM/ASTMF64518b;

(xlviii) ASTM International Standard F877, Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems, ASTM F877-20, (2020), referred to as "ASTM F877," available at https://webstore.ansi.org/Standards/ASTM/ASTMF87720;

(xlix) ASTM International Standard F2389, Standard Specification for Pressure-rated Polypropylene (PP) Piping Systems, ASTM F2389-21, (2021), referred to as "ASTM F2389," available at https://webstore.ansi.org/Standards/ASTM/ASTMF238921;

(l) ASTM International Standard F2806, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Metric SDR-PR), ASTM F2806-20, (2020), referred to as "ASTM F2806," available at https://webstore.ansi.org/Standards/ASTM/ASTMF280620;

(li) ASTM International Standard F2855, Standard Specification for Chlorinated Poly(Vinyl Chloride)/Aluminum/Chlorinated Poly(Vinyl Chloride) (CPVC-AL-CPVC) Composite Pressure Tubing ASTM F2855-19, (2019), referred to as "ASTM F2855," available at https://webstore.ansi.org/Standards/ASTM/ASTMF285519;

(lii) ASTM International Standard F2969,Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) IPS Dimensioned Pressure Pipe ASTM F2969-12(2020), (2020), referred to as "ASTM F2969," available at https://webstore.ansi.org/Standards/ASTM/ASTMF2969122020;

(liii) Standard Methods for the Examination of Water and Wastewater, published by American Public Health Association, American Water Works Association, and Water Environment Federation, 23rd Edition (2018), referred to as "Standard Methods for the Examination of Water and Wastewater 2018," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/65266295;

(liv) Code of Federal Regulations 40 CFR Part 141, in effect as of July 1, 2011, available at: http://www.ecfr.gov;

(lv) Code of Federal Regulations 40 CFR 143.3, in effect as of July 1, 2021; available at: http://www.ecfr.gov;

(lvi) Code of Federal Regulations 40 CFR 173.3(e), in effect as of November 7, 2018, available at: http://www.ecfr.gov;

(lvii) United States Department of Agriculture, Natural Resources Conservation Service, Part 631 National Engineering Handbook, Chapter 32 Well Design and Spring Development, Part 631.3201(b)(iii), in effect as of January 2010, referred to as "USDA NRCS Part 631 National Engineering Handbook," available at https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=26985.wba;

(lviii) Recommended Standards for Water Works, published by Great Lakes Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, (2018), referred to as "2018 TSS," available at https://www.mngovpublications.com/catalog/Default.asp?CatalogID=21656&Provider_ID=1241868;

(lix) United States Environmental Protection Agency, Long Term 2 Enhanced Surface Water Treatment Rule Toolbox Guidance Manual, 2010, referred to as "Toolbox Guidance Manual," available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1009JLI.txt;

(lx) United States Environmental Protection Agency, Ultraviolet Disinfection Guidance Manual For The Final Long Term 2 Enhanced Surface Water Treatment Rule, 2006, referred to as "Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR," available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=600006T3.txt; and

(lxi) United States Environmental Protection Agency, Membrane Filtration Guidance Manual, 2005, referred to as "US EPA Membrane Filtration Guidance Manual,"available at https://nepis.epa.gov/Exe/ZyNET.exe/P1008S15.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2006+Thru+2010&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C06thru10%5CTxt%5C00000021%5CP1008S15.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&D

isplay=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.

(b) For these codes, standards, rules, and regulations incorporated by reference:

(i) The Environmental Quality Council has determined that incorporation of the full text in these rules would be cumbersome or inefficient given the length or nature of the rules.

(ii) This Chapter does not incorporate later amendments or editions of incorporated codes, standards, rules, and regulations.

(iii) All incorporated codes, standards, rules, and regulations are available for public inspection at the Department's Cheyenne office. Contact information for the Cheyenne office may be obtained at http://deq.wyoming.gov or from (307) 777-7937.

CHAPTER 12

Design and Construction Standards for Public Water Supplies

Section 1. Authority.

These standards are promulgated pursuant to ~~W.S. 35-11-101 through 35-11-1207~~ the Wyoming Environmental Quality Act, ~~. S~~specifically~~, W.S.~~ § 35-11-302 ~~requires the administrator to establish standards for the issuance of permits for construction, installation, or modification of any public water supply~~.

Section 2. ~~Purpose.~~ Applicability.

~~The purpose of these standards is to:~~

~~(a) Ensure that the design and construction of public water supplies meet the purpose of the Environmental Quality Act.~~

~~(b) Prevent, reduce and eliminate pollution and enhance the waters of the State of Wyoming by ensuring that the design and construction of public water supplies are capable of the required treatment and distribution providing continued operation to protect the health, safety and welfare of the users and operators.~~

~~These standards pertain only to permits required pursuant to Chapter 3, Wyoming Water Quality Rules and Regulations.~~

(a) This Chapter contains the minimum standards for the design and construction of public water supplies that are required to obtain a permit under Wyoming Statute (W.S.) § 35-11-301(a)(iii) and Water Quality Rules Chapter 3.

(i) All applicants for a Water Quality Rules Chapter 3 permit to construct, install, modify, or operate a public water supply facility shall comply with all minimum standards of this Chapter.

(ii) No permit to construct, install, modify, or operate a public water supply facility shall be issued to a facility that does not comply with the minimum standards of this Chapter.

(iii) All public water supply facilities shall be constructed, installed, and operated in accordance with permits issued pursuant to this Chapter.

(b) The construction, installation, or modification of any component of a public water supply facility requires a permit to construct.

Section 3. ~~Intent~~ Timing of Compliance with These Regulations.

~~The design and construction standards included in these regulations are directed toward conventional public water systems. These standards impose limiting values of design for which a construction, installation, or modification permit application and plans and specifications can be evaluated by the division.~~

~~The terms "shall" and "must" are used when practice is sufficiently standardized to permit specific delineation of requirements or when safeguarding public health or protection of water quality justifies such definite action. Other terms, such as "should", "recommend", and "preferred" indicate desirable procedures or methods which allow deviations provided the purpose of these regulations can be accomplished.~~

~~The applicant shall use the date referenced copy of other standards referred to in these regulations. Where no date is listed for the referenced standards, the standards used shall be those in effect when these regulations become effective.~~

Any facility covered by an individual or general permit issued pursuant to Water Quality Rules, Chapter 3, prior to the effective date of this Chapter shall remain covered under that permit. New construction or modification of existing permitted facilities must obtain authorization under a new permit, in accordance with Water Quality Rules Chapter 3, Section 4(d) or Section 5(e), subject to the requirements of this Chapter.

Section 4. ~~Definitions~~ Incorporation By Reference of Recommended Standards for Water Works 2018 Edition.

~~(moved to Section 5) The following definitions supplement those contained in W.S. 35-11-103 of the Wyoming Environmental Quality Act.~~

~~(moved to Section 5(a))(a) "Auxiliary source of supply" means any water supply on or available to the water user's system other than an approved public water supply acceptable to the water supplier.~~

~~These auxiliary waters may include water from another supplier's public potable water supply or any natural source(s), such as a well, spring, river, stream, harbor, and so forth; used waters; or industrial fluids. These waters may be contaminated or polluted, they may be objectionable or they may be from a water source which the water supplier is uncertain of sanitary control.~~

~~(moved to Section 5(b))(b) "Average daily demand" means the total annual water use divided by the number of days the system was in operation.~~

~~(moved to Section 4(c))(b) "Backflow" means the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution system of the public water supply from any other source or sources.~~

~~(moved to Section 5(d))(c) "Backflow incident" means any identified backflow to a public water supply distribution system or to the potable water piping within the water user's~~

~~system benefitting from a water service connection to the public water supply distribution system.~~

~~(moved to Section 5(e))(d) "Back-pressure" means a form of backflow caused when the pressure of the water users' system is greater than that of the water supply system. This could be caused by a pump, elevated tank, elevated piping, boiler, pressurized process, pressurized irrigation system, air pressure or any other cause of pressure.~~

~~(moved to Section 5(f))(e) "Back-siphonage" means a form of backflow caused by negative or reduced pressure in the water supply system. This situation can be caused by loss of pressure due to high water demands, a line break, excessive fire fighting flows, etc.~~

~~(f) "Containment" means the practice of installing approved backflow prevention devices at the water service connection of the water user in order to protect the public water supply from any backflow from the water users system.~~

~~(moved to Section 5(h))(g) "Contamination" means an impairment of a public water supply by the introduction or admission of any foreign substance which degrades the quality of the potable water or creates a health hazard.~~

~~(moved to Section 5(i))(h) "Cross connection" means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce contamination into the system.~~

~~(moved to Section 5(j))(i) "Degree of hazard" means either a high or low hazard situation where a substance may be introduced into a public water supply through a cross connection. The degree of hazard or threat to public health is determined by a hazard classification.~~

~~(moved to Section 5(k))(j) "Domestic services" means services using potable water for ordinary living processes and not for commercial or industrial uses, fire protection systems with antifreeze or other chemicals, heating systems, etc. Examples may include residences, churches, office buildings, schools, etc.~~

~~(moved to Section 5(l))(k) "Dual check" means a device conforming to ASSE Standard #1024 consisting of two independently acting check valves. Dual check valves are allowed only for residential water service connections that have a low hazard potential with back pressure or backsiphonage under continuous pressure.~~

~~(moved to Section 5(m))(l) "Groundwater source" includes all water obtained from dug, drilled, bored, jetted or driven wells; springs which are developed so that the water does not flow on the ground and protected to preclude the entrance of surface contamination; and collection wells.~~

~~(moved to Section 5(n))(m) "Hazard classification" means a determination by a hazard classification surveyor as to high hazard or low hazard and the potential cause of backflow as either back-pressure or back-siphonage.~~

~~(moved to Section 5(o))(n) "Hazard classification survey" means inspection of a premises to identify the potable water systems, the location of any potential cross connections to the potable water systems, the hazard of the potential backflow, the physical identification of any backflow devices or methods present and the inspection status of any backflow devices or methods. The hazard classification survey results must be recorded and certified by a qualified hazard classification surveyor.~~

~~(moved to Section 5(p))(o) "Hazard classification surveyor" means an individual certified by the USC- Foundation for Cross-Connection Control and Hydraulic Research as Cross-Connection Control Specialist, the American Association of Sanitary Engineers (ASSE) as a Cross Connection Control Surveyor, or by another state certification program approved by the administrator, or by a water distribution system operator also certified as a backflow device tester employed by the public water supplier for the service where the survey is being conducted.~~

~~(moved to Section 5(q))(p) "High hazard" means a situation created when any substance which is or may be introduced into a public water supply poses a threat to public health through poisoning, the spread of disease or pathogenic organisms, or any other public health concern.~~

~~(moved to Section 5(r))(q) "Isolated" when referring to cross connections means the proper approved backflow prevention devices have been installed at each point of cross connection within the water user's system. This requires the installation of an approved backflow protection device at each source of possible contamination. This type of control has the advantage of protecting health within the water user's system as well as protecting the public water supply.~~

~~(moved to Section 5(s))(r) "Low hazard" means a situation created when any substance which is or may be introduced into a public water supply does not pose a threat to public health but which does adversely affect the aesthetic quality of the potable water.~~

~~(moved to Section 5(t))(s) "Maximum daily demand" means the demand for water exerted on the system over a period of 24 consecutive hours, for the period during which such demand is greatest.~~

~~(moved to Section 5(u))(t) "Maximum hour demand" means the highest single hour demand exerted on the system. This may or may not occur on the maximum day.~~

~~(moved to Section 5(w))(u) "Mineralized water" means any water containing more than 500 mg/L total dissolved solids.~~

~~(v) "Offstream reservoir" means a facility into which water is pumped during periods of good quality and high stream flow for future release to treatment facilities.~~

~~(moved to Section 5(aa))(w) "Surface water source" includes all tributary streams and drainage basins, natural lakes and artificial reservoirs or impoundments upstream from the point of the water supply intake.~~

~~(moved to Section 5(cc))(x) "Water service connection" means any water line or pipe connected to a distribution supply main or pipe for the purpose of conveying water to a water user's system.~~

~~(moved to Section 5(dd))(y) "Water supplier" means any entity that owns or operates a public water supply, whether public or private.~~

~~(moved to Section 5(ee))(z) "Water user" means any entity, whether public or private, with a water service connection to a public water supply. The water user is also identified as a customer of a public water supply.~~

~~(moved to Section 5(ff))(aa) "Water user's system" means that portion of the user's water system between the water service connection and the point of use. This system includes all pipes, conduits, tanks, fixtures, and appurtenances used to convey, store or utilize water provided by the public water supply.~~

(a) This Chapter incorporates sections of the Recommended Standards for Water Works, A Report of the Water Supply Committee of the Great Lakes--Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2018 Edition, referred to as "2018 TSS," as noted in Section 8(a), Section 9(a), Section 10(a), Section 11(a), Section 12(a), Section 13(a), Section 14(a), Section 15(a), Section 16(a), Section 17(a), and Section 19(a)(lviii) of this Chapter.

(b) The State term "Administrator" shall replace the term "reviewing authority" used in the Recommended Standards for Water Works 2018 Edition.

(c) The State term "shall" shall replace the term "should" used in the Recommended Standards for Water Works 2018 Edition.

Section 5. ~~Facilities and Systems not Specifically Covered by these Standards~~ Definitions.

~~(moved to Section 6(a)) This section is provided to encourage new technology and equipment and provide a process for evaluating and permitting designs which deviate from these regulations. The proposed construction of facilities and processes not in compliance with these regulations will be permitted provided that the facility, when constructed, can operate meeting the purpose of these regulations.~~

~~(moved to Section 6(b))(a) Each application for a permit to construct a facility under this section shall be evaluated on a case-by-case basis using the best available technology. The following information should be included with the application:~~

~~(moved to Section 6(b)(i)(A))(i) Data obtained from a full scale, comparable installation which demonstrates the acceptability of the design; and/or~~

~~(moved to Section 6(b)(i)(B))(ii) Data obtained from a pilot plant operated under the design condition for a sufficient length of time to demonstrate the acceptability of the design; and/or~~

~~(moved to Section 6(b)(i)(C))(iii) Data obtained from a theoretical evaluation of the design which demonstrates a reasonable probability of the facility meeting the design objectives; and~~

~~(moved to Section 6(b)(ii))(iv) An evaluation of the flexibility of making corrective changes to the constructed facility in the event it does not function as planned.~~

~~(moved to Section 6(c))(b) If an applicant wishes to construct a pilot plant to provide the data necessary to show the design will meet the purpose of the act, a permit to construct must be obtained.~~

~~(formerly Section 4)~~(a) The following definitions supplement those contained in W.S. § 35-11-103 of the Wyoming Environmental Quality Act.

~~(formerly Section 4(a))~~(b) "Auxiliary source of supply" means any water supply on or available to the water user's system other than an approved public water supply acceptable to the water supplier. These auxiliary waters may include water from another supplier's public potable water supply or any natural source(s), such as a well, spring, river, stream, harbor, and so forth; used waters; or industrial fluids. These waters may be contaminated or polluted, they may be objectionable or they may be from a water source ~~which~~ that the water supplier is uncertain of sanitary control.

~~(formerly Section 4(b))~~(c) "Average daily demand" means the total annual water use divided by the number of days the system was in operation.

~~(formerly Section 4)(b)~~(d) "Backflow" means the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into the distribution system of the public water supply from any other source or sources.

~~(formerly Section 4(c))~~(e) "Backflow incident" means any identified backflow to a public water supply distribution system or to the potable water piping within the water user's system benefitting from a water service connection to the public water supply distribution system.

~~(formerly Section 4(d))~~(f) "Back-pressure" means a form of backflow caused when the pressure of the water user~~s''~~'s system is greater than that of the water supply system~~. This could be~~ whether caused by a pump, elevated tank, elevated piping, boiler, pressurized process, pressurized irrigation system, or air pressure ~~or any other cause of pressure~~.

~~(formerly Section 4(e))~~(g) "Back-siphonage" means a form of backflow caused by negative or reduced pressure in the water supply system~~. This situation can be~~ whether caused by loss of pressure due to high water demands, a line break, or excessive ~~fire fighting~~ firefighting flows~~, etc~~.

~~(formerly Section 4(f)) "Containment" means the practice of installing approved backflow prevention devices at the water service connection of the water user in order to protect the public water supply from any backflow from the water users system.~~

(h) "Calculated Dose' means the reduction equivalent dose (RED) calculated using the dose-monitoring equation that was developed through validation testing.

~~(formerly Section 4(g))~~(i) "Contamination" means an impairment of a public water supply by the introduction or admission of any foreign substance ~~which~~ that degrades the quality of the potable water or creates a health hazard.

~~(formerly Section 4(h))~~(j) "Cross-connection" means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce contamination into the system.

~~(formerly Section 4(i))~~(k) "Degree of hazard" means either a high or low hazard situation where a substance may be introduced into a public water supply through a cross-connection. The degree of hazard or threat to public health is determined by a hazard classification.

~~(formerly Section 4(j))~~(l) "Domestic services" means services using potable water for ordinary living processes ~~and not for commercial or industrial uses, fire protection systems with antifreeze or other chemicals, heating systems, etc. Examples may include residences, churches, office buildings, schools, etc~~.

~~(formerly Section 4(k))~~(m) "Dual check" means a device conforming to American Association of Sanitary Engineers (ASSE) Standard #1024 consisting of two independently acting check valves. ~~Dual check valves are allowed only for residential water service connections that have a low hazard potential with back pressure or backsiphonage under continuous pressure.~~

~~(formerly Section 4(l))~~(n) "Groundwater source" includes all water obtained from dug, drilled, bored, jetted or driven wells; springs ~~which~~ that are developed so that the water does not flow on the ground and that are protected to preclude the entrance of surface contamination; and collection wells.

~~(formerly Section 4(m))~~(o) "Hazard classification" means a determination by a ~~h~~Hazard ~~c~~Classification ~~s~~Surveyor as to high hazard or low hazard and the potential cause of backflow as either back-pressure or back-siphonage.

~~(formerly Section 4(n))~~(p) "Hazard ~~c~~Classification ~~s~~Survey" means inspection of a premises to identify the potable water systems, the location of any potential cross connections to the potable water systems, the hazard of the potential backflow, the physical identification of any backflow devices or methods present, and the inspection status of any backflow devices or methods~~. The hazard classification survey results must be~~ recorded and certified by a qualified ~~h~~Hazard ~~c~~Classification ~~s~~Surveyor.

~~(formerly Section 4(o))~~(q) "Hazard ~~c~~Classification ~~s~~Surveyor" means an individual certified by the USC- Foundation for Cross-Connection Control and Hydraulic Research as Cross Connection Control Specialist~~,~~(USC-FCCCHR), the ~~American Association of Sanitary Engineers (~~ASSE~~)~~ as a Cross-Connection Control Surveyor, or ~~by~~ another state certification program submitted with the permit application and approved by the ~~a~~Administrator, or ~~by~~ an individual who is a water distribution system operator also certified as a backflow device tester employed by the public water supplier for the service where the survey is being conducted.

~~(formerly Section 4(p))~~(r) "High hazard" means a situation created when any substance ~~which~~ that is or may be introduced into a public water supply poses a threat to public health through poisoning, the spread of disease or pathogenic organisms, or any other public health concern.

~~(formerly Section 4(q))~~(s) "Isolated" when referring to cross connections means the properly approved backflow prevention devices have been installed at each point of cross-connection within the water user's system. ~~This requires the installation of an approved backflow protection device at each source of possible contamination. This type of control has the advantage of protecting health within the water user's system as well as protecting the public water supply.~~

~~(formerly Section 4(r))~~(t) "Low hazard" means a situation created when any substance ~~which~~ that is or may be introduced into a public water supply does not pose a threat to public health but ~~which~~ that does adversely affect the aesthetic quality of the potable water.

~~(formerly Section 4(s))~~(u) "Maximum daily demand" means the demand for water exerted on the system over a period of 24 consecutive hours, for the period during which such demand is greatest.

~~(formerly Section 4(t))~~(v) "Maximum hourly demand" means the highest single-hour demand exerted on the system. This may or may not occur on the maximum day.

(w) "Mechanical sludge equipment" means the equipment used to physically remove solids from a water treatment process. This may include mechanical drives that use scrapers or differential water levels to collect the sludge.

~~(formerly Section 4(u))~~(x) "Mineralized water" means any water containing more than 500 mg/L total dissolved solids.

(y) "Minor field change" means any in-field adjustment due to previously unknown physical constraints of the project site that do not affect the project's scope. Minor field changes still allow full compliance with the requirements of this Chapter and are shown on the submitted, post-construction as-built plan set for the Division in red.

(zz) "Primary disinfection" means disinfection that kills or inactivates bacteria, viruses, and other potentially hamful organisms in drinking water.

(aa) "Reduction Equivalent Dose" means the ultraviolet (UV) dose derived by entering the log inactivation measured during full-scale reactor testing into the UV dose-response curve that was derived through collimated beam testing. RED values are always specific to the challenge microorganism used during experimental testing and the validation test conditions for full-scale reactor testing.

(bb) "Required Dose" means the UV dose in units of mJ/cm2 req needed to achieve the target log inactivation for the target pathogen.

(cc) "Secondary disinfection" means disinfection that provides longer lasting water treatment as the water moves through pipes to consumers.

(dd) "Stabilized drawdown" means a water level that has not fluctuated by more than plus or minus 0.5 foot for each 100 feet of water in the well over at least a six-hour period of constant pumping flow rate. The water column is measured from pre-test static water level to the top of the deepest water bearing fracture that contributes at least 10 percent of total well yield, and plotted measurements that have not shown a trend of decreasing water level.

~~(formerly Section 4(w))~~(ee) "Surface water source" includes all tributary streams and drainage basins, natural lakes, and artificial reservoirs or impoundments upstream from the point of the water supply intake.

(ff) "Validated Dose" means the UV dose in units of mJ/cm2 delivered by the UV reactor as determined through validation testing that is compared to the required dose to determine log inactivation credit.

~~(formerly Section 4(x))~~(gg) "Water service connection" means any water line or pipe connected to a distribution supply main or pipe for the purpose of conveying water to a water user's system.

~~(formerly Section 4(y))~~(hh) "Water supplier" means any entity that owns or operates a public water supply, whether public or private.

~~(formerly Section 4(z))~~(ii) "Water user" means any entity, whether public or private, with a water service connection to a public water supply~~. The water user is also identified as a~~ and includes customers of a public water suppl~~y~~ier.

~~(formerly Section 4(aa))~~(jj) "Water user's system" means that portion of the user's water system between the water service connection and the point of use. This system includes all pipes, conduits, tanks, fixtures, and appurtenances used to convey, store, or ~~utilize~~ use water provided by the public water supply.

Section 6. ~~Engineering Design Report~~ Facilities and Systems not Specifically Covered by these Standards.

~~(moved to Section 9(b))(a) Scope and purpose. An engineering design report shall be submitted with each application. The purpose of the report shall be to describe and provide technical justification for all aspects of the proposed construction, modifications and/or installations. The report should address existing conditions (if any), known or suspected problems, proposed actions, and the reasoning used to arrive at those proposed actions. There is no minimum or maximum size for the report, provided it meets the purpose of this section.~~

~~(moved to Section 9(c))(b) Water distribution (water works) systems. The engineering design report for all new water distribution system extensions shall include:~~

~~(moved to Section 9(c)(ii))(i) A description of the service area including scaled vicinity plan map(s) of the project with regard to adjacent and proposed development, elevations, and topographic features.~~

~~(moved to Section 9(c)(iii))(ii) Current and projected system water demand for average day, maximum day, maximum hour, needed fire flows and per capita maximum daily flows.~~

~~(moved to Section 9(c)(iv))(iii) Information on fire protection and fire flow capabilities of the proposed system.~~

~~(iv) Description of high service pumping systems and finished water storage facilities.~~

~~(moved to Section 9(d))(c) Treatment facilities. The engineering design report shall include:~~

~~(moved to Section 9(d)(ii))(i) A description of the facility site and location, including a scaled site plan, and:~~

~~(moved to Section 9(d)(ii)(A))(A) Present and projected facility property boundaries.~~

~~(moved to Section 9(d)(ii)(B))(B) Flood protection indicating predicted elevation of 25- and 100-year flood stages. The facility shall be protected from damage and be capable of being operated during the 100-year flood or maximum flood of record, whichever is greater. Flooding resulting from ice jams shall be considered.~~

~~(moved to Section 9(d)(ii)(C))(C) Present and proposed access.~~

~~(moved to Section 9(d)(ii))(D)(D) Distances from current habitation, the closest major treated water transmission line, the closest treated water storage facility, and the water source.~~

~~(moved to Section 9(d)(ii)(E))(E) Fencing and/or security.~~

~~(moved to Section 9(d)(ii)(F))(F) Topographic features and contours with indicated datum.~~

~~(moved to Section 9(d)(ii)(G))(G) Soil and subsurface geological characteristics. Provide a soils investigation report of the proposed site suitable for structural design of the proposed facilities.~~

~~(moved to Section 9(d)(iii))(ii) A detailed description of the service area for the project including a scaled plan showing land use and boundaries.~~

~~(moved to Section 9(d)(iv))(iii) A detailed description of the recycle flows and procedures for reclamation of recycle streams.~~

~~(moved to Section 9(d)(v))(iv) A detailed description of disposal techniques for settled solids, including a description of the ultimate disposal of sludge.~~

~~(v) Sources of water supply shall be described to include:~~

~~(moved to Section 9(f))(A) Groundwater sources.~~

~~(moved to Section 9(f)(ii))(I) Geology of aquifer and overlying strata.~~

~~(II) Summary of source exploration data, including test well depth and method of construction; test pumping rates and duration; and water levels and specific yield.~~

~~(moved to Section 9(f)(iii)) Water quality, including biological, radiological and chemical quality data sufficient to determine necessary treatment processes and compliance with all drinking water standards as determined by the administrator. The same water quality data for all secondary sources shall also be provided.~~

~~(III) Sources of possible contamination around well and in any known recharge areas, including location of any waste sites, industrial facilities and wastewater disposal areas.~~

~~(B) Surface water sources.~~

~~(moved to Section 9(e)(ii))(I) Safe annual yield, the quantity of water available from the source during the average and driest years of record.~~

~~(moved to Section 9(e)(ii)(A))(II) Hydrological data, stream flows and diversion records.~~

~~(moved to Section 9(e)(iii)(III) Representative water quality data, including bacteriological, radiological, chemical and physical data. These data shall be sufficient to determine the necessary process and the ability to meet water quality standards.~~

~~(IV) Description of the watershed noting sources of potential contamination.~~

~~(V) Description of any anticipated changes in water quality.~~

~~(moved to Section 9(e)(ii)(B))(VI) Description of any diversion dams, impoundments or reservoirs and appurtenances.~~

~~(vi) Plant design conditions, including:~~

~~(A) Historical and design population.~~

~~(B) Existing and projected maximum daily demand flows and demand variations.~~

~~(C) Complete description of existing facilities.~~

~~(D) Where applicable, a complete description of proposed treatment process including :~~

~~(I) Unit process design criteria addressing flash mixing, flocculation and settling basin size and equipment description; retention times; unit loadings and overflow rates; filter area and proposed filtration rate; backwash rate and volume requirements; chemical feeder capacities and ranges; and disinfection feeder capacities and ranges~~.

~~(II) Chemical requirements, including dosages and feed rates.~~
~~(III) Chemical delivery, handling, and storage systems.~~

~~(IV) Waste generation including types and volumes.~~

~~(V) Waste stream recycling, including holding basin capacities, pump sizes and recycle rates.~~

~~(VI) Methods of ultimate waste disposal.~~

~~(VII) Low service pumping facilities.~~

~~(E) Description of on-site restrooms and sanitary sewer facilities.~~

~~(vii) Summary of automatic operation and control systems, including basic operation, manual override operation, and maintenance requirements.~~

~~(viii) Description of the on-site laboratory facilities and a summary of those tests to be conducted on-site. If no on-site laboratory is provided, a description of plant control and water quality testing requirements, and where the testing will be conducted shall be included. Description of cross control measures to be provided at chemical feed tanks, filters, washdown taps, direct connection to sewer or other relevant protection.~~

~~(moved to Section 9(b)(iv))(d) Hazard classification. The engineering design report shall include a hazard classification or specify the default classification identified in Section 14 (i) (i) (B) which shall be applicable to the project. A hazard classification shall include the following:~~

~~(i) A determination of the degree of hazard of all water service connections to be connected to the proposed project.~~

~~(ii) A determination of the potential cause of backflow for all water service connections.~~

~~(formerly Section 5) This section is provided to encourage new technology and equipment and provide a process for evaluating and permitting designs which deviate from these regulations. The proposed construction of facilities and processes not in compliance with these regulations will be permitted provided that the facility, when constructed, can operate meeting the purpose of these regulations.~~

~~(formerly Section 5)~~(a) Each application for a permit to construct a facility under this section shall be evaluated on a case-by-case basis using the best available technology. ~~The following information should be included with the application:~~The Administrator may approve applications demonstrating the constructed facility can meet the purpose of the Wyoming Environmental Quality Act and this Chapter.

(b) The following information shall be included with the application for a permit to construct, install, modify, or operate a public water supply facility not specifically covered by these standards:

~~(formerly Section 5(a)(i))~~(i) Data obtained from ~~a full scale, comparable installation which demonstrates the acceptability of the design; and/or~~:

(A) ~~a~~A full scale, comparable installation ~~which~~ that demonstrates the acceptability of the design; ~~and/~~or

~~(formerly Section 5(a)(ii))~~(B) ~~Data obtained from~~ ~~a~~A pilot plant operated under the design condition for a sufficient length of time to demonstrate the acceptability of the design; ~~and/~~or

~~(formerly Section 5(a)(iii))~~(C) ~~Data obtained from~~ ~~a~~A theoretical evaluation of the design ~~which~~ demonstrates a reasonable probability ~~of~~ that the facility will meet~~ing~~ the design objectives~~; and~~.

~~(formerly Section 5(a)(iv))~~(ii) An evaluation of the flexibility of making corrective changes to the constructed facility in the event it does not function as planned.

~~(formerly Section 5(b))~~(c) If an applicant wishes to construct a pilot plant to provide the data necessary to ~~show the design will~~ meet the ~~purpose~~ requirements of ~~the~~ ~~act~~ this Section, the applicant must obtain a permit to construct ~~must be obtained~~.

Section 7. ~~Plans and Specifications Content~~ Permits, Permit Application, and Recordkeeping Requirements.

~~(moved to Section 8(b))(a) All plans for water works and treatment facilities shall have a suitable title showing the following:~~

~~(moved to Section 8(b))(i) Name of owner and location of project.~~

~~(ii) North arrow and drawing scale.~~

~~(iii) Name, Wyoming registration number, and seal or signature of the engineer.~~

~~(b) All plans shall contain a site plan of the proposed project with topography and boundaries of the project. Datum used shall be indicated.~~

~~(moved to Section 8(c))(c) Water lines. Plans for transmission and distribution lines shall include:~~

~~(moved to Section 8(c)(i)(i) A detailed plan view at a legible scale of each reach of the water line showing all existing and proposed streets, adjacent structures, physical features, and existing locations of utilities. The location and size of all water lines, valves, access manholes, air- vacuum release stations, thrust blocking, and other appurtenances shall be indicated. Pertinent elevations shall be indicated on all appurtenances.~~

~~(moved to Section 8(c)(ii))(ii)Profiles of all water lines shall be shown on the same sheet as the plan view at legible horizontal and vertical scales, with a profile of existing and finished surfaces, pipe size and material, valve size, material and type. The location of all special features such as access manholes, concrete encasements, casing pipes, blowoff valves, and airvacuum relief valves, etc., shall be shown.~~

~~(moved to Section 8(c)(iii))(iii) Special detail drawings scaled and dimensioned to show the following:~~

~~(moved to Section 8(c)(iii)(A))(A) The bottom of the stream, the elevation of the high- and low-water levels, and other topographical features at all locations where the water line is near or crosses streams or lakes.~~

~~(moved to Section 8(c)(iii)(B))(B) Cross-section drawing of the pipe bedding.~~

~~(moved to Section 8(c)(iii)(C))(C) Additional features not otherwise covered by specifications.~~

~~(moved to Section 8(c)(iv)(iv) Location of any sewer lines within 30 feet (9 m) horizontally . Sewers that cross water lines shall be shown on the profile drawings.~~

~~(moved to Section 8(d))(d) Storage tanks, pumping stations and treatment facilities. Plans shall be submitted showing the relation of the proposed project to the remainder of the system. Layouts and detail plans shall show the following:~~

~~(moved to Section 8(d)(i))(i) Site location and layout including topographic and physical features, proposed arrangement of pumping or treatment units, existing facilities, existing and proposed piping and valving arrangements, access drive, power supply, fencing, embankments, clearwells, waste and sludge ponds, etc.~~

~~(moved to Section 8(d)(ii))(ii) Schematic flow diagram(s) and hydraulic profile(s) for facility treated water, and flow diagram for sludge and wastewater flows.~~

~~(moved to Section 8(d)(iv))(iii) Plan(s) and section view(s) of each treatment facility process unit with specific construction details, features and pertinent elevations. Details of each unit should include, but are not limited to: inlet and outlet devices, baffles, valves, arrangement of automatic control devices, mixers, motors, chemical feeders, sludge scrapers, sludge disposal, or other mechanical devices.~~

~~(moved to Section 8(e))(e) Wells. Plan and profile drawings of well construction shall be submitted showing diameter and depth of drill holes, casing and liner diameters and depths, grouting depths, elevation and designation of geological formations, water levels, and other details to describe the proposed well completely.~~

~~(moved to Section 8(f))(f) Specifications. Technical specifications shall accompany the plans for new water lines, pump stations, treatment facilities, wells, or additions/modifications to existing systems or facilities . Where plans are for extensions to water distribution systems, the specifications may be omitted, provided it is stated that the work is to be constructed under specifications authorized by the Water Quality Division. Specifications on file must conform to this standard. The specifications accompanying construction drawings shall include:~~

~~(moved to Section 8(f)(i))(i) Identification of construction materials.~~

~~(moved to Section 8(f)(iii))(ii) The type, size, strength, operating characteristics, rating or requirements for all mechanical and electrical equipment, including machinery, valves, piping, electrical apparatus, wiring and meters; laboratory fixtures and equipment; operating tools; special appurtenances; and chemicals, when applicable.~~

~~(moved to Section 8(f)(iv))(iii) Construction and installation procedure for materials and equipment.~~

~~(moved to Section 8(f)(v))(iv) Requirements and tests of materials and equipment to meet design standards~~.

~~(moved to Section 8(f)(vi))(v) Performance tests for operation of completed works and component units.~~

~~(moved to Section 8(f)(vii))(vi) Specialized requirements for tests, analyses, disinfection techniques, and other special needs.~~

~~(vii) Requirements for well construction and testing. The collection of the following must be recorded and reported to the Wyoming Department of Environmental Quality, Water Quality Division.~~

~~(A) Geological data.~~

~~(B) Well construction data. Well construction data shall include screen locations, size of screen openings, screen intervals, accurate records of drill hole diameters and depths, assembled order, size and length of casing and liners, casing wall thickness, grouting depths, formations penetrated, water levels, and location of any blast charges.~~

~~(C) Well test data. Well test data shall include test pump capacity-head characteristics; static water level; depth of test pump setting; time of starting and ending each test cycle; pumping rate; pumping water level; drawdown; and water recovery rate and levels.~~

~~(moved to Section 8(f)(viii))(g) Technical specifications shall require that all water service connections will be provided with backflow prevention devices in accordance with the requirements of Section 14 (i) of these regulations.~~

(a) Applications for a permit to construct, install, modify, or operate a public water supply shall comply with the requirements of Water Quality Rules Chapter 3, Section 6.

(b) The application shall include the following components:

(i) An engineering design report that meets the requirements of Section 9 of this Chapter;

(ii) A construction plan that meets the applicable requirements of Sections 8, 10, 11, 12, 13, 14, 15, 16, and 17 of this Chapter;

(iii) An operation and maintenance plan that meets the requirements of Section 18 of this Chapter; and

(iv) Any additional information required by the Administrator.

(c) The application and components required by this Chapter shall be submitted to the Division in a format required by the Administrator.

(d) The application shall include certification under penalty of perjury that the applicant has secured and will maintain permission for Department personnel and their invitees to access the facility, including permission to:

(i) Access the land where the facility is located;

(ii) Collect resource data as defined by W.S. § 6-3-414(e)(iv); and

(iii) Enter and cross all properties necessary to access the facility if the facility cannot be directly accessed from a public road.

(e) Sections of permit applications that represent engineering work shall be sealed, signed, and dated by a licensed professional engineer as required by W.S. § 33-29-601.

(f) Sections of permit applications that represent geologic work shall be sealed, signed, and dated by a licensed professional geologist as required by W.S. § 33-41-115.

(g) The Administrator may allow an alternative two-step permitting and application procedure for wells and water storage tank project applicants that meet the following requirements:

(ii) For applications that include wells, the Department will issue one permit with the following phased authorizations:

(A) The issued permit will authorize the well to be constructed, developed, and tested;

(B) Applicants shall then submit well test data and water quality data for Administrator review; and

(C) Upon the Administrator's approval of the well test data and water quality data, the Director shall modify the issued permit to authorize connection of the distribution system to the well.

(iii) Applicants for water storage tanks may follow an alternative procedure when the final plans and specifications for the tank cannot be submitted with the initial permit application due to project bidding constraints. In these instances, the Department will issue a permit through the following phased authorizations:

(A) The issued permit will authorize the project to initiate the bidding process. Applicants shall ensure the project bidding documentation includes a requirement that the final water storage tank design complies with the requirements of this Chapter.

(B) Applicants shall then submit final documentation and specifications for the water storage tank that demonstrate the design is consistent with the requirements of this Chapter. Upon the Administrator's approval of the final tank documentation specifications, the Director shall modify the issued permit to authorize the construction of the water storage tank and foundation.

(iv) Applicants that use phased authorization procedures in this paragraph (g) shall request a pre-application meeting with the applicable Division district engineer prior to submission of the permit application package to ensure efficient coordination of the submittals of all reports, plans, and specifications, and Division review timelines.

Section 8. ~~**General Design Considerations**~~ **Plans and Specifications.**

~~(moved to Section 10(b))(a) Design basis. The capacity of the water treatment or water production system shall be designed for the maximum daily demand at the design year. Where water use records are not available to establish water use, the equivalent per capita water use shall be at least 125 gpd (475 liters per day) and 340 gpd (1,285 liters per day) to size facilities for average and maximum daily water demand, respectively.~~

~~(b) Siting requirements.~~

~~(moved to Section 10(d)(ii))(i) Location. Treatment facilities shall be located such that no sources of pollution may affect the quality of the water supply or treatment system. The facilities shall not be located within 500 feet of landfills, garbage dumps, or wastewater treatment systems.~~

~~(moved to Section 10(d)(iii))(ii) Flood protection. All treatment process structures, mechanical equipment, and electrical equipment shall be protected from the maximum flood of record or the 100-year flood, whichever is greater. The treatment facilities shall remain fully operational and accessible during the 100-year flood.~~

~~(moved to Section 10(e))(c) Level of treatment. Treatment shall be provided to produce a potable water that is bacteriologically, chemically, radiologically, and physically safe as determined by the administrator.~~

~~(i) Surface supplies. Treatment shall include:~~

~~(A) Chemical addition/coagulation, flocculation, sedimentation, filtration and disinfection; or~~

~~(B) Where the raw water maximum turbidity is less than 50 TU and is not attributable to clay and maximum color is less than 30 TU, treatment facilities may include slow sand filtration and disinfection; or~~

~~(C) Where the maximum monthly average raw water turbidity is less than 25 TU, the color is less than 30 TU and fecal coliform organisms are less than 100 mpn/100 ml, treatment facilities may be diatomaceous earth filters and disinfection.~~

~~(ii) Groundwater supplies. Groundwater supply facilities shall provide disinfection equipment and connections, as a minimum.~~

~~(d) Hydraulic and treatment reliability.~~

~~(moved to Section 10(f))(i) Multiple units. Treatment facilities with 100,000 gallons per day (gpd) (378.5 m3/day) capacity and over shall provide duplicate units, as a minimum, for chemical feed, flocculation, sedimentation, filtration and disinfection. (moved to Section 10(g))Treatment facilities under 100,000 gpd (378.5 m3/day) capacity shall provide duplicate units as described above or may provide finished water system storage equal to twice the maximum daily demand.~~

~~(moved to Section 10(h))(ii) Multiple equipment. All treatment facility pumping shall provide the maximum daily flow with the largest single unit not in service. Finished water pumping in combination with finished water storage that floats on the distribution systems shall provide the maximum hour flow with the single largest unit not in service. When fire protection is provided, pumping and finished water storage that floats on the system shall provide the fire demand plus the maximum daily demand, or the maximum hour demand, whichever is greater.~~

~~(moved to Section 10(i))(iii) Alternative power source. Where the finished water storage volume that floats on the distribution system is not capable of supplying the maximum daily demand, an alternative power shall be provided for the finished water pumps. The combined finished water storage volume and pumping capacity supplied by alternative power shall be at least adequate to provide the maximum daily demand. Acceptable alternative power sources include an engine generator, engine drive pumps, or a second independent electrical supply.~~

~~(moved to Section 10(j))(e) Housing. Process equipment, including filters and appurtenances, disinfection, chemical feed and storage, electrical and controls, and pipe galleries shall be housed.~~

~~(f) Electrical.~~

~~(moved to Section 10(s))(i) Equipment location. Service transformers and other critical electrical equipment shall be located above the 100-year flood and above-grade. Transformers shall be located so that they are remote or protected by substantial barriers from traffic. Motor controls shall be located in superstructures and in rooms that do not contain corrosive atmospheres.~~

~~(ii) Code requirements. Electrical design shall comply with the National Electrical Code as enacted and amended by the Wyoming Department of Fire Prevention and Electrical Safety. Areas in which the occurrence of explosive concentrations of hazardous gases, flammable fluids, or explosive dusts can occur shall be designed for hazardous locations in accordance with the National Electrical Code Class 1, Groups C and D, Division 1 locations.~~

~~(g) Structural.~~

~~(moved to Section 8(n))(i) Construction materials. Construction materials shall be selected, apportioned, and/or protected to provide water tightness, corrosion protection, and resistance to weather variations.~~

~~(moved to Section 8(o))(ii) Coatings. Coatings used to protect structures, equipment, and piping shall be suitable for atmospheres containing moisture and low concentrations of chlorine. Surfaces exposed in chemical areas shall be protected from chemical attack. Paints shall not contain lead, mercury, or other toxic metals or chemicals.~~

~~(moved to Section 8(c))(iii) Geological conditions. Structural design shall consider the seismic zone, groundwater, and soil support. Soils investigations shall be made, or adequate previous soils investigations shall be available to develop structural design.~~

~~(h) Safety. The Wyoming Occupational Health and Safety (OHSA) Rules and Regulations shall be complied with. The following items shall also be provided:~~

~~(i) Instruction manuals. Instruction manuals shall be provided for all mechanical and electrical equipment describing operation, maintenance, and safety.~~

~~(ii) Handrails. In addition to all Wyoming OHSA requirements, barriers around treatment basins shall be provided.~~

~~(iii) Warning signs. Warning signs for pipes or hose bibs containing nontreated water, electrical hazards, mechanical hazards, chemical hazards, or other unsafe features shall be provided. Warning signs shall be permanently attached to the structure or appropriate equipment.~~

~~(iv) Equipment guards. Shields to protect operators from rotating or moving machinery shall be provided.~~

~~(v) Lighting. Provisions shall be made to light walkways, paths, and other accessways around basins, in buildings and on the site. All areas shall be lit in a manner that the failure of one lighting fixture will not cause an area to be dark, or the loss of power will not cause a room or enclosed area to be dark.~~

~~(vi) Climate conditions. Design of facilities such as exposed stairs, walkways, and sidewalks shall include nonskid surfaces.~~

~~(i) Instrumentation.~~

~~(moved to Section 10(t))(i) Metering. The treatment facility shall have a flow measuring device provided for raw water influent and clear well effluent. The accuracy of the device shall be at least plus or minus two percent of span.~~

~~(moved to Section 10(t)(ii))(ii) Type. All flow meters shall provide totalized flow. For plants with a maximum daily flow of 50,000 gpd (189 m3/d) or more, the meter shall also include recording of instantaneous flow rate.~~

~~(moved to Section 10(t)(i))(iii) Controls. Automatic controls shall be designed to permit manual override.~~

~~(moved to Section 13(c))(iv) Alarms. High effluent turbidity and chlorine leaks (when chlorine gas is used) shall be alarmed at an attended location.~~

~~(j) Sample taps. Sample taps shall be provided so that water samples can be obtained from each water source and from appropriate locations in each unit operation of treatment. Taps shall be consistent with sampling needs and shall not be of the petcock type. Taps used for obtaining samples for bacteriological analysis shall be of the smooth-nosed type without interior or exterior threads, shall not be of the mixing type, and shall not have a screen, aerator, or other such appurtenance.~~

~~(moved to Section 10(r))(k) Ventilation. All enclosed spaces shall be provided with forced ventilation, except pumping station wetwells or clearwells. In areas where there are open treatment units exposed to the room, ventilation shall be provided to limit relative humidity to less than 85 percent but not less than 6 air changes per hour. In electrical and equipment rooms, ventilation shall be provided to limit the temperature rise in the room to less than 15° F (8° C) above ambient, but not less than 6 air changes per hour. Rooms housing chlorine storage and/or feeders shall have provisions for exhausting the room contents in 2 minutes and continuous ventilation to provide not less than 12 air changes per hour.~~

~~(l) Dewatering of treatment units. All treatment units, channels, basins, clearwells and wetwells shall be provided with drains or sumps that facilitate draining the unit for access and maintenance. Drainage shall be to the process waste system, filter washwater system or sanitary sewer. (moved to Section 10(l)) Basin slabs shall be designed to successfully resist the hydrostatic uplift pressure or an area dewatering system shall be provided. Considerations must be given in structural design to long span breakage in basins designed to resist uplift.~~

~~(moved to Section 10(k))(m) Cold weather protection. All equipment not required to be in or on open basins (such as clarifier drives and flocculator) shall be housed in heated, lighted, and ventilated structures. (moved to Section 10(m)) Structure entrances shall be above grade. (moved to Section 10(l))Piping shall be buried below frost level, placed in heated structures, or provided with heat and insulated.~~

~~(n) Chemical storage. All chemical storage shall be housed or buried. Areas designated for storage of specific chemicals shall be separated from areas designated for other reactive chemicals. Liquid storage containers shall be isolated from other portions of the structure by a curb that will contain ruptured tank contents. Concrete floors, walls, and curbs in chemical storage and feed areas shall be coated to protect the concrete from aggressive chemicals. Floors in polymer feed and storage areas shall be provided with nonslip surfaces. Rooms for chlorine storage and feed equipment shall be gastight and be provided with entry from outdoors. All toxic chemical storage areas shall be provided with lighting and ventilation switched from outside the room near the door. All toxic chemical storage areas shall be provided with windows either in the door or near the door to permit viewing the room from outside. Explosive chemicals shall be stored to protect operations personnel and equipment from injury or damage.~~

~~(o) Facility water supply. The facility water supply service line and the plant finished water sample tap shall be supplied from a source of finished water at a point where all chemicals have been thoroughly mixed, and the required disinfectant contact time has been achieved. There shall be no cross-connections between the facility water supply service line and any piping, troughs, tanks, or other treatment units containing wastewater, treatment chemicals, raw or partially treated water. The potable plant water supply line shall have provisions to prevent backflow.~~

~~(moved to Section 10(b)(ii))(p) Design capacities. The plant capacity shall include maximum daily water demand, filter backwash quantities, and industrial water use. In the absence of data, filter backwash quantity shall be five percent of the maximum daily demand.~~

~~(moved to Section 10(v))(q) Monitoring equipment. Water treatment plants having a capacity of 0.5 mgd (1892.6 m3/d) or more shall be provided with continuous finished water turbidimeters (including recorders).~~

~~(r) Labels. All process piping shall be labeled to identify materials being conveyed.~~

(a) 2018 TSS, part 1.2-1.2.2(r), plans; 1.3-1.3(e), specifications; 1.4-1.4(m), design criteria; 1.5, revisions to approved plans; and 1.6, additional information required; are herein incorporated by reference.

~~(formerly Section 7(a))~~(b) All plans for waterworks and treatment facilities shall ~~have a suitable title showing the following~~ also include the name of the real estate owner, ~~(formerly Section 7(a)(i)) Name of~~ the owner of the project, and the location of the project.

~~(formerly Section 7(c))~~(c) ~~Water lines.~~ Plans for transmission and distribution lines shall include:

(i) The information required in paragraph (a) of this Section;

~~(formerly Section 7(c)(i))~~(ii) A detailed plan view at a legible scale of each reach of the water line showing all existing and proposed streets, adjacent structures, physical features, and existing locations of utilities~~. The location and size of all water lines, valves, access manholes, air-vacuum release stations, thrust blocking, and other appurtenances shall be indicated. Pertinent elevations shall be indicated on all appurtenances.~~ that indicates:

~~(formerly Section 7(c)(i))~~(A) The location and size of all water lines, valves, access manholes, air-vacuum release stations, thrust blocking, and other appurtenances ~~shall be indicated.~~; and

~~(formerly Section 7(c)(i))~~(B) Pertinent elevations ~~shall be indicated on all appurtenances~~.

~~(formerly Section 7(c)(ii))~~(ii) Profiles of all water lines ~~shall be~~ that are shown on the same sheet as the plan view at legible horizontal and vertical scales~~,~~ and that show ~~with a profile of existing and finished surfaces, pipe size and material, valve size, material and type. The location of all special features such as access manholes, concrete encasements, casing pipes, blowoff valves, and air vacuum relief valves, etc., shall be shown.~~:

~~(formerly Section 7(c)(ii))~~(A) ~~p~~Profiles of:

~~(formerly Section 7(c)(ii))~~(I) ~~e~~Existing and finished surfaces~~,~~;

~~(formerly Section 7(c)(ii))~~(II) ~~p~~Pipe size and material~~,~~; and

~~(formerly Section 7(c)(ii))~~(III) ~~v~~Valve size, material and type.

~~(formerly Section 7(c)(ii))~~(B) The location of all special features such as access manholes, concrete encasements, casing pipes, blowoff valves, and air-vacuum relief valves, ~~etc., shall be shown~~.

~~(formerly Section 7(c)(iii))~~(iv) Special detail drawings scaled and dimensioned to show the following:

~~(formerly Section 7(c)(iii)(A))~~(A) The bottom of the stream, the elevation of the high- and low water levels, and other topographical features ~~at all locations where the water line is near or crosses streams or lakes.~~ at points where the water line:

(I) Is located within 10 feet of streams or lakes; or

(II) Crosses streams or lakes.

~~(formerly Section 7(c)(iii)(B))~~(B) A ~~C~~cross-section drawing of the pipe bedding~~.~~; and

~~(formerly Section 7(c)(iii)(C))~~(C) Additional features of the pipe or its installation that are not otherwise covered by specifications.

~~(formerly Section 7(c)(iv))~~(iv) The ~~L~~location of any sewer lines within 30 feet ~~(9 m)~~ horizontally of water lines. Sewers that cross water lines shall be shown on the profile drawings.

~~(formerly Section 7(d)))~~(d) Plans for ~~S~~storage tanks, pumping stations, and water treatment facilities~~. Plans~~ shall ~~be submitted~~ show~~ing~~ the relation of the proposed project to the remainder of the system. Layout~~s~~ and detail plans shall ~~show the following~~ include:

(i) The information required in paragraph (a) of this Section;

(ii) The seal and signature of the Wyoming Professional Engineer providing the design;

~~(formerly Section 7(d)(i))~~(iii) The ~~S~~site location and layout including: ~~topographic and physical features, proposed arrangement of pumping or treatment units, existing facilities, existing and proposed piping and valving arrangements, access drive, power supply, fencing, embankments, clearwells, waste and sludge ponds, etc.~~

~~(formerly Section 7(d)(i))~~(A) ~~t~~Topographic and physical features, including embankments;

~~(formerly Section 7(d)(i))~~(B) The proposed arrangement of pumping or treatment units~~,~~;

~~(formerly Section 7(d)(i))~~(C) ~~e~~Existing facilities~~,~~;

~~(formerly Section 7(d)(i))~~(D) ~~e~~Existing and proposed piping and valving arrangements~~,~~;

~~(formerly Section 7(d)(i))~~(E) ~~access drive,~~ The route to access the facility;

~~(formerly Section 7(d)(i))~~(F) The power supply~~,~~;

~~(formerly Section 7(d)(i))~~(G) ~~f~~Fencing~~,~~; and

~~(formerly Section 7(d)(i))~~(H) The proposed location of ~~embankments,~~ clearwells, waste ponds, and sludge ponds~~, etc~~.

~~(formerly Section 7(d)(ii))~~(iv)Schematic flow diagram(s) and hydraulic profile(s) for facility treated water~~, and flow diagram for sludge and wastewater flows.~~;

~~(formerly Section 7(d)(ii))~~(v) A flow diagram for sludge and wastewater flows~~.~~; and

~~(formerly Section 7(d)(iii))~~(vi) Plan(s) and section view(s) of each treatment facility process unit with specific construction details, features, and pertinent elevations. ~~Details of each unit should include,~~ including but ~~are~~ not limited to the following: ~~inlet and outlet devices, baffles, valves, arrangement of automatic control devices, mixers, motors, chemical feeders, sludge scrapers, sludge disposal, or other mechanical devices.~~

~~(formerly Section 7(d)(iii))~~(A) ~~i~~Inlet and outlet devices~~,~~;

~~(formerly Section 7(d)(iii))~~(B) ~~b~~Baffles~~,~~;

~~(formerly Section 7(d)(iii))~~(C) ~~v~~Valves~~,~~;

~~(formerly Section 7(d)(iii))~~(D) ~~a~~Arrangement of automatic control devices~~,~~;

~~(formerly Section 7(d)(iii))~~(E) ~~m~~Mixers~~,~~;

~~(formerly Section 7(d)(iii))~~(F) ~~m~~Motors~~,~~;

~~(formerly Section 7(d)(iii))~~(G) ~~c~~Chemical feeders;

~~(formerly Section 7(d)(iii))~~(H) ~~s~~Sludge scrapers;

~~(formerly Section 7(d)(iii))~~(I) ~~s~~Sludge disposal; or

~~(formerly Section 7(d)(iii))~~(J) ~~o~~Other mechanical devices.

~~(formerly Section 7(e))~~(e) ~~Wells.~~ Plans ~~and profile drawings of~~ for well construction shall ~~be submitted~~ include: ~~showing diameter and depth of drill holes, casing and liner diameters and depths, grouting depths, elevation and designation of geological formations, water levels, and other details to describe the proposed well completely.~~

(i) The information required in paragraph (a) of this Section;

(ii) Assembled order, size, and length of casing and liners;

~~(formerly Section 9(b)(ii)(B))~~(iii) ~~Plumbness and alignment requirements. Every well shall be tested for plumbness and alignment in accordance with AWWA A-100.~~ The well test method and allowable tolerance ~~shall be stated in the specifications.~~;

~~(formerly Section 9(b)(iii)(B)(V)(1.))~~(iv) The l~~L~~ocations of all caisson construction joints and porthole assemblies ~~shall be indicated~~ on drawings, if a radial water collector is proposed~~.~~; ~~The caisson wall shall be reinforced to withstand the forces to which it will be subjected. The top of the caisson shall be covered with a watertight floor. The pump discharge piping shall not be placed through the caisson walls.~~

~~(formerly Section 7(e))~~(v) From the ground surface to the total depth of the drilled borehole, the elevation and designation of geological formations, water levels, formations penetrated, and other details to describe the proposed well completely~~.~~;

~~(formerly Section 7(f)(vii)(B))~~(vi) ~~Well construction data. Well construction data shall include s~~Screen locations, size of screen openings, and screen intervals~~.~~; ~~accurate records of drill hole diameters and depths, assembled order, size and length of casing and liners, casing wall thickness, grouting depths, formations penetrated, water levels, and location of any blast charges~~

~~(formerly Section 7(f)(vii)(B))~~(vii) The location of any blast charges~~.~~, if available; and

~~(formerly Section 7(f)(vii)(c))~~(viii) ~~(C) Well test data.~~ Existing ~~W~~well test data ~~shall include~~ including: ~~test pump capacity- head characteristics; static water level; depth of test pump setting; time of starting and ending each test cycle; pumping rate; pumping water level; drawdown; and water recovery rate and levels.~~

~~(formerly Section 7(f)(vii)(C))~~(A) T~~t~~est pump capacity-head characteristics;

~~(formerly Section 7(f)(vii)(C))~~(B) ~~s~~Static water level;

~~(formerly Section 7(f)(vii)(C))~~(C) ~~d~~Depth of test pump setting;

~~(formerly Section 7(f)(vii)(C))~~(D) ~~t~~Time of starting and ending each test cycle;

~~(formerly Section 7(f)(vii)(C))~~(E) ~~p~~Pumping rate;

~~(formerly Section 7(f)(vii)(C))~~(F) ~~p~~Pumping water level;

~~(formerly Section 7(f)(vii)(C)~~(G) ~~d~~Drawdown; and

~~(formerly Section 7(f)(vii)(C)~~(H) ~~w~~Water recovery rate and levels.

~~(formerly Section 7(f)))~~(f) ~~Specifications. Technical specifications shall accompany the p~~Plans for ~~new~~ water lines, pump stations, treatment facilities, wells, storage, or additions/modifications to existing systems or facilities~~.Where plans are for extensions to water distribution systems, the specifications may be omitted, provided it is stated that the work is to be constructed under specifications authorized by the Water Quality Division. Specifications on file must conform to this standard. The specifications accompanying construction drawings shall~~ shall be accompanied by technical specifications that include:

(i) The information required in paragraph (a) of this Section;

~~(formerly Section 7(f)(i))~~(ii) Identification of construction materials~~.~~;

~~(formerly Section 7(f)(ii))~~(iii) When applicable, ~~T~~the type, size, strength, operating characteristics, rating or requirements for all mechanical and electrical equipment, including machinery, valves, piping, electrical apparatus, wiring, and meters; laboratory fixtures and equipment; operating tools; special appurtenances; and chemicals~~, when applicable.~~;

~~(formerly Section 7(f)(iii))~~(iv) Construction and installation procedure for materials and equipment~~.~~;

~~(formerly Section 7(f)(iv))~~(v) Requirements and tests of materials and equipment to meet design standards~~.~~;

~~(formerly Section 7(f)(v))~~(vi) Performance tests for the operation of completed works and component units~~.~~;

~~(formerly Section 7(f)(vi))~~(vii)Specialized requirements for tests, analyses, disinfection techniques, and other special needs~~.~~

~~(formerly Section 7(g))~~(viii) ~~Technical specifications shall require~~ A demonstration that all water service connections will be provided with backflow prevention devices in accordance with the requirements of Section ~~14 (i)~~ 16 (m) of ~~these regulations~~ this Chapter~~.~~; and

(ix) If technical specifications have been independently permitted by the Department for statewide use, the title, date, and permit approval identification number in lieu of providing technical specifications.

Section 9 Engineering Design Report.

~~(a) Surface water.~~

~~(i) Structures.~~

~~(A) Design of reservoir or river intake structures.~~

~~(I) Facilities for withdrawal of water from more than one level shall be provided in impoundments if the maximum water depth at the intake is greater than 20 feet (6.1 m). All ports or intake gates shall be located above the bottom of the stream, lake, or impoundment. The lowest intake point shall be located at sufficient depth to be kept submerged at low water levels.~~

~~(II) Where water temperatures are 34° F (1° C) or less, the velocity of flow into the intake structure shall not exceed 0.5 feet per second (.152 m/s). Where intakes are located in shady reaches of a stream, facilities shall be available to diffuse air into the flow stream at a point in front of the intake pipe.~~

~~(III) Inspection manholes shall be located a maximum of every 1,000 feet (304.8 m) for pipe sizes 24 inches (0.61 m) and larger. Where pipelines operate by gravity and the hydraulic gradeline is below the ground surface, concrete manholes may be used. Where the pipeline is pressurized or the hydraulic gradeline is above ground, bolted and gasketed access ways shall be used.~~

~~(IV) Devices shall be provided to minimize entry of fish and debris from the intake structure.~~

~~(B) Offstream reservoir. Offstream reservoirs shall be constructed to assure that:~~

~~(I) Water quality is protected by controlling runoff into the reservoir.~~

~~(II) Dikes are structurally sound and protected against wave action and erosion.~~

~~(ii) Impoundments and reservoirs. The site of any impoundment or reservoir shall be cleared of all brush, trees, and other vegetation to the high water elevation.~~

~~(moved to Section 11(d))(iii) Raw water supply piping. No customer service connection shall be provided from the raw water transmission line to the treatment plant, unless there are provisions to treat the water to meet these standards, or the sole purpose of the service is for irrigation or agricultural water use.~~

~~(moved to Section 11(e))(b) Groundwater.~~

~~(moved to Section 11(e)(i))(i) Number and capacity. The total developed groundwater source, along with other water sources, shall provide a combined capacity that shall~~

~~equal or exceed the design maximum daily demand. A minimum of 2 wells, or 1 well and finished water storage equal to twice the maximum daily demand shall be provided. Where 2 wells are provided, the sources shall be capable of equaling or exceeding the design average daily demand with the largest producing well out of service.~~

~~(A) General considerations.~~

~~(I) Every well shall be protected from and remain operational during the 100-year flood or the largest flood of record, whichever is greater.~~

~~(II) All wells shall be disinfected after construction, repair, or when work is done on the pump, before the well is placed in service. Disinfection procedures shall be those specified in AWWA A-100 for disinfection of wells.~~

~~(moved to Section 11(e)(ii))(B))(B) Relation to sources of pollution. Every well shall be located further from any of the sources of pollution listed below. The isolation distances listed below apply when domestic wastewater is the only wastewater present.~~

~~(moved to Section 11(e)(ii)(A))(I) If the domestic sewage flow is less than 2,000 gallons per day (7,560 L/day), the following minimum isolation distance shall be maintained:~~

~~Moved to Section 11(e)(ii)(A)~~

~~*Source of Domestic Wastewater*~~	~~*Minimum Distance to Well*~~
~~Sewer~~	~~50 feet (15.2 m)~~
~~Septic tank~~	~~50 feet (15.2 m)~~
~~Disposal field~~	~~100 feet (30.5 m)~~
~~Seepage pit~~	~~100 feet (30.5 m)~~
~~Cesspool~~	~~100 feet (30.5 m)~~

~~Moved to Section 11(e)(ii)(B))(II)~~

~~(II) If the domestic sewage flow is greater than 2,000 gpd (7,560 L/day) but less than 10,000 gpd (37,800 L/day), the following minimum isolation distances shall be maintained:~~

~~*Source of Domestic Wastewater*~~	~~*Minimum Distance to Well*~~
~~Sewer~~	~~50 feet (15.2 m)~~
~~Septic tank~~	~~50 feet (15.2 m)~~
~~Disposal field~~	~~200 feet (61 m)~~
~~Seepage pit~~	~~200 feet (61 m)~~
~~Cesspool~~	~~200 feet (61 m)~~

~~Moved to Section 11(e)(ii)(C))(III) For systems larger than 10,000 gallons per day (37,800 L/day), the isolation distance shall be determined by a hydrogeological study, in accordance with the requirements of Section 15 of Chapter 3 Water Quality Rules and Regulations, but shall not be less than those listed above.~~

~~(IV) For wastewaters other than domestic wastewater, the isolation distance required shall be determined by a hydrogeological study, in accordance with the requirements of Section 15 of Chapter 3 Water Quality Rules and Regulations.~~

~~Moved to Section 11(e)(iii))(C) Relation to buildings.~~

~~Moved to Section 11(e)(iii)(A))(I) When a well is adjacent to the building, the well shall be located so that the centerline, extended vertically, will clear any projection from the building by not less than 3 feet (0.91 m), and will clear any power line by not less than 10 feet (3.05 m).~~

~~Moved to Section 11(e)(iii)(B))(II) When a well is to be located inside a building, the top of the casing and any other well opening shall not terminate in the basement of the building, or in any pit or space that is below natural ground surface unless the well is completed with a properly protected submersible pump. Wells located in a structure must be accessible to pull the casing or the pump. The structure shall have overhead access.~~

~~Moved to Section 11(e)(iii)(C))(D) Relation to property lines. Every well shall be located at least 10 feet (3.05 m) from any property line.~~

~~Moved to Section 11(e)(iv))(ii) Testing and records.~~

~~Moved to Section 11(e)(iv)(A))(A) Yield and drawdown tests. Yield and drawdown tests shall be performed on every production well after construction or subsequent treatment and prior to placement of the permanent pump. The test methods shall be clearly indicated in the specifications. The test pump capacity, at maximum anticipated drawdown, shall be at least 1.5 times the design rate anticipated. The test shall provide for continuous pumping for at least 24 hours or until stabilized drawdown has continued for at least 6 hours when test pumped at 1.5 times the design pumping rate.~~

~~(moved to Section 11(e)(iv)(B))(B) Plumbness and alignment requirements. Every well shall be tested for plumbness and alignment in accordance with AWWA A-100. The test method and allowable tolerance shall be stated in the specifications.~~

~~(iii) Well construction.~~

~~(moved to Section 11(e)(vi))(A) Protection during construction. During any well construction or modification, the well and surrounding area must be adequately protected to prevent any groundwater contamination. Surface water must be diverted away from the construction area.~~

~~(moved to Section 11(e)(vii))(B) Well types and construction methods.~~

~~moved to Section 11(e)(vii)(A))(I) Dug wells. Dug wells shall be used only where geological conditions preclude the possibility of developing an acceptable drilled well.~~

~~(1.) Every dug well, other than the buried slab type, shall be constructed with a surface curbing of concrete, brick, tile or metal, extending from the aquifer to above the ground surface. Concrete grout, at least 6 inches (0.15 m) thick, shall be placed between the excavated hole and the curbing for a minimum depth of 10 feet (3.05 m) below original or final ground elevation, whichever is lower, or to the bottom of the hole, if it is less than 10 feet (3.05 m).~~

~~(2.) The well lining in the producing zone shall readily admit water, and shall be structurally sound to withstand external pressures.~~

~~(3.) The well cover or platform shall be reinforced concrete with a minimum thickness of 4 inches (10 cm). The top of the platform shall be sloped to drain to all sides. The platform shall rest on and overlap the well curbing by at least 2 inches (5 cm), or it may be cast with the curbing or the concrete grout. Adequately sized pipe sleeve(s) shall be cast in place in the platform to accommodate the type of pump, pump piping or wiring proposed for the well. Pump discharge piping shall not be placed through the well casing or wall.~~

~~(4.) A buried slab type of construction may be used if the dug well is greater than 10 feet (3.05 m) deep. The well lining shall be terminated a minimum of 10 feet (3.05 m) below the original or final ground elevation, whichever is lower. A steel-reinforced concrete slab or platform, at least 4 inches (10 cm) thick, shall rest on and overlap the lining. A standard unperforated well casing shall extend from the concrete slab to at least 12 inches (30 cm) above the original or final ground surface, whichever is higher. This casing shall be firmly imbedded in the slab or connected to a pipe cast in the slab to ensure that the connection is watertight. The excavation above the slab shall be backfilled with a bentonite slurry or clean earth thoroughly tamped to minimize settling.~~

~~(II) Drilled, driven, jetted, or bored wells.~~

~~(1.) A drilled well may be constructed through an existing dug well provided that an unperforated casing extends to at least 12 inches (30 cm) above the original ground or final surface, whichever is higher. A seal of concrete, at least 2 feet (0.61 m) thick, shall be placed in the bottom of the dug well to prevent the direct movement of water from the dug well into the drilled well. The original dug well shall be adequately protected from contamination as described above~~.

~~(moved to Section 11(e)(vii)(B))(2.) Every drilled, driven, jetted, or bored well shall have an unperforated casing that extends from a minimum of 12 inches~~

~~(30 cm) above ground surface to at least 10 feet (3.05 m) below ground surface. In unconsolidated formations, this casing shall extend to the water table or below. In consolidated formations, the casing may be terminated in rock or watertight clay above the water table.~~

~~(III) Sand or gravel wells. If clay or hard pan is encountered above the waterbearing formation, the permanent casing and grout shall extend through such materials. If a sand or gravel aquifer is overlaid only by permeable soils, the permanent casing and grout shall extend to at least 20 feet (6.1 m) below original or final ground elevation, whichever is lower. If a temporary outer casing is used, it shall be completely withdrawn as grout is applied.~~

~~(IV) Gravel pack wells. The diameter of an oversized drill hole designed for the placement of an artificial gravel pack shall allow a thickness of gravel or sand outside the casing sufficient to block the movement of natural materials into the well. The size of the openings in the casing or screen shall be based on the size of the gravel or sand used in the gravel pack.~~

~~(1.) Gravel pack shall be well-rounded particles, 95 percent siliceous material, that are smooth and uniform, free of foreign material, properly sized, washed, and then disinfected immediately prior to or during placement. Gravel pack shall be placed in one uniformly continuous operation.~~

~~(2.) After completion, the well shall be overpumped, surged, or otherwise developed to ensure free entry of water without sediment. A gravel-packed well shall be sealed in one of two ways to prevent pollution to the groundwater supply:~~

~~(moved to Section 11(e)(vii)(C)(I))(2.) If a permanent surface casing is not installed, the annular opening between the casing and the drill hole shall be sealed in the top 10 feet (3.05 m) with concrete or cement grout.~~

~~(moved to Section 11(e)(vii)(C)(II))(2.) If a permanent surface casing is installed, it shall extend to a depth of at least 10 feet (3.05 m). The annular opening between this outer casing and the inner casing shall be covered with a metal or cement seal.~~

~~(3.) Gravel refill pipes, when used, shall be Schedule 40 steel pipe incorporated within the pump foundation and terminated with screwed or welded caps at least 12 inches (30 cm) above the pump house floor or concrete apron. Gravel refill pipes located in the grouted annular opening shall be surrounded by a minimum of 1-1/2 inches (3.8 cm) of grout. Protection from leakage of grout into the gravel pack or screen shall be provided.~~

~~(V) Radial water collector.~~

~~(moved to Section 8(e)(iv))(1.) Locations of all caisson construction joints and porthole assemblies shall be indicated on drawings. The caisson wall shall be reinforced to withstand the forces to which it will be subjected. The top of the~~

~~caisson shall be covered with a watertight floor. The pump discharge piping shall not be placed through the caisson walls.~~

~~(2.) Provisions shall be made to assure that radial collectors are essentially horizontal.~~

~~(3.) All openings in the floor shall be curbed and protected from entrance of foreign material.~~

~~(VI) Infiltration lines. Where an infiltration line is used, the source shall be considered a surface source requiring treatment defined in Section 8(c) (i) unless, (1) the water system owner is in complete control of the surrounding property for a distance of 500 feet around the periphery of the infiltration system; (2) the area is fenced to exclude trespass; and (3) the infiltration collection lines are a minimum of 40 inches below the ground surface at all points within the infiltration collection system.~~

~~(VII) Limestone or sandstone wells. In consolidated formations, casing shall be driven a minimum of 5 feet into firm bedrock and cemented into place.~~

~~(VIII) Artesian wells.~~

~~(moved to Section 11(e)(vii)(D))(1.) When artesian water is encountered in a well, unperforated casing shall extend into the confining layer overlying the artesian zone. This casing shall be adequately sealed with cement grout into the confining zone to prevent both surface and subsurface leakage from the artesian zone. The method of construction shall be such that during the placing of the grout and the time required for it to set, no water shall flow through or around the annular space outside the casing, and no water pressure sufficient to disturb the grout prior to final set shall occur. After the grout has set completely, drilling operations may be continued into the artesian zone. If leakage occurs around the well casing or adjacent to the well, the well shall be recompleted with any seals, packers or casing necessary to eliminate the leakage completely.~~

~~(2.) If water flows at the surface, the well shall be equipped with valved pipe connections, watertight pump connections, or receiving reservoirs set at an altitude so that flow can be stopped completely. There shall be no direct connection between any discharge pipe and a sewer or other source of pollution.~~

~~(moved to Section 11(e)(vii)(E)(I)(IX) Wells that penetrate more than one aquifer.~~

~~(moved to Section 11(e)(vii)(E)(I)(1.) Where a well penetrates more than one aquifer or water-bearing strata, every aquifer and/or strata shall be sealed off to prevent migration of water from one aquifer or strata to another. Strata shall be sealed off by placing impervious material opposite the strata and opposite the confining formation(s). The seal shall extend above and below the strata no less than 10 feet. The sealing material shall fill the annular space in the interval to be sealed, and the surrounding void spaces~~

~~which might absorb the sealing material. The sealing material shall be placed from the bottom to the top of the interval to be sealed.~~

~~(2.) Sealing material shall consist of neat cement,cement grout, or bentonite clay.~~

~~(moved to Section 11(e)(vii)(E)(X) Wells that encounter mineralized or polluted water.~~

~~(moved to Section 11(e)(vii)(E)(1.) Any time during the construction of a well that mineralized water or water known to be polluted is encountered, the aquifer or aquifers containing such inferior quality water shall be adequately cased or sealed off so that water shall not enter the well, nor will it move up or down the annular space outside the well casing. If necessary, special seals or packers shall be installed to prevent movement of inferior quality water. Mineralized water may be used if it can be properly treated to meet all drinking water quality standards as determined by the administrator. When mineralized water is encountered, it shall not be mixed with any other waters from different aquifers within the well. If a well is penetrating multiple aquifers, mineralized water shall be excluded from the well if water is taken from other non-mineralized aquifers.~~

~~(moved to Section 11(e)(vii)(C)(2.) In gravel packed wells, aquifers containing inferior quality water shall be sealed by pressure grouting, or with special packers or seals, to prevent such water from moving vertically in gravel packed portions of the well.~~

~~(XI) Conversion of existing oil or gas wells, or exploration test holes, into water wells.~~

~~(moved to Section 11(e)(vii)(F) (1.) Existing oil and gas wells, seismic test holes, or mineral exploration holes may be converted for use as water wells provided that the wells can be completed to conform to the minimum construction standards cited in this chapter. This does not relieve the applicant from obtaining appropriate permits.~~

~~(2.) Information on the geologic conditions encountered in the well at the time of the original drilling shall be used to determine what special construction standards shall be met in order to eliminate all movement of pollutants into the well or along the annular space surrounding the casing. If no original geologic information is available, an electric or other geophysical log is required to supplement known information.~~

~~(C) Construction materials.~~

~~(I) Casing. The casing shall provide structural stability to prevent casing collapse during installation as well as drill hole wall integrity when installed, be of required size to convey liquid at a specified injection/recovery rate and pressure, and be of required size to allow for sampling.~~

~~(1.) Temporary steel casing. Temporary steel casing used for construction shall be capable of withstanding the structural load imposed during its installation and removal.~~

~~(2.) Permanent steel casing. Permanent steel casing pipe shall be new pipe meeting AWWA Standard A-100 specifications for water well construction. The casing shall have full circumferential welds or threaded coupling joints to assure a watertight construction.~~

~~a. Standard and line pipe. This material shall meet one of the following specifications:~~

~~API Std. 5L, "Specifications for Line Pipe."~~

~~API Std. 5LX, "Specifications for High-Test Line Pipe."~~

~~ASTM A53 "Standard Specification for Pipe Steel, Black and Hot Dipped, Zinc-Coated Welded and Seamless."~~

~~ASTM A120 "Standard Specifications for Pipe, Steel, Black and Hot-Dipped Zinc- Coated (Galvanized) Welded and Seamless, for Ordinary Uses."~~

~~ASTM A134 "Standards Specifications for Electric-Fusion (arc) - Welded Steel Plate Pipe (sizes NPS 16 inches and over)."~~

~~ASTM A135 "Standard Specifications for Electric - Resistance - Welded Steel Pipe." ASTM A139 "Standard Specification for Electric-Fusion (arc) - Welded Steel Pipe (Sizes 4" and over)."~~

~~ASTM A211 "Standard Specifications for Spiral - Welded Steel or Iron Pipe." AWWA C200 "AWWA Standard for Steel Water Pipe 6 inches and Larger."~~

~~b. Structural steel. This material shall meet one of the following specifications:~~

~~ASTM A36 "Standard Specification for Structural Steel."~~

~~ASTM A242 "Standard Specifications for High Strength Low Alloy Structural Steel." ASTM A283 "Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates, Shapes and Bars of Structural Quality."~~

~~ASTM A441 "Tentative Specifications for High-Strength Low Alloy Structural Manganese Vanadium Steel."~~

~~ASTM A570 "Standard Specification for Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality."~~

~~c. High-strength carbon steel sheets or "well casing steel". Each sheet of material shall contain mill markings which will identify the manufacturer and specify that the material is well casing steel which complies with the chemical and physical properties published by the manufacturer.~~

~~d. Stainless steel casing shall meet the provisions of ASTM A409 "Standard Specification for Welded Large Diameter Austenitic Steel Pipe for Corrosive or High Temperature Service".~~

~~3. Nonferrous casing materials. Nonferrous or plastic material may be used as a well casing. It must be resistant to the corrosiveness of the water and to the stresses to which it will be subjected during installation, grouting, and operation. The material shall be nontoxic. All joints shall be durable and watertight.~~

~~a. Thermoplastics. This material shall meet the requirements of ASTM F 480 "Standard Specification for Thermoplastic Water Well Casing Pipe and Couplings made in Standard Dimension Ratios (SDR)".~~

~~b. Thermosets. This material shall meet the requirements of the following specifications:~~

~~b. ASTM D2996 "Standard Specification for Filament Wound Reinforced Thermosetting Resin Pipe."~~

~~b. ASTM D2997 "Standard Specification for Centrifugally Cast Reinforced Thermosetting Resin Pipe."~~

~~b.ASTM D3517 "Standard Specification for Reinforced Plastic Mortar Pressure Pipe." AWWA C950 "AWWA Standards for Glass - Fiber - Reinforced Thermosetting - Resin Pressure Pipe."~~

~~c. Concrete pipe used for casing should conform to one of the following specifications:~~

~~c. ASTM C14 "Standard Specifications for Concrete Sewer, Storm Drain, and Culvert Pipe."~~

~~c. ASTM C76 "Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe."~~

~~c. AWWA C300 "AWWA Standards for Reinforced Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids."~~

~~c. AWWA C301 "AWWA Standards for Prestressed Concrete Pressure Pipe, Steel Cylinder Type, for Water and Other Liquids."~~

~~4. Casing diameter. The casing diameter (inside diameter) shall be a minimum of one size larger than the largest dimension/diameter of the pump or pumping structure. If a reduction in casing diameter is made, there shall be adequate overlap of the casing to prevent misalignment and to prevent the movement of unstable sediment into the well. To prevent the migration of mineralized, polluted, or otherwise inferior quality water, lead or neoprene packers shall be installed to seal the annular space between casings.~~

~~(II) Packers. Packers shall be material that will not impart taste, odor, toxic substance, or bacterial contamination to the well water.~~

~~(III) Screens.~~

~~(1.) Screens shall be constructed of materials resistant to damage by chemical action of groundwater or cleaning operations, and have size of openings based on sieve analysis of formation and/or gravel-pack materials. The screen shall have sufficient diameter to provide adequate specific capacity and low aperture entrance velocity. The entrance velocity shall not exceed 0.1 feet per second (3 cm/sec).~~

~~(2.) The screen shall be installed so that the pumping water level remains above the screen under all operating conditions, and shall be provided with a bottom plate or washdown bottom fitting of the same material as the screen.~~

~~(3.) For a nonhomogeneous aquifer having a uniformity coefficient less than 3.0 and an effective grain size less than 0.01 inches, an artificial filter or screen shall be used.~~

~~(IV) Grout and grouting requirements. All permanent well casing, except driven Schedule 40 steel casing, shall be surrounded by a minimum of 2 inches (5.1 cm) of grout. All temporary construction casings shall be removed. Where removal is not possible or practical, the casing shall be withdrawn at least 5 feet to ensure grout contact with the native formation.~~

~~(1.) Neat cement grout. Cement conforming to ASTM Standard C150 and water, with not more than 6 gallons (13.62 L) of water per sack of cement, must be used for 2 inch (5.1 cm) openings. Additives used to increase fluidity must meet ASTM C494.~~

~~(2.) Concrete grout. Equal parts of cement conforming to ASTM Standard C150 and sand, with not more than 6 gallons (13.62 L) of water per sack of cement, may be used for openings larger than 2 inches (5.1 cm). Where an annular opening~~

~~larger than 4 inches (10 cm) is available, gravel not larger than 1/2 inch (1.27 cm) in size may be added.~~

~~(3.) Clay seal. Where an annular opening greater than 6 inches (15.2 cm) is available a clay seal of clean local clay mixed with at least 10 percent swelling bentonite may be used.~~

~~(4.) Application. Prior to grouting through creviced or fractured formations, bentonite or similar materials may be added to the annular opening in the manner indicated for grouting. After cement grouting is applied, work on the well shall be discontinued until the cement or concrete grout has properly set.~~

~~Sufficient annular opening shall be provided to permit a minimum of 2 inches (5.1 cm) of grout around permanent casings, including couplings.~~

~~When the annular opening is 4 or more inches (10 cm) and less than 100 feet (30.5 m) in depth and concrete grout is used, the grout may be placed by gravity through a grout pipe installed to the bottom of the annular opening in one continuous operation until the annular opening is filled.~~

~~When the annular opening exceeds 6 inches (15.2 cm), and less than 100 feet (30.5 m) in depth and a clay seal is used, it may be placed by gravity.~~

~~(5.) Guides. The casing must be provided with sufficient guides welded to the casing to permit unobstructed flow and uniform thickness of grout.~~

~~(V) Upper terminal well construction.~~

~~(1.) Permanent casing for all groundwater sources shall project at least 12 inches (30.5 cm) above the pumphouse floor or concrete apron surface and at least 18 inches (0.46 m) above final ground surface. The concrete floor or apron shall slope away from the casing at a slope of 1 inch per foot (8.33 cm/m).~~

~~(2.) Where a well house is constructed, the floor surface shall be at least 6 inches (15.2 cm) above the final ground elevation and shall slope away from the casing at a slope of 1/2 inch per foot (4.16 cm/m).~~

~~(3.) Sites subject to flooding shall be provided with an earthen berm surrounding the casing and terminating at an elevation at least 2 feet (0.61 m) above the highest known flood elevation, or other suitable protection shall be provided.~~

~~(4.) The top of the well casing at sites subject to flooding shall terminate at least 3 feet (0.91 m) above the 100-year flood level or the highest known flood elevation, whichever is higher.~~

~~(5.) The casing and/or well house shall be protected from entrance by animals.~~

~~(VI) Development.~~

~~(1.) Every well shall be developed to remove the native silts and clays, drilling mud or finer fraction of the gravel pack. Development shall continue until the maximum specific capacity is obtained from the completed well.~~

~~(2.) Where chemical conditioning is required, the specifications shall include provisions for blasting and cleaning. Special attention shall be given to assure that the grouting and casing are not damaged by the blasting.~~

~~(VII) Capping requirements. A welded metal plate or a threaded cap shall be used for capping a well. A properly fitted, firmly driven, solid wooden plug may be used for capping a well until pumping equipment is installed. At all times during the progress of work, the contractor shall provide protection to prevent tampering with the well or entrance of surface water or foreign materials.~~

~~(D) Well pumps, discharge piping and appurtenances.~~

~~(I) Line shaft pumps. Wells equipped with line shaft pumps shall have the casing firmly connected to the pump structure or have the casing inserted into a recess extending at least 1/2 inch into the pump base, have the pump foundation and base designed to prevent water from coming into contact with the joint, and avoid the use of oil lubrication at pump settings less than 400 feet (122 m).~~

~~(moved to Section 11(e)(xii))(II) Submersible pumps. Where a submersible pump is used, the top of the casing shall be effectively sealed against the entrance of water under all conditions of vibration or movement of conductors or cables. The electrical cable shall be firmly attached to the rise pipe at 20 foot (6.1 m) intervals or less, and the pump shall be located at a point above the top of the well screen.~~

~~(III) Discharge piping.~~

~~(1.) The discharge piping shall have control valves and appurtenances located above the wellhouse floor. The piping shall be protected against the entrance of contamination and be equipped with a check valve, a shutoff valve, a pressure gauge, a means of measuring flow, and a smooth-nosed sampling tap located at a point where positive pressure is maintained. Where a submersible pump is used, a check valve shall be located in the casing in addition to the check valve located above ground to prevent negative pressures on the discharge piping.~~

~~(2.) For pipes equipped with an air release-vacuum relief valve, the valve shall be located upstream from the check valve, with exhaust/relief piping terminating in a downturned position at least 18 inches (0.46 m) above the floor and covered with a 24 mesh~~

~~corrosion-resistant screen. The discharge piping shall be valved to permit test pumping and control of each well.~~

~~(3.) All exposed piping, valves and appurtenances shall be protected against physical damage and freezing.~~

~~(4.) The piping shall be properly anchored to prevent movement, and shall be protected against surge or water hammer.~~

~~(5.) The discharge piping shall be provided with a means of pumping to waste, but shall not be directly connected to a sewer.~~

~~(moved to Section 11(e)(xxiv))(IV) Pitless well units. A pitless adaptor or well house shall be used where needed to protect the water system from freezing. moved to Section 11(e)(xxiv) A frost pit may be used only in conjunction with a properly protected pitless adaptor.~~

~~(1.) All pitless units shall be shop fabricated from the point of connection with the well casing to the unit cap or cover. They shall be threaded or welded to the well casing, and be of watertight construction throughout. The materials and weight shall be at least equivalent and compatible to the casing.~~

~~(2.) Pitless units shall have field connection to the lateral discharge from the pitless unit of threaded, flanged or mechanical joint connection, and the top of the pitless unit shall terminate at least 18 inches (0.46 m) above final ground elevation or 3 feet above the 100-year flood level or the highest known flood elevation, whichever is higher.~~

~~(3.) Provisions shall be made to disinfect the well. The unit shall have facilities to measure water levels in the well; a cover at the upper terminal of the well that will prevent the entrance of contamination; a contamination-proof entrance connection for electrical cable; an inside diameter as great as that of the well casing, up to and including casing diameters of 12 inches (30.5 cm), to facilitate work and repair on the well, pump, or well screen; and at least one check valve within the well casing.~~

~~(V) Casing vent. Provisions shall be made for venting the well casing to atmosphere. The vent shall terminate in a downturned position, at or above the top of the casing or pitless unit in a minimum 1-1/2 inch (3.8 cm) diameter opening covered with a 24 mesh corrosion-resistant screen. The pipe connecting the casing to the vent shall be of adequate size to provide rapid venting of the casing.~~

~~(moved to Section 11(e)(xv))(vi) Water level management. Every well greater than 4 inches (10 cm) in diameter shall be equipped with an access port that will allow for the measurement of the depth to the water surface; or in the case of a flowing artesian well, with a pressure gauge that will indicate pressure. An air line used for level measurement shall be provided on all wells greater than 4 inches (10 cm) in diameter. Installation of water~~

~~level measuring equipment shall be made using corrosion-resistant materials attached firmly to the drop pipe or pump column and in such a manner as to prevent entrance of foreign materials.~~

~~(moved to Section 11(e)(xvi))(VII) Discharge measuring device. Every well shall be piped so that a device capable of measuring the total well discharge can be placed in operation at the well for well testing. Every well field (or when only one well is present, every well) shall have a device capable of measuring the total discharge.~~

~~(VIII) Observation wells. Observation wells shall be constructed in accordance with the requirements for permanent wells if they are to remain in service after completion of a water supply well. They shall be protected at the upper terminal to preclude entrance of foreign materials.~~

~~moved to Section 11(e)(xvi))(IX) Well abandonment. Test wells and groundwater sources which are not in use shall be sealed in accordance with requirements of Chapter 26, Water Quality Rules and Regulations.~~

~~(moved to Section 11(e)(xvi))(IX)Wells shall be sealed by filling with neat cement grout. The filling materials shall be applied to the well hole through a pipe, tremie, or bailer.~~

(a) 2018 TSS, parts 1.1.1-1.1.1(d), engineers report, general information; 1.1.2-1.1.2(c), engineers report, extent of water works system; 1.1.4-1.1.4(c), engineers report, soil, groundwater conditions, and foundation problems; 1.1.5-1.1.5(f), engineers report, water use data; 1.1.6-1.1.6(b), engineers report, flow requirements; 1.1.7.1-1.1.7.1(f), engineers report, surface water sources; 1.1.7.2-1.1.7.2(g), engineers report, groundwater; 1.1.8, engineers report, proposed treatment processes; 1.1.9, engineers report, sewerage system available; 1.1.10, engineers report, waste disposal; 1.1.15-1.1.15(d), engineers report, pumping facilities; 1.1.16-1.1.16(c), engineers report, storage facilities; and 1.1.17-1.1.17(d), engineers report, security, contingency planning, and emergency preparedness; are herein incorporated by reference.

~~(formerly Section 6(a))~~(b) ~~Scope and purpose.~~ An engineering design report shall be submitted with each application. ~~The purpose of the report shall be to describe and provide technical justification for all aspects of the proposed construction, modifications and/or installations. The report should address existing conditions (if any), known or suspected problems, proposed actions, and the reasoning used to arrive at those proposed actions. There is no minimum or maximum size for the report, provided it meets the purpose of this section.~~ and shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description by narrative, analyses, and calculations of the project purpose and intent in order to support the project plans and specifications;

(iii) A description of known or suspected problems, needs, or requirements, and the reasoning used to arrive at the proposed solution;

(iv) An identification of problems and solutions related to but not limited to the following:

(A) Water quantity and quality;

(B) Compliance with the Safe Drinking Water Act, 42 U.S.C. §300f et seq.; and

(C) Operational requirements, redundancy, maintenance, and reliability.

~~(formerly 6(d))~~(v) ~~Hazard classification. The engineering design report shall include a~~A determination of the degree of hazard of all known or anticipated water service connections to be connected to the proposed project. A hazard classification shall be identified for each connection and recommended mitigation measures shall be described for each hazard. ~~. hazard classification or specify the default classification identified in Section 14 (i) (i) (B) which shall be applicable to the project. A hazard classification shall include the following:~~

~~(moved to Section 9(b)(iv))(i)A determination of the degree of hazard of all water service connections to be connected to the proposed project.~~

~~(moved to Section 9(b)(iv))(ii) A determination of the potential cause of backflow for all water service connections.~~

~~(formerly Section 6(b))~~(c) ~~Water distribution (water works) systems.~~ The engineering design report for all new water distribution system extensions shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

~~(formerly Section 6(b)(i))~~(ii) A description of the service area including scaled vicinity plan map(s) of the project with regard to adjacent and proposed development, elevations, and topographic features~~.~~;

~~(formerly Section 6(b)(ii))~~(iii) Current and projected system water ~~demand for average day,~~ use data and flow requirements to include ~~maximum day~~ , maximum ~~hour~~ hourly demand~~, needed fire flows~~ and per capita maximum daily flows~~.~~; and

~~(formerly Section 6(b)(iii))~~(iv) Information on fire protection and fire flow capabilities of the proposed system.

~~(formerly Section 6(b)(iv)) Description of high service pumping systems and finished water storage facilities.~~

~~(formerly Section 6(c))~~(d) ~~Treatment facilities.~~ The engineering design report for all treatment facilities shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

~~(formerly Section 6(c)(i))~~(ii) A description of the facility site and location, including a scaled site plan, and:

~~(formerly Section 6(c)(i)(A))~~(A) Present and projected facility property boundaries~~.~~:

~~(formerly Section 6(c)(i)(B))~~(B) Flood protection indicating predicted elevation of 25- and 100-year flood stages. ~~The facility shall be protected from damage and be capable of being operated during the 100-year flood or maximum flood of record, whichever is greater. Flooding resulting from ice jams shall be considered.~~

~~(formerly Section 6(c)(i)(C))~~(C) Present and proposed access~~.~~ for the purpose of operation, maintenance, and compliance inspection;

~~(formerly Section 6(c)(i)(D))~~(D) Distances from: ~~current habitation, the closest major treated water transmission line, the closest treated water storage facility, and the water source.~~

~~(formerly Section 6(c)(i)(D))~~(I) ~~c~~Current habitation;

~~(formerly Section 6(c)(i)(D))~~(II) ~~t~~The closest major treated water transmission line;

~~(formerly Section 6(c)(i)(D))~~(III) ~~t~~The closest treated water storage facility; and

~~(formerly Section 6(c)(i)(D))~~(IV) ~~t~~The water source.

~~(formerly Section 6(c)(i)(E))~~(E) Fencing and~~/or~~ security~~.~~;

~~(formerly Section 6(c)(i)(F))~~(F) Topographic features and contours with indicated datum~~.~~; and

~~(formerly Section 6(c)(i)(G))~~(G) Soil and subsurface geological characteristics~~.~~, including ~~Provide~~ a soils investigation report of the proposed site suitable for structural design of the proposed facilities.

~~(formerly Section 6(c)(ii))~~(iii)A ~~detailed~~ description of the service area, ~~for the project~~ including ~~a~~ scaled vicinity plan ~~showing land use and boundaries~~ map(s) of the project with regard to adjacent and proposed development, elevations, and topographic features .

~~(formerly Section 6(c)(iii))~~(iv) A detailed description of the recycle flows and procedures for reclamation of recycle streams~~.~~; and

~~(formerly Section 6(c)(iv))~~(v) A detailed description of disposal techniques for settled solids, including a description of the ultimate disposal of sludge.

~~(formerly Section 6(c)(v)(B))~~(e) Engineering design reports for new ~~S~~surface water sources shall include~~.~~ the following required elements:

(i) The information required in paragraph (a) of this Section;

~~(formerly Section 6(c)(v)(B)(I))~~(ii) ~~Safe annual yield,~~ A description of ~~the quantity of~~ water quantity available ~~from the source~~ during ~~the~~ average and driest years of record~~.~~ that contains details of:

~~(formerly Section 6(c)(v)(B)(II))~~(A) ~~Hydrological data, stream flows and~~ Any diversion records~~.~~; and

~~(formerly Section 6(c)(v)(B)(VI))~~(B) ~~Description of any d~~Diversion dams, impoundments or reservoirs ~~and appurtenances~~ that may impact design considerations or long-term water availability.

~~(formerly Section 6(c)(v)(B)(III))~~(iii) A tabulation of ~~Representative~~ water quality data~~,~~ that describes the ~~including bacteriological~~ biological, radiological, and chemical ~~and physical data.~~ water quality ~~These data shall be~~ sufficient to determine ~~the~~ necessary treatment processes ~~and the ability to meet water quality standards.~~ that:

(A) For surface water source testing, include at least one sampling event during spring runoff and at least one sampling event during late summer or early fall low flow; and

(B) Includes data that are sufficient for the Division to determine that the processes safely and reliably comply with water quality standards required by 40 CFR Part 141.

~~(formerly Section 6(c)(v)(A))~~(f) Engineering design reports for new ~~G~~groundwater sources shall include~~.~~:

(i) The information required in paragraph (a) of this Section;

~~(formerly Section 6(c)(v)(A)(I))~~(ii) A description of the ~~G~~geology of the aquifer(s) and overlying strata~~.~~;

~~(formerly Section 6(c)(v)(A)(II))~~(iii) Tabulated ~~W~~water quality~~,~~ testing data ~~including~~ for biological, radiological and chemical water quality ~~data~~ sufficient to determine necessary treatment processes ~~and compliance with all drinking water standards as determined by the administrator. The same water quality data for all secondary sources shall also be~~

~~provided.~~and sufficient for the Administrator to determine that the processes safely and reliably meet water quality standards required by 40 CFR Part 141;

(iv) If known, a summary of the likely drilling and completion challenges that will be faced, including a description of the engineering design, management, monitoring, and drilling and completion practices that will be used to successfully construct the well in accordance with this Chapter; and

(v) For wells that will be drilled through multiple aquifers, applicants shall request a pre-application meeting with the applicable Division district engineer to discuss:

(A) The boring advancement, well sealing, well development, and methods used to determine the adequacy of the well seal; and

(B) The methods that will be used to overcome lost circulation, bore instability, and deviations from vertical alignment.

(g) Engineering design reports for conversion of an existing well into a public water supply well shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) The information required in paragraph (f) of this Section;

(iii) The submission of the State Engineer's Office (SEO) Statement of Completion and Description of Well; and

(iv) A video log of the well inspection accompanied by a written description of the location, shape, and estimated size of any holes, breaches, corroded areas in the casing, if any, that includes:

(A) If any damage to the casing is found, a descripition of how defective areas will be repaired and if there is a need for additional well bond logging; or

(B) If well bond logging is not recommended, a descripition of the technical justification and an alternative means of certifying the adequacy of the well seal to protect the water source.

(h) Engineering design reports for new water treatment facilities shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) A description of all water treatment chemical requirements, including dosage and feed rates, delivery, handling, and storage;

(iii) A description of automatic operation and control systems, including basic operation, manual override operation, and maintenance requirements; and

(iv) A description of the on-site laboratory facilities and a summary of those tests to be conducted on-site. If no on-site laboratory is provided, a description of plant control and water quality testing requirements, and where the testing will be conducted shall be included.

(i) Engineering design reports for water treatment facility modifications shall describe:

(i) The information required in paragraph (a) of this Section;

(ii) The purpose of the facility modification;

(iii) All proposed new equipment, tankage, and chemical treatment processes, including a description of the modification's effect on treatment system reliability, water quantity and quality; and

(iv) A listing of the new equipment design criteria and the associated chemicals.

(j) Engineering design reports for water main upsizing or looping projects shall describe the purpose of the water main upsizing or looping project and shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) Hydraulic analysis that demonstrates how peak hour, average day, maximum day, and maximum day plus fire flows, if fire flows are available, will be improved by upsizing; and

(iii) A table that summarizes the hydraulic model results.

(k) Engineering design reports for water main removal and replacements shall describe the purpose of the replacement and identify the existing main size, material type, and condition, and shall include the following required elements:

(i) The information required in paragraph (a) of this Section;

(ii) For any main replacement(s), the replacement main size, material type, and dimension ratio;

(iii) For projects that consist of main replacements in multiple discrete locations, an aerial image that shows all replacement pipeline segments, including new valves, with called-out pipe diameters and lengths;

(iv) A description of the protective measures that will be taken at locations where the new water main will cross a sewer or storm sewer when standard horizontal and vertical separations cannot be met; and

(v) For projects where asbestos cement may be encountered, a discussion of the disposal, or abandonment method to be used.

(l) Engineering design reports for new water mains shall describe the purpose of the new water main and shall include the information required in paragraph (a) of this Section. If the water main will provide service to a new development the engineering design report shall include the following required elements:

(i) The modeling result from a hydraulic analysis that demonstrates that the design will meet the requirements of Section 16(d)(i-ii) of this Chapter;

(ii) A demonstration that the hydraulic model was calibrated based on existing fire hydrant test flow data, when available, or based on modeling; and

(iii) Identification of any impacts the new fire flow demand will have on finished storage and pumping systems over the required fire flow duration.

Section 10. ~~Treatment~~ Design Requirements for Preliminary Treatment and Redundancy.

~~(moved to Section 12(b))(a) Design capacity. The capacity of the water treatment or water production system shall be designed for the maximum daily demand at the design year.~~

~~(moved to Section 12(c))(b) Presedimentation. Raw waters which have episodes of turbidity in excess of 1,000 TU for a period of one week or longer shall be presettled.~~

~~(moved to Section 12(d)(i))(i)Detention time. Basins without mechanical sludge collection equipment shall have a minimum detention time of three days. Basins with mechanical sludge collection equipment shall have a minimum detention time of three hours.~~

~~(ii) Inlet. Inlet flow shall be evenly dispersed along the inlet of the basin.~~

~~(moved to Section 12(b)(iv))(iii) Drains. Basins shall have a minimum of one 8-inch (20 cm) drain line to completely dewater the facility.~~

~~(moved to Section 12(b)(iii))(iv) Bottom slope. Basins shall have a bottom slope to drain of 1/4 inch per foot (20 mm/m) without mechanical sludge collection equipment and 2 inches per foot (16 cm/m) with mechanical sludge collection equipment.~~

~~(v) Bypass. Basin bypass provisions shall be included in the process piping.~~

~~(moved to Section 12(e))(c) Rapid mix. Rapid dispersal of chemicals throughout the water shall be accomplished by mechanical mixers, jet mixers, static mixers, or hydraulic jump.~~

~~(moved to Section 12(e)(i))(i) Mixing intensity. For mechanical mixers, the minimum Gt (velocity gradient (sec-1) x t (sec)) provided at maximum daily flow shall be 27,000.~~

~~(moved to Section 12(e)(ii))(ii) Mixing time. The detention time in a flash mixing chamber shall not exceed 30 seconds at maximum daily flow conditions.~~

~~(moved to Section 12(e)(iii))(iii) Drain. The basin shall have a drain.~~

~~(moved to Section 12(f))(d) Flocculation. The low velocity agitation of chemically treated water shall be accomplished by mechanical flocculators.~~

~~(moved to Section 12(f)(ii))(i) Detention time. A minimum of 10 minutes detention time shall be provided.~~

~~(moved to Section 12(f)(iv))(ii) Mixing intensity. The velocity gradient (G value) imposed shall be adjustable by providing variable speed drives or shall be designed to be 30 sec-1 if a single basin is provided, 20 sec-1 in the final basin of a two stage system, and 10 sec-1 in the final basin of a three stage system. For a single speed drive system, the tip speed of the mixer shall not exceed 3 feet per second (0.91 m/sec). Variable speed drives shall provide tip speeds of 0.5 to 3.0 feet per second (0.15-0.91 m/sec).~~

~~(moved to Section 12(f)(iii))(iii) Drains. Flocculation basins shall have a minimum of one drain line to dewater the facility.~~

~~(moved to Section 12(f)(vi))(iv) Piping. The velocity of flocculated water through pipes or conduits to settling basins shall not be less than 0.5 or greater than 1.5 feet per second (0.15-0.46 m/sec).~~

~~(moved to Section 12(g))(e) Sedimentation basins.~~

~~(moved to Section 12(g)(i))(i) Diameter. The maximum diameter in circular basins shall be 80 feet.~~

~~(moved to Section 12(g)(v))(ii) Overflow rate. The basin overflow rate shall not exceed 1,000 gpd/ft2 (41 m3/m^2d) at design conditions.~~

~~(iii) Weir loading rate. Weir loading rates shall not exceed 20,000 gpd/ft (2480 m^3md) of length. The weir length shall be computed as the length of the centerline of the launder. Where the weir is located at 3/4 the radius, the weir may be loaded at 36,000 gpd/ft (4464 m3/m·d).~~

~~(moved to Section 12(g)(ii))(iv) Side water depth. The minimum basin side water depth shall be 8 feet (2.43 m) if mechanical sludge collection equipment is provided or basins or basin sludge hopper segments are less than 100 square feet (9.3 m) in surface area and 15 feet (4.6 m) if basins are manually cleaned. Mechanical sludge collection equipment includes mechanically driven drives that use scrapers or differential water level to collect the sludge.~~

~~(moved to Section 12(g)(iii))(v) Freeboard. The outer walls of settling basins shall extend at least 12 inches (30.5 cm) above the surrounding ground and provide at least 12 inches (30.5 cm) of freeboard to the water surface. Where basin walls are less than 4 feet (1.22 m) above the surrounding ground, a fence or other debris barrier shall be provided on the wall.~~

~~(vi) Inlet devices. Inlets shall be designed to distribute the water equally and at uniform velocities. Open ports, submerged ports, and similar entrance arrangements are required. A baffle should be constructed across the basin close to the inlet end and should project several feet below the water surface to dissipate inlet velocities and provide uniform flows across the basin.~~

~~(vii) Velocity. The velocity through settling basins shall not exceed 0.5 feet per minute (0.15 m/min). The basins must be designed to minimize short-circuiting.~~

~~(moved to Section 12(g)(vi))(viii) Sludge collection. If settleable organics are present in the water or if there is a history of organically related taste and odor problems, mechanical sludge collection shall be provided.~~

~~(moved to Section 12(g)(vii))(ix) Sludge removal. Sludge removal design shall provide that sludge pipes shall be not less than 6 inches (15.2 cm) in diameter and arranged to facilitate cleaning. Valves on the sludge line shall be located outside the tank.~~

~~(x) Flushing lines. Flushing lines or hydrants shall be provided near the basins.~~

~~(moved to Section 12(e)(iv))(xi) Drainage. Basin bottoms shall slope toward the drain at not less than 1 inch per foot (8 cm/m) where mechanical sludge collection equipment is provided and 1/4 inch per foot (2 cm/m) where no mechanical sludge collection equipment is provided.~~

~~(moved to Section 12(h))(f) Softening sedimentation - clarification. Conventional sedimentation - clarification as described above shall be provided in softening operations, except for softening a groundwater supply of constant quality. Where a groundwater supply is softened, the requirements may be modified as follows:~~

~~(moved to Section 12(h)(i))(i)Overflow rate. The basin overflow rate at the design flow shall not exceed 2,100 gpd/ft2 (86 m3/m2·d).~~

~~(moved to Section 12(h)(ii))(ii) Sludge. Mechanical sludge removal shall be provided and shall be designed to handle a load of 40 lbs/foot (60 kg/m) of collector scraper arm length.~~

~~(iii) Other design considerations shall be the same as conventional sedimentation - clarification.~~

~~(moved to Section 12(l))(g) Solids contact units. These treatment units are acceptable for combined softening and clarification of well water where water quality characteristics are not variable and flow rates are uniform. The units shall be designed to meet the criteria detailed previously.~~

~~(moved to Section 12(l)(i))(i) Such units may be considered for use as clarifiers without softening when they are designed to meet the criteria detailed in the conventional sedimentation - clarification.~~

~~(moved to Section 12(l)(ii))(ii) These units may also be used for other treatment purposes, such as rapid mixing, flocculation, etc., when the individual components of the solids contact units are designed in accordance with the design criteria for that individual treatment process as described above.~~

~~(moved to Section 12(j))(h) Settling tube clarifiers. Shallow depth sedimentation devices or tube clarifier systems of the essentially horizontal or steeply inclined types may be used when designed as follows:~~

~~(moved to Section 12(j)(iii))(i) Sludge removal. Sludge shall be removed using 45 or steeper hoppered bottoms, or mechanical devices that move the sludge to hoppers, or devices that remove settled sludge from the basin floor using differential hydraulic level.~~

~~(moved to Section 12(j)(iv))(ii) Tube cleaning. A method of tube cleaning shall be provided. This may include a provision for obtaining a rapid reduction in clarifier water surface elevation, a water jet spray system, or an air scour system. Where cleaning is automatic, controls shall be provided to cease clarifier operation during tube cleaning and a 20 minute rest period.~~

~~(moved to Section 12(j)(ii))(iii) Tube placement. Tops of tubes shall be more than 12 inches (0.3 m) from the underside of the launder and more than 18 inches (0.46 m) from the water surface.~~

~~(moved to Section 12(j)(i))(iv) Loading rates. The maximum overflow rate shall be less than 2.0 gpm/sq ft (62.7 m3/m2·d) based on the surface area of the basin covered by the tubes.~~

~~(moved to Section 12(j)(ii))(v) Effluent launderers. The spacing between effluent launderers shall not exceed three times the distance from the water surface to the top of the tube modules.~~

~~(moved to Section 12(k))(i) Filtration.~~

~~(moved to Section 12(k)(i))(i)Pressure granular media filters. Vertical or horizontal pressure filters shall not be used for filtration of surface waters. Pressure filters may be used for groundwater filtration, including iron and manganese removal.~~

~~(ii) Gravity filters.~~

~~(moved to Section 12(k)(i)(A))(A) Slow rate sand filters. These types of filters may be used when maximum raw water turbidity is less than 50 TUs and the turbidity present is not attributable to colloidal clay. Maximum color shall not exceed 30 units.~~

~~(I) Loading rates. The allowable loading rates at maximum daily demands shall not exceed 0.1 gpm/ft2 (5.9 m3/m2.d) unless satisfactory pilot testing is completed prior to design which shows a higher rate is appropriate.~~

~~(II) Number of filters. At least two units shall be provided. Where only two units are provided, each shall be capable of meeting the plant design capacity at the maximum filtration rate. Where more than two filter units are provided, the filters shall be capable of meeting the plant design at the maximum filtration rate with one filter removed from service.~~

~~(III) Underdrains. Each filter unit shall be equipped with a main drain and an adequate number of lateral underdrains to collect the filtered water. The underdrains shall be so spaced that the maximum velocity of the water flow in the lateral underdrain will not exceed 0.75 feet per second (0.22 m/sec). The maximum spacing of the laterals shall not exceed 12 feet (3.7 m).~~

~~(IV) Filter material. Filter sand shall be placed on graded gravel layers for a minimum sand depth of 30 inches (0.76 m). The effective size shall be between 0.15 mm and 0.35 mm. The uniformity coefficient shall not exceed 2.0. The sand shall be clean and free from foreign matter. The supporting gravel shall conform to the size and depth distribution provided for rapid rate gravity filters.~~

~~(V) Depth of water on filter beds. Design shall provide a depth of at least 3 feet (0.91 m) of water over the sand. Influent water shall enter the water surface at a velocity of less than 2 feet per second (0.61 m/sec). An overflow shall be provided at the maximum water surface elevation.~~

~~(VI) Appurtenances. Each filter shall be equipped with loss of head gauge; an orifice, Venturi meter, or other suitable metering device installed on each filter to control the rate of filtration; and an effluent pipe designed to maintain the water level above the top of the filter sand.~~

~~(VII) Covers. When covers are provided for temperature or sunlight control, they shall be designed to allow adequate headroom above the top of the sand and adequate access ports or manholes.~~

~~(B) Rapid rate filters.~~

~~(I) Loading rates. The maximum allowable loading rates at maximum daily demands shall not exceed 3 gpm/ft2 (177 m3/m2·d) for single media filters or 5 gpm/ft2 (295 m3/m2·d) for dual or mixed media filters. Each filter shall have a rate limiting device to prevent the filter from exceeding the maximum rate.~~

~~(II) Filter compartment design. The filter media compartment shall be constructed of durable material not subject to corrosion or decay and structurally capable of supporting the loads to which it will be subjected.~~

~~(1.) There shall be an atmospheric break between filtered and non-filtered water, accomplished by double wall construction.~~

~~(2.) The compartment walls shall be vertical and shall not protrude into the filter media.~~

~~(3.) There shall be a minimum of 2½ feet (0.76 m) of headroom above the top of the filter compartment walls.~~

~~(4.) Neither floor nor roof drainage shall enter the filter. If the top of the filter compartment is at floor level, a minimum 4 inch curb shall be constructed around the box.~~

~~(5.) Walkways or observation platforms shall be provided for each filter compartment. Walk-ways around the filter shall be a minimum of 24 inches wide.~~

~~(6.) Effluent line shall be trapped or submerged below the low water level in the clearwell to prevent air from entering the filter bottom. The velocity in the filter influent line shall not exceed 4 feet per second (1.2 m/sec). An overflow from the influent of the filter compartment shall be provided.~~

~~(7.) The distance between the operating water level in the filter and the high water level in the clearwell or effluent trap shall be 10 feet (3.05 m) minimum. The minimum operating water level over the media shall be 3 feet (0.91 m), and the minimum depth of the filter box shall be 8 1/2 feet (2.6 m).~~

~~(III) Washwater troughs. (moved to Section 12(k)(ii)(A))Washwater troughs shall be constructed to provide for not more than 6 feet (1.8 m) clear distance between troughs. The troughs shall not cover more than 25 percent of filter area.~~

~~(moved to Section 12(k)(ii)(B))(1.) Minimum clearance between the bottom of trough and top of unexpanded media shall be 12 inches (30.5 cm).~~

~~(moved to Section 12(k)(ii)(C))(2.) Minimum distance between the weir of the trough and the unexpanded media shall be 30 inches (0.76 m).~~

~~(moved to Section 12(k)(ii)(E))(3.) The trough and washwater waste line shall be sized to carry a filter backwash rate of 20 gpm/ft2 (1181 m3/m2·d) plus a surface wash rate of 2.0 gpm/ft2 (118 m3/m2·d).~~

~~(IV) Backwash system.~~

~~(moved to Section 12(k)(ii)(F))(1.) The backwash system shall be sized to provide a minimum backwash flow rate of 20 gpm/ft2 (1181 m3/m2·d). Washwater storage shall be designed to provide two 20 minute washes in rapid succession. Where multiple units are not required and only one filter compartment is present, backwash storage capabilities may be reduced to provide one 20 minute backwash. Where pumps are used to provide backwash to the filter or to supply water to a washwater tank, the washwater pumps shall be in duplicate.~~

~~(moved to Section 12(k)(ii)(H))(2.) The backwash and surface wash washwater supply shall be filtered and disinfected.~~

~~(moved to Section 12(k)(ii)(I))(3.) Washwater rate shall be controlled by a separate valve, manual or automatic, on the main washwater line. Washwater flow rates shall be metered and indicated.~~

~~(moved to Section 12(k)(ii)(J))(4.) Air-assisted backwash systems may be used when the design precludes disturbing the gravel support.~~

~~(moved to Section 12(k)(ii)(K))(5.) A surface wash system shall be provided. The system shall be capable of supplying 0.5 gpm/ft2 (29.5 m3/m2·d) for system with rotating arms and 2.0 gpm/ft2 (118 m3/m2·d) with fixed nozzles, at a minimum pressure of 50 psi (344 kPa). The surface wash shall use filtered and disinfected water or air and filtered disinfected water. The supply system shall be provided with adequate backflow prevention.~~

~~(V) Filter materials. For rapid rate filters, coarse-to-fine beds of mixed or dual media or fine-to-coarse single media beds may be used.~~

~~1. Types of filter media:~~

~~.~~

~~a. Anthracite. Clean crushed anthracite, or a combination of anthracite and other media shall have an effective size of 0.45 mm - 0.55 mm with uniformity coefficient not greater than 1.65 when used alone, or an effective size of 0.8 mm - 1.2 mm with a uniformity coefficient not greater than 1.65 when used as a cap. The anthracite shall meet the requirements of AWWA B100.~~

~~b. Sand. Sand shall have an effective size of 0.45 mm to 0.55 mm, a uniformity coefficient of not greater than 1.65, and shall meet the requirements of AWWA B100.~~

~~(c.) Granular activated carbon (GAC). Granular activated carbon media may be used in place of anthracite. There must be means for periodic treatment of granular activated carbon filter material for control of bacterial and other growths. Provisions must be made for replacement or regeneration if GAC is used for filtration.~~

~~(d.) Torpedo sand or garnet. A layer of torpedo sand or garnet shall be used as a supporting media for filter sand.~~

~~2. Sand for single media beds. The media shall be clean silica sand having a depth of not less than 24 inches (0.61 m), an effective size of from 0.45 mm to 0.55 mm, and a uniformity coefficient not greater than 1.65. A 3 inch (7.6 cm) layer of torpedo sand or other high density material shall be used as a supporting media for the filter sand. The material shall have an effective size of 0.8 mm to 2.0 mm, and a uniformity coefficient not greater than 1.7.~~

~~(moved to Section 12(k)(iii)) 3. Anthracite for single media beds. Clean crushed anthracite or a combination of sand and anthracite may be used. Such media shall have an effective size from 0.45 mm to 0.55 mm, and a uniformity coefficient not greater than 1.65.~~

~~(moved to Section 12(k)(iii)(A)) 4.Gravel. When used as a supporting media, gravel shall consist of coarse aggregate in which a high proportion of the particles are rounded and tend toward a generally spherical or equidimensional shape. (moved to It shall possess sufficient strength and hardness to resist degradation during handling and use, be substantially free of harmful materials, and exceed the minimum density requirement. The gravel shall meet the requirements of AWWA B100.~~

~~(moved to Section 12(k)(ix)) 5.Multi-media. Filter beds of this type shall contain a depth of fine media made up of anthracite coal, specific gravity 1.5; silica sand, specific gravity 2.6; and garnet sand or ilemite, specific gravity 4.2 - 4.5.~~

~~(moved to Section 12(k)(ix)(A)) a. Bed depths and distribution of the media shall be determined by the water quality, but shall not be less than 10 inches (0.25 m) of fine sand and 24 inches (0.61 m) of coal. The relative size of the particles shall be such that hydraulic grading of the material during backwash will result in a filter bed with pore space graded progressively from coarse to fine in the direction of filtration (down).~~

~~(moved to Section 12(k)(ix)(B)) b. The multi-media shall be supported on two layers of special high density gravel placed above the~~

~~conventional silica gravel supporting bed. The special gravel shall have a specific gravity not less than 4.2. The bottom layer shall consist of particles passing No. 5 and retained on No. 12 U.S. mesh sieves and shall be 1-1/2 inches (3.8 cm) thick. The top layer shall consist of particles passing No. 12 and retained on No. 20 U.S. mesh sieves, and shall be 1-1/2 inches (3.8 cm) thick.~~

~~(moved to Section 12(i)(iv)) 6. Dual media. Coal sand filters shall consist of a coarse coal layer above a layer of fine sand. The media shall consist of not less than 8 inches (20 cm) of sand and 15 inches (0.38 m) of coal on a torpedo sand or garnet layer support of not less than 3 inches (7.8 cm) on the gravel support.~~

~~(moved to Section 12(k)(v))(VI) Filter bottoms. Acceptable filter bottoms and strainer systems shall be limited to pipe, perforated pipe laterals, tile block and perforated tile block. Perforated plate bottoms or plastic nozzles shall not be used.~~

~~(moved to Section 12(k)(vi))(VII) Appurtenances. Every filter shall have influent and effluent sampling taps; indicating loss of head gauge; indicating effluent turbidimeter; a waste drain for draining the filter compartment to waste; and a filter rate flow meter. Every filter shall provide polymer feed facilities including polymer mixing and storage tank and at least one feed pump for each filter compartment. On plants having a capacity in excess of 0.5 MGD, recorders shall be provided on the turbidimeters.~~

~~(moved to Section 12(k)(vii))(VIII) Filter rate control. Filter rate control shall be such that the filter is not surged. Filter rate of flow shall not change at a rate greater than 0.3 gpm/ft2 (17.7 m3/m2·d) per minute. Filters that stop and restart during a cycle shall have a filter to waste system installed. Declining flow rate filters shall not be used unless the flow rate for each filter is controlled to rates less than allowed in 10 (i)(ii)(B) and there are four or more individual filters.~~

~~(moved to Section 12(k)(viii))(IX) A filter to waste cycle shall be provided after the filter backwash operation. The filter to waste cycle shall be at least 10 minutes.~~

~~(moved to Section 12(k)(x))(j) Diatomaceous earth filtration. These types of filters may be used as the filtration process to remove turbidity from surface waters where turbidities entering the filters do not exceed 25 TU and where total raw water coliforms do not exceed 100 organisms/100 ml. These filters may be used where the raw water quality exceeds the above limits when flocculation and sedimentation are used preceding the filters. Diatomaceous earth filters may also be used for removal of iron from groundwaters.~~

~~(moved to Section 12(k)(x)(B))(i) Types of filters. Pressure or vacuum diatomaceous earth filtration units will be considered for approval.~~

~~(moved to Section 12(k)(ix)(C))(ii) Precoat. A precoating system shall be provided.~~

~~(A) A uniform precoat shall be applied hydraulically to each septum by introducing a precoat slurry to the filter influent line and employing a filter to waste or recirculation system.~~

~~(B) Feed capabilities. Diatomaceous earth in the amount of 0.20 lb/ft2 (1 Kg/m2) minimum of filter area shall be used with recirculation. When precoating is accomplished with a filter to waste system, 0.3 lbs/ft2 (1.5 Kg/m2) minimum shall be provided.~~

~~(iii) Body feed. A body feed system to apply diatomaceous earth slurry continuously during the filter run shall be provided. Continuous mixing of the body feed slurry tank during the filter cycle shall be provided.~~

~~(iv) Filtration.~~

~~(A) Rate of filtration. The maximum rate of filtration shall not exceed 1.5 gpm/ft2 (88.6 m3/m2·d) of septum area. The filtration rate shall be controlled by a positive means.~~

~~(B) Head loss. The head loss shall not exceed 30 psi (206 kPa) for pressure diatomaceous earth filters, or a vacuum of 15 inches of mercury (50.8 kPa) for vacuum system.~~

~~(C) Recirculation. A recirculation or holding pump shall be provided to maintain differential pressure across the filter when the unit is not in operation in order to prevent the filter cake from dropping off the filter elements. A minimum recirculation rate of 0.1 gallons per minute per square foot (5.9 m3/m2·d) of filter area shall be provided. The filter control system shall prevent automatic restart after power failure.~~

~~(D) Septum or filter element. The filter elements shall be structurally capable of withstanding maximum pressure and velocity variations during filtration and cleaning cycles, and shall be spaced so that not less than 2 inches (5.1 cm) are provided between elements or between any element and a wall.~~

~~(E) Inlet design. The filter influent shall be designed to prevent scour of the diatomaceous earth from the filter element.~~

~~(v) Appurtenances. Every filter shall provide sampling taps for raw and filtered water; loss of head or differential pressure gauge; rate of flow indicator, with totalizer; and a throttling valve used to reduce rates during adverse raw water conditions.~~

~~(vi) Monitoring. A continuous monitoring turbidimeter is required on the filter effluent from each filter unit for plants treating surface water.~~

~~(moved to Section 12(l))(k) Disinfection. Chlorine, chlorine dioxide, ozone or other disinfectant as approved by the administrator may be used for disinfection. Where the primary disinfectant is ozone, chlorination equipment shall be provided to enable maintaining a residual~~

~~disinfectant throughout the distribution system. Automatic proportioning of disinfectant feed to flow rate is required where the plant flow control is automatic.~~

~~(moved to Section 12(l)(i))(i) Chlorination equipment.~~

~~(moved to Section 12(l)(i)(A)(A) Type. Solution feed gas chlorinators or hypochlorite feeders of the positive displacement type shall be provided.~~

~~(B) Capacity. The chlorinator capacity shall be such that a minimum 5 mg/L disinfection dose can be added on the maximum day. The equipment shall be of such design that it will operate accurately over the desired feeding range.~~

~~(moved to Section 12(l)(i)(E))(C) Standby equipment. Standby equipment of sufficient capacity shall be available to replace the largest chlorinator unit, except for a well water system providing no treatment other than disinfection.~~

~~(D) Automatic switchover. Automatic switch-over of chlorine cylinders shall be provided.~~

~~(moved to Section 12(l)(i)(B))(E) Diffuser. The chlorine solution injection/diffuser shall provide a rapid and thorough mix with all the water being treated. If the application point is to a pipeline discharging to a clearwell, the chlorine shall be added to the center of the pipe at least 10 pipe diameters upstream of the discharge into the clearwell.~~

~~(moved to Section 12(l)(i)(D)(I))(F) Injector/Eductor. For gas feed chlorinators, the injector/eductor shall be selected based on solution water pressure, injector waterflow rate, feed point backpressure, and chlorine solution line length and size. The maximum feed point backpressure shall not exceed 110 psi (759 kPa). Where backpressure exceeds 110 psi (750 kPa), a chlorine solution pump shall be used. Gauges shall be provided for chlorine solution pressure, feed water pressure and chlorine gas pressure, or vacuum.~~

~~(moved to Section 12(l)(ii))(ii) Points of application and contact time.~~

~~(A) At plants treating surface water, provisions shall be made for applying disinfectant to the raw water, filter influent, and filtered water.~~

~~(B) For plants treating groundwater, provisions shall be made for applying disinfectant to a point in the finished water supply line prior to any commercial, industrial, or municipal user. Agricultural users may remove water from the supply line prior to disinfectant application point.~~

~~(C) Where free chlorine residual is provided, 1/2 hour contact time shall be provided for groundwaters and 2 hours for surface waters. Where combined residual chlorination is provided, 2 hours contact time for groundwater and 3 hours contact for surface water shall be provided.~~

~~(D) When chlorine is applied to a groundwater source for the purpose of maintaining a residual, no contact time is required.~~

~~(iii) Testing equipment. Chlorine residual test equipment recognized in the 15th Edition of Standard Methods for the Examination of Water and Wastewater shall be provided and shall be capable of measuring residuals to the nearest 0.1 mg/L in the range below 0.5 mg/L, to the nearest 0.3 mg/L between 0.5 mg/L and 1.0 mg/L and to the nearest 0.5 mg/L between 1.0 mg/L and 2.0 mg/L.~~

~~(iv) Chlorinator piping.~~

~~(A) Cross-connection protection. The chlorinator water supply piping shall be designed to prevent contamination of the treated water supply. At all facilities treating surface water, pre- and post- chlorination systems shall be independent to prevent possible siphoning of partially treated water into the clearwell. The water supply to each eductor shall have a separate shutoff valve. No master shutoff will be allowed. Chlorine solution feed water shall be finished water.~~

~~(B) Pipe material. The pipes carrying liquid or gaseous chlorine shall be Schedule 80 black steel pipe with forged steel fittings. Bushings shall not be used. Vacuum piping for gaseous chlorine may be polyethylene tubing. Gas piping between the chlorine pressure reducing valve of the chlorinator and the ejector shall be PVC or polyethylene. Piping for aqueous solutions of chlorine beyond the ejector shall be PVC, fiberglass or steel pipe lined with PVC or saran.~~

~~(v) Maximum withdrawal. The maximum withdrawal rate of gaseous chlorine shall be limited to 40 lbs/day (18.1 kg/day) for 100 or 150 lb (45.4 or 68.0 kg) cylinders and 400 lbs/day (181 kg/day) for 2,000 lb (907 kg) cylinders, unless chlorine evaporators are employed.~~

~~(vi) Ozonation equipment.~~

~~(A) Capacity. The ozonator capacity shall be such that an applied dose of at least 10 mg/L can be attained at the maximum daily flows. The equipment shall be of such design that it will operate 5 percent over the desired feeding range.~~

~~(B) Piping. Injection equipment and piping in contact with ozonated air and air water emulsions shall be of stainless steel, teflon or other material resistant to ozone. Valves carrying ozonized air shall be made of metal coated with ozone resistant materials.~~

~~(C) Application. Ozone may be applied to the water directly as a gas or by an injector system similar to a chlorine injector system. In gas applications, depth of submergence of the diffusers shall be a minimum of 10 feet (3.05 m). Diffusion shall be fine bubble or mixed.~~

~~(D) Contact time and point of application. Ozone shall be applied at a point which will provide contact time not less than 30 minutes. At plants treating surface water,~~

~~provisions should be made for applying a disinfectant to the raw water, filter influent, filtered water and final contact basin. At plants treating groundwater, provisions should be made for applying ozone to the clear-well inlet.~~

~~(E) Testing equipment. Testing equipment shall enable measurement of residuals to the nearest 0.1 mg/L in the range below 0.5 mg/L and to the nearest 0.2 mg/L above 0.5 mg/L.~~

~~(F) Ozone destruct. An ozone destruct device shall be provided to destruct all ozone contractor off gases.~~

~~(G) The use of ozone for disinfection will be allowed only if a chlorine or combined chlorine residual is provided in the distribution system.~~

~~(l) Softening.~~

~~(i) Lime or lime soda process. Design standards for rapid mix, flocculation and sedimentation are the same as for conventional treatment previously outlined. Lime or lime soda softened effluent shall be filtered.~~

~~(A) Hydraulics. When split treatment is used, the bypass line shall be sized to carry total plant flow, and a means of measuring and splitting the flow shall be provided.~~

~~(B) Chemical feed point. Lime and recycled sludge shall be fed directly into the rapid mix basin.~~

~~(C) Stabilization. Provisions shall be made to chemically stabilize waters softened by the lime or lime soda process.~~

~~(D) Sludge collection. Mechanical sludge removal equipment shall be provided in the sedimentation basin. Sludge recycling to the rapid mix shall be provided.~~

~~(E) Disinfection. The use of excess lime shall not be considered a substitute for disinfection. Disinfection, as previously outlined, shall be provided.~~

~~(ii) Cation exchange process.~~

~~(A) Pretreatment requirements. Pretreatment is required when the content of iron, manganese, or a combination of the two, is 1 mg/L or more. Water with 5 units or more turbidity shall not be applied directly to the cation exchange softener.~~

~~(B) Design. The units may be of pressure or gravity type, of either an upflow or downflow design. Automatic regeneration based on volume of water softened shall be used. A manual override shall be provided on all automatic controls.~~

~~(C) Exchange capacity. The design capacity for hardness removal shall not exceed 20,000 grains per cubic foot (45,880 g/L) when resin is regenerated with 0.3 pounds (.14 kg) of salt per kilograin (2.29 g/L) of hardness removed.~~

~~(D) Depth of resin. The depth of the exchange resin shall not be less than 2 feet (0.6 m).~~

~~(E) Flow rates. The flow applied to the softening unit shall not exceed 7 gpm/ft2 (413 m3/m2·d) of bed area. The minimum backwash rate shall be 6 gpm/ft2 (354 m3/m2·d) of bed area or shall provide a minimum of 150 percent bed expansion at winter water temperatures. A positive means of controlling flow must be present.~~

~~(F) Underdrains and supporting gravel. The bottoms, strainer systems and support for the exchange resin shall conform to criteria provided for rapid rate gravity filters.~~

~~(G) Brine distribution. Facilities shall be included for even distribution of the brine over the entire surface of both upflow and downflow units.~~

~~(H) Cross-connection control. Backwash, rinse and air relief discharge pipes shall be installed in such a manner as to prevent any possibility of back siphonage.~~

~~(I) Bypass piping and equipment. A by-pass shall be provided around softening units to produce a blended water of desirable hardness. Totalizing meters must be installed on the bypass line and on each softener unit. An automatic proportioning or regulating device and shutoff valve shall be provided on the bypass line.~~

~~(J) Additional limitations.~~

~~(I) Silica gel resins shall not be used for waters having a pH above 8.4 or containing less than 6 mg/L silica and shall not be used when iron is present.~~

~~(II) When the applied water contains a chlorine residual, the cation exchange resin shall be a type that is not damaged by residual chlorine.~~

~~(III) Phenolic resin shall not be used.~~

~~(K) Brine and salt storage tanks.~~

~~(I) Salt dissolving or brine tanks and wet salt storage tanks shall be covered and constructed of corrosion-resistant materials.~~

~~(II) The makeup water inlet shall be protected from back siphonage. Water for filling the tank shall be distributed over the entire surface by pipes above the maximum brine level in the tank. The tanks shall be provided with an automatic declining level control system on the makeup water line.~~

~~(III) Wet salt storage basins shall be equipped with manholes or hatchways for access and for direct dumping of salt from truck or railcar. Openings shall be provided with raised curbs and watertight covers having overlapping edges similar to those required for finished water reservoirs.~~

~~(IV) Overflows, if provided, must be turned down, have a proper free fall discharge and be protected with corrosion-resistant screens or self-closing flap valves.~~

~~(V) Two wet salt storage tanks or compartments designed to operate independently shall be provided.~~

~~(VI) The salt shall be supported on graduated layers of gravel under which is a suitable means of collecting the brine.~~

~~(L) Salt and brine storage capacity. Total salt storage capacity shall provide for at least 30 days of operation.~~

~~(M) Brine pump or eductor. An eductor may be used to transfer brine from the brine tank to the softeners. If a pump is used, a brine measuring tank or means of metering shall be provided to obtain proper dilution.~~

~~(N) Stabilization. Facilities for stabilizing corrosion control shall be provided.~~

~~(O) Construction materials. Pipes and contact materials shall be resistant to the aggressiveness of salt. Plastic and red brass are acceptable piping materials. Steel and concrete shall be coated with a non-leaching protective coating which is compatible with salt and brine.~~

~~(P) Housing. Bagged salt and dry bulk salt storage shall be enclosed and separated from other operating areas in order to prevent damage to equipment.~~

~~(m) Aeration. Aeration may be used to help remove tastes and odors due to dissolved gases from decomposing organic matter; to reduce or remove objectionable amounts of carbon dioxide, hydrogen sulfide, etc.; to introduce oxygen to assist in iron and/or manganese removal; and to strip volatile organic compounds for controlling the formation of trihalomethanes by removing the trihalomethane precursors.~~

~~(i) Natural draft aeration - tray type. The design shall provide perforations in the distribution pan to provide uniform distribution of water over the top tray. The discharge shall be through a series of three or more trays. Tray material shall be resistant to aggressiveness of the water and dissolved gases. The loading rate shall not exceed five gpm/ft2 (203 L/m2) of total tray area.~~

~~(ii) Forced or induced draft aeration. Devices shall:~~

~~(A) Be constructed and located so that air introduced into the column shall be free from obnoxious fumes, dust, and dirt. All sections of the aerator shall be easily reached or removed for maintenance.~~

~~(B) Provide distribution of water uniformly over the top tray and discharge through a series of five or more trays.~~

~~(C) Be constructed so that the water outlet is adequately sealed to prevent unwarranted loss of air. Material shall be resistant to the aggressiveness of the water and dissolved gases. Loading shall be provided at a rate not to exceed five gpm/ft2 (203 L/m2) of total tray area.~~

~~(iii) Pressure aeration. Pressure aeration may be used for oxidation purposes only; it is not acceptable for removing dissolved gases.~~

~~(iv) Protection of aerators. All aerators except those discharging to lime softening or clarification plants shall be protected from contamination by birds and insects by using louvers and 24 mesh screen.~~

~~(v) Disinfection. Disinfection must be provided as a final treatment to all waters receiving aeration treatment.~~

~~(vi) Bypass. A bypass shall be provided around all aeration units.~~

~~(vii) Volatile organics removal. Volatile organic compounds may be stripped by packed tower or diffused aeration methods.~~

~~(n) Iron and manganese control. Iron and manganese control, as used here, refers solely to treatment processes designed specifically for this purpose.~~

~~(i) Removal by oxidation, detention, and filtration.~~

~~(A) Oxidation. Oxidation may be accomplished by aeration or by chemical oxidation using chlorine, potassium permanganate, ozone, hydrogen peroxide, or chlorine dioxide.~~

~~(B) Detention following aeration. A minimum detention time of 20 minutes shall be provided following aeration. The detention basin shall be designed as a holding tank with sufficient baffling to prevent short-circuiting. Sedimentation basins shall be provided when treating water with iron and/or manganese above 2 mg/L, or where chemical coagulation is used to reduce the load on the filters. Provisions for sludge removal shall be made.~~

~~(C) Filtration. Gravity or pressure filters shall be provided. Where pressure filters are used, the following criteria supplements that found in Section 10(i).~~

~~(I) Rate of filtration. The rate shall not exceed 3 gpm/ft2 (176 m3/m2·d) of filter area.~~

~~(II) Design criteria. The filters shall have a minimum side wall shell height of 5 feet, and an air release valve on the highest point of each filter. Each filter shall have a means to observe the wastewater during backwashing and also a manhole to facilitate inspection and repairs.~~

~~(ii) Removal by the lime soda softening process. These processes shall conform to the lime soda process in Section 10(i).~~

~~(iii) Removal by manganese greensand filtration. Provide feed capability of potassium permanganate to the influent of a manganese greensand filter.~~

~~(A) An anthracite media cap of at least 6 inches (0.15 m) shall be provided over manganese green-sand.~~

~~(B) The filtration rate shall not exceed 4 gpm/ft2 (236 m3/m2·d).~~

~~(C) Provide a minimum backwash capability of 12 gpm/ft2 (708 m3/m2·d), with a rate control device.~~

~~(D) Air washing or surface washing is required.~~

~~(iv) Removal by ion exchange. This process of iron and manganese removal shall not be used for water containing more than 0.3 mg/L of iron, manganese or combination of the two. This process is not acceptable where either the raw water or washwater contains dissolved oxygen.~~

~~(v) Sequestration by polyphosphates. This process shall not be used when iron, manganese or a combination of the two as exceeds 1.0 mg/L. The total phosphate applied shall not exceed 10 mg/L as PO4. Where phosphate treatment is used, facilities shall be provided for maintaining a 0.5 mg/L free or combined chlorine residual at remote points in the distribution system.~~

~~(A) The stock phosphate solution tank shall be covered. Facilities shall be provided for disinfecting the solution tank. The facilities shall be capable of providing a minimum of 10 mg/L free chlorine residual.~~

~~(B) Polyphosphates shall not be applied ahead of iron and manganese removal treatment. The point of application shall be prior to any aeration, oxidation or disinfection if no iron or manganese removal treatment is provided.~~

~~(vi) Sequestration by sodium silicates. Sodium silicate sequestration of iron and manganese shall be used for groundwater supplies prior to air contact. Rapid oxidation of the metal ions by chlorine, chlorine dioxide, ozone, hydrogen peroxide, or other strong oxidant must~~

~~accompany or closely precede the sodium silicate addition. Injection of sodium silicate shall not occur at a point more than 15 seconds after oxidation feed point. Feed and dilution equipment shall be sized on the basis of feed solutions stronger than 5 percent silica as Si02. Sodium silicate addition may be used only on water containing up to 2 mg/L of iron, manganese or a combination of the two. Sodium silicate addition shall not be used on waters where 20 mg/L or more Si02 is required or where the amount of added and naturally occurring silicate will exceed 60 mg/L as Si02.~~

~~(A) Facilities shall be provided for maintaining a chlorine residual of 0.5 mg/L throughout the distribution system.~~

~~(B) Sodium silicate shall not be applied ahead of iron or manganese removal treatment.~~

~~(vii) Testing equipment. Testing equipment shall be provided for all iron and manganese control plants.~~

~~(A) The equipment should have the capacity to measure the iron content to a minimum of 0.1 mg/L and the manganese content to a minimum of 0.05 mg/L.~~

~~(B) Where polyphoshate sequestration is practiced, phosphate testing equipment shall be provided.~~

~~(moved to Section 12(n))(o) Fluoridation and defluoridation.~~

~~(moved to Section 12(n)(i))(i)Fluoride compound storage. Storage tanks shall be covered; all storage shall be inside a building. Storage tanks for hydrofluosilic acid shall be vented to the atmosphere at a point outside the building.~~

~~(moved to Section 12(n)(ii))(ii) Chemical feed equipment. Fluoride feed equipment shall meet the following requirements.~~

~~(moved to Section 12(n)(ii)(A))(A) Scales or loss of weight recorders shall be provided for dry chemical feeds. Feeders shall be accurate to within five percent of any desired feed rate.~~

~~(moved to Section 12(n)(ii)(B))(B) The point of application of hydrofluosilic acid, if into a horizontal pipe, shall be in the lower half of the pipe. Fluoride compound shall not be added before lime soda softening or ion exchange softening.~~

~~(moved to Section 12(n)(ii)(D))(C) A fluoride solution shall be applied by a positive displacement pump having a stroke rate not less than 20 nor more than 95 strokes per minute. Fluoride solutions shall not be injected to a point of negative pressure.~~

~~(moved to Section 12(n)(ii)(F))(D) All fluoride feed lines and dilution water lines shall be isolated from potable water supplies by either an air gap above the solution tank or a reduced pressure principal backflow preventor.~~

~~(moved to Section 12(n)(ii)(G))(E) Water used for sodium flouride dissolution shall have a hardness not exceeding 50 mg/L. Softening shall be provided for the solution water where hardness exceeds 45 mg/L.~~

~~(moved to Section 12(n)(ii)(H))(F) Flow meters for treated flow rate and fluoride solution water shall be provided.~~

~~(iii) Protective equipment. Protective equipment, including air purifying respirators approved by the National Institute of Occupational Safety and Health and emergency showers, shall be provided for operators handling fluoride compounds.~~

~~(iv) Dust control.~~

~~(moved to Section 12(n)(iii))(A) Provisions shall be made to allow the transfer of dry fluoride compounds from shipping containers to storage bins or hoppers in such a way as to minimize the quantity of fluoride dust which may enter the room in which the equipment is installed. The enclosure shall be provided with an exhaust fan and dust filter which places the hopper under a negative pressure. Air exhausted from fluoride handling equipment shall discharge through a dust filter to the outside atmosphere of the building. The discharge shall not be located near a building fresh air intake.~~

~~(moved to Section 12(n)(iii)(C))(B) A floor drain shall be provided.~~

~~(v) Testing equipment. Equipment shall be provided for measuring the quantity of fluoride in the water.~~

~~(vi) Defluoridation. Where fluoride removal is required the following methods are acceptable:~~

~~(moved to Section 12(n)(iv)(A))(A) Activated alumina may be employed in open gravity filter tanks or pressure filter tanks. The minimum media depth shall be 5 feet. The units shall not be loaded at a rate exceeding 4 gallons per minute per square foot (236 m3/m2·d). The activated alumina media shall be in mesh sizes ranging from 28 to 48. Regeneration facilities shall be provided to regenerate the media. These shall include both weak caustic and weak acid systems.~~

~~(moved to Section 12(n)(iv)(F))(B) Bone char filtration or lime softening with magnesium addition.~~

~~(p) Stabilization. Stabilized water is a water that does not tend to corrode the pipe nor deposit large quantities of scale.~~

~~(i) Carbon dioxide addition.~~

~~(A) Recarbonation basin design shall provide a minimum total detention time of 20 minutes. Two compartments consisting of a mixing compartment having a detention time of at least three minutes and a reaction compartment are required. Each compartment shall have a minimum depth of 8 feet (2.4 m).~~

~~(B) Plants generating carbon dioxide from combustion shall have top recarbonation tanks in order to dissipate carbon monoxide gas. Care shall be taken to prevent the basin off-gases from entering any treatment plant structure.~~

~~(C) The recarbonation basin shall be sloped to a drain.~~

~~(ii) Acid addition. Facilities shall be provided for feeding both acid and alkalinity, such as sodium carbonate, lime or sodium bicarbonate.~~

~~(iii) Polyphosphates. The feeding of polyphosphates is applicable for sequestering calcium in lime softened water, corrosion control, and in conjunction with alkali feed following ion exchange softening. Chlorination equipment and feed points shall be available to chlorinate the phosphate solution tank to maintain a 10 mg/L free chlorine residual and to maintain a 0.5 mg/L residual in the distribution system.~~

~~(moved to 12 (n)(vii))(iv) Alkali feed. Unstable water created by ion exchange softening shall be stabilized by an alkali feed. An alkali feeder shall be provided for all ion exchange water softening plants.~~

~~(moved to 12 (n)(viii))(v) Control. Laboratory equipment shall be provided for determining the effectiveness of stabilization treatment. This shall include testing equipment for hardness, calcium, alkalinity, pH and magnesium, as a minimum.~~

~~(moved to Section 12(o))(q) Taste and odor control. Provision shall be made for the control of taste and odor at all surface water treatment plants.~~

~~(i) Flexibility. Plants treating water that is known to have taste and odor problems shall be provided with equipment that makes at least two of the control processes available.~~

~~(ii) Chlorination. When chlorination is used for the removal of some objectionable odors, two hours of contact time must be provided to complete the chemical reactions involved.~~

~~(iii) Chlorine dioxide. Chlorine dioxide can be used in the treatment of any taste and odor that is treatable by an oxidizing compound. Provisions shall be made for proper storing and handling of the sodium chlorite to eliminate any danger of explosion.~~

~~(iv) Powdered activated carbon. Provisions shall allow the addition of carbon to the presedimentation basin influent, rapid mix basin, and clarifier effluent. Carbon feed equipment shall be capable of feeding from 0 to 40 mg/L at plant design flows.~~

~~(iv) A provision shall be made for adequate dust control. Powdered activated carbon shall be handled as a potentially combustible material. It shall be stored and used in a building or compartment as nearly fireproof as possible. Carbon feeder rooms shall be designed for hazardous locations, National Electric Code, Class 1, Groups C and D, Division 1.~~

~~(moved to Section 12(o)(i))(v) Granular activated carbon adsorption units. Open or closed carbon contacting may be used for taste and odor control by adsorption of organics. The loading rate shall not exceed 10 gpm/ft2 (236 m3/m2·d). The minimum empty bed contact time shall be 20 minutes. Provisions shall be made for moving carbon to and from the contactors.~~

~~(vi) Potassium permanganate. The application point shall be in the raw water or ahead of the clarifier influent. Facilities shall be capable of feeding not less than 10 mg/L of permanganate.~~

~~(moved to Section 12(o)(iii))(vii) Ozone. Thirty minutes of contact time must be provided to complete the chemical reactions involved. The facilities shall be capable of an applied ozone feed rate of 15 mg/L minimum.~~

~~(moved to Section 12(p))(r) Microscreening. A microscreen will be allowed as a mechanical supplement to treatment. The microscreening shall be capable of removing suspended matter from the water by straining. It may be used to reduce nuisance organisms and organic loadings. It shall not be used in place of filtration or coagulation.~~

~~(moved to Section 12(p)(iii))(i) Screens shall be of a corrosion-resistant material, plastic or stainless steel.~~

~~(moved to Section 12(p)(iv))(ii) Bypass piping shall be provided around the unit.~~

~~(moved to Section 12(p)(v))(iii) Protection against back siphonage shall be provided when potable water is used for washing the screen.~~

~~(moved to Section 12(p)(vi))(iv) Washwaters shall be wasted and not recycled to the microscreen.~~

~~(s) Organics removal by granular carbon adsorption.~~

~~(moved to Section 12(o)(i)(C))(i) Adsorption of organics on granular activated carbon. Water to be treated may be contacted with granular activated carbon. The pH of the~~

~~water shall be less than 9.0. The turbidity of the applied water shall be less than 2 TU when packed beds are used.~~

~~(ii) Contact time. The carbon beds or columns shall provide a minimum of 20 minutes of empty bed contact time at design flow. Surface loading rates shall not exceed 10 gpm/ft2 (590 m3/m2·d).~~

~~(iii) Carbon bed or column design.~~

~~(moved to Section 12(o)(i)(E))(A) If an upflow countercurrent contactors is used, it may be either packed or expanded. A single unit is acceptable. If a downflow contactor is used, two or more beds in parallel are required.~~

~~(moved to Section 12(o)(i)(F))(B) Contactors may be designed as open gravity units, or pressure beds. They may be constructed of concrete, steel, or fiberglass reinforced plastic. Steel vessels shall be protected against corrosion by coaltar epoxy coating, rubber or glass lining, or other means.~~

~~(moved to Section 12(o)(i)(I))(C) All carbon beds or columns shall be equipped with provisions for flow reversal and bed expansion. Combination downflow filter contactors shall have backwashing facilities to provide up to 50 percent bed expansion and shall meet the same backwash criteria as rapid filters.~~

~~(D) Inlet and outlet screens shall be 304 or 316 stainless steel or other suitable materials.~~

~~(E) Carbon beds and columns shall have a means for removing spent carbon and introducing makeup or regenerated carbon.~~

~~(F) Pressure contactors shall be equipped with air-vacuum release valves fitted with a stainless steel screen, slot size 0.036 mm (0.14 inches), to prevent plugging with carbon.~~

~~(t) Radionuclides. Where radionuclide removal is practiced, the waste shall be evaluated for its classification as a hazardous or low level radioactive waste and disposed of as required by the Nuclear Regulatory Commission or other appropriate authority.~~

~~(u) Waste handling and disposal. Disposal of any waste sludge or liquid shall meet all the requirements of Chapter 11 of the Water Quality Rules and Regulations where applicable.~~

~~(moved to Section 12(t)(i))(i) Sanitary and laboratory wastes. The sanitary and laboratory wastes from water treatment plants, pumping stations, etc., shall not be recycled to any part of the water plant. Waste from these facilities must be discharged directly to a sanitary sewer system when feasible, or to an on-site waste treatment facility permitted by the Wyoming Department of Environmental Quality.~~

~~(moved to Section 12(t)(ii))(ii) Brine waste. The waste from ion exchange plants, demineralization plants, etc., may not be recycled to the plant. Where discharging to a sanitary sewer, a holding tank shall be provided to prevent the overloading of the sewer and/or interference with the waste treatment processes. The effect of brine discharge to sewage lagoons may depend on the rate of evaporation from the lagoons. Where disposal to an off-site waste treatment system is proposed, it must be demonstrated that the sewer and the facility have the required capacity and dilution capability. The impact on any treatment system discharge shall be evaluated.~~

~~(moved to Section 12(t)(iii))((iii) Lime softening sludge. Acceptable methods of treatment and disposal are as follows:~~

~~(moved to Section 12(t)(iii)(A))(A) Sludge lagoons. Lagoons shall be designed on the basis of providing a surface area of 0.7 acres (.28 ha) per million gallons per day (3785 m3/day) (average day) per 100 mg/L of hardness removed, based on a usable lagoon depth of 5 feet (1.5 m). At least 2 lagoons shall be provided. An acceptable means of final sludge disposal must be provided. Provisions must be made for convenient cleaning of the lagoons.~~

~~(moved to Section 12(t)(iii)(A))(A) The design of lagoons shall provide for location above the 100-year flood or adequately protected from the 100-year flood. There shall be means of diverting surface water runoff so that it does not flow into the lagoons. Minimum free-board of 3 feet (0.66 m) shall be present. An adjustable decanting device for recycling the overflow shall be present. There shall be an accessible effluent sampling point.~~

~~(moved to Section 12(t)(iii)(B))(B) Land application of liquid lime sludge shall comply with Part E of Chapter 11 of the Water Quality Rules and Regulations.~~

~~(moved to Section 12(t)(iii)(C))(C) Disposal at a suitable landfill shall be authorized by the Solid Waste Management Program of the Department of Environmental Quality.~~

~~(moved to Section 12(t)(iii)(D))(D) Mechanical dewatering of sludge may be employed.~~

~~(moved to Section 12(t)(iii)(E))(E) Recalcination of sludge may be employed.~~

~~(moved to Section 12(t)(iii)(F)))(F) Lime sludge drying beds shall not be used.~~

~~(moved to Section 12(t)(iv))(iv) Alum sludge.~~

~~(moved to Section 12(t)(iv)(A))(A) Lagooning may be used as a storage and interim disposal method for alum sludge. The volume of alum sludge storage lagoons shall be at least 100,000 gallons (378.5 m3) per 1,000,000 gpd (3,785 m3/d) of treatment plant capacity.~~

~~(moved to Section 12(t)(iv)(B))(B) Discharge of alum sludge to sanitary sewers may be used only when the sewage system has the capability to adequately handle the flow and sludge.~~

~~(moved to Section 12(t)(iv)(C))(C) Mechanical dewatering of sludge may be employed.~~

~~(moved to Section 12(t)(iv)(D))(D) Alum sludge drying beds may be used.~~

~~(moved to Section 12(t)(iv)(E))(E) Alum sludge may be acid treated and recovered.~~

~~(moved to Section 12(t)(iv)(F))(F) Disposal at a suitable landfill shall be authorized by the Solid Waste Management Program of the Department of Environmental Quality.~~

~~(v) Iron and manganese waste. Waste filter washwater from iron and manganese removal plants may be disposed by filtration, by lagooning, or by discharge to the sewer system.~~

~~(A) Sand filters. Sand filters should have a total filter area of not less than 100 square feet (9.29 m2) in a minimum of 2 compartments. The filter shall have sufficient surface area and capacity to contain, in a volume of 2 feet (0.61 m) above the level of the sand, the entire volume of washwater produced by washing the production filters.~~

~~(I) The filter shall not be subject to flooding by surface runoff or flood waters. Finished grade elevation shall be such as to facilitate maintenance, cleaning and removal of surface sand as required.~~

~~(II) The filter media shall consist of a minimum of 12 inches (30.4 cm) of sand, 3 inches (7.6 cm) of supporting small gravel or torpedo sand, and 9 inches (0.22 m) of gravel in graded layers. All sand and gravel shall be washed to remove fines. Filter sand shall have an effective size of 0.3 to 0.5 mm and a uniformity coefficient not to exceed 3.5.~~

~~(III) The filter shall be provided with an underdrain collection system, and provision shall be made for an accessible sample point.~~

~~(IV) Overflow devices from these filters shall not be permitted.~~

~~(V) Where freezing may occur, provisions shall be made for covering the filters during the winter months.~~

~~(VI) Iron and manganese waste filters shall provide an atmosphere air break between adjacent compartments that contain finished water and unfiltered water.~~

~~(B) Washwater recovery lagoons. Filter backwash wastewater may be recovered by washwater recovery lagoons. Decanted filter backwash wastewater from the lagoons shall be recycled to the head of the plant. Lagoons shall provide 250,000 gallons of storage (946 m3) for each 1,000,000 gallons per day (3,785 m3/day) of treatment capacity. Lagoons shall have a minimum usable depth of 3 feet (0.91 m), a length 4 times the width, and a width of at least 3 times the water depth.~~

(a) 2018 TSS, parts 2.9-2.9(c), monitoring equipment; 2.10, sample taps; 2.11, facility water supply; and 2.14, piping color code; are herein incorporated by reference.

~~(formerly Section 8(a))~~(b) ~~Design basis.~~ The proposed design shall demonstrate that the capacity of the water treatment or water production system ~~shall be~~ is designed for the maximum daily demand at the design year based on historical usage records. ~~Where water use records are not available to establish water use, the equivalent per capita water use shall be at least 125 gpd (475 liters per day) and 340 gpd (1,285 liters per day) to size facilities for average and maximum daily water demand, respectively.~~

~~(formerly Section 8(a))~~(i) Where water use records are not available to establish water use, the design shall include an equivalent per capita water use ~~shall be~~ of at least 125 gallons per day (gpd) ~~(475 liters per day)~~ for average daily water demand and 340 gpd ~~(1,285 liters per day) to size facilities~~ for ~~average and~~ maximum daily water demand~~, respectively~~.

~~(formerly Section 8(p))~~(ii) ~~Design capacities.~~The plant capacity design shall ~~include maximum daily water demand, filter backwash quantities, and industrial water use. In the absence of data, filter backwash quantity shall be five percent of the maximum daily demand.~~ demonstrate consideration of:

~~(formerly Section 8(p))~~(A) M~~m~~aximum daily water demand~~,~~;

~~(formerly Section 8(p))~~(B) Agricultural water use;

~~(formerly Section 8(p))~~(C) ~~and I~~industrial water use~~,~~; and

~~(formerly Section 8(p))~~(D) F~~f~~ilter backwash quantities. In the absence of data, filter backwash quantity shall be five percent of the maximum daily demand.

~~(formerly Section 8(g)(iii))~~(c) ~~Geological conditions.~~ The ~~S~~structural design shall demonstrate consideration of ~~the seismic zone, groundwater, and soil support. Soils investigations shall be made, or adequate previous soils investigations shall be available to develop structural design.~~:

~~(formerly Section 8(g)(iii))~~(i) The seismic zone~~.~~;

~~(formerly Section 8(g)(iii))~~(ii) Groundwater~~.~~; and

~~(formerly Section 8(g)(iii))~~(iii) Soil support~~.~~ that demonstrates:

~~(formerly Section 8(g)(iii))~~(A) The applicant has conducted ~~S~~soils investigations ~~shall be made,~~ or has included documentation of adequate previous soils investigations ~~shall be available~~ used to develop the structural design~~.~~;

~~(formerly Section 8(l))~~(B) Basin slabs ~~shall be~~ have been designed to successfully resist the hydrostatic uplift pressure or include an area dewatering system ~~or an area dewatering system shall be provided.~~; and

~~(formerly Section 8(l))~~(C) Considerations ~~must be given in structural design to~~ of long-span breakage in basins designed to resist uplift.

~~(formerly Section 8(b)(i))~~(d) ~~Location.~~ Proposed ~~T~~treatment facilities locations shall ~~be located such~~ demonstrate that:

~~(formerly Section 8(b)(i))~~(i) No sources of pollution ~~may~~ will affect the quality of the water supply or treatment system~~.~~;

~~(formerly Section 8(b)(i))~~(ii) The ~~facilities~~ facility ~~shall not be located~~ location is not within 500 feet of landfills, garbage dumps, or wastewater treatment systems~~.~~; and

~~(formerly Section 8(b)(ii))~~(iii) ~~Flood protection.~~ All treatment process structures, mechanical equipment, and electrical equipment ~~shall~~ will be protected, accessible, and remain fully operational during ~~from~~ the maximum flood of record or the 100-year flood, whichever is greater. ~~The treatment facilities shall remain fully operational and accessible during the 100-year flood.~~

~~(formerly Section 8(c))~~(e) ~~Level of treatment.~~ Proposed ~~T~~treatment shall ~~be provided to~~ demonstrate that the facility will produce potable water that is bacteriologically, chemically, radiologically, and physically safe, ~~as determined by the administrator~~ as required by 40 CFR Part 141.

~~(formerly Section 8(d)(i))~~(f) ~~Multiple units.~~ Designs for proposed ~~T~~treatment facilities with 100,000 ~~gallons per day (~~gpd~~)~~ ~~(378.5 m3/day)~~ capacity and over shall ~~provide~~ include duplicate units, as a minimum, for chemical feed, flocculation, clarification, sedimentation, filtration, and disinfection.

~~(formerly Section 8(d)(i))~~(g) Designs for proposed ~~T~~treatment facilities under 100,000 gpd ~~(378.5 m3/day)~~ capacity shall ~~provide~~ include:

~~(formerly Section 8(d)(i))~~(i) Duplicate units as described ~~above~~ in paragraph (f) of this Section; or ~~may provide~~

~~(formerly Section 8(d)(i))~~(ii) ~~f~~Finished water system storage equal to twice the maximum daily demand~~.~~; and

(iii) Demonstration of consideration of plant design flexibility to account for future changes in source water quality, unexpected need to modify process piping, service area expansion, changing treatment technologies, and equipment life cycles and upgrades.

~~(formerly Section 8(d)(ii))~~(h) ~~Multiple equipment.~~All treatment facility pumping shall provide the maximum daily demand flow with the largest single-unit not in service. Finished water pumping in combination with finished water storage that floats on the distribution systems shall provide the maximum hourly demand with the largest single-unit not in service. ~~When~~ For designs that include fire protection ~~is provided~~, pumping, and finished water storage that floats on the system shall provide the fire demand plus the maximum daily demand, or the maximum hourly demand, whichever is greater.

~~(formerly Section 8(d)(iii))~~(i) ~~Alternative power source.~~Where the finished water storage volume that floats on the distribution system is not capable of supplying the maximum daily demand, ~~an~~ the proposed design shall include alternative power ~~shall be provided~~ for the finished water pumps~~. The combined finished water storage volume and pumping capacity supplied by alternative power shall be at least adequate to provide the maximum daily demand. Acceptable alternative power sources include an engine generator, engine drive pumps, or a second independent electrical supply.~~ that demonstrates:

~~(formerly Section 8(d)(iii))~~(i) The combined finished water storage volume and pumping capacity supplied by alternative power ~~shall~~ will be at least adequate to provide the maximum daily demand~~.~~; and

~~(formerly Section 8(d)(iii))~~(ii) ~~Acceptable~~ The alternative power sources will include ~~an~~ engine generators, engine drive pumps, or a second independent electrical supply that will provide sufficient power to run the system.

~~(formerly Section 8(e))~~(j) ~~Housing.~~ Process equipment, filters and appurtenances, disinfection, chemical feed and storage, electrical and controls, and pipe galleries shall be ~~housed~~ located in suitable structures.

~~(formerly Section 8(m))~~(k) All equipment not required to be in or on open basins, ~~(~~such as clarifier drives and flocculators~~)~~, shall be located in heated, lighted, and ventilated structures. ~~Structure entrances shall be above grade. Piping shall be buried below frost level, placed in heated structures, or provided with heat and insulated.~~

~~(formerly Section 8(m))~~(l) Piping shall be buried below frost level, placed in heated structures, or provided with heat and insulated.

~~(formerly Section 8(m))~~(m) Structure entrances shall be above grade.

~~(formerly Section 8(g)(i))~~(n) ~~Construction materials.~~ Selected c~~C~~onstruction materials shall ~~be selected, apportioned, and/or protected to~~ provide water tightness, corrosion protection, and resistance to weather variations.

~~(formerly Section 8(g)(ii))~~(o) ~~Coatings.~~ NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021 certified ~~C~~coatings used to protect structures, equipment, and piping shall be suitable for atmospheres containing moisture and low concentrations of chlorine. ~~Surfaces exposed in chemical areas shall be protected from chemical attack. Paints shall not contain lead, mercury, or other toxic metals or chemicals.~~

~~(formerly Section 8(g)(ii))~~(p) Surfaces exposed in chemical areas shall be protected from chemical attack.

~~(formerly Section 8(g)(ii))~~(q) Paints shall not contain lead, mercury, or other toxic metals or chemicals.

~~(formerly Section 8(k))~~(r) ~~Ventilation.~~ All enclosed spaces shall be provided with forced ventilation, except pumping station wetwells or clearwells~~. In areas where there are open treatment units exposed to the room, ventilation shall be provided to limit relative humidity to less than 85 percent but not less than 6 air changes per hour. In electrical and equipment rooms, ventilation shall be provided to limit the temperature rise in the room to less than 15° F (8° C) above ambient, but not less than 6 air changes per hour. Rooms housing chlorine storage and/or feeders shall have provisions for exhausting the room contents in 2 minutes and continuous ventilation to provide not less than 12 air changes per hour.~~ that meet the following requirements:

~~(formerly Section 8(k))~~(i) In areas where there are open treatment units exposed to the room, ventilation shall be provided to limit relative humidity to less than 85 percent but not less than six air changes per hour~~.~~; and

~~(formerly Section 8(k))~~(ii) ~~In electrical and equipment rooms, V~~v~~~~entilation in electrical and equipment rooms shall ~~be provided to~~ limit the temperature rise in the room to less than 15 ~~° F (8° C)~~ degrees Fahrenheit above ambient~~, but not less than~~ with at least six air changes per hour. ~~Rooms housing chlorine storage and/or feeders shall have provisions for exhausting the room contents in 2 minutes and continuous ventilation to provide not less than 12 air changes per hour.~~

~~(formerly Section 8(f)(i))~~(s) ~~Equipment location.~~ Service transformers and other critical electrical equipment shall be located above the 100-year flood and above grade. Transformers shall be located so that they are remote or protected by substantial barriers from traffic. Motor controls shall be located in superstructures and in rooms that do not contain corrosive atmospheres.

~~(formerly Section 8(i)(i))~~(t) ~~Metering.~~ All ~~The~~ treatment ~~facility~~ facilities shall have a flow measuring device provided for raw water influent and clear well effluent and ~~(formerly Section 8(i)(i)) All flow meters~~ each shall provide totalized flow. The accuracy of the device shall be at least plus or minus two percent of span~~.~~ and shall meet the following requirements:

~~(formerly Section 8(i)(iii))~~(i) ~~Controls.~~ Automatic controls shall be designed to permit manual override~~.~~; and

~~(formerly Section 8(i)(ii))~~(ii) ~~Type. All flow meters shall provide totalized flow. For plants with a maximum daily flow of 50,000 gpd (189 m3/d) or more, t~~The meter shall also record the instantaneous flow rate.

~~(formerly Section 8(q))~~(u) ~~Monitoring equipment.~~Water treatment plants with a capacity of ~~0.5 mgd (1892.6 m3/d)~~ 500,000 gpd or more shall be provided with continuous finished water turbidimeters (including recorders) that demonstrate compliance with the Guidance Manual for Compliance with the Surface Water Treatment Rules, Turbidity Provisions.

Section 11. ~~Chemical Application~~ Source Development.

~~(a) General.~~

~~(i) Chemical application. Chemicals shall be applied by such means as to prevent backflow or back siphonage between multiple points of feed through common manifolds.~~

~~(ii) General equipment design. General equipment design shall be such that:~~

~~(A) Feeders will be able to supply the necessary amounts of chemical throughout the feed range at all times.~~

~~(B) Chemical contact materials and surfaces are resistant to the aggressiveness of the chemical solution.~~

~~(C) Corrosive chemicals are introduced in such a manner as to minimize potential for corrosion~~.

~~(D) Chemicals that are incompatible are not stored or handled together.~~

~~(E) All chemicals are conducted from the feeder to the point of application in separate conduits.~~

~~(F) Chemical feeders and pumps operate at no lower than 20 percent of the feed range.~~

~~(G) Slurry type chemicals, especially lime, are fed by gravity where practical.~~

~~(moved to Section 13(b))(b) Facility design.~~

~~(moved to Section 13(b)(i))(i) Number of feeders. A separate feeder shall be provided for each chemical applied.~~

~~(ii) Control. Feeders may be manually or automatically controlled. Automatic controls shall be designed to allow override by manual controls. Where plant flow rates are not manually controlled, chemical feed rates shall be automatically proportioned to flow.~~

~~Calibration cylinders shall be provided for each chemical system, enabling exact measurement of chemical feed dose.~~

~~(iii) Dry chemical feeders. Dry chemical feeders shall measure chemicals volumetrically or gravimetrically; they shall be provided with a solution water system and mixer in the solution tank and; shall completely enclose chemicals to prevent emission of dust to the operating room.~~

~~(iv) Positive displacement pumps. Positive displacement pumps shall be sized for the maximum pressure at the point of injection. A backpressure valve shall be provided in instances where chemicals can flow by gravity through the pump and pump check valves.~~

~~(v) Liquid chemical feeders - siphon control. Liquid chemical feeders shall be such that chemical solutions cannot be siphoned into the water supply.~~

~~(vi) Cross-connection control. Cross-connection control must be provided to assure that the service water lines discharging to solution tanks shall be protected from backflow and that liquid chemical solutions cannot be siphoned through solution feeders into the water supply. No direct connection shall exist between any sewer and a drain or overflow from the feeder, solution chamber or tank. All drains shall terminate at least 6 inches (0.15 m) or 2 pipe diameters, whichever is greater, above the overflow rim of a receiving sump, conduit or waste receptacle.~~

~~(vii) In-plant water supply. The in-plant water supply shall be of sufficient quantity and pressure to meet the chemical system needs. A minimum capability of 15 gpm at 50 psi is required.~~

~~There shall be a new means of controlling and measuring the water when used for preparing specific solution concentrations by dilution, i.e., rotometer and control valve. The water shall be properly treated for hardness when hardness affects the chemical solution.~~

~~(viii) Storage of chemicals.~~

~~(A) Storage space or tank volume shall be provided for at least 30 days of chemical supply. The storage shall provide protection from intermixing of 2 different chemicals.~~

~~(B) Storage tanks and pipelines for liquid chemicals shall be specific to the chemical and not for alternates.~~

~~(C) Liquid chemical storage tanks must have a liquid level indicator, an overflow and a receiving basin or drain capable of receiving accidental spills or over-flows, and be located in a contained area sized to store the total contents of a ruptured tank.~~

~~(moved to Section 13(b)(ii))(D) All chemical storage tanks shall be constructed of materials which are resistant to the chemical which they store. The tank shall not lose its structural integrity through chemical action or be subject to corrosion.~~

~~(ix) Solution and slurry tanks.~~

~~(A) Feed and dilution systems shall be designed to maintain uniform strength of solution in solution tanks. A mixer shall be provided to mix the tank contents when batching solutions. Continuous agitation shall be provided to maintain slurries in suspension. A means shall be provided to measure the solution level in the tank. Chemical solution tanks shall have a cover. Large tanks with access openings shall have such openings curbed and fitted with overhanging covers.~~

~~(B) Subsurface locations for solution tanks shall be free from sources of possible contamination, and assure positive drainage for groundwaters, accumulated water, chemical spills and overflows~~.

~~(C) Overflow pipes, when provided, shall be turned downward, with the end screened. They shall have a free fall discharge and be located where noticeable.~~

~~(D) Acid storage tanks must be vented to the outside atmosphere, but not through vents shared with any other material.~~

~~(E) Each tank shall be provided with a valved drain, protected against backflow by an air gap of 6 inches (0.15 m) or 2 pipe diameters, whichever is greater.~~

~~(x) Day tanks.~~

~~(A) Day tanks shall be provided where bulk storage of liquid chemical is provided and a dilute solution is to be fed, or where chemicals are manually batched. Day tanks shall meet the requirements of solution tanks. Tanks shall be properly labeled to designate the chemical contained.~~

~~(B) Hand pumps may be used to transfer chemicals from a carboy or drum. A tip rack may be used to permit withdrawal into a bucket from a spigot. Where motor-~~

~~driven transfer pumps are provided, a liquid level limit switch and an overflow from the day tank shall be provided.~~

~~(C) Continuous agitation shall be provided to maintain chemical slurries in suspension. A mixer shall be provided to mix the initial dilution.~~

~~(xi) Feed lines:~~

~~(A) Shall be of durable material, resistant to the chemical handled.~~

~~(B) Shall be readily accessible for maintenance when located within structures.~~

~~(C) Shall be protected against freezing.~~

~~(D) Shall be readily cleanable by using plugged crosses for 90° bends.~~

~~(E) Shall slope upward from the chemical source to the feeder when conveying gases.~~

~~(F) Shall be designed consistent with scale-forming or solids-depositing properties of the water, chemical, solution, or mixtures conveyed.~~

~~(G) Shall be color coded.~~

~~(H) Shall have a connection for a flushing line.~~

~~(xii) Handling.~~

~~(A) Carts, elevators and other appropriate means shall be provided for lifting chemical containers.~~

~~(B) Provisions shall be made for the transfer of dry chemicals from shipping containers to storage bins or hoppers to minimize the quantity of dust which may enter the room in which the equipment is installed. Provisions shall also be made for disposing of empty bags, drums or barrels which will minimize exposure to dusts. Control may be provided by using:~~

~~(I) Vacuum/pneumatic equipment or closed conveyor systems.~~

~~(II) Facilities for emptying shipping containers in special enclosures.~~

~~(III) Exhaust fans and dust filters which put the hoppers or bins under negative pressure.~~

~~(C) Provision shall be made for measuring quantities of chemicals used to prepare feed solutions.~~

~~(xiii) Housing. Floor surfaces shall be smooth and impervious, slip-resistant and well drained with 2.5 percent minimum slope. Vents from feeders, storage facilities and equipment exhaust shall discharge to the outside atmosphere above grade and remote from air intakes.~~

~~(c) Specific chemicals.~~

~~(i) Chlorine gas.~~

~~(A) Respiratory protection equipment. Respiratory protection equipment, meeting the requirements of the National Institute of Occupational Safety and Health (NIOSH), shall be available where chlorine gas is handled, and shall be stored at a convenient location, but not inside any room where chlorine is used or stored. The units shall use compressed air, have at least a 30 minute capacity, and be compatible with or exactly the same as units used by the fire department responsible for the plant.~~

~~(B) Chlorine leak detection. Where ton containers are used, or where plants store more than 1000 lbs (454 kg) of chlorine, continuous electronic chlorine leak detection equipment shall be provided.~~

~~(C) Repair kits. Repair kits approved by the Chlorine Institute shall be provided for plants employing chlorine gas chlorination. The chlorine repair kits shall be available for each size container stored at the facility.~~

~~(D) Feed and storage areas. Chlorine gas feed and storage shall be enclosed and separated from other operating areas. The chlorine room shall be provided with a shatter resistant window installed in an interior wall. The room shall be constructed in such a manner that all openings between the chlorine room and the remainder of the plant are sealed. The doors shall be equipped with panic hardware, assuring ready means of exit and opening outward only to the building exterior.~~

~~(E) Ventilation. Where chlorine gas is used, the room shall have an exhaust ventilating system with a capacity which provides one complete air change every two minutes. The ventilating system shall take suction within 18 inches (0.46 m) of the floor, as far as practical from the door and air inlet, with the point of discharge so located as not to contaminate air intakes to any rooms or structures.~~

~~Air intakes shall be through louvers near the ceiling. Louvers for chlorine room air intake and exhaust shall facilitate airtight closure.~~

~~Separate switches for the fan and lights shall be located outside of the chlorine room and at the inspection window. Outside switches shall be protected from vandalism. A~~

~~signal light indicating fan operation shall be provided at each entrance when the fan can be controlled from more than one point.~~

~~Vents from feeders and storage shall discharge to the outside atmosphere, above grade. The room location shall be on the prevailing downwind side of the building away from entrances, windows, louvers, walkways, etc.~~

~~Floor drains shall discharge to the outside of the building and shall not be connected to other internal or external drainage systems.~~

~~(F) Cylinders. Full and empty cylinders of chlorine gas shall be isolated from operating areas, restrained in position to prevent upset, stored in rooms separate from ammonia storage, and stored in areas not in direct sunlight or exposed to excessive heat.~~

~~(G) Heating. Chlorinator rooms shall be heated to 60° F (15.6° C) and be protected from excessive heat. Cylinders and gas lines shall be protected from temperatures above that of the feed equipment.~~

~~(H) Feed lines. Pressurized chlorine feed lines shall not carry chlorine gas beyond the chlorinator room.~~

~~(ii) Acids and caustics.~~

~~(A) Acids and caustics shall be kept in closed corrosion-resistant shipping containers or in covered bulk storage units.~~

~~(B) Acids and caustics shall be pumped in undiluted form from original containers or bulk storage units through suitable pipe or hose to the point of treatment or to a covered day tank.~~

~~(C) An emergency deluge shower and eye wash shall be provided where corrosive chemicals are stored or used.~~

~~(iii) Sodium chlorite. Provisions shall be made for proper storage and handling of sodium chlorite to eliminate any danger of explosion. No hydrocarbons or organics shall be stored with sodium chlorite.~~

(a) 2018 TSS, parts 3.1.4.1-3.1.4.1(i), surface water, structures, design of intake structures; 3.1.4.3-3.1.4.3(f) surface water, structures, offstream raw water storage reservoir; 3.1.6-3.1.6.3, surface water, impoundments and reservoirs; 3.2.3.2, groundwater, location, continued sanitary protection; 3.2.4-3.2.4.14(b)(4), groundwater, general well construction; 3.2.5-3.2.5.4, groundwater, testing and records; 3.2.6.1-3.2.6.1(c), groundwater, aquifer types and construction methods--special conditions, sand or gravel wells; 3.2.6.2-3.2.6.2(b)(7), groundwater, aquifer types and construction methods--special conditions, gravel pack material; 3.2.6.4-3.2.6.4(d),groundwater, aquifer types and construction methods--special conditions, infiltration lines; 3.2.6.5-3.2.6.5(b), groundwater, aquifer types and construction methods--

special conditions, limestone or sandstone wells; 3.2.7.3-3.2.7.3(c)(3), groundwater, well pumps, discharge piping and appurtenances, discharge piping; 3.2.7.4-3.2.7.4(d), groundwater, well pumps, discharge piping and appurtenances, pitless well units; 3.2.7.6, groundwater, well pumps, discharge piping and appurtenances, casing vent; 3.2.7.7-3.2.7.7(b), groundwater, well pumps, discharge piping and appurtenances, water level measurement; 3.2.7.8-3.2.7.8(b), groundwater, well pumps, discharge piping and appurtenances, observation wells; are herein incorporated by reference.

(b) Surface water intake structures that operate in the winter shall be capable of minimizing the formation of ice on the intake.

(c) Transmission lines and interconnecting process piping shall be capable of withstanding the forces and conditions they will be subject to and comply with the following specifications for water service, as applicable:

(i) AWWA C200;

(ii) AWWA C207;

(iii) AWWA C208;

(iv) AWWA C220;

(v) AWWA C228;

(vi) AWWA C300;

(vii) AWWA C301;

(viii) AWWA C302;

(ix) AWWA C303;

(x) AWWA C304;

(xi) AWWA C900;

(xii) AWWA C901;

(xiii) AWWA C903;

(xiv) AWWA C904;

(xv) AWWA C906;

(xvi) AWWA C907;

(xvii) AWWA C909;

(xviii) AWWA C950;

(xix) ASTM A53;

(xx) ASTM A134;

(xxi) ASTM A135;

(xxii) ASTM A139;

(xxiii) ASTM D2846;

(xxiv) ASTM F480;

(xxv) ASTM F645;

(xxvi) ASTM F877;

(xxvii) ASTM F23891;

(xxviii) ASTM F2806;

(xxix) ASTM F2855;

(xxx) ASTM F2969;

(xxxi) API 5L:

(A) Grade B;

(B) Grade X42;

(C) Grade X46;

(D) Grade X52;

(E) Grade X56;

(F) Grade X60;

(G) Grade X65;

(H) Grade X70; or

(I) Grade X80.

~~(formerly Section 9(a)(iii))~~(d) ~~Raw water supply piping.~~ ~~No~~ Designs shall not include any customer service connection ~~shall be provided~~ from the raw water transmission line to the treatment plant~~,~~ unless there are provisions to treat the water to meet ~~these standards~~ the requirements of this Chapter, or the sole purpose of the service is for irrigation or agricultural water use. For irrigation agricultural services, applicants shall conduct a hazard classification and implement appropriate backflow prevention.

~~(formerly Section 9(b))~~(e) Designs that include ~~G~~groundwater source development shall comply with the following requirements~~.~~:

~~(formerly Section 9(b)(i))~~(i) ~~Number and capacity. The total developed groundwater source, along with other water sources, shall provide a combined capacity that shall equal or exceed the design maximum daily demand.~~ Proposed designs shall include ~~A~~a minimum of: ~~2 wells, or 1 well and finished water storage equal to twice the maximum daily demand shall be provided. Where 2 wells are provided, the sources shall be capable of equaling or exceeding the design average daily demand with the largest producing well out of service.~~

~~(formerly Section 9(b)(i))~~(A) ~~2 wells, or 1 well and finished water storage equal to twice the maximum daily demand shall be provided. Where 2~~ Two wells ~~are provided, the sources shall be~~ that are each capable of ~~equaling or exceeding the design~~ supplying the average daily demand with the largest producing well out of service~~.~~;

~~(formerly Section 9(b)(i))~~(B) ~~2 wells , or 1~~ One well and finished water storage that together equal ~~to~~ twice the maximum daily demand ~~shall be provided. Where 2 wells are provided, the sources shall be capable of equaling or exceeding the design average daily demand with the largest producing well out of service.~~; or

(C) For public water supplies that are not community water systems or nontransient noncommunity water systems, as determined by the Administrator, one well that is capable of supplying the maximum daily demand.

~~(formerly Section 9(b)(i)(B))~~(ii) ~~Relation to sources of pollution. Every well shall be located further from any of the sources of pollution listed below.~~ ~~The~~ Wells shall maintain the following minimum isolation distances ~~listed below apply when domestic wastewater is the only wastewater present.~~:

~~(formerly Section 9(b)(i)(B)(I))~~(A) If domestic wastewater is the only wastewater present and the design domestic sewage flow is less than 2,000 ~~gallons per day~~ gpd ~~(7,560 L/day)~~, the following minimum isolation distance shall be maintained:

~~(formerly Section 9(b)(i)(A)(II)(A)~~ Table 1. Isolation Distances for Domestic Sewage Flows Less than 2,000 gpd

Source of Domestic Wastewater	*Minimum Distance to Well*

~~Sewer~~	~~50 feet~~
~~Septic tank~~	~~50 feet~~
~~Disposal field~~	~~100 feet (30.5 m)~~
~~Seepage pit~~	~~100 feet (30.5 m)~~
~~Cesspool~~	~~100 feet (30.5 m)~~
Storm and Sanitary Sewer Collection Systems	50 feet
Septic tank	100 feet
Absorption system	200 feet

~~(formerly Section 9(b)(i)(B)(II))~~(B) If domestic wastewater is the only wastewater present and the design domestic sewage flow is greater than 2,000 gpd ~~(7,560 L/day)~~ but less than 10,000 gpd ~~(37,800 L/day)~~, the following minimum isolation distances shall be maintained:

Table 2. Isolation Distances for Domestic Sewage Flows Greater than 2,000 gpd

Source of Domestic Wastewater	*Minimum Distance to Well*
~~Sewer~~	~~50 feet~~
~~Septic tank~~	~~50 feet~~
~~Disposal field~~	~~200 feet~~
~~Seepage pit~~	~~200 feet~~
~~Cesspool~~	~~200 feet~~
Storm and Sanitary Sewer Collection Systems	50 feet
Septic tank	100 feet
Absorption system	500 feet

~~(formerly Section 9(b)(i)(B)(III))~~(C) ~~For systems larger~~ If domestic wastewater is the only wastewater present and the design domestic sewage flow is greater than 10,000 gallons per day ~~(37,800 L/day),~~ or non-domestic wastewater is present the required isolation distance shall be determined by a ~~hydrogeological~~ subsurface study, in accordance with the requirements of ~~Section 15 of Chapter 3 Water Quality Rules and Regulations~~ Water Quality Rules Chapter 3, Section 17(b), but shall not be less than those ~~listed above~~ required in Tables 1 and 2 of this Section.

~~(formerly Section 9(b)(i)(C))~~(iii) ~~Relation to~~ Wells shall maintain the following minimum isolation distances from buildings and property lines~~.~~:

~~(formerly Section 9(b)(i)(C)(I))~~(A) When a well is ~~adjacent to the~~ outside of a building, the well shall be located so that the ~~centerline~~ the surface casing has a clearance radius of a minimum of 10 feet horizontally and ~~extended vertically,~~ will clear any projection from the building ~~by not less than 3 feet (0.91 m), and~~ will ~~clear any power line by not less than 10 feet (3.05 m).~~;

~~(formerly Section 9(b)(i)(C)(II))~~(B) When a well is ~~to be~~ located inside a building~~.~~: ~~the top of the casing and any other well opening shall not terminate in the basement of the building, or in any pit or space that is below natural ground surface unless the well is completed with a properly protected submersible pump . Wells located in a structure must be accessible to pull the casing or the pump. The structure shall have overhead access.~~

~~(formerly Section 9(b)(i)(C)(II))~~(I) ~~t~~The top of the casing and any other well opening shall not terminate in the basement of the building, or in any pit or space that is below natural ground surface unless the well is completed with a properly protected submersible pump or provided with provisions for drainage to the ground surface that is not subject to flooding by surface water;

~~(formerly Section 9(b)(i)(C)(II))~~(II) Wells located in a structure shall be accessible to pull the casing, pipe, or pump~~.~~; and

~~(formerly Section 9(b)(i)(C)(II))~~(III) The structure shall have overhead access.

~~(formerly Section 9(b)(i)(D))~~(C) ~~Relation to property lines. Every w~~Wells shall be located at least ~~10~~ 50 feet ~~(3.05 m)~~ from any property line.

~~(formerly Section 9(b)(ii)~~(iv) Applicants for wells shall complete ~~T~~testing and maintain records as follows~~.~~:

~~(formerly Section 9(b)(ii)(A))~~(A) ~~Yield and drawdown tests.~~ Yield and drawdown tests shall be performed on every production well after construction or subsequent treatment and prior to placement of the permanent pump. The test methods shall be clearly indicated in the specifications. The test pump capacity, at maximum anticipated drawdown, shall be at least 1.5 times the design rate anticipated. The ~~test~~ well shall ~~provide for continuous pumping~~ be test pumped at the desired yield (design capacity) of the well for at least 24 consecutive hours ~~or until~~ after stabilized drawdown~~.~~ ~~has continued~~ Alternatively, the well may be pumped at a rate of 150 percent of the desired yield for at least ~~6~~ six continuous hours after stabilized drawdown. ~~when test pumped at 1.5 times the design pumping rate.~~

~~(formerly Section 9(b)(ii)(B))~~(B) ~~Plumbness and alignment requirements.~~ Every well shall be tested for plumbness and alignment in accordance with AWWA ~~A-100~~ A100. ~~The test method and allowable tolerance shall be stated in the specifications.~~

(v) In addition to meeting the requirements of Section 8 of this Chapter, plans for wells developed through acidizing activities shall also include the following elements:

(A) Information on the geology of the area that contains descriptions of:

(I) Known or potential faults, fractures, springs, karst features (such as sinkholes and other similar features) within a one-mile radius of the proposed well; and

(II) Faults and fractures that may extend from the acidized zone into overlying and underlying geologic formations and a description of any measures that will be taken to ensure that the acidized solution does not migrate into any of those geologic formations.

(B) For wells developed within a radius of one mile of existing wells, applicants shall submit plans that analyze the risk and mitigation measures to be taken to prevent impacts to those wells and the risk and mitigation measures for any potential effects to each existing well;

(C) Existing information on the location of other wells (such as water supply, oil and gas, mineral development wells) within a one-mile radius of the proposed well, including any wells that intercept the acidized zone, and for wells that intercept the acidized zone:

(I) An analysis of whether or not those wells that intercept the acidized zone have been properly plugged and abandoned;

(II) An analysis of whether or not those wells have been properly cased and cemented; and

(III) A description of what measures will be or have been taken to prevent the acidized solution from migrating vertically in the annular space or casing of the existing wells into overlying or underlying geologic formations.

(D) A description of the borehole drilling phase and what measures will be taken to minimize the introduction of lost circulation materials into aquifers when encountering under-pressured geologic formations or other factors that may lead to a loss of circulation;

(E) A description of the acid injection process and the measures that will be taken to ensure that injection pressures do not create fractures in the overlying and underlying geologic formations and through which the acidized solution may migrate;

(F) A description of the volume and content of the acid and any other chemical compounds to be used during acidizing activities, including the management of the acid and chemical compounds prior to acidizing and final disposition of any acid, water, or chemical mixtures recovered from the well after acidizing activities are completed;

(G) A description of the measures that will be or have been taken to ensure that the recovery of the acidized solution is of sufficient duration and volume to eliminate the potential for acidic impacts to other wells completed within the injection zone; and

(H) A description of the methods to be performed to establish the placement and integrity of the annular seal and casing prior to acidization of the well.

~~(formerly Section 9(b)(iii)(A))~~(vi) ~~Protection during construction.~~ During any well construction or modification, the well and surrounding area ~~must~~ shall be adequately protected to prevent any groundwater contamination. Surface water ~~must~~ shall be diverted away from the construction area.

~~(formerly Section 9(b)(iii)(B))~~(vii) All ~~W~~wells ~~types and~~ shall comply with the following construction ~~methods~~ standards~~.~~:

~~(formerly Section 9(b)(iii)(I))~~(A) ~~Dug wells.~~ Dug wells shall be ~~used only where geological conditions preclude the possibility of developing an acceptable drilled well~~ constructed according to the State Engineer's standards~~.~~;

~~(formerly Section 9(b)(iii)(II)(2.))~~(B) ~~Every d~~Drilled, driven, jetted, or bored wells shall have an unperforated casing that extends from a minimum of 12 inches ~~(30 cm)~~ above ~~ground~~ the concrete surface and 18 inches above natural ground surface ~~to at least 10 feet (3.05 m) below ground surface~~. ~~In unconsolidated formations, this casing shall extend to the water table or below. In consolidated formations, the casing may be terminated in rock or watertight clay above the water table.~~ and the design shall demonstrate compliance with Water Quality Rules, Chapter 26, Section 8;

~~(formerly Section 9(b)(iii)(B)(X)(2.))~~(C) In gravel-packed wells or artificial filter-packed wells, aquifers containing inferior quality water shall be sealed by pressure grouting, or with special packers or seals, to prevent such water from moving vertically in gravel-packed portions of the well. Gravel-packed wells shall meet the following sealing requirements:

~~(formerly Section 9(b)(iii)(IV)(2.))~~(I) If a permanent surface casing is not installed, the annular opening between the casing and the drill hole shall be sealed in the top 10 feet ~~(3.05 m)~~ with concrete or cement grout~~.~~; or

~~(formerly Section 9(b)(iii)(IV)(2.))~~(II) If a permanent surface casing is installed, it shall extend to a depth of at least 10 feet ~~(3.05 m)~~. The annular opening between this outer casing and the inner casing shall be covered with a metal or cement seal.

~~(formerly Section 9(b)(iii)(IV)(1.))~~(D) When ~~artesian~~ naturally flowing water is encountered in a well, unperforated casing shall extend into the confining layer overlying the ~~artesian~~ water-bearing zone. This casing shall be adequately sealed with cement grout into the confining zone and shall extend at least 10 feet into the target aquifer

to prevent both surface and subsurface leakage from the ~~artesian~~ water-bearing zone. The method of construction shall be such that during the placing of the grout and the time required for it to set, no water shall flow through or around the annular space outside the casing, and no water pressure sufficient to disturb the grout prior to final set shall occur. ~~After the grout has set completely, d~~Drilling operations ~~may~~ shall not be continued into the ~~artesian~~ water-bearing zone until the grout has set completely. If leakage occurs around the well casing or adjacent to the well, the well shall be recompleted with any seals, packers or casing necessary to eliminate the leakage completely.

(I) Flowing wells shall be constructed to control the flow of water from the well. The well grouting shall be engineered to prevent the movement of water along the well casing and to prevent the migration of pressurized water into upper aquifers. A flow control device shall be installed into the wellhead to control the flow of water from the well. The well discharge or overflow line installations must connect to the well casing at least 12 inches above ground and be valved. The size of the air gap between the overflow line from the well to drainage structure shall be twice the diameter of the well overflow pipe. Overflow water must be drained and diverted to prevent ponding around the well casing.

(II) There shall be no direct connection between any discharge pipe and a sewer or other source of pollution.

~~(formerly Section 9(b)(iii)(B)(X)(1.))~~(E) ~~Any time during the construction of a well that~~ If mineralized water or water known to be polluted is encountered during the construction of a well, the aquifer or aquifers containing such inferior quality water shall be adequately cased or sealed off ~~so that~~ to prevent water ~~shall not~~ from entering the well~~, nor will it move~~ and to prevent water from moving up or down the annular space; ~~outside the well casing. If necessary, special seals or packers shall be installed to prevent movement of inferior quality water. Mineralized water may be used if it can be properly treated to meet all drinking water quality standards as determined by the administrator. When mineralized water is encountered, it shall not be mixed with any other waters from different aquifers within the well.~~

~~(formerly Section 9(b)(iii)(B)(X)(1.))~~(I) ~~If a well is penetrating multiple aquifers, mineralized water shall be excluded from the well if water is taken from other non-mineralized aquifers.If a~~ For wells ~~is~~ that ~~penetrating~~ penetrate multiple aquifers, mineralized water shall be excluded from the well if water is taken from other, non-mineralized aquifers.

(II) Applicants that propose to use m~~M~~ineralized water ~~may be used~~ as a public water supply shall demonstrate ~~if it can be properly~~ that any necessary treat~~ed~~ment ~~to meet all~~ will comply with the drinking water quality standards ~~as determined by the administrator~~ required by 40 CFR Part 141.

~~(formerly Section 9(b)(iii)(B)(XI)(1.))~~(F) Existing oil ~~and~~ or gas wells, ~~seismic test holes,~~ private water wells, or ~~mineral~~ exploration test holes that can be completed to conform to all minimum construction standards required by this Chapter may be converted for use as a public water supply well~~s~~. ~~provided that the wells can be completed to conform to the~~

~~minimum construction standards cited in this chapter. This does not relieve the applicant from obtaining appropriate permits.~~The permit application shall identify all actions to be completed to achieve compliance with this Chapter.

(viii) The minimum grout thickness for public water supply wells shall be determined in accordance with AWWA Standard A100, part 4.7.8.3.

(ix) Well seals shall meet the following requirements:

(A) The annular space shall be sealed to protect against contamination or pollution by the entrance of surface or shallow subsurface waters; and

(B) Annular seals shall be installed to provide protection for the casing against corrosion, to ensure the structural integrity of the casing, and to stabilize the upper formation.

(x) Upper terminal well designs that include a concrete floor shall demonstrate a slope of one inch per foot away from the casing at .

(xi) Well pumps shall be located at a point above the top of the well screen.

~~(formerly Section 9(b)(iii)(D)(II))~~ (xii) ~~Submersible pumps. Where a submersible pump is used, the top of the casing shall be effectively sealed against the entrance of water under all conditions of vibration or movement of conductors or cables. The electrical cable shall be firmly attached to the rise pipe at 20 foot (6.1 m) intervals or less, and the pump shall be located at a point above the top of the well screen.~~ An accessible check valve that is not located in the pump column shall be installed in the discharge line of each well between the pump and the shut-off valve. Additional check valves shall be located in the pump column as necessary to prevent negative pressures on the discharge piping.

~~(formerly Section 9(b)(iii)(C)(IV))~~(xiii) ~~Pitless well units.~~ A pitless adaptor or well house shall be used where needed to protect the water system from freezing.

~~(formerly Section 9(b)(iii)(C)(IV))~~(xiv) A frost pit may be used only in conjunction with a properly protected pitless adaptor.

~~(formerly Section 9(b)(iii)(C)(vi))~~(xv) ~~Water level management. Every w~~Wells with diameters that are greater than ~~4~~ four inches ~~(10 cm) in diameter~~ shall be equipped with an ~~access port that will allow for the measurement of the depth to the water surface; or in the case of a flowing artesian well, with a pressure gauge that will indicate pressure. A~~an air line ~~used~~ for water level measurements or, ~~shall be provided on all wells greater than 4 inches (10 cm) in diameter. Installation of water level measuring equipment shall be made using corrosion-resistant materials attached firmly to the drop pipe or pump column and in such a manner as to prevent entrance of foreign materials.~~in the case of a flowing artesian well, with a pressure gauge that will indicate pressure.

~~(formerly Section 9(b)(iii)(C)(VII))~~(xvi) ~~Discharge measuring device. Every well shall be piped so that a device capable of measuring the total well discharge can be placed in operation at the well for well testing. Every well field (or when only one well is present, every well) shall have a device capable of measuring the total discharge~~. An instantaneous and totalizing flow meter equipped with nonvolatile memory shall be installed on the discharge line of each well in accordance with the manufacturer's specifications. Meters installed on systems with variable frequency drives shall be capable of accurately reading the full range of flow rates.

~~(formerly Section 9(b)(iii)(D)(IX))~~(xvii) ~~Well abandonment.~~ Test wells and groundwater sources ~~which~~ that are ~~not in use shall be~~ sealed for plugging and abandonment in accordance with requirements of Water Quality Rules Chapter 26, ~~Water Quality Rules and Regulations.~~ Section 11 ~~(formerly 9(b)(iii)(D)(IX)Wells~~ shall be sealed by filling with neat cement grout. The filling materials shall be applied to the well hole through a pipe, or tremie~~. or bailer.~~

(xviii) Designs for groundwater sources that are subject to 40 CFR 141.402(a)(1)(i) and either 40 CFR 141.402(a)(1)(ii) or 40 CFR 141.402(a)(1)(iii) shall demonstrate compliance with 40 CFR 141.402(e).

(f) Facilities that include spring development shall meet the following requirements:

(i) Spring collection systems shall be constructed to collect spring water while preventing contamination of the source from the ground surface or other contaminant sources.

(ii) Seepage springs shall have a trench for the collection site that extends at least six inches into the impervious layer, but not entirely through the impervious layer. Concentrated springs shall be developed down to bedrock.

(iii) A bed of clean and disinfected rock that extends the width of the spring from which water is being collected shall be installed at the collection site.

(iv) The collection site shall:

(A) Be covered with 60 mil plastic sheeting or an equivalent puncture-proof and water-proof barrier; and

(B) Be protected from damage during back-fill and re-grading of the site to the original surface elevation with protective fabric or sand.

(v) Collecting walls shall be:

(A) Constructed immediately downstream of the collection site; and

(B) Made of concrete, or other material that meets the requirements of Section 15(b)(ii) of this Chapter;

(vi) The spring water collection pipe shall be installed in accordance with the USDA NRCS Part 631 National Engineering Handbook, Chapter 32, part 631.3201(b)(iii) for delivery pipes and shall meet the following requirements:

(A) The size of the collection pipe shall be sufficient to convey the flow of the spring; and

(B) Pipe material and appurtenances shall comply with allowable well construction material for water distribution in accordance with the standards listed in paragraph (c) of this Section.

(vii) Appropriate bedding and cover material shall protect the spring collection system from damage and freezing.

(viii) The Administrator shall determine the spring protection area, based on the information submitted in the engineering design report required by Section 8 of this Chapter, which shall be no less than the isolation distances in (e)(ii) of this Section. The Administrator may require additional setback distances if the engineering design report demonstrates the additional distance is required to prevent contamination of the source from the ground surface or other contaminant sources.

(ix) All potential sources of contamination shall be removed from the spring protection area.

(x) The spring collection site shall include fencing or other protective features that are constructed and secured to exclude large animals and unauthorized persons from entering the protection area.

(A) Fencing shall be designed to withstand animals and snow loading. Other protective systems may be proposed.

(B) Fencing shall include an entry point to allow access by authorized persons for inspection and maintenance activities.

(xi) The spring collection site shall include a diversion ditch that is constructed on the upstream side of the spring collection site to route surface water flows away from the collection area. The diversion ditch shall be located a minimum of 10 feet away from the collection wall.

(xii) The spring collection site shall be equipped to disinfect water prior to distribution and shall include sampling ports before and after the disinfection application point. The equipment shall be maintained and available to operate for its intended use.

(xiii) Spring box designs shall comply Section 15(a), (b), (f-j), and (l) of this Chapter. Combined spring box and finished water storage designs shall comply with Section 15 of this Chapter.

(xiv) All designs for the spring collector box and collecting walls shall be performed by a Wyoming registered professional engineer. The plans or contractor furnished information shall be signed and sealed by a Wyoming registered professional engineer.

Section 12. ~~Pumping Facilities~~ Treatment.

~~(moved to Section 14(g)(iv))(a) Total dynamic head. The total dynamic head rating of pumping units shall be based on pipe friction, pressure losses from piping entrances, exits, appurtenances (bends, valves, etc.), and static head at the design flow.~~

~~(b) Location.~~

~~(i) The pumping station shall be elevated or protected to a minimum of 3 feet above the 100-year flood elevation, or 3 feet above the highest recorded flood elevation, whichever is higher.~~

~~(ii) The station shall be accessible to operating personnel at all times, and during all weather.~~

~~(iii) The site around the station shall be graded to lead surface drainage away from the station.~~

~~(iv) The station shall have security installed to prevent vandalism and entrance by unauthorized persons or animals.~~

~~(c) Pumping stations - raw and finished water.~~

~~(i) They shall have outward opening doors.~~

~~(ii) They shall have a floor elevation or a main level entry of at least 6 inches above finished grade. All floors shall slope at least 2-1/2 inches in every 10 feet to a suitable drain. Pumps shall have an outlet for drainage from pump glands without discharging onto the floor.~~

~~(iii) They shall have any underground structures waterproofed.~~

~~(d) Wetwells. Finished water wetwells shall be covered. All vents shall be turned down and screened. Finished water wetwells shall be located above the groundwater table and the top of the walls from the wetwell shall be at least 18 inches above finished grade.~~

~~(e) Equipment servicing. Pump stations shall be provided with craneways, hoist beams, eyebolts, or other facilities for servicing or removing pumps, motors or other heavy~~

~~equipment. They shall be rated for not less than 50 percent more than the weight of the heaviest single item to be lifted. Openings in floors and roofs shall be provided as needed for removal of heavy or bulky equipment.~~

~~(moved to Section 14(b))(f) Stairways and ladders. Stairways or ladders shall be provided between all floors, and in pits or compartments which must be entered. They shall have handrails on both sides, and treads of non-slip material. The Wyoming Occupational Health and Safety Rules and Regulations shall be complied with.~~

~~(moved to Section 14(c))(g) Heating. Provisions shall be made for heating to maintain a minimum temperature of 40° F (4° C) if not typically occupied and 50° F (10° C) if occupied.~~

~~(moved to Section 14(d))(h) Ventilation. All accessible pumping station areas shall be ventilated. Ventilation may be continuous or intermittent. If intermittent, ventilation in areas normally visited by operating personnel shall be started automatically at not greater than 30 minute intervals. Permanently installed drywell ventilation shall provide at least 6 air changes per hour if continuous, and 12 air changes per hour if intermittent. Intermittent ventilating equipment shall ensure starting upon entry of operating personnel. Wetwells shall be designed to permit the use of portable blowers that will exhaust the space and continue to supply fresh air during access periods.~~

~~(moved to Section 14(e))(i) Dehumidification. In below ground pumping stations, a means for dehumidification shall be provided. The facilities shall be sized to maintain the dewpoint at least 2 below the coldest anticipated temperature of water to be conveyed in the pipes.~~

~~(j) Lighting. Lighting levels shall be sufficient to permit safe operation and maintenance of all equipment within the pumping stations, but not less than 30 foot candles. All areas shall be lit in such a manner that the failure of 1 lighting fixture or lamp will not cause the area to be completely dark.~~

~~(moved to Section 14(f))(k) Sanitary and other conveniences. All pumping stations that are manned for four or more hours per day shall be provided with potable water, lavatory and toilet facilities. Wastes shall be discharged to the sanitary sewer or to an on-site waste treatment system.~~

~~(moved to Section 14(g))(l) Pumps. At least two pumping units shall be provided. With the largest pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping rate of the system.~~

~~(moved to Section 14(g)(ii))(m) Suction lift. Pumps shall be selected so that the net positive suction head required at maximum flow (NPSHR) is less than the net positive suction head available (NPSHA) minus 4 feet (1.2 m) based on the hydraulic conditions and altitude of the pumping station. If this condition is not met, then priming shall be provided.~~

~~Priming water must not be of lesser sanitary quality than that of the water being pumped. Vacuum priming may be used.~~

~~When an air-operated ejector is used, the screened intake shall draw clean air from a point at least 10 feet above the ground or other source of possible contamination.~~

~~(moved to Section 14(g)(iii))(n) Surge control. Piping systems shall be designed to withstand the maximum possible surge (water hammer) from the pumping station, or adequate surge control provided to protect the piping. Pressure relief valves are not acceptable surge control.~~

~~(moved to Section 14(h))(o) Booster pumps.~~

~~(moved to Section 14(h)(i))(i)Booster pumps shall not produce a pressure less than 5 psi in suction lines. Where the suction line has service connections, booster pump intake pressure shall be at least 35 psi (138 kPa) when the pump is in normal operation and shall be provided with a low pressure cutoff switch if the suction line pressure is a minimum of 20 psi (69 kPa).~~

~~(moved to Section 14(h)(iii))(ii) Automatic or remote control devices shall have a range between the start and cutoff pressure which will prevent cycling of more than 1 start every 15 minutes.~~

~~(moved to Section 14(h)(iv))(iii) In-line booster pumps shall be accessible for servicing and repairs. The access opening and vault shall be large enough to remove the pump.~~

~~(moved to Section 14(h)(v))(iv) Individual home booster pumps shall not be allowed for any individual service from the public water supply main.~~

~~(moved to Section 14(h)(vi))(p) Automatic and remote controlled stations. Conditions that may affect continuous delivery of water shall be alarmed at an attended location.~~

~~(q) Appurtenances.~~

~~(i) Valves.~~

~~(A) All pumps except submersibles shall have a suction and discharge valve to permit satisfactory operation, maintenance and repair of the equipment. Submersible pumps shall have a check valve and discharge valve to permit satisfactory operation, maintenance and repair of the equipment.~~

~~(B) If foot valves are necessary, they shall have a net valve area of at least 2-1/2 times the area of the suction pipe and they shall be screened.~~

~~(moved the Section 14(i)(i))(C) Each pump shall have an individual suction line or the lines shall be so manifolded that they will ensure similar hydraulic and operating conditions.~~

~~(D) Check. All pumps shall be provided with a check valve located between the pump and the discharge shutoff valve, except where arranged so that backflow is not possible under normal operating conditions.~~

~~(moved to Section 14(i)(i))(E) Air release. Air release valves shall be provided where the pipe crown is dropped in elevation.~~

~~(ii) Gauges. Each pump shall have a standard pressure gauge on its discharge line. Each pump shall have a compound gauge on its suction line, except wet pit type pumps.~~

~~(iii) Water seals. Water seals shall not be supplied with water of a lesser sanitary quality than that of the water being pumped. Where pumps are sealed with potable water and are pumping water of lesser sanitary quality, the seal shall be supplied from a break tank open to atmospheric pressure. The tank shall have an air gap of at least 6 inches (0.15 m) or 2 pipe diameters, whichever is greater, between the feeder line and the spill line of the tank.~~

~~(iv) Controls. Pumps, their prime movers and accessories, shall be controlled in such a manner that they will operate at rated capacity without overload. Provision shall be made to prevent energizing the motor in the event of a backspin cycle. Electrical controls shall be located above grade.~~

(a) 2018 TSS, parts 4.2.1(b), presedimentation, inlets; 4.2.1(c), presedimentation, bypass; 4.2.2, coagulation; 4.2.2(a), coagulation, mixing; 4.2.2(b), coagulation, equipment; 4.2.2(c), coagulation, location; 4.2.4(b), sedimentation, inlet devices: 4.2.4(c), sedimentation, velocity; 4.2.4(d)-4.2.4(d)(4), sedimentation, outlet devices; 4.3.1.1, rapid rate gravity filters, pretreatment; 4.3.1.4-4.3.1.4(o), rapid rate gravity filters, structural details and hydraulics; 4.3.1.6(a), filter material, total depth; 4.3.1.6(b), filter material, uniformity coefficient; 4.3.1.6(c), filter material, minimum; 4.3.1.6(d)(1)-4.3.1.6(d)(1)(f), filter material, types of filter media, anthracite; 4.3.1.6(d)(2)-4.3.1.6(d)(2)(.d), filter material, types of filter media, sand filter; 4.3.1.6(d)(4)-4.3.1.6(d)(4)(.d), filter material, types of filter media, granular activated carbon (GAC); 4.3.1.6(e)(1)-4.3.1.6(e)(1)(.b), filter material, support media, topedo sand; 4.3.3.6-4.3.3.6(b), diatomaceous earth filtration, pre-coat; 4.3.3.7-4.3.3.7(c), diatomaceous earth filtration, body feed; 4.3.3.8-4.3.3.8(e), diatomaceous earth filtration, filtration; 4.3.3.10(a)(1), diatomaceous earth filtration, appurtenances, sampling taps; 4.3.3.10(a)(2), diatomaceous earth filtration, appurtenances, loss of head; 4.3.3.10(a)(3), diatomaceous earth filtration, appurtenances, rate of flow indicator; 4.3.3.10(a)(4), diatomaceous earth filtration, appurtenances, throttling valve; 4.3.4.2, slow sand filters, number; 4.3.4.4, slow sand filters, rates of filtration; 4.3.4.5, slow sand filters, underdrains; 4.3.4.6-4.3.4.6(e), slow sand filters, filter material; 4.3.4.7, slow sand filters, filter gravel; 4.3.4.8, slow sand filters, depth of water on filter beds; 4.3.4.9(b) and (e), slow sand filters, control appurtenances; 4.3.4.9(f), slow sand filters, control appurtenances; 4.4.1(a), disinfection, contact time, CT, and point(s) of application; 4.4.1(b), disinfection, contact time, CT, and point(s) of application; 4.4.3(a)-(d), disinfection,

testing equipment; 4.4.4.3, chlorine, automatic switch-over; 4.4.4.7, chlorine, cross-connection protection; 4.4.4.8, chlorine, pipe material; 4.4.5, chloramines; 4.4.6.1, ozone, design considerations; 4.4.6.2, ozone, feed gas preparation; 4.4.6.3, ozone, ozone generator; 4.4.6.4, ozone, ozone contactors; 4.4.6.5, ozone, ozone destruction unit; 4.4.6.6, ozone, piping materials; 4.4.6.7, ozone, joints and connections; 4.4.6.8, ozone, instrumentation; 4.4.6.9, ozone, alarms; 4.4.6.11, ozone, construction considerations; 4.5.1, softening, lime or lime-soda process; 4.5.1.1, softening, lime or lime-soda process, hydraulics; 4.5.1.3, softening, lime or lime-soda process, chemical feed point; 4.5.1.4, softening, lime or lime-soda process, rapid mix; 4.5.1.5, softening, lime or lime-soda process, stabilization; 4.5.1.6-4.5.1.6(b), softening, lime or lime-soda process, sludge collection; 4.5.1.7, softening, lime or lime-soda process, sludge disposal; 4.5.1.8, softening, lime or lime-soda process, disinfection; 4.5.1.9, softening, lime or lime-soda process, plant start-up; 4.5.2.1, cation exchange process, pre-treatment requirements; 4.5.2.2, cation exchange process, design; 4.5.2.3, cation exchange process, design; 4.5.2.4, cation exchange process, depth of resin; 4.5.2.5, cation exchange process, flow rates; 4.5.2.7, cation exchange process, underdrains and supporting gravel; 4.5.2.8, cation exchange process, brine distribution; 4.5.2.9, cation exchange process, cross-connection control; 4.5.2.10, cation exchange process, bypass piping and equipment; 4.5.2.11, cation exchange process, additional limitations; 4.5.2.13(a)-4.5.2.13(f), cation exchange process, brine and salt storage tanks; 4.5.2.14, cation exchange process, salt and brine storage capacity; 4.5.2.15, cation exchange process, brine pump or eductor; 4.5.2.18, cation exchange process, construction materials; 4.5.2.19, cation exchange process, housing; 4.5.3, water quality test equipment; 4.6, anion exchange treatment; 4.6.1, anion exchange treatment, pre-treatment requirements; 4.6.2-4.6.2(b), anion exchange treatment, design; 4.6.3, anion exchange treatment, exchange capacity; 4.6.4, anion exchange treatment, number of units; 4.6.5, anion exchange treatment, type of resin; 4.6.6, anion exchange treatment, flow rates; 4.6.7, anion exchange treatment, free board; 4.6.8-4.6.8(b), anion exchange treatment, miscellaneous appurtenances; 4.6.9, anion exchange treatment, cross-connection control; 4.6.10, anion exchange treatment, construction materials; 4.6.11, anion exchange treatment, housing; 4.6.12, anion exchange treatment, pre-conditioning of the resin; 4.6.13, anion exchange treatment, waste disposal; 4.6.14, anion exchange treatment, water quality test equipment; 4.7, aeration; 4.7.1-4.7.1(i), aeration, natural draft aeration; 4.7.2-4.7.2(l), aeration, forced or induced draft aeration; 4.7.3-4.73.3(e), aeration, spray aeration; 4.7.4-4.7.4(b), aeration, pressure aeration; 4.7.5, aeration, packed tower aeration; 4.7.5.1-4.7.5.1(f), aeration, packed tower aeration, process design; 4.7.5.2-4.7.5.2(b), aeration, packed tower aeration, materials of construction; 4.7.5.3-4.7.5.3(l), aeration, packed tower aeration, water flow system; 4.7.5.4-4.7.5.4(f), aeration, packed tower aeration, air flow system; 4.7.5.5-4.7.5.5(m), aeration, packed tower aeration, other features that shall be provided; 4.7.5.6-4.7.5.6(b), aeration, packed tower aeration, environmental factors; 4.7.6, aeration, other methods of aeration; 4.7.7, aeration, protection of aerators; 4.7.8, aeration, disinfection; 4.7.9, aeration, bypass; 4.7.10, aeration, corrosion control; 4.7.11, aeration, quality control; 4.8, iron and manganese control; 4.8.1, iron and manganese control, removal by oxidation, detention and filtration, oxidation; 4.8.1.2, iron and manganese control, removal by oxidation, detention and filtration, detention; 4.8.1.3, iron and manganese control, removal by oxidation, detention and filtration, filtration; 4.8.2, iron and manganese control, removal by the lime-soda softening process; 4.8.3-4.8.3(f), iron and manganese control, removal by manganese coated media filtration; 4.8.4, iron and manganese control, removal by ion exchange; 4.8.6-4.8.6(d), iron and manganese control, sequestration by polyphosphates; 4.8.7-4.8.7(e), iron and manganese control, sequestration by sodium silicates;

4.8.8, iron and manganese control, sampling taps; 4.9.3-4.9.3(e), stabilization and corrosion control, carbon dioxide addition; 4.9.5(c)-4.9.5(c)(9), stabilization and corrosion control, phosphates, design; 4.9.6, stabilization and corrosion control, pH/alkalinity adjustment; 4.9.6.1, stabilization and corrosion control, pH/alkalinity adjustment; 4.9.6.1(a), stabilization and corrosion control, pH/alkalinity adjustment, chemicals; 4.9.6.1(a)(1.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, caustic soda; 4.9.6.1(a)(2.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, soda ash; 4.9.6.1(a)(3.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, lime; 4.9.6.1(a)(4.), stabilization and corrosion control, pH/alkalinity adjustment, chemicals, sodium bicarbonate; 4.9.6.1(b)-4.9.6.1(b)(4.), stabilization and corrosion control, pH/alkalinity adjustment, simultaneous compliance; 4.9.6.1(c)-4.9.6.1(c)(4.), stabilization and corrosion control, pH/alkalinity adjustment, alkalinity/pH adjustment systems; 4.10, taste and odor control; 4.10.1, taste and odor control, flexibility; 4.10.2, taste and odor control, cholorination; 4.10.3, taste and odor control, chlorine dioxide; 4.10.4-4.10.4(f), taste and odor control, powdered activated carbon; 4.10.8, taste and odor control, potassium permanganate; 4.11, membrane technologies for public water supplies; 4.11.1-4.11.1(c), membrane technologies for public water supplies, pilot study/preliminary investigations; 4.11.2, membrane technologies for public water supplies, general design considerations; 4.11.2(a), membrane technologies for public water supplies, general design considerations, pretreatment; 4.11.2(b), membrane technologies for public water supplies, general design considerations, materials; 4.11.2(c), membrane technologies for public water supplies, general design considerations, useful life of membranes; 4.11.2(d), membrane technologies for public water supplies, general design considerations, membrane integrity and finished water monitoring; 4.11.2(e), membrane technologies for public water supplies, general design considerations, bypass water; 4.11.2(f)-4.11.2(f)(6.), membrane technologies for public water supplies, general design considerations, membrane cleaning; 4.11.2(g), membrane technologies for public water supplies, general design considerations, controls; 4.11.2(h)-4.11.2(h)(13.), membrane technologies for public water supplies, general design considerations, alarms; 4.11.2(i), membrane technologies for public water supplies, general design considerations, compressed air; 4.11.2(j), membrane technologies for public water supplies, general design considerations, operation frequency; 4.11.2(k), membrane technologies for public water supplies, general design considerations, cross connection control; 4.11.2(l)-4.11.2(l)(4.), membrane technologies for public water supplies, general design considerations, redundancy of critical components; 4.11.3-4.11.3(h), membrane technologies for public water supplies, systems treating surface water or GWUDI; 5.4.7-5.4.7(f), specific chemicals, fluoride; 5.4.8, specific chemicals, activated carbon; 9.3, precipitative softening sludge; 9.3(a)-9.3(a)(2.), precipitative softening sludge, lagoons; 9.4.1-9.4.1(h), alum sludge, lagoons; 9.5, red water waste; 9.5.1-9.5.1(k), red water waste, sand filters; 9.5.2-9.5.2(g), red water waste, lagoons; 9.5.3, red water waste, discharge to community sanitary sewer; are herein incorporated by reference.

~~(formerly Section 10(a))~~(b) ~~Design capacity.~~ The capacity of the water treatment or water production system shall be designed for the maximum daily demand at the design year.

~~(formerly Section 10(b))~~(c) Presedimentation~~.~~ shall be required for ~~R~~raw waters ~~which~~ that have episodes of turbidity in excess of 1,000 ~~TU~~ Nephelometric turbidity units (NTU) for a period of one week or longer ~~shall be presettled~~.

(d) Basins shall meet the following requirements:

~~(formerly Section 10(b)(i))~~(i) ~~Detention time.~~ Basins without mechanical sludge collection equipment shall have a minimum detention time of three days~~.~~; ~~Basins with mechanical sludge collection equipment shall have a minimum detention time of three hours.~~

~~(formerly Section 10(b)(i))~~(ii) Basins with mechanical sludge collection equipment shall have a minimum detention time of three hours~~.~~;

~~(formerly Section 10(b)(iv))~~(iii) ~~Bottom slope.~~ Basins shall have a bottom slope to drain of ¼ inch per foot ~~(20 mm/m)~~ without mechanical sludge collection equipment and ~~2~~ two inches per foot ~~(16 cm/m)~~ with mechanical sludge collection equipment~~.~~; and

~~(formerly Section 10(b)(iii))~~(iv) ~~Drains.~~ Basins shall have a minimum of one, ~~8 inch (20 cm)~~ eight-inch drain line to completely dewater the facility.

~~(formerly Section 10(c))~~(e) ~~Rapid mix.~~ Rapid dispersal of chemicals throughout the water shall be accomplished by mechanical mixers, jet mixers, static mixers, or hydraulic jump~~.~~ and shall meet the following requirements:

~~(formerly Section 10(c)(i))~~(i) ~~Mixing intensity.~~ For mechanical mixers, the minimum Gt (velocity gradient (sec-1) x t (sec)) provided at maximum daily flow shall be 27,000~~.~~;

~~(formerly Section 10(c)(ii))~~(ii) ~~Mixing time.~~ The detention time in a flash mixing chamber shall not exceed 30 seconds at maximum daily flow conditions~~.~~; and

~~(formerly Section 10(c)(iii))~~(iii) ~~Drain.~~ The basin shall have a drain.

~~(formerly Section 10(d))~~(f) Flocculation shall comply with the following requirements~~.~~: ~~The low velocity agitation of chemically treated water shall be accomplished by mechanical flocculators.~~

~~(formerly Section 10(d))~~(i) Mechanical flocculators shall be used for ~~The~~ low-velocity agitation of chemically treated water ~~shall be accomplished by mechanical flocculators~~.

~~(formerly Section 10(d)(i))~~(ii) ~~Detention time. A~~ The minimum detention time of 10 minutes ~~detention time~~ shall be provided.

~~(formerly Section 10(d)(iii))~~(iii) ~~Drains. Flocculation b~~Basins shall have a minimum of one drain line to dewater the facility.

~~(formerly Section 10(d)(ii))~~(iv) ~~Mixing intensity.~~ The velocity gradient (G value) ~~imposed~~ shall be adjustable ~~by providing~~ through the use of variable speed drives. ~~or shall be designed to~~ The velocity gradient for single basin systems shall be 30 sec-1, ~~if a single basin is provided,~~ 20 sec-1 in the final basin of a two stage system, and 10 sec-1 in the final basin of a

three stage system. ~~For a single speed drive system, the tip speed of the mixer shall not exceed 3 feet per second (0.91 m/sec). Variable speed drives shall provide tip speeds of 0.5 to 3.0 feet per second (0.15-0.91 m/sec).~~

~~(formerly Section 10(d)(ii))~~(v) ~~For a single speed drive system, t~~The tip speed for a single speed drive system ~~of the mixer~~ shall not exceed 3 feet per second ~~(0.91 m/sec)~~ (ft/sec). Variable speed drives shall provide tip speeds ~~of~~ between 0.5 ~~to~~ and 3.0 ~~feet per second (0.15-0.91 m/sec)~~ ft/sec.

~~(formerly Section 10(d)(iv))~~(vi) ~~Piping.~~ The velocity of flocculated water through pipes or conduits to settling basins shall not be less than 0.5 ft/sec or greater than 1.5 ~~feet per second (0.15-0.46 m/sec)~~ ft/sec.

~~(formerly Section 10(e))~~(g) Sedimentation basins shall comply with the following requirements~~.~~:

~~(formerly Section 10(e)(i))~~(i) ~~Diameter.~~ The maximum diameter in circular basins shall be 80 feet.

~~(formerly Section 10(e)(iv))~~(ii) ~~Side water depth.~~ The minimum basin side water depth shall be ~~8~~ eight feet ~~(2.43 m)~~ if mechanical sludge collection equipment is provided or ~~basins or~~ basin sludge hopper segments are less than 100 square feet ~~(9.3 m)~~ in surface area and 15 feet ~~(4.6 m)~~ if basins are manually cleaned. ~~Mechanical sludge collection equipment includes mechanically driven drives that use scrapers or differential water level to collect the sludge.~~

~~(formerly Section 10(e)(v))~~(iii) ~~Freeboard.~~ The outer walls of the settling basins shall extend at least 12 inches ~~(30.5 cm)~~ above the surrounding ground and provide at least 12 inches ~~(30.5 cm)~~ of freeboard to the water surface. Where the basin walls are less than ~~4~~ four feet ~~(1.22 m)~~ above the surrounding ground, a fence or other debris barrier shall be provided on the wall.

~~(formerly Section 10(e)(xi))~~(iv) ~~Drainage.~~ Basin bottoms shall slope toward the drain at not less than ~~1~~ one inch per foot ~~(8 cm/m)~~ where mechanical sludge collection equipment is provided and ¼ inch per foot ~~(2 cm/m)~~ where no mechanical sludge collection equipment is provided.

~~(formerly Section 10(e)(ii))~~(v) ~~Overflow rate.~~ The basin overflow rate shall not exceed 1,000 gpd/ft^2 ~~(41 m3/m2d)~~ at design conditions.

~~(formerly Section 10(e)(viii))~~(vi) ~~Sludge collection.~~ Mechanical sludge collection shall be provided ~~I~~if settleable organics are present in the water or if ~~there is a history of organically related taste and odor problems, mechanical sludge collection shall be provided~~ the source water exceeds secondary maximum contaminant levels identified at 40 CFR 143.3.

~~(formerly Section 10(e)(ix))~~(vii) ~~Sludge removal. Sludge removal design shall provide that sludge p~~Pipes for removing sludge shall ~~be~~ not be less than ~~6~~ six inches ~~(15.2 cm)~~ in diameter and arranged to facilitate cleaning. Valves on ~~the~~ sludge lines shall be located outside the tank.

~~(formerly Section 10(f))~~(h) Facilities with ~~S~~softening sedimentation ~~–~~ or clarification~~.~~ ~~Conventional sedimentation – clarification as described above shall be provided in softening operations, except~~ for ~~softening~~ softened ~~a~~ groundwater ~~supply~~ sources ~~of constant quality. Where a groundwater supply is softened, the requirements may be modified as follows~~ shall meet the following requirements:

~~(formerly Section 10(f)(i))~~(i) ~~Overflow rate.~~ The basin overflow rate ~~at the design flow~~ shall not exceed ~~2,100~~ 21,000 gpd/ft2 ~~(86 m3/m2·d).~~ at the design flow; and

~~(formerly Section 10(f)(ii))~~(ii) ~~Sludge.~~ Mechanical sludge removal shall be provided and shall be designed to handle a load of 40 lbs/~~foot~~ ft ~~(60 kg/m)~~ of collector ~~scraper~~ scrapper arm length.

~~(formerly Section 10(g))~~(i) ~~Solids contact units. These treatment~~ Solids contact units are acceptable for combined softening and clarification of well water where water quality characteristics are not variable and the flow rates are uniform and consistent. ~~The~~ Solids contact units shall ~~be designed to meet the criteria detailed previously~~ meet the requirements of paragraphs (c) and (e) of this Section~~.~~ and may be considered under the following circumstances:

~~(formerly Section 10(g)(i))~~(i) ~~Such~~ Solids contact units may be considered for use as clarifiers without softening when they are designed ~~to meet the criteria detailed in the~~ as conventional sedimentation ~~– clarification.~~ units; and

~~(formerly Section 10(g)(ii))~~(ii) ~~These~~ Solids contact units may ~~also~~ be used for other treatment ~~purposes,~~ processes such as rapid mixing~~,~~ or flocculation~~, etc.,~~ when the individual components of the ~~solids contact~~ units are designed ~~in accordance with the design criteria~~ for that ~~individual~~ specific treatment process ~~as described above~~.

~~(formerly Section 10(h))~~(j) ~~Settling tube clarifiers. Shallow depth sedimentation devices or tube clarifier systems of the essentially horizontal or steeply inclined types~~ Tube clarifiers that are horizontal or steeply inclined may be used when designed as follows:

~~(formerly Section 10(h)(iv))~~(i) ~~Loading rates.~~ The maximum ~~over~~flow rate shall be less than 2.0 ~~gpm/sq ft (62.7 m3/m2·d)~~ gpm/ft^2 based on the surface area of the basin covered by the tubes~~.~~;

~~(formerly Section 10(h)(iii))~~(ii) ~~Tube placement.~~ The ~~T~~top~~s~~ of the tubes shall be more than 12 inches ~~(0.3 m)~~ from the underside of the launder and more than 18 inches ~~(0.46 m)~~ from the water surface~~.~~ and ~~(formerly Section 10(h)(v)) T~~the spacing ~~between~~ of the effluent launder~~s~~ shall not ~~exceed~~ be more than three times the distance from the water surface to the top of the tube modules~~.~~;

~~(formerly Section 10(h)(i))~~(iii) ~~Sludge removal.~~ Sludge shall be removed using 45~~-~~degree or steeper hoppered bottoms, ~~or~~ mechanical devices that move the sludge to hoppers, or devices that remove settled sludge from the basin floor using differential hydraulic level~~.~~; and

~~(formerly Section 10(h)(ii))~~(iv) ~~Tube cleaning.~~ A method of tube cleaning shall be provided~~. This~~ that may include ~~a~~ provisions for ~~obtaining~~ a rapid reduction in clarifier water surface elevation, a water jet spray system, or an air scour system. ~~Where~~ If cleaning is automatic, controls shall ~~be provided to~~ cease clarifier operation during tube cleaning and a 20~~-~~minute rest period.

~~(formerly Section 10(i))~~(k) Filtration~~.~~ systems shall comply with the following requirements:

~~(formerly Section 10(i)(i))~~(i) ~~Pressure granular media filters.~~ Vertical or horizontal pressure filters shall not be used ~~for~~ on ~~filtration of~~ surface waters. Pressure filters may be used for groundwater filtration, including iron and manganese removal.

~~(formerly Section 10(i)(ii)(A))~~(A) Slow rate sand filters~~. These types of filters~~ may be used when maximum ~~raw water~~ turbidity is less than 50 NTU~~s~~ and the turbidity present is not ~~attributable to~~ caused by colloidal clay~~.~~; and ~~Maximum color shall not exceed 30 units.~~

~~(formerly Section 10(i)(ii)(A))~~(B) Maximum color shall not exceed 30 units.

~~(formerly Section 10(i)(ii)(B)(III))~~(ii) Washwater troughs shall comply with the following requirements~~. Washwater troughs shall be constructed to provide for not more than 6 feet (1.8 m) clear distance between troughs. The troughs shall not cover more than 25 percent of filter area.~~:

~~(formerly Section 10(i)(ii)(B)(III))~~(A) ~~The~~ Washwater troughs shall not cover more than 25 percent of the filter area~~.~~;

~~(formerly Section 10(i)(ii)(B)(III)(1.))~~(B) The ~~M~~minimum ~~clearance~~ distance between the bottom of the trough and the top of the unexpanded media shall be 12 inches ~~(30.5 cm).~~;

~~(formerly Section 10(i)(ii)(B)(III)(2.))~~(C) The ~~M~~minimum distance between the weir of the trough and the unexpanded media shall be 30 inches ~~(0.76 m).~~;

~~(formerly Section 10(i)(ii)(B)(III))~~(D) ~~Washwater troughs shall be constructed to provide for not~~ There shall be no more than ~~6~~ six feet ~~(1.8 m)~~ clear distance between troughs~~.~~;

~~(formerly Section 10(i)(ii)(B)(III)(3~~(E) The trough and ~~washwater waste~~ wastewater line shall be sized ~~to carry~~ for a filter backwash rate of 20 gpm/ft^2 ~~(1181 m3/m2·d)~~ plus a surface wash rate of 2~~.0~~ gpm/ft^2 ~~(118 m3/m2·d).~~;

~~(formerly Section 10(i)(ii)(B)(IV)(1.))~~(F) The backwash system shall be sized to provide a minimum backwash ~~flow rate~~ flowrate of 20 gpm/ft^2 ~~(1181 m3/m2·d)~~. ~~Washwater storage shall be designed to provide two 20 minute washes in rapid succession. Where multiple units are not required and only one filter compartment is present, backwash storage capabilities may be reduced to provide one 20 minute backwash. Where pumps are used to provide backwash to the filter or to supply water to a washwater tank, the washwater pumps shall be in duplicate.~~ or a rate necessary to provide a 50 percent expansion of the filter bed~~.~~;

~~(formerly Section 10(i)(ii)(B)(IV)(1.))~~(G) The system and ~~Washwater~~ wash water storage shall be designed to provide two, 20-minute washes in rapid succession~~.~~and shall meet the following requirements:

~~(formerly Section 10(i)(ii)(B)(IV)(1.))~~(I) ~~Where multiple units are not required and only one filter compartment is present, backwash storage capabilities may be reduced to provide one 20 minute backwash.~~If only one filter is provided, the backwash system needs to provide only one 20-minute backwash; and

~~(formerly Section 10(i)(ii)(B)(IV)(1.))~~(II) ~~Where~~ If pumps are used to ~~provide~~ convey ~~backwash~~ water to the filter(s) or to ~~supply water to a~~ the ~~washwater~~ wash water tank, ~~the washwater~~ two equivalent pumps shall be ~~in duplicate~~ provided.

~~(formerly Section 10(i)(ii)(B)(IV)(2.)~~(H) ~~The backwash and surface wash washwater supply~~ Washwater shall be filtered and disinfected~~.~~;

~~(formerly Section 10(i)(ii)(B)(IV)(3.))~~(I) The ~~Washwater~~ washwater rate shall be controlled ~~by a separate valve, manual or automatic,~~ on the main ~~washwater~~ wash water line~~. Washwater~~ and the ~~flow rate~~ flowrate shall be metered and indicated~~.~~;

~~(formerly Section 10(i)(ii)(B)(IV)(4.))~~(J) Air-assisted backwash systems may be used when the design precludes disturbing the gravel support~~.~~and the the minimum flowrate for air-assisted backwash shall be 12 gpm/ft^2;

~~(formerly Section 10(i)(ii)(B)(IV)(5.))~~(K) A surface wash system shall be provided~~.~~ and shall meet the following requirements: ~~The system shall be capable of supplying 0.5 gpm/ft^2 (29.5 m3/m2·d) for system with rotating arms and 2.0 gpm/ft^2 (118 m3/m2·d) with fixed nozzles, at a minimum pressure of fifty (50) psi (344 kPa). The surface wash shall use filtered and disinfected water or air and filtered disinfected water The supply system shall be provided with adequate backflow prevention.~~

~~(formerly Section 10(i)(ii)(B)(IV)(5.))~~(I) The system shall be capable of supplying 0.5 gpm/ft^2 ~~(29.5 m3/m2·d)~~ for a system with rotating arms and 2~~.0~~ gpm/ft^2 ~~(118 m3/m2·d) with~~ for fixed nozzles, at a minimum pressure of fifty (50) psi ~~(344 kPa).~~; and

~~(formerly Section 10(i)(ii)(B)(IV)(5.))~~(II) The surface wash ~~shall use filtered and disinfected water or air and filtered disinfected water~~ can be air-assisted. ~~The supply system shall be provided with adequate backflow prevention.~~

~~(formerly Section 10(i)(ii)(B)(IV)(5.))~~(L) ~~The~~ Both backwash and surface wash supply system~~s~~ shall be provided with adequate backflow prevention~~.~~;

~~(formerly Section 10(i)(ii)(B)(V)(3.))~~(iii) ~~Anthracite for s~~Single media beds~~.~~ shall use either ~~C~~clean crushed anthracite or a ~~combination of~~ sand and anthracite ~~may be used~~ mixture, ~~Such~~ the media shall have an effective size ~~from~~ of 0.45 ~~mm to~~ – 0.55 mm~~,~~ and a uniformity coefficient not greater than 1.65~~.~~, and shall meet the following requirements:

~~(formerly Section 10(i)(ii)(B)(V)(4.))~~(A) ~~Gravel.~~ When gravel is used as a supporting media, ~~gravel~~ it shall consist of coarse aggregate in which ~~a high proportion of the particles are~~ most of it is ~~rounded~~ round and ~~tend toward a generally spherical or equidimensional~~ of similar size and shape~~.~~; ~~It shall possess sufficient strength and hardness to resist degradation during handling and use, be substantially free of harmful materials, and exceed the minimum density requirement. The gravel shall meet the requirements of AWWA B100.~~

~~(formerly Section 10(i)(ii)(B)(V)(4.))~~(B) ~~It~~ Gravel as supporting media shall ~~possess~~ have sufficient strength and hardness to resist degradation during handling and use, be ~~substantially~~ free of harmful materials~~,~~ and exceed the minimum density requirements~~.~~; and

~~(formerly Section 10(i)(ii)(B)(V)(4.))~~(C) The gravel shall ~~meet~~ also comply with ~~the requirements of~~ AWWA B100 specifications.

~~(formerly Section 10(i)(ii)(B)(V)(6.))~~(iv) Dual media~~.~~ ~~C~~coal sand filters shall consist of a coarse layer of coal ~~layer~~ not less than 15 inches deep above a layer of fine sand not less than eight inches deep on a torpedo sand or garnet layer of support not less than three inches on gravel support.. ~~The media shall consist of not less than 8 inches (20 cm) of sand and 15 inches (0.38 m) of coal on a torpedo sand or garnet layer support of not less than 3 inches (7.8 cm) on the gravel support.~~

~~(formerly Section 10(i)(ii)(B)(VI))~~(v) Filter bottoms~~.~~ ~~Acceptable filter bottoms~~ and strainer systems shall be limited to pipe, perforated pipe laterals, tile block, and perforated tile block. Perforated plate bottoms or plastic nozzles shall not be used.

~~(formerly Section 10(i)(ii)(B)(VII))~~(vi) ~~Appurtenances.~~ Every filter shall have: ~~influent and effluent sampling taps; indicating loss of head gauge; indicating effluent turbidimeter; a waste drain for draining the filter compartment to waste; and a filter rate flow meter. Every filter shall provide polymer feed facilities including polymer mixing and storage tank and at least one feed pump for each filter compartment. On plants having a capacity in excess of 0.5 MGD, recorders shall be provided on the turbidimeters.~~

~~(formerly Section 10(i)(ii)(B)(VII))~~(A) ~~i~~Influent and effluent ~~sampling~~ taps;

~~(formerly Section 10(i)(ii)(B)(VII))~~(B) A ~~indicating loss of~~ head loss gauge;

~~(formerly Section 10(i)(ii)(B)(VII))~~(C) An indicating effluent turbidimeter;

~~(formerly Section 10(i)(ii)(B)(VII))~~(D) ~~a~~ A waste drain for draining the filter ~~compartment~~ component to waste; ~~and~~

~~(formerly Section 10(i)(ii)(B)(VII))~~(E) ~~a~~ A filter rate ~~flow meter~~ flow meter~~.~~;

~~(formerly Section 10(i)(ii)(B)(VII))~~(F) ~~Every filter shall provide~~ ~~p~~Polymer feed facilities including polymer mixing, ~~and~~ storage tank and at least one feed pump for each filter compartment~~.~~; and

~~(formerly Section 10(i)(ii)(B)(VII))~~(G) ~~On plants having a capacity in excess of 0.5 MGD, r~~Recorders ~~shall be provided~~ on the turbidimeters if the facility has a capacity in excess of 0.5 MGD.

~~(formerly Section 10(i)(ii)(B)(VIII))~~(vii) ~~Filter rate control.~~ Filter rate control shall be such that the filter is not surged. The f~~F~~ilter rate of flow shall not change ~~at a rate greater~~ more than 0.3 gpm/ft^2 ~~(17.7 m3/m2·d)~~ per minute. A ~~F~~filter~~s~~ that stops and restarts during a cycle shall have a filter-to-waste system installed. Declining flow rate filters shall not be used unless the flow rate for each filter is controlled to a rate~~s~~ less than allowed in ~~10 (i)(ii)(B)~~ paragraph (j)(iii) of this Section and there are four ~~or~~ more individual filters.

~~(formerly Section 10(i)(ii)(B)(IX))~~(viii) A filter to waste cycle shall be provided after the filter backwash operation. The filter to waste cycle shall be at least 10 minutes.

~~(formerly Section 10(i)(ii)(B)(V)(5.))~~(ix) Multi-media~~.~~ ~~F~~filter beds ~~of this type~~ shall contain a depth of fine media made up of anthracite ~~coal~~ (specific gravity 1.5), ~~specific gravity 1.5;~~ silica sand (specific gravity 2.6), ~~specific gravity 2.6;~~ and garnet sand or ilemite (specific gravity 4.2-4.5)~~,~~ ~~specific gravity 4.2 – 4.5~~. ~~(formerly Section 10(i)(ii)(B)(V)(5.)(a.))~~ The b~~B~~ed depths and distribution ~~of the media~~ shall be determined by the water quality~~,~~and shall meet the following requirements:

~~(formerly Section 10(i)(ii)(B)(V)(5.)(a.))~~(A) ~~Bed depths and distribution shall be determined by the water quality~~ ~~but~~ There shall not be less than 10 inches ~~(0.25 m)~~ of fine sand and 24 inches ~~(0.61 m)~~ of ~~coal~~ anthracite~~.~~; ~~The relative size of the particles shall be such that hydraulic grading of the material during backwash will result in a filter bed with pore space graded progressively from coarse to fine in the direction of filtration (down) .~~

~~(formerly Section 10(i)(ii)(B)(V)(5.)(a.))~~(B) The relative size of the ~~particles~~ media shall be such that the hydraulic grading of the material during backwash will result in a ~~filter bed with~~ pore space ~~graded~~ that progressively goes from coarse to fine in the direction of ~~filtration (down)~~ flow~~.~~;

~~(formerly Section 10(i)(ii)(B)(V)(5.)(b.))~~ (C) The multi-media shall be supported on two layers of special high-density gravel placed above the conventional silica gravel supporting bed~~.~~; ~~The special gravel shall have a specific gravity not less than 4.2. The bottom layer shall consist of particles passing No. 5 and retained on No. 12 U.S. mesh sieves and shall be 1 ½ inches (3.8 cm) thick. The top layer shall consist of particles passing No. 12 and retained on No. 20 U.S. mesh sieves, and shall be 1 ½ inches (3.8 cm) thick.~~

~~(formerly Section 10(i)(ii)(B)(V)(5.)(b.))~~ (D) The special gravel shall have a specific gravity not less than 4.2~~.~~;

~~(formerly Section 10(i)(ii)(B)(V)(5.)(b.))~~ (E) The bottom layer shall consist of particles passing ~~No.~~ U.S. Standard 5 mesh sieves and retained ~~on~~ in ~~No.~~ U.S. Standard 12 ~~U.S.~~ mesh sieves and shall be 1 ½ inches ~~(3.8 cm)~~ thick~~.~~; and

~~(formerly Section 10(i)(ii)(B)(V)(5.)(b.))~~ (F) The top layer shall consist of particles passing ~~No.~~ U.S. Standard 12 mesh sieves and retained on U.S. Standard ~~No.~~ 20 ~~U.S.~~ mesh sieves~~,~~ and shall be 1 ½ inches ~~(3.8 cm)~~ thick.

~~(formerly Section 10(j))~~(x) Diatomaceous earth filtration shall comply with the following requirements~~.~~: ~~These types of filters may be used as the filtration process to remove turbidity from surface waters where turbidities entering the filters do not exceed 25 TU and where total raw water coliforms do not exceed 100 organisms/100 ml. These filters may be used where the raw water quality exceeds the above limits when flocculation and sedimentation are used preceding the filters. Diatomaceous earth filters may also be used for removal of iron from groundwaters.~~

~~(formerly Section 10(j))~~(A) ~~These types of~~ Diatomaceous earth filters may be used under the following circumstances:

~~(formerly Section 10(j))~~(I) ~~filters may be used as the filtration process~~ ~~t~~To remove turbidity from surface waters where turbidities entering the filters do not exceed 25 NTU and where total raw water coliforms do not exceed 100 organisms/100 m~~l~~L~~.~~;

~~(formerly Section 10(j))~~(II) ~~These filters may be used w~~Where the raw water quality exceeds the ~~above~~ previously mentioned limits when flocculation and sedimentation are used preceding the filters~~.~~; and

~~(formerly Section 10(j))~~(III) ~~Diatomaceous earth filters may also be used for removal of~~ To remove iron from groundwaters.

~~(formerly Section 10(j)(i))~~(B) ~~Types of filters.~~ The proposed diatomaceous earth filtration units shall include ~~P~~pressure or vacuum ~~diatomaceous earth filtration units will be considered for approval.~~type units; and

~~(formerly Section 10(j)(ii))~~(C) ~~Precoat.~~ A precoating system shall be provided.

(D) The proposed diatomaceous earth filtration shall include a continuous monitoring turbidimeter with recorder on each filter effluent for plants treating surface water.

(l) All designs that propose supplies of surface water, groundwater under the direct influence of surface water, and groundwater that does not meet 40 CFR Part 141 or where other treatment is provided, shall include disinfection via one of the following methods:

(i) Chlorine;

(ii) Chloramines, recommended only for secondary disinfection;

(iii) Chlorine dioxide;

(iv) Ozone;

(v) Ultraviolet light; or

(vi) Other disinfecting agencts that demonstrate reliable application equipment is available and that include testing procedures for a residual that is recognized in Standard Methods for the Examination of Water and Wastewater 2018.

(m) All designs that require disinfection shall demonstrate that:

(i) The system will maintain a detectable residual throughout the distribution system; and

(ii) The applicant has considered the formation of disinfection byproducts when selecting the disinfection.

~~(formerly Section 10(k))~~(n) Disinfection equipment shall comply with the following requirements~~.~~: ~~Chlorine, chlorine dioxide, ozone or other disinfectant as approved by the administrator may be used for disinfection. Where the primary disinfectant is ozone, chlorination equipment shall be provided to enable maintaining a residual disinfectant throughout the distribution system. Automatic proportioning of disinfectant feed to flow rate is required where the plant flow control is automatic.~~

~~(formerly Section 10(k)(i))~~(i) Chlorination equipment shall comply with NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021 and the following requirements:~~.~~

~~(formerly Section 10(k)(i)(A))~~(A) ~~Type. Solution feed gas chlorinators or hypochlorite feeders of the positive displacement type~~ Positive displacement pumps shall be provided for solution feed gas chlorinators or hypochlorite feeders;

~~(formerly Section 10(k)(i)(E))~~(B) ~~Diffuser.~~ The chlorine solution ~~injection~~ injector/diffuser shall provide a rapid and thorough mix with all the water being treated. ~~If the application point is to a pipeline discharging to a clearwell, the chlorine shall be added to the center of the pipe at least 10 pipe diameters upstream of the discharge into the clearwell.~~;

~~(formerly Section 10(k)(i)(E))~~(C) If the application point is to a pipeline discharging to a clearwell, the chlorine shall be added to the center of the pipe at least 10 pipe diameters upstream of the discharge into the clearwell~~.~~;

(D) Gas chlorinators shall comply with the following requirements:

~~(formerly Section 10(k)(i)(F))~~(I) ~~Injector/Eductor. For gas feed chlorinators, t~~The injector/~~eductor~~ eductor shall be selected based on solution ~~water~~ pressure, injector ~~waterflow rate~~ water flowrate, feed point backpressure, and chlorine solution line length and size~~.~~; ~~The maximum feed point backpressure shall not exceed 110 psi (759 kPa). Where backpressure exceeds 110 psi (750 kPa), a chlorine solution pump shall be used. Gauges shall be provided for chlorine solution pressure, feed water pressure and chlorine gas pressure, or vacuum.~~

~~(formerly Section 10(k)(i)(F))~~(II) The maximum feed point backpressure shall not exceed 110 psi ~~(759 kPa).~~ unless ~~Where backpressure exceeds 110 psi (750 kPa)~~, a chlorine solution pump ~~shall be~~ is used~~.~~; and

~~(formerly Section 10(k)(i)(F))~~(III) Gauges shall be provided for chlorine solution pressure, feed water pressure and chlorine gas pressure~~,~~ or vacuum.

~~(formerly Section 10(k)(i)(C))~~(E) ~~Standby equipment.~~ Standby equipment of sufficient capacity shall be available to replace the largest chlorinator unit~~,~~. ~~except for a w~~Well ~~water~~ systems providing no treatment other than disinfection are exempt from the requirements of this paragraph (E) and are not required to provide standby chlorination equipment.

~~(formerly Section 10(k)(ii))~~(ii) Points of application and contact time shall comply with the following requirements~~.~~:

(A) Filtration types shall comply with the contact time and minimum chlorine residuals required in Table 3 of this Section after the appropriate baffling factor has been applied to the reactor. Contact times assume a baffling factor of 0.1 unless documentation justifying the use of a higher baffling factor is provided. Contact time requirements are based on worst-case operating conditions of water temperature of 32.9 degrees Fahrenheit and pH of 9.

Table 3. Required Contact Time and Residual by Filtration Type

Filtration Type	**Required Contact Time (minutes), 0.4 mg/L minimum chlorine residual**	**Required Contact Time (minutes), 1.0 mg/L minimum chlorine residual**
Conventional Filtration	162.5	73
Direct Filtration, Bag or Cartridge Filtration, Slow Sand Filtration, Diatomaceous Earth Filtration	325	146
Membrane Filtration (MF or UF)	30	12

(B) When chlorine is applied to a groundwater source to maintain a residual, no contact time is required.

(o) Systems that propose disinfection via ultraviolet light shall comply with the following requirements:

(i) Proposed designs for ultraviolet light shall include the following information in the ultraviolet reactor influent water quality analysis:

(A) Influent temperature (degrees Fahrenheit);

(B) UV transmittance (UVT) at a reported wavelength of 254 nm and a pathlength of 1 cm;

(C) A description of the UVT range over a 12-month period;

(D) Total hardness (mg/L as $CaCO_3$);

(E) pH;

(F) Alkalinity (mg/L as $CaCO_3$);

(G) Total iron (mg/L) influent < 0.3mg/L;

(H) Calcium (mg/L); and

(I) Total manganese (mg/L) influent <0.03 mg/L

(ii) Proposed designs for ultraviolet disinfection systems shall include the following information:

(A) The maximum, average, and minimum flowrates;

(B) A matrix that idenfies paired flow and ultraviolet treatment values;

(C) A description of the organisms targeted for inactivation;

(D) Log inactivation requirements;

(E) Operating approach (UV intensity vs. calculated dose);

(F) Maximum and minimum operating pressures;

(G) Maximum pressure at the UV reactor;

(H) UV system redundancy;

(I) Lamp cleaning strategy;

(J) Mercury trap for broken UV lamps;

(K) Maximum headloss through the UV reactor;

(L) A demonstration that the UV reactor(s) shall be hydrostatically tested to 1.5 times the rated operating pressure;

(M) A demonstration that the UV reactor(s) shall be designed to ensure that plant personnel can change lamps and the UV intensity meter without draining the reactor; and

(N) A demonstration that the units shall meet NSF/ANSI/CAN Standard 61.

(iii) Ultraviolet treatment systems shall be designed to comply with the Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR and the following dose requirements:

(A) The UV disinfection system shall deliver a validated dose that meets or exceeds the required dose at the end of lamp life, with fouled sleeves.

(B) The minimum required validated dose used for system design shall incorporate a Combined Age and Fouling Factor (CAF), calculated as:

CAF = EOLL x FF.

EOLL is the ratio of the lamp output at the end of life relative to the new lamp output

FF is the fouling factor.

(C) The EOLL shall be 75 percent of the new lamp output.

(D) The FF shall be:

(I) 0.5 for UV systems with no sleeve wiping system;

(II) 0.75 for UV systems with mechanical wiping only; or

(III) 0.95 for UV systems with a combined online chemical and mechanical cleaning.

(E) The validated dose that meets or exceeds the required dose shall be delivered under maximum flow and design (UVT) condition, when the larger UV unit is out of service.

(iv) Ultraviolet disinfection shall comply with the following validation requirements:

(A) The applicant shall submit the manufacturer's bioassay validation report for the proposed UV reactor with the permit application;

(B) The bioassay testing and results shall demonstrate validation by an independent third party in full compliance with the Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR;

(C) The owner and engineer shall submit a certification to the Administrator if validation requirements are adjusted and identify each of the equipment and system modifications required to ensure that the appropriate dosage is provided for the inactivation requirements;

(D) Bioassay testing shall evaluate reactor performance over the range of:

(I) Flowrates (maximum, average, and minimum);

(II) UVT from 70 percent to 98 percent (measured at 254 nm, 1 cm path length); and

(III) RED at maximum flowrate and design UVT conditions.

(E) The bioassay testing shall incorporate the range of design and operating conditions described in paragraph (o)(i) of this Section for UV Light;

(F) Extrapolations to flowrates, UV transmittance values, or UV doses outside the range actually tested, are not permitted; and

(G) Bioassay testing shall also verify that the head loss generated by the proposed reactor is less than or equal to the specified limits.

(v) Ultraviolet disinfection hydraulics shall comply with the following requirements:

(A) The inlet and outlet piping configuration to the UV reactor shall result in a UV dose delivery that is equal to or greater than the dose delivered when the UV reactor was validated;

(B) If the UV reactor validation is performed off-site, the applicant shall refer to the validation report to determine the validated inlet and outlet conditions that apply to the site-specific requirements; and

(C) Ultraviolet hydraulic piping shall comply with at least one of the following requirements:

(I) The piping configuration shall consist of a minimum of 10 pipe diameters of straight pipe upstream and five pipe diameters of straight pipe downstream of the UV reactors, with additional pipe diameters above the minimum if required by the manufacturer's guidelines for electromagnetic or other flowmeter installation;

(II) The inlet and outlet piping configurations shall be identical to those constructed for the UV reactor validation; or

(III) If on-site validation or custom off-site validation is planned, the inlet and outlet piping hydraulics must be designed according to the manufacturer's recommendations and to accommodate any site-specific constraints.

(vi) Ultraviolet control and measurement instrumentation for each reactor shall comply with the following requirements:

(A) Each reactor shall be capable of measuring UV intensity and lamp status (on/off);

(B) For systems that use the calculated dose monitoring strategy, each reactor shall be capable of measuring or calculating the UV transmittance;

(C) Piping for each UV reactor shall be sized and configured in accordance with the validated operating conditions and maintain equal head loss through each reactor over the range of validated flowrates. Each UV reactor shall not be by-passed;

(D) Each UV reactor train shall have a dedicated flow meter to confirm the validated operating conditions;

(E) UV lamps in the UV reactor shall be submerged at all times during operation;

(F) The specific configuration of the UV reactor(s) within a facility will dictate the use of air release, air/vacuum, or combination air valves to prevent air pockets and negative pressure conditions and the design shall verify that the UV manufacturer was consulted to determine any equipment-specific air release and pressure control valve requirements;

(G) Each UV reactor shall have the piping configured so that it can be isolated and removed from service while the other UV reactor(s) remain in service; and

(H) A booster pump shall be used if the head loss constraints indicate that a pump is necessary. The UV reactor shall be sized accordingly.

(vii) The applicant shall describe the dose monitoring strategy and the operational approach for the UV reactor that complies with the approaches described in Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR, part 3.5.2.

(viii) The cleaning system for each UV reactor shall comply with the following requirements:

(A) Each UV reactor shall be equipped with an automatic online mechanical lamp sleeve cleaning system and may include optional chemical cleaning;

(B) The UV sensor shall include mechanical cleaning capabilities with an automatically initiated and controlled cleaning cycle; and

(C) The UV reactor(s) shall be fully operational and shall provide validated dose requirements during system cleaning.

(ix) The minimum spare parts kept at a facility shall include the following:

(A) 20 percent of the UV Lamps;

(B) Five percent of the lamp sleeves; and

(C) One UV intensity sensor.

~~(formerly Section 10(o))~~(p) Facilities that propose disinfection via ~~F~~fluoridation and defluoridation shall comply with the following requirements~~.~~:

~~(formerly Section 10(o)(i))~~(i) Fluoride ~~compound~~ storage designs shall demonstrate that~~.~~: ~~Storage tanks shall be covered; all storage shall be inside a building. Storage tanks for hydrofluosilic acid shall be vented to the atmosphere at a point outside the building.~~

~~(formerly Section 10(o)(i))~~(A) Fluoride ~~S~~storage tanks shall be covered;

~~(formerly Section 10(o)(i))~~(B) A~~a~~ll other storage shall be inside a building~~.~~; and

~~(formerly Section 10(o)(i))~~(C) Storage tanks ~~for~~ of ~~hydrofluosilic~~ hydrofluorosilicic acid shall be vented to the atmosphere at a point outside the building.

~~(formerly Section 10(o)(ii))~~(ii) ~~Chemical feed equipment.~~ Fluoride feed equipment shall meet the following requirements~~.~~:

~~(formerly Section 10(o)(ii)(A))~~(A) There shall be ~~S~~scales or ~~loss of~~ weight loss recorders ~~shall be provided~~ for dry chemical feeds and the ~~F~~feeders shall be accurate to within five percent of any desired feed rate~~.~~;

~~(formerly Section 10(o)(ii)(B))~~(B) The ~~point of~~ application of ~~hydrofluosilic~~ hydrofluorosilicic acid, if into a horizontal pipe, shall be in the lower half of the pipe~~.~~;

~~(formerly Section 10(o)(ii)(B))~~(C) Fluoride compounds shall not be added before lime soda ~~softening~~ or ion exchange softening~~.~~;

~~(formerly Section 10(o)(ii)(C))~~(D) A fluoride solution shall be applied by a positive displacement pump ~~having a stroke rate not less than 20 nor more than 95 strokes per minute~~. ~~Fluoride solutions shall not be injected to a point of negative pressure.~~;

~~(formerly Section 10(o)(ii)(C))~~(E) ~~Fluoride~~ The solution~~s~~ shall not be injected ~~to~~ into a point of negative pressure~~.~~;

~~(formerly Section 10(o)(ii)(D))~~(F) All fluoride feed lines and dilution water lines shall be isolated from the potable water supplies by either an air gap above the solution tank or a reduced pressure principal backflow ~~preventor~~ preventer~~.~~;

~~(formerly Section 10(o)(ii)(E))~~(G) Water used for sodium ~~flouride~~ fluoride ~~dissolution~~ solution shall have a hardness not exceeding ~~50 mg/L~~ 45 mg/L; and ~~Softening shall be provided for the solution water where hardness exceeds 45 mg/L.~~

~~(formerly Section 10(o)(ii)(F))~~(H) Flow meters for treated water flow ~~rate~~ and fluoride solution water shall be provided.

~~(formerly Section 10(o)(iv)(A))~~(iii) Provisions shall be made to allow the transfer of dry fluoride compounds from shipping containers to storage bins or hoppers ~~in such a way as to~~ that minimize the quantity of fluoride dust ~~which~~ that ~~may~~ enters the room ~~in which~~ where the equipment is installed~~.~~ and shall meet the following requirements: ~~The enclosure shall be provided with an exhaust fan and dust filter which places the hopper under a negative pressure. Air exhausted from fluoride handling equipment shall discharge through a dust filter to the outside atmosphere of the building. The discharge shall not be fresh air intake.~~

~~(formerly Section 10(o)(iv)(A))~~(A) ~~The enclosure~~ The transfer system shall be ~~provided~~ equipped with an exhaust fan and dust filter ~~which~~ that places the hopper or storage bin under negative pressure~~.~~;

~~(formerly Section 10(o)(iv)(A))~~(B) Air exhausted from fluoride handling equipment shall discharge through a dust filter to the atmosphere outside the building~~. The discharge~~ and shall not ~~be located near a building~~ discharge within 50 feet of a fresh air intake for the building~~.~~; and

~~(formerly Section 10(o)(iv)(B))~~(C) A floor drain shall be provided for cleaning equipment and maintenance.

(iv) The following methods are acceptable for fluoride removal:

~~(formerly Section 10(o)(vi)(A))~~(A) Activated alumina may be ~~employed~~ used in open gravity filters ~~tanks~~ or pressure filter tanks~~.~~; ~~The minimum media depth shall be 5 feet. The units shall not be loaded at a rate exceeding 4 gallons per minute per square foot (236 m3/m2·d). The activated alumina media shall be in mesh sizes ranging from 28 to 48. Regeneration facilities shall be provided to regenerate the media. These shall include both weak caustic and weak acid systems.~~

~~(formerly Section 10(o)(vi)(A))~~(B) The minimum media depth shall be ~~5~~ five feet~~.~~;

~~(formerly Section 10(o)(vi)(A))~~(C) The ~~units shall not be loaded~~ loading ~~at a~~ rate ~~exceeding~~ shall not exceed 4 ~~gallons per minute per square foot~~ gpm/ft^2 ~~(236 m3/m2·d).~~;

~~(formerly Section 10(o)(vi)(A))~~(D) The mesh size for the ~~activated~~ alumina media shall be ~~in mesh sizes ranging from~~ between #28 ~~to~~ and #48~~.~~;

~~(formerly Section 10(o)(vi)(A))~~(E) Media ~~R~~regeneration facilities shall be provided ~~to regenerate the media. These~~ and shall include both weak caustic and weak acid systems~~.~~; and

~~(formerly Section 10(o)(vi)(B))~~(F) Bone char filtration or lime softening with magnesium addition may be used.

(v) Water that is unstable due either to natural causes or to subsequent treatment shall be stabilized.

(vi) Facilities shall have the capability of feeding both acid and alkalinity.

~~(formerly Section 10(q)(iv))~~(vii) ~~Alkali feed.~~ Unstable water created by ion exchange softening shall be stabilized by an alkali feed.~~An alkali feeder shall be provided for all ion exchange water softening plants.~~

~~(formerly Section 10(q)(v))~~(viii) ~~Control.~~ Laboratory equipment shall be provided ~~for~~ to ~~determining~~ determine the effectiveness of stabilization treatment. This shall include testing equipment for hardness, calcium, alkalinity, pH, and magnesium~~,~~ at ~~as~~ a minimum.

~~(formerly Section 10(q))~~(q) Taste and odor control equipment~~. Provision shall be made for the control of taste and odor at all surface water treatment plants.~~shall comply with the following requirements:

~~(formerly Section 10(q)(v))~~(i) ~~Granular activated carbon adsorption units.~~ Open or closed, granular activated carbon ~~contacting~~ adsorption units may be used to absorb organics for taste and odor control, ~~by adsorption of organics~~ subject to the following requirements~~.~~:~~ The loading rate shall not exceed 10 gpm/ft2 (236 m3/m2·d). The minimum empty bed contact time shall be 20 minutes. Provisions shall be made for moving carbon to and from the contactors.~~

~~(formerly Section 10(q)(v))~~(A) The loading rate shall not exceed 10 gpm/ft^2 ~~(236 m3/m2·d).~~;

~~(formerly Section 10(q)(v))~~(B) The minimum empty bed contact time shall be 20 minutes~~.~~;

~~(formerly Section 10(s)(i))~~(C) ~~Adsorption of organics on granular activated carbon. Water to be treated may be contacted with granular activated carbon.~~ The pH of the water shall be less than 9.0 with a turbidity of less than 2 NTU when using packed beds~~.~~; ~~The turbidity of the applied water shall be less than 2 TU when packed beds are used.~~

~~(formerly Section 10(q)(v))~~(D) There shall be ~~P~~provisions ~~shall be made~~ for moving the carbon to and from the contactors~~.~~;

~~(formerly Section 10(s)(iii)(A))~~(E) ~~If an upflow countercurrent contactors is used, it may be either packed or expanded. A single unit is acceptable. If a downflow contactor is used, two or more beds in parallel are required.~~ Contactors may be

upflow or downflow design. A single unit is acceptable for countercurrent upflow designs. Downflow designs shall have two or more parallel units;

~~(formerly Section 10(s)(iii)(B))~~(F) Contactors ~~may~~ shall be designed as open gravity ~~units,~~ or pressure bed~~s.~~; ~~They may be constructed of concrete, steel, or fiberglass reinforced plastic. Steel vessels shall be protected against corrosion by coaltar epoxy coating, rubber or glass lining, or other means.~~

(G) Pressure contactors shall have an air-vacuum relief valve fitted with a stainless-steel screen to prevent plugging;

~~(formerly Section 10(s)(iii)(B))~~(H) ~~They may be constructed~~ The contactor materials of construction shall be concrete, steel, or fiberglass reinforced plastic~~.~~ and shall meet the following requirements:

~~(formerly Section 10(s)(iii)(B))~~(I) Steel vessels shall be protected against corrosion ~~by coaltar epoxy coating, rubber or glass lining, or other means.~~; and

~~(formerly Section 10(s)(iii)(B))~~(II) Inlet and outlet screens shall be made of stainless steel or other suitable materials.

~~(formerly Section 10(s)(iii)(C))~~(I) ~~All carbon beds or columns~~ There shall be ~~equipped with~~ provisions for flow reversal and bed expansion~~.~~ that meet the following requirements: ~~Combination downflow filter contactors shall have backwashing facilities to provide up to 50 percent bed expansion and shall meet the same backwash criteria as rapid filters.~~

~~(formerly Section 10(s)(iii)(C))~~(I)~~Combination downflow filter contactors shall have b~~Backwashing facilities ~~to~~ shall provide up to 50 percent bed expansion~~.~~; and

~~(formerly Section 10(s)(iii)(C))~~(II) Backwashing facilities shall meet the ~~same~~ backwash criteria as rapid filters.

~~(formerly Section 10(q)(vii))~~(ii) ~~Ozone.~~ If ozone is used for taste and odor control, there shall be at least ~~Thirty~~ 10 minutes of contact time ~~must be provided~~ to complete ~~the~~ all ~~chemical~~ reactions ~~involved.~~ and ~~T~~the ~~facilities shall be capable of an~~ minimum applied feed rate of ozone ~~feed rate of~~ shall be ~~15~~ 1 mg/L ~~minimum.~~, or the design shall identify a contact time and feed rate that demonstrate the application of ozone will not cause an exceedance of the maximum contaminant levels identified at 40 CFR 143.3.

(r) Designs that include the addition of phosphates for stabilization and corrosion control shall demonstrate the evaluation of reactions with aluminum and impacts on wastewater treatment plants to overcome the secondary impacts of phosphates that may potentially limit their use.

(s) Designs that propose anion-exchange treatment shall include a pH/alkalinity feed system unless otherwise approved by the Administrator.

~~(formerly Section 10(r))~~(t) ~~Microscreening.~~ Microscreens shall comply with the following requirements: ~~A microscreen will be allowed as a mechanical supplement to treatment. The microscreening shall be capable of removing suspended matter from the water by straining. It may be used to reduce nuisance organisms and organic loadings. It shall not be used in place of filtration or coagulation.~~

~~(formerly Section 10(r))~~(i) A microscreen ~~will~~ shall be allowed as a ~~mechanical~~ supplement to treatment but it shall not be used in place of filtration or coagulation~~.~~;

~~(formerly Section 10(r))~~(ii) The ~~microscreening~~ screen shall be capable of removing suspended matter from the water by straining~~.~~;

~~(formerly Section 10(r)(i))~~(iii) Screens shall be made of ~~a~~ corrosion-resistant material~~, plastic or stainless steel.~~;

~~(formerly Section 10(r)(ii))~~(iv) Bypass piping around the unit shall be provided ~~around the unit.~~;

~~(formerly Section 10(r)(iii))~~(v) There shall be p~~P~~rotection against back siphonage ~~shall be provided~~ when potable water is used for washing the screen~~.~~; and

~~(formerly Section 10(r)(iv))~~(vi) ~~Washwaters~~ Wash water shall be wasted and not recycled to the microscreen.

(u) Membrane technologies shall comply with the following requirements:

(i) Proposed membrane treatment processes shall comply with the requirements of Section 6 of this Chapter. Protocols for pilot plant testing shall incorporate guidance or procedures from the US EPA Membrane Filtration Guidance Manual, Chapter 6.

(ii) All proposed membrane filters shall demonstrate third-party validation for the removal of Giardia or Cryptosporidium. Removal efficiency shall be determined through challenge testing as outlined in the US EPA Membrane Filtration Guidance Manual and one of the following:

(A) Membranes that are used as final compliance filters of a multiple treatment barrier approach shall meet the requirements of 40 CFR Part 141; or

(B) All surface water or groundwater under direct influence (GWUDI) systems using membrane technology shall demonstrate minimum disinfection that meets 4.0-Log virus inactivation.

(v) Facilities that propose bag and cartridge filters shall comply with the procedures identified in Section 6 of this Chapter and the following requirements:

(i) Filter performance will be based on Cryptosporidium oocyst removal;

(ii) The filter shall demonstrate at least a 3-log removal of particle size 1 micron and above with an associated log reduction credit of 2-logs for Giardia and Cryptosporidium;

(iii) Removal efficiency shall be determined through challenge testing as outlined in Toolbox Guidance Manual, Chapter 8 and NSF/ANSI 419-2018;

(iv) The performance demonstration shall be specific to the corresponding housing and type or model of filter. Any other combination of housing and filter that could be used for treatment shall also demonstrate filter efficiency;

(v) Applicants shall include documentation that the proposed bag or cartridge filter has received third-party validation for the removal of Giardia and Cryptosporidium;

(vi) Filter and housing specifications shall include a description of the materials of construction, surface area per filter, and the minimum and maximum operating pressure, and the specifications shall meet the requirements of NSF/ANSI 419-2018 and the Toolbox Guidance Manual, Chapter 8;

(vii) System components such as housing, bags, cartridges, gaskets, and O-rings shall comply with NSF/ANSI/CAN 61 for leaching of contaminants;

(viii) A means for monitoring the performance of the filter shall be provided and shall include at a minimum flow meters and valves, pressure gauges, and sample taps;

(ix) The proposed design shall specify chemical compatibility limitations;

(x) A minimum of two filter housings shall be provided;

(xi) Bag or cartridge filters that are used as final compliance filters of a multiple treatment barrier approach shall meet the requirements of 40 CFR Part 141; and

(xii) All surface water or GWUDI systems using bag or cartridge filter technology shall provide at minimum disinfection that meets 4.0-log virus inactivation and 1.0-log Giardia inactivation or shall demonstrate that combined filtration and disinfection will provide 3-log removal.

(w) Pre-engineered water treatment plants shall comply with the following requirements:

(i) Pre-engineered water treatment plants shall be permitted on a case-by-case basis for specific process applications and flow rates. Multiple units may be installed in parallel to accommodate flow rates.

(ii) Pre-engineered water treatment plant equipment shall be designed in accordance with NSF/ANSI/CAN 61 and NSF/ANSI/CAN 372;

(iv) Pre-engineered water treatment plants shall comply with the procedures in Section 6 of this Chapter to obtain data that demonstrates the treatment effectiveness of the treatment for the source water and the proposed application; and

(v) Each component and process of the pre-engineered water treatment plant shall demonstrate compliance with the applicable design criteria of the respective treatment processes of this Chapter.

(x) Wastes shall be handled and disposed of as follows:

~~(formerly Section 10(u)(i))~~(i) ~~Sanitary and laboratory wastes.~~ The sanitary and laboratory waste~~s~~ from water treatment plants, pumping stations, ~~etc.~~or well systems, shall not be recycled to any part of the water plant~~. Waste from these facilities must~~ and shall be discharged directly ~~to~~ into a sanitary sewer system when feasible~~, or to an on-site waste treatment facility permitted by the Wyoming Department of Environmental Quality~~. or a permitted on-site disposal system;

~~(formerly Section 10(u)(ii))~~(ii) Brine waste~~. The waste~~ from ion exchange plants, demineralization plants, ~~etc.,~~ and other similar facilities may not be recycled to the water plant~~.~~ and shall meet the following requirements:~~Where discharging to a sanitary sewer, a holding tank shall be provided to prevent the overloading of the sewer and interference with the waste treatment process. Where disposal to an off-site waste treatment system is proposed, the sewer and treatment facility shall have the required capacity and dilution capability.~~

~~(formerly Section 10(u)(ii))~~(A)Where discharging to a sanitary sewer, a holding tank shall be provided to prevent the overloading of the sewer and~~/or~~ interference with the waste treatment process~~es.~~; and ~~The effect of brine discharge to sewage lagoons may depend on the rate of evaporation from the lagoons.~~

~~(formerly Section 10(u)(ii))~~(B)Where disposal to an off-site waste treatment system is proposed, ~~it must be demonstrated that~~ the sewer and ~~the~~ treatment facility shall have the required capacity and dilution capability. ~~The impact on any treatment system discharge shall be evaluated.~~

~~(formerly Section 10(u)(iii))~~(iii) ~~Lime softening sludge.~~ Acceptable methods of treatment and disposal of lime softening sludge are ~~as follows~~:

(A) Sludge lagoons, provided that the design of sludge lagoons includes:

~~(formerly Section 10(u)(iii)(A))~~(I) ~~for~~ The location of the lagoon shall be protected from ~~above~~ the 100-year flood ~~or adequately protected from the 100-year flood~~.

~~(formerly Section 10(u)(iii)(A))~~(II) ~~There shall be~~ A means of diverting surface water runoff so that it does not flow into the lagoon~~s~~;

~~(formerly Section 10(u)(iii)(A))~~(III) ~~Minimum free board~~ The freeboard shall be a minimum of ~~3~~ three feet ~~(0.66 m) shall be present.~~;

~~(formerly Section 10(u)(iii)(A))~~(IV) An adjustable decanting device for recycling the overflow ~~shall be present.~~; and

~~(formerly Section 10(u)(iii)(A))~~(V) ~~There shall be a~~An accessible effluent sampling point.

~~(formerly Section 10(u)(iii)(B))~~(B) Land application of liquid lime softening sludge; ~~shall comply with Part E of~~ that demonstrates compliance with Water Quality Rules Chapter 11, Part E ~~of the Water Quality Rules and Regulations.~~

~~(formerly Section 10(u)(iii)(C))~~(C) Disposal at a ~~suitable~~ landfill; ~~shall be authorized by the Solid Waste Management Program of the Department of Environmental Quality.~~

~~(formerly Section 10(u)(iii)(D))~~(D) Mechanical dewatering of sludge may be ~~employed~~ used~~.~~;

~~(formerly Section 10(u)(iii)(E))~~(E) Recalcination of sludge may be ~~employed~~ used~~.~~; and

~~(formerly Section 10(u)(iii)(F))~~(F) Lime sludge drying beds shall not be ~~used~~ allowed.

~~(formerly Section 10(u)(iv))~~(iv) Acceptable methods of treatment and disposal of ~~A~~alum sludge~~.~~ are as follows:

~~(formerly Section 10(u)(iv)(A))~~(A) ~~Lagooning~~ Lagoons may be used as ~~a~~ storage and interim disposal ~~method for alum sludge~~. Lagoons used for storage shall have a ~~The~~ volume of ~~alum sludge storage lagoons shall be~~ at least 100,000 gallons ~~(378.5 m3)~~ ~~per~~ for every 1,000,000 gpd ~~(3,785 m3/d)~~ of facility water ~~treatment plant~~ treating capacity.

~~(formerly Section 10(u)(iv)(B))~~(B) ~~Discharge of alum sludge to sanitary sewers may be used only when the sewage system has the capability to adequately handle the flow and sludge.~~ Alum sludge may be discharged to the sanitary sewer only when the system is capable of handling the waste and with the approval of the owner of the sewer system.

~~(formerly Section 10(u)(iv)(C))~~(C) Mechanical dewatering ~~of sludge~~ may be ~~employed~~ used.

~~(formerly Section 10(u)(iv)(D))~~(D) Alum sludge drying beds may be used.

~~(formerly Section 10(u)(iv)(E))~~(E) Alum sludge may be acid-treated and recovered.

~~(formerly Section 10(u)(iv)(F))~~(F) Disposal at a ~~suitable~~ landfill ~~shall be authorized by the Solid Waste Management Program of the Department of Environmental Quality~~.

(v) Designs that propose disposal of waste filter wash water from iron and manganese removal plants that include sand filters shall demonstrate the inclusion of a separate structure, unless otherwise approved by the Administrator.

Section 13. ~~Finished Water Storage~~ Chemical Application.

~~(moved to Section 15(b))(a) General. Steel finished water storage structures shall be provided using the requirements of the AWWA D100 or AWWA D103. All tank design and foundation design shall be performed by a registered professional engineer and the plans or contractor-furnished information shall so designate the registered engineer providing the design. Materials other than steel may be used for water storage tanks.~~

~~(i) Sizing. Storage facilities shall have the capacity to meet domestic demands, and where required, fire protection storage.~~

~~(A) Water systems serving less than 50,000 gallons (189 m^3) on the design average daily demand shall provide clearwell and system storage capacity equal to the average daily demand.~~

~~(B) Water systems serving from 50,000 to 500,000 gallons (189-1,892 m^3) on the design average daily demand shall provide clearwell and system storage capacity equal to the average daily demand plus fire storage, based on recommendations established by the State Fire Marshall or local fire agency.~~

~~(C) Water systems serving in excess of 500,000 gallons (1.892 m3) on the design average daily demand shall provide clearwell and system storage capacity equal to 25 percent of the design maximum daily demand, plus added fire storage based on recommendations established by the State Fire Marshall or local fire agency.~~

~~(moved to Section 15(c)(iv))(D) Storage need not be provided in a well supply system where a minimum of two wells are provided and the maximum hour demand or fire demand, whichever is greater, can be supplied with the largest well out of service.~~

~~(ii) Location of ground level reservoirs.~~

~~(A) The bottom of reservoirs and standpipes shall be above or protected from the 100 year flood or highest flood of record, whichever is greater.~~

~~(B) When the bottom is below normal ground surface, it shall be placed above the groundwater table. Sewers, drains, standing water, and similar sources of possible contamination must be kept at least 50 feet (15.2 m) from the reservoir. Watermain pipe, pressure tested in place to 50 psi (345 kPa) without leakage, may be used for gravity sewers at distances greater than 20 feet (6.1 m) and less than 50 feet (15.2 m).~~

~~(C) The top of the reservoir walls shall not be less than 18 inches (0.46 m) above normal ground surface. Clearwells constructed under filters are exempted from this requirement when the total design gives the same protection.~~

~~(iii) Protection. All finished water storage structures shall have suitable watertight roofs which exclude birds, animals, insects, and excessive dust.~~

~~(iv) Protection from trespassers. Security-type fencing, locks on access manholes, and other precautions shall be provided to prevent trespassing, vandalism, and sabotage at above ground storage facilities. Below ground level storage facilities may be exempt from the fencing requirements.~~

~~(v) Drains. No drain on a water storage structure may have a direct connection to a sewer or storm drain. Water storage structures drained to sewer or storm drains shall be drained through piping which allows an air gap such that the drain pipe is at least three pipe diameters above the ground level at the drain point to the sanitary or storm drain.~~

~~(vi) Overflow. All water storage structures shall be provided with an overflow which is brought down to an elevation between 12 and 24 inches (0.3-0.61 m) above the ground surface, and discharges over a drainage inlet structure or a splash plate. No overflow may be connected directly to a sewer or a storm drain. All overflow pipes shall be located so that any discharge is visible.~~

~~(A) When an internal overflow pipe is used on elevated tanks, it shall be located in the access tube. For vertical drops on other types of storage facilities, the overflow pipe shall be located on the outside of the structure.~~

~~(moved to Section 15(f)(iv))(B) The overflow of a ground level structure shall open downward and be screened with noncorrodible screen installed within the pipe at a location least susceptible to damage by vandalism.~~

~~(C) The overflow pipe shall be of sufficient diameter to permit wasting of water in excess of the filling rate.~~

~~(vii) Access. Finished water storage structures shall be designed with access to the interior for cleaning and maintenance. Manholes above the waterline shall be framed at least 4 inches (0.1 m) above the surface of the roof at the opening; on ground level structures, manholes should be elevated a minimum of 24 inches (0.61 m) above the top. The manholes shall be fitted with a solid watertight cover which overlaps the framed opening and extends down around the frame at least 2 inches (5 cm). The cover shall be hinged at 1 side and shall have a locking device. The man-hold shall have a minimum inside opening diameter of 24 inches.~~

~~(moved to Section 15(i))(viii) Vents. Finished water storage structures shall be vented. Overflows shall not be considered as vents. Open construction between the sidewall and roof is not permissible. Vents shall prevent the entrance of surface water and rainwater, and shall exclude birds and animals.~~

~~(moved to Section 15(i)(i))(A) For elevated tanks and standpipes, 24 mesh noncorrodible screen may be used.~~

~~(B) For ground level structures, the vents shall terminate in an inverted U construction with the opening a minimum of 24 inches (0.61 m) above the roof and covered with 24 mesh noncorrodible screen installed within the pipe at a location least susceptible to vandalism.~~

~~(ix) Roof and sidewall. The roof and sidewalls of all structures shall be watertight with no openings except properly constructed vents, manholes, overflows, risers, drains, pump mountings, control ports, or piping for inflow and outflow.~~

~~(x) Painting and/or cathodic protection. Protection shall be given to metal surfaces by paints or other protective coatings, by cathodic protective devices, or by both. Materials and procedures shall conform to AWWA Standard D102. Paint systems, after proper curing, shall not transfer any substance to the water which will be toxic or cause tastes or odors. Paints containing lead or mercury shall not be used. All paints and other protective coatings shall be compatible.~~

~~(xi) Disinfection. Finished water storage structures shall be specified to be disinfected in accordance with AWWA Standard D105. Sampling shall be specified.~~

~~(b) Plant storage.~~

~~(i) Washwater tanks. Washwater tanks shall be sized, in conjunction with available pump units and finished water storage, to provide the backwash water required by Section 10 (i). The storage and pumping shall be sized so that a minimum of two filters may be backwashed in rapid succession.~~

~~(moved to Section 15(m)(i))(ii) Clearwell. Clearwell storage shall be sized, in conjunction with distribution system storage, to relieve the filters from having to follow fluctuations in water use. Where water is pumped from clearwater storage to the system, an overflow shall be provided.~~

~~(iii) Adjacent compartments. Finished water must be separated from unfinished water in adjacent compartments by double walls.~~

~~(moved to Section 15(m)(iii))(iv) Basins and wetwells. Receiving basins and pump wetwells for finished water shall be designed as finished water storage structures.~~

~~(c) Hydropneumatic tanks. Hydropneumatic (pressure) tanks may be used as the only storage facility when the system serves less than 50 homes. When servicing more than 50 homes, ground or elevated storage designed in accordance with Section 13(a) should be provided. Pressure tank storage is not to be considered for fire protection purposes. Pressure tanks shall meet ASME code requirements or local laws and regulations for the construction and installation of unfired pressure vessels.~~

~~(i) Location. The tank shall be located above normal ground surface and be completely housed.~~

~~(ii) Sizing. The capacity of the wells and pumps in a hydropneumatic system shall be at least 10 times the average daily consumption rate. The gross volume of the hydropneumatic tank, in gallons, shall be at least 10 times the capacity of the largest pump, rated in gallons per minute. For example, a 250 gpm (1,364 m3/d) pump should have a 2,500 gallon (9.46 m3) pressure tank.~~

~~(iii) Piping. The tank shall be plumbed with bypass piping.~~

~~(iv) Appurtenances. Each tank shall have an access manhole, a drain, and control equipment consisting of pressure gauge, water tight glass, automatic or manual air blowoff, means for adding air, and pressure operated startstop controls for the pumps.~~

(a) 2018 TSS, parts 5.0.2(f), chemical application, general, chemical application; 5.0.3-5.0.3(h), chemical application, general, general equipment design; 5.1.2-5.1.2(e)(4.), chemical application, feed equipment, control; 5.1.3-5.1.3(c), chemical application, feed equipment, dry chemical feeders; 5.1.4-5.1.4(d), chemical application, feed equipment, positive displacement solution feed pumps; 5.1.5-5.1.5(d), chemical application, feed equipment, liquid chemical feeders-siphon control; 5.1.6-5.1.6(d), chemical application, feed equipment, cross-connection control; 5.1.8-5.1.8(e), chemical application, feed equipment, in-plant water supply; 5.1.9(a)(1-3), (b), and (d), chemical application, feed equipment, storage of chemicals; 5.1.10-5.1.10(j), chemical application, feed equipment, bulk liquid storage tanks; 5.1.11-5.1.11(h), chemical application, feed equipment, day tanks; 5.1.12-5.1.12(e), chemical application, feed equipment, feed lines; 5.1.13-5.1.3(d); chemical application, feed equipment, handling; 5.1.14-5.1.14(b), chemical application, feed equipment, housing; 5.3.2, operator safety, respiratory protection equipment; 5.3.3, operator safety, chlorine gas leak detection; 5.4.1(d)(1-5) and (7-10), (f), and (h), specific chemicals, chlorine gas; 5.4.1(f) and (h), 5.4.2-5.4.2(b), specific chemicals, acids and caustics; 5.4.3-5.4.3(c)(5.), specific chemicals, sodium chlorite; 5.4.4-5.4.4(b)(5.), specific chemicals, sodium hypochlorite; are herein incorporated by reference.

~~(formerly Section 11(b))~~(b) Chemical application ~~F~~facility designs shall comply with the following requirements~~.~~:

~~(formerly Section 11(b)(i))~~(i) ~~Number of feeders.~~ A separate feeder shall be ~~provided~~ used for each chemical applied~~.~~; and

~~(formerly Section 11(b)(viii)(D))~~(ii) ~~All c~~Chemical storage tanks shall be constructed of materials ~~which~~ that are resistant to the chemicals ~~which they store~~ stored. ~~The t~~Tanks shall ~~not lose its~~ maintain structural integrity ~~through chemical action or be subject to corrosion~~ while in use.

~~(formerly Section 8(i)(iv))~~(c) ~~Alarms.~~Chemical application facilities shall include an alarm for ~~H~~high effluent turbidity, low chlorine residual, and chlorine leaks ~~(~~when chlorine gas is used~~)~~ ~~shall be alarmed at an attended location~~. The alarm shall be located at an attended location.

Section 14. ~~Distribution Systems~~ Pumping Facilities.

~~(a) Materials.~~

~~(moved to Section 16(b))(i) Types of commercial pipe approved for water systems include:~~

~~(moved to Section 16(b)(i))(A) PVC water pipe: ASTM D2241, less than 4" diameter (10 cm); AWWA C900: 4" (10 cm) and larger diameter.~~

~~(B) Asbestos cement pressure pipe: AWWA C400.~~

~~(moved to Section 16(b)(ii))(C) Ductile iron pipe: AWWA C151.~~

~~(moved to Section 16(b)(iii))(D) Glass fiber - reinforced thermosetting - resin pressure pipe: AWWA C950.~~

~~(moved to Section 16(b)(iv))(E) Polyethelyene: AWWA C901.~~

~~(F) Polybutelyene: AWWA C902.~~

~~(ii) Used materials. Watermains and valves which have been used previously for conveying potable water may be reused provided they are in good working order and can meet these standards. No other used materials may be employed.~~

~~(moved to Section 16(c)(iii) Joints. Packing and jointing materials used in the joints of pipe shall be flexible and durable. Flanged piping shall not be used for buried service except for connections to valves; push-on or mechanical joints shall be used.~~

~~(iv) Service connections. Service connections shall mean and include any water line or pipe connected to a distribution supply main or pipe for the purpose of conveying~~

~~water to a building or dwelling. All service connections shall be constructed in conformance with the Uniform Plumbing Code.~~

~~(moved to Section 16(d))(b) Watermain design.~~

~~(i) Pressure. All watermains, including those not designed to provide fire protection, shall be sized after a hydraulic analysis based on flow demands and pressure requirements. The system shall be designed to maintain a minimum pressure of 20 psi (138 kPa) at ground level at all points in the distribution system under all conditions of flow. The normal working pressure in the distribution system shall be not less than 35 psi (276 kPa)~~.

~~(ii) Diameter. The minimum size of a watermain for providing fire protection and serving fire hydrants shall be 6 inches (0.15 m) diameter when service is provided from 2 directions, or where the maximum length of 6 inches pipe serving the hydrant from 1 direction does not exceed 250 feet, or 8 inches (0.2 m) where service is provided from 1 direction only. Larger size mains shall be provided as necessary to allow the withdrawal of the required fire flow while maintaining the minimum residual pressure of 20 psi (138 kPa).~~

~~(moved to Section 16(d)(i))(iii) Fire protection. When fire protection is to be provided, system design shall be such that fire flows can be served.~~

~~(iv) Small mains. Any main smaller than 6 inches (0.15 m) shall be justified by hydraulic analysis and future water use.~~

~~(v) Hydrants. Only watermains designed to carry fire flows shall have fire hydrants connected to them.~~

~~(vi) Deadends. Deadends shall be minimized by looping.~~

~~(vii) Flushing. Where deadend mains occur they shall be provided with a flushing hydrant or blowoff for flushing purposes. Flushing devices shall be sized to provide flows which will give a velocity of 2.5 feet per second minimum in the watermain being flushed. No flushing device shall be directly connected to any sewer.~~

~~(c) Valves. Valves shall be provided on watermains so that inconvenience and sanitary hazards will be minimized during repairs. Valves shall be located at not more than 500 foot (152 m) intervals in commercial districts and at not more than 1 block or 800 foot (244 m) intervals in other districts.~~

~~(d) Hydrants.~~

~~(moved to Section 16(f)(i))(i) Hydrant leads. The hydrant lead shall be a minimum of 6 inches (0.15 m) in diameter. Valves shall be installed in all hydrant leads.~~

~~(moved to Section 16(e)(iii))(ii) Protection from freezing. Provisions shall be made to protect fire hydrant leads and barrels from freezing. The use of hydrant weep holes is~~

~~not allowed when groundwater levels are above the gravel drain area. In these cases it will be necessary to pump the hydrant dry or use other means of dewatering.~~

~~(moved to Section 16(f)(v))(iii) Drainage. Hydrant drains shall not be connected to or located within 10 feet (3.05 m) of sanitary sewers or storm drains.~~

~~(e) Air relief valves; Valve, meter and blowoff chambers.~~

~~(i) Air relief valves. In all transmission lines and in distribution lines 16 inches and larger at high points (where the water pipe crown elevation falls below the pipe invert elevation), provisions shall be made for air relief. Fire hydrants or active service taps may be substituted for air relief valves on 6- and 8-inch lines. Manholes or chambers for automatic air relief valves shall be designed to prevent submerging the valve with groundwater or surface water.~~

~~(ii) Chamber drainage. Chambers, pits or man-holes containing valves, blowoffs, meters, or other such appurtenances to a distribution system, shall not be connected directly to any storm drain or sanitary sewer, nor shall blowoffs or air relief valves be connected directly to any sewer. Such chambers or pits shall be drained to the surface of the ground where they are not subject to flooding by surface water or to absorption pits underground. Where drainage cannot be provided, a sump for a permanent or portable pump shall be provided.~~

~~(moved to Section 16(h))(f) Excavation, bedding, installation, backfill.~~

~~(moved to Section 16(h)(i))(i)Excavation. The trench bottom shall be excavated for the pipe bell. All rock shall be removed within 6 inches (15.2 cm) of the pipe. The trench shall be dewatered for all work.~~

~~(moved to Section 16(h))(ii) Bedding. Bedding shall be designed in accordance with ASTM C12 - types A, B, C - for rigid pipe and ASTM D2321 - types I, II, III - for flexible pipe.~~

~~(iii) Installation. The pipe shall be joined to assure a watertight fitting. Ductile iron pipe shall be installed in accordance with AWWA 600 and PVC piping shall be installed in accordance with AWWA manual M23.~~

~~(moved to Section 16(k))(iv) Backfill. Backfill shall be performed without disturbing pipe alignment. Backfill shall not contain debris, frozen material, unstable material, or large clods. Stones greater than 3 inches (7.6 cm) in diameter shall not be placed within 2 feet (0.6 m) of pipe. Compaction shall be to a density equal to or greater than the surrounding soil.~~

~~(v) Cover. All watermains shall be located to protect them from freezing and frost heave.~~

~~(vi) Blocking. All tees, bends, plugs, and hydrants shall be provided with reaction blocking, tie rods, or joints designed to prevent movement.~~

~~(vii) Pressure and leakage testing. All types of installed pipe shall be specified to be pressure tested and leakage tested in accordance with AWWA Standard C600.~~

~~(viii) Disinfection. All new, cleaned, repaired, or reused watermains shall be specified to be disinfected in accordance with AWWA Standard C601. Specifications shall include detailed procedures for the adequate flushing, disinfection, and microbiological testing of all watermains.~~

~~(moved to Section 16(l))(g) Separation of watermains, sanitary sewers and storm sewers.~~

~~(i) Horizontal and vertical separation from sewer lines. Minimum horizontal separation shall be 10 feet (3 m) where the invert of the watermain is less than 1.5 feet (0.46 m) above the crown of the sewer line. Minimum vertical separation shall be 1.5 feet (0.46 m) at crossings. Joints in sewers at crossings shall be located at least 10 feet (3 m) from water mains. The upper line of a crossing shall be specially supported. Where vertical and/or horizontal clearances cannot be maintained, the sewer or water line shall be placed in a separate conduit pipe.~~

~~(formerly Section 14)(g)(ii) Sewer manholes. No water pipe shall pass through or come in contact with any part of a sewer manhole.~~

~~(h) Surface water crossings.~~

~~(i) Above water crossings. The pipe shall be adequately supported and anchored, protected from damage and freezing, and accessible for repair or replacement.~~

~~(ii) Underwater crossings. A minimum cover of 2 feet (0.61 m) shall be provided over the pipe. When crossing water courses which are greater than 15 feet (4.6 m) in width, the following shall be provided:~~

~~(A) The pipe shall be of special construction, having flexible watertight joints.~~

~~(B) Valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair; the valves shall be easily accessible and not subject to flooding; and the valve closest to the supply source shall be located in a manhole.~~

~~(moved to Section 16(l))(i) Cross-connections.~~

~~(moved to Section 16(l))(i)(i) Cross-connections. There shall be no water service connection installed or maintained between a public water supply and any water user whereby unsafe water or contamination may backflow into the public water supply.~~

~~(moved to Section 16(l)(i)(A))(A) Applicability. In order to protect all public water supplies from the possibility of the introduction of contamination due to cross connections, the water supplier shall require backflow prevention devices for each water service connection in accordance with Table 1 which appears at the end of this section, with the exception of (B)(I) residential water service connections and (B)(II) domestic non-residential water service connections. The water supplier shall take appropriate actions which may include immediate disconnection for any water user that fails to maintain a properly installed backflow prevention device or comply with other measures as identified in Section 14 (i) of these regulations.~~

~~(moved to Section 16(l)(i)(A)(III))(I) Any high hazard non-residential connection to any public water supply shall be protected by the appropriate backflow prevention device.~~

~~(II) Any service connection made to facilities constructed under a permit to construct issued after adoption of this regulation, Section 14 (i), shall be in full compliance with this section. This requirement applies to all service connections made or initially activated after the adoption of this regulation.~~

~~(moved to Section 16(l)(i)(A)(IV))(III) Water suppliers shall establish record keeping and management procedures to ensure that requirements of this regulation for installation and maintenance of backflow prevention devices are being met.~~

~~(moved to Section 16(l)(i)(B))(B) The method of backflow control, selected from Table 1, shall be determined based upon the degree of hazard of the cross connection and the cause of the potential backflow. Hazards shall be classified as high hazard or low hazard. The potential cause of the backflow shall be identified as being back-siphonage or back-pressure.~~

~~(moved to Section 16(l)(i)(B)(I))(I) Residential water service connections shall be considered to be low hazard back-siphonage connections, unless determined otherwise by a hazard classification.~~

~~(moved to Section 16(l)(i)(B)(II))(II) Domestic non-residential water service connections shall be considered to be low hazard back-pressure connections, unless determined otherwise by a hazard classification conducted by the water supplier. Examples include schools without laboratories, churches, office buildings, warehouses, motels, etc~~.

~~(moved to Section 16(l)(i)(B)(III))(III) Any water user's system with an auxiliary source of supply shall be considered to be a high hazard, back pressure cross connection. A reduced pressure principle backflow device shall be installed at the water service connection to any water user's system with an auxiliary source of supply.~~

~~(moved to Section 16(l)(i)(B)(V))(IV) All water loading stations shall be considered high hazard connections. A device, assembly, or method consistent with Table 1 shall be provided.~~

~~(moved to Section 16(l)(i)(B)(VI))(V) Non-domestic commercial or industrial water service connections shall be considered to be high hazard back pressure connections, unless determined otherwise by a hazard classification. Examples include restaurants, refineries, chemical mixing facilities, sewage treatment plants, mortuaries, laboratories, laundries, dry cleaners, irrigation systems, facilities producing or utilizing hazardous substances, etc. For some of these service connections, a hazard classification may result in a determination of a back-siphonage or low hazard classification. The backflow prevention device required shall be appropriate to the hazard classification. Where potential high hazards exist within the non-residential water user's system, even though such high hazards may be isolated at the point of use, an approved backflow prevention device shall be installed and maintained at the water service connection.~~

~~(moved to Section 16(l)(i)(C))(C) Determination of the hazard classification of a water service connection is the responsibility of the water supplier. The water supplier may require the water user to furnish a hazard classification survey to be used to determine the hazard classification.~~

~~(moved to 5(o))(D) Hazard classifications shall be conducted by hazard classification surveyors that are certified by the USC-Foundation for Cross-Connection Control and Hydraulic Research, the American Association of Sanitary Engineers (ASSE), or by another state certification program approved by the administrator, or by a water distribution system operator also certified as a backflow device tester employed by the public water supplier for the service where the survey is being conducted.~~

~~(moved to Section 16(l)(i)(E))(E) All backflow prevention devices must be in-line serviceable (repairable), in-line testable except for devices meeting ASSE Standard #1024, and installed in accordance with manufacturer instructions and applicable plumbing codes.~~

~~(moved to Section 16(l)(i)(F))(F) All backflow prevention devices must have a certification by an approved third party certification agency. Approved certification agencies are:~~

~~(moved to Section 16(l)(i)(F)(I))(I) American Society of Sanitary Engineers (ASSE),~~

~~(moved to Section 16(l)(i)(F)(II))(II) International Association of Plumbing/Mechanical officials (IAPMO), and~~

~~(moved to Section 16(l)(i)(F)(III))(III) Foundation for Cross-Connection Control and Hydraulic Research, University Of Southern California (USC_FCCCHR).~~

~~(moved to Section 16(l)(i)(G))(G) Backflow prevention devices at water service connections shall be inspected and certified by a certified backflow assembly tester at the time of installation. Certification of the assembly tester shall be by one of the following:~~

~~(moved to Section 16(l)(i)(G)(I))(I) The American Society Sanitary Engineers (ASSE),~~

~~(moved to Section 16(l)(i)(G)(II))(II) American Backflow Prevention Association (ABPA),~~

~~(III) A state certification program approved by the administrator.~~

~~(moved to Section 16(l)(i)(H))(H) Backflow prevention devices installed at high hazard non- residential cross connections shall be inspected and tested on an annual basis by a certified backflow assembly tester.~~

~~(moved to Section 16(l)(i)(I))(I) The administrator may conduct inspections of backflow prevention devices. If any device is found to be defective or functioning improperly, it must be immediately repaired or replaced. Failure to make necessary repairs to a backflow prevention device will be cause for the water service connection to be terminated.~~

~~(moved to Section 16(l)(i)(J))(J) All public water suppliers shall report any high hazard backflow incident within seven (7) days to the Wyoming Department of Environmental Quality, Water Quality Division. The backflow incident shall be reported on a form provided by the administrator.~~

~~(moved to Section 16(l)(ii))(ii) Recycling water. Neither steam condensate nor cooling water from engine jackets or other heat exchange devices shall be returned to the public water supply after it has passed through the water service connection.~~

~~(moved to Section 16(l))(ii) TABLE 1~~
~~Backflow Prevention Devices, Assemblies and Methods~~

	~~Degree of Hazard~~				
~~Device, Assembly or Method~~	~~Low Hazard~~		~~High Hazard~~		~~Notes~~
	~~Back-Siphonage~~	~~Back-Pressure~~	~~Back-Siphonage~~	~~Back-Pressure~~	
~~Airgap~~	~~X~~		~~X~~		~~See Note 1~~
~~Atmospheric Vacuum Breaker~~	~~X~~		~~X~~		~~Not allowed under continuous pressure~~
~~Spill-proof Pressure-type Vacuum~~	~~X~~		~~X~~		

~~Double Check Valve Backflow Preventer~~	~~X~~	~~X~~			
~~Pressure Vacuum Breaker~~	~~X~~		~~X~~		
~~Reduced Pressure Principle Backflow~~	~~X~~	~~X~~	~~X~~	~~X~~	~~See Note 2~~
~~Dual Check~~	~~X~~				~~Restricted to residential services~~

~~Note 1 Minimum Airgap for Water Distribution. For spouts with an effective opening diameter of one-half inch or less, the minimum airgap when the discharge is not affected by side walls shall be one inch. The minimum airgap when the discharge is affected by sidewalls shall be one and one-half inches. For effective openings greater than one-half inch, the minimum airgap shall be two times the effective opening diameter when the discharge is not affected by side walls. The minimum airgap when the discharge is affected by sidewalls shall be three times the effective opening diameter.~~

~~Note 2 Extreme Hazards. In the case of any water user's system where, in the opinion of the water supplier or the administrator, an undue health threat is posed because of the presence of extremely toxic substances or potential back pressures in excess of the design working pressure of the device, the water supplier may require an air gap at the water service connection to protect the public water system.~~

(a) 2018 TSS, parts 6.1-6.1.1(e), location; 6.2, 6.2(b-e), pumping stations; 6.2.1-6.2.1(d), pumping stations, suction well; 6.2.2, 6.2.2(a-b), pumping stations, equipment servicing; 6.3.2, pumps, pump priming; 6.6.1, appurtenances, valves; 6.6.3-6.6.3(d), appurtenances, gauges and meters; 6.6.4-6.6.4(b), appurtenances, water seals; 6.6.5, appurtenances, controls; 6.6.6, appurtenances, standby power; are herein incorporated by reference.

~~(formerly Section 12(f))~~(b) Stairways ~~and ladders. Stairways~~ or ladders shall be provided between all floors, and in pits or compartments ~~which~~ that must be entered. ~~They shall have handrails on both sides, and treads of non-slip material. The Wyoming Occupational Health and Safety Rules and Regulations shall be complied with.~~

~~(formerly Section 12(g))~~(c) ~~Heating. Provisions~~ Pumping facilities shall be ~~made for heating~~ heated to maintain a minimum temperature of 40~~°~~ ~~F~~ degrees Fahrenheit ~~(4° C)~~ if ~~not~~ typically unoccupied and 50~~°~~ ~~F~~ degrees Fahrenheit ~~(10° C)~~ if normally occupied.

~~(formerly Section 12(h))~~(d) Pumping station ~~V~~ventilation~~.~~ designs shall demonstrate that: ~~All accessible pumping station areas shall be ventilated. Ventilation may be continuous or intermittent. If intermittent, ventilation in areas normally visited by operating personnel shall be started automatically at not greater than 30 minute intervals. Permanently installed drywell ventilation shall provide at least 6 air changes per hour if continuous, and 12 air changes per hour if intermittent. Intermittent ventilating equipment shall ensure starting upon entry of operating personnel. Wetwells shall be designed to permit the use of portable blowers that will exhaust the space and continue to supply fresh air during access periods.~~

~~(formerly Section 12(h))~~(i) All ~~accessible~~ areas of the pumping station that are accessible ~~areas~~ shall be ventilated.

~~(formerly Section 12(h))~~(ii) Ventilation may be continuous or intermittent.

~~(formerly Section 12(h))~~(iii) ~~Permanently installed d~~Drywell ventilation shall provide: ~~at least 6 air changes per hour if continuous, and 12 air changes per hour if intermittent.~~

~~(formerly Section 12(h))~~(A) ~~a~~At least ~~6~~ six air changes per hour if continuous~~,~~; and ~~12 air changes per hour if intermittent.~~

~~(formerly Section 12(h))~~(B) At least 30 air changes per hour ~~I~~if intermittent~~,~~ with an automatic start upon operator entry into the area. ~~ventilation in areas normally visited by operating personnel shall be started automatically at not greater than 30 minute intervals. Intermittent ventilating equipment shall ensure starting upon entry of operating personnel.~~

~~(formerly Section 12(h))~~(iv) Wetwell~~s~~ ventilation shall provide 12 continuous air changes per hour or 60 intermittent air changes per hour and be designed to permit the use of portable blowers that will exhaust the space and ~~continue to~~ supply fresh air during the access periods.

~~(formerly Section 12(i))~~(e) Dehumidification~~.~~ equipment shall be provided i~~I~~n below ground pumping stations~~,~~. ~~a means for dehumidification shall be provided.~~ The ~~facilities~~ equipment shall be sized to maintain ~~the~~ a dewpoint at least ~~2~~ two degrees Fahrenheit below the coldest anticipated temperature of the water to be conveyed in the pipes.

~~(formerly Section 12(k))~~(f) ~~Sanitary and other conveniences.~~ All pumping stations that are manned ~~for~~ four or more hours per day shall be provided with potable water, lavatory, and toilet facilities. The ~~W~~wastes shall be discharged to the sanitary sewer or ~~to~~ an on-site waste treatment system.

(g) Pump~~s.~~ design shall comply with the following requirements: ~~At least two pumping units shall be provided. With the largest pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping rate of the system.~~

~~(formerly Section 12(l))~~(i) At least two ~~pumping units~~ pumps shall be provided. With the largest pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping ~~rate~~ capacity of the system.

~~(formerly Section 12(m))~~(ii) ~~Suction lift.~~ Pumps shall be selected ~~so~~ such that the net positive suction head required ~~at maximum flow~~ (NPSHR) is less than the net positive suction head available (NPSHA) minus four (4) feet ~~(1.2 m)~~ based on ~~the~~ hydraulic conditions and the altitude of the pump~~ing station~~ installation. If this condition ~~is not met~~ cannot be satisfied, ~~then~~ a means of priming shall be provided.

(iii)~~(formerly Section 12(n))~~ ~~Surge control. Piping systems~~ A surge analysis shall be ~~designed to withstand the maximum possible surge (water hammer) from the pumping station, or adequate surge control~~ provided to demonstrate if surge protection devices will be needed to protect the piping. Pressure relief valves are not acceptable as surge control.

~~(formerly Section 12(a))~~(iv) ~~Total dynamic head.~~ The calculated total dynamic head ~~rating of~~ for pumping units shall be based on pipe friction, pressure losses from ~~piping~~ pipe entrances, exits, appurtenances (~~bends,valves, etc.~~ such as valves and bends), and static head at the design flow.

(v) The station shall have a flow rate indicator and totalizing meter, and a method of recording the total water pumped.

~~(formerly Section 12(o))~~(h) Booster pumps shall comply with the following requirements~~.~~:

~~(formerly Section 12(o)(i))~~(i) Booster pumps shall not produce ~~a pressure~~ less than 5 psi in suction lines. ~~Where~~ If the suction line has service connections, ~~booster pump intake~~ the pressure shall be at least 35 psi ~~(138 kPa)~~ ~~when the pump is in~~ during normal operation and shall ~~be provided with~~ have a low-pressure cutoff switch ~~if the suction line pressure is a minimum of~~ to maintain at least 20 psi ~~(69 kPa)~~.

(ii) For booster pumps used for fire suppression, no person shall install or maintain a water service connection to any premises where a fire pump has been installed on the service line to or within such premises unless the pump is equipped with one of the following:

(A) A low suction throttling valve or pilot-operated valve installed in the discharge piping that maintains positive pressure in the suction piping while monitoring pressure in the suction piping through a sensing line. The valve shall throttle the discharge of the pump when necessary so that suction pressure will not be reduced below 20 psi gauge when the pump is operating; or

(B) A variable-speed suction limiting control that is used to maintain a minimum positive suction pressure at the pump inlet by reducing the pump driver speed while monitoring pressure in the suction piping through a sensing line. The limiting control shall be set so that the suction pressure will not be reduced below 20 psi gauge while the pump is operating.

~~(formerly Section 12(o)(ii))~~(iii) Automatic or remote controlled ~~devices~~ pumps shall have a range between the start and cutoff pressure ~~which~~ that will prevent the pump from cycling ~~of~~ more than ~~1~~ one start every 15 minutes.

~~(formerly Section 12(o)(iii))~~(iv) In-line booster pumps shall be accessible for ~~servicing and repairs~~ maintenance. ~~The~~ There shall be access openings, as needed, ~~and vault shall be large enough to~~ to allow the ~~remove~~ removal of the pump.

~~(formerly Section 12(o))~~(v) Individual home booster pumps shall not be allowed for any individual service from the public water supply main.

~~(formerly Section 12(p))~~(vi) ~~Automatic and remote controlled stations. Conditions that may affect continuous delivery of water shall be alarmed at an attended location.~~ Un-manned or remotely controlled pump stations shall have an alarm at an operator attended location for any conditions that may affect the continuous delivery of water.

(i) Pumping facility valves shall comply with the following requirements:

~~(formerly Section 12(q)(i))(E)~~(i) ~~Air release.~~ Air release valves shall be provided where the pipe crown is dropped in elevation. The discharge pipe from the valve shall have a minimum of an 8-inch air gap and shall be covered with a #24 mesh non-corrodible screen.

~~(formerly Section 12(q)(i))(C)~~(ii) Each pump shall either have an individual suction line or the suction lines shall be ~~so~~ manifolded such that they ~~will ensure~~ demonstrate similar hydraulic and operating conditions.

Section 15. ~~Laboratory Requirements~~ Finished Water Storage.

~~(moved to Section 17(b))(a) Test procedures. Test procedures for analysis of monitoring samples shall conform to the 15th Edition of Standard Methods for the Examination of Water and Wastewater.~~

~~(moved to Section 17(c))(b) Testing requirements. All treatment plants shall have the capability to perform or contract for the self-monitoring analytical work required by the Safe Drinking Water Act and/or state regulation. All plants shall, in addition, be capable of performing or contracting the analytical work required to assure good management and control of plant operation and performance.~~

~~(moved to Section 17(d))(c) Minimum requirements.~~

~~(moved to Section 17(d)(i))(i)Location and space. The laboratory shall be located away from vibrating machinery or equipment which might have adverse effects on the performance of laboratory instruments or the analyst and shall be designed to prevent adverse effects from vibration.~~

~~(i) Where a full-time chemist is proposed to work in the laboratory, a minimum of 400 square feet (37.2 m2) of floor space shall be provided in the laboratory. If more than two persons will be working in the laboratory, 100 square feet (9.3 m2) of additional space shall be provided for each additional person.~~

~~(moved to Section 17(d)(ii))(ii) Materials. Walls shall have an easily cleaned, durable and impervious surface. Two exit doors or openings shall be located to permit a straight exit from the laboratory; one exit shall be directly to the outside of the building. Panic hardware shall be used. Interior doors shall have glass windows.~~

~~(moved to Section 17(d)(iii))(iii) Cabinets and bench tops. Cabinet and storage space shall be provided for dust-free storage of instruments and glassware.~~

~~(moved to Section 17(d)(iii))(iii) Bench top height shall be 30 inches (0.91 m). Tops should be field joined into a continuous surface with acid, alkali, and solvent resistant cements.~~

~~(moved to Section 17(d)(iv))(iv) Hoods. Fume hoods shall be provided where reflux or heating of toxic or hazardous materials is required. A hood shall not be situated near a doorway, unless a secondary means of exit is provided. All switches, electrical outlets, and utility and baffle adjustment handles shall be located outside the hood. Light fixtures shall be explosion-proof. Twenty-four hour continuous exhaust capability shall be provided. Exhaust fans shall be explosion-proof.~~

~~(moved to Section 17(d)(v))(v) Sinks. The laboratory shall have a minimum of 2 sinks per 400 ft2 (37.2 m2) (not including cup sinks). Sinks shall be double well with drainboards and shall be made of epoxy resin or plastic. All water fixtures shall be provided with reduced pressure zone backflow preventers. Traps constructed of glass, plastic, or lead and accessible for cleaning shall be provided.~~

~~(vi) Ventilation and lighting. Laboratories shall be separately heated and cooled, with external air supply for 100 percent makeup volume. Separate exhaust ventilation shall be provided. Ventilation outlet locations shall be remote from ventilation inlets.~~

~~(vi) Lighting shall provide 100 foot candles at the bench top.~~

~~(vii) Gas. If gas is required in the laboratory, natural gas shall be supplied.~~

~~(moved to Section 17(d)(vi)) (viii) Water still. Distilled water shall conform to the quality specified by Standard Methods for the Examination of Water and Wastewater, 15th Edition.~~

~~(ix) Emergency shower and eye wash. All laboratories shall be equipped with an emergency eye wash and shower that is located within the laboratory.~~

~~(moved to Section 17(e))(d) Portable testing equipment. Portable testing equipment shall be provided where necessary for operational control testing.~~

(a) 2018 TSS, parts 7.0.1-7.0.1(c), sizing; 7.0.2-7.0.2(b), location of finished water storage structures; 7.0.3,protection from contamination; 7.0.4,security; 7.0.5,drains; 7.0.6,stored water age; 7.0.9-7.0.9(e), vents; 7.0.10-7.0.10(f), roof and sidewall; 7.0.17-7.0.17(c),painting and/or cathodic protection; 7.0.18-7.0.18(c),disinfection; 7.1.1,treatment plant storage, filter washwater tanks; 7.2-7.2.4, hydropneumatic tank systems; are herein incorporated by reference.

~~(formerly Section 13(a))~~(b) ~~General. Steel finished water storage structures shall be provided using the requirements of the AWWA D100 or AWWA D103. All tank design and foundation design shall be performed by a registered professional engineer and the plans or contractor-furnished information shall so designate the registered engineer providing the design. Materials other than steel may be used for water storage tanks.~~Finished water storage structures shall comply with the following requirements:

~~(formerly Section 13(a))~~(i) ~~Steel finished water storage structures shall be provided using the requirements of the AWWA D100 or AWWA D103.~~ Water storage structures shall comply with the following standards for storage tanks, standpipes, ground storage reservoirs that are described in AWWA M42, clearwells, and elevated storage:

(A) AWWA D100;

(B) AWWA D102;

(C) AWWA D103;

(D) AWWA D104;

(E) AWWA D106;

(F) AWWA D107;

(G) AWWA D108;

(H) AWWA D110;

(I) AWWA D115;

(J) AWWA D120; and

(K) AWWA D121;

~~(formerly Section 13(a))~~(ii) All tank ~~design~~ and foundation design shall be performed by a Wyoming registered professional engineer. ~~and t~~The plans or contractor-

furnished information shall ~~so designate the registered engineer providing the design~~ be signed and sealed by a Wyoming registered professional engineer.

(iii) All new or modified water storage tanks shall have the inlet and outlet connections separated from each other as much as is practical.

(c) Storage facility designs shall demonstrate:

(ii) The average daily demand will require a daily fill of 20 percent of the total storage volume for surface water sources and 10 percent for groundwater sources.

(iii) For designs that demonstrate the storage tank has a small daily demand and a high fire water storage requirement, or the storage tank water age an average is greater than two days, the design shall demonstrate that a a volume equal to at least 20 percent of the tank volume will be delivered to the storage tank each time pumping is initiated.

~~(formerly Section 13(a)(i)(D))~~(iv) ~~Storage need not be provided in a well supply system where~~ For designs with well systems that provide a minimum of two wells ~~are provided and~~ that can supply either the maximum hourly demand or the fire demand, whichever is greater, ~~can be supplied with the largest well out of service~~storage is not required. These systems shall demonstrate that they will provide alternative power for the finished water pumps.

(d) Storage structure design shall eliminate short-circuiting.

(e) The minimum inlet velocity shall be 10ft/sec unless demonstration of employed mixing system or lower inlet velocity addresses disinfection by-product formation, stratification, stagnation, freezing, and other water age issues.

(f) Overflow and drain lines shall:

(i) Be protected with a mechanical device such as:

(A) A sealed flapper valve or duckbill valve; or

(B) A #24 mesh non-corrodible screen.

(ii) For overflow lines that are protected with a mechanical device, include installation of a #4 mesh non-corrodible screen or finer to prevent the entrance of birds or rodents;

(iii) For overflow lines that are protected with #24 mesh non-corrodible screen, demonstrate prevention of screen clogging that would lead to structural storage tank damage;

~~(formerly Section 13(a)(vi)(B))~~(iv) Include installation of the screen within ~~T~~the overflow line ~~of a ground level structure shall open downward and be screened with~~

~~noncorrodible screen installed within the pipe~~ at a location that is not ~~least~~ susceptible to ~~damage by~~ vandalism and that allows for the overflow line to be operational during an overflow event~~.~~;

(v) Provide access to the screen with the smallest openings for replacement; and

(vi) Demonstrate that the screen with the smallest openings will be the outermost screen.

(g) Overflow designs shall demonstrate the provisions that will be included to prevent mechanical devices from freezing shut.

(h) Overflow lines shall not be considered as vents.

~~(formerly Section 13(a)(viii))~~(i) ~~Vents. Finished water storage structures shall be vented. Overflows shall not be considered as vents. Open construction between the sidewall and roof is not permissible.~~ Vents shall ~~prevent the entrance of~~ be designed to protect the tank from contaminants including but not limited to surface water~~, and rainwater,~~ stormwater runoff, insects, rodents, and ~~shall exclude~~ birds ~~and animals~~.

~~(formerly Section 13(a)(viii)(A))~~(i) ~~For elevated tanks and standpipes,~~ All openings shall be protected with #24 mesh ~~noncorrodible~~ non-corrodible screen ~~may be used~~ or a combination of #24 mesh and coarser mesh non-corrodible screen.

(ii) The design shall demonstrate consideration of site conditions, freezing, frosting, and provide justification including precautions for snow depth.

(A) The design shall demonstrate consideration of frost free or frost proof vents; and

(B) The design shall demonstrate consideration of a pressure/vacuum, frost-proof release vents that will need to protect openings with #24 mesh non-corrodible screen.

(j) Down-turned vent openings shall be at least 24 inches above the nearest horizontal surface.

(k) Elevated tanks shall be designed to remove snow via tank geometry to prevent snow build-up clogging vents.

(l) Vent designs shall include calculations that verify the required volume of flow is achievable through the proposed vent pipe and screen combination.

(m) Finished water plant water storage shall comply with the following requirements:

~~(formerly Section 13(b)(ii))~~(i) ~~Clearwell.~~ Clearwell storage shall be sized, in conjunction with distribution system storage, to relieve the filter~~s from~~ of having to follow

fluctuations in water use. Where water is pumped from ~~clearwater~~ clearwell storage to the system, an overflow shall be provided.

(ii) If unfinished water is stored in compartments adjacent to finished water, the unfinished and finished water shall be separated by double walls.

~~(formerly Section 13(b))(iv)~~(iii) ~~Basins and wetwells.~~ Receiving basins and ~~pump~~ wetwells ~~for finished water~~ shall be designed as finished water storage structures and shall comply with the requirements of this Section.

Section 16. ~~Operation and Maintenance Manuals~~ Distribution Systems.

~~(moved to Section 18(a))(a) Where required. Plant operation and maintenance manuals are required for each new or modified treatment or pumping facility. The manuals shall provide the following information as a minimum:~~

~~(moved to Section 18(a)(i))(i) Introduction.~~

~~(moved to Section 18(a)(ii))(ii) Description of facilities and unit processes within the plant from influent structures through effluent structures.~~

~~(moved to Section 18(a)(iii)(iii) Plant control system.~~

~~(moved to Section 18(a)(iv))(iv) Utilities and systems.~~

~~(moved to Section 18(a)(v))(v) Emergency operation and response.~~

~~(moved to Section 18(a)(vi))(vi) Permit requirements and other regulatory requirements.~~

~~(moved to Section 18(a)(vii))(vii) Staffing needs.~~

~~(moved to Section 18(a)(ix))(viii) Index to manufacturer's manuals.~~

~~(moved to Section 18(b))(b) When required. Acceptance of the final operation and maintenance manuals is required prior to plant startup.~~

~~(c) Description of facilities. The description of facilities and unit processes shall include the size, capacity, model number (where applicable) and intended loading rate.~~

~~(moved to Section 18(c)(i) Each unit. The manual shall describe each unit, including the function, the controls, the lubrication and maintenance schedule. The manual shall also include start-up operations; routine operations; abnormal operations; emergency or power outage operations; bypass procedures; and safety.~~

~~(ii) Flow diagrams. The manual shall provide flow diagrams of the entire process, as well as individual unit processes. The flow diagrams shall show the flow options under the various operational conditions listed above.~~

~~(d) Operating parameters. The O & M manual shall provide the design criteria for each unit process. The data shall include the number, type, capacity, sizes, etc., and other information, as applicable.~~

~~(moved to Section 18(c)(iii))(e) Troubleshooting guide. Each equipment maintenance manual shall include a section on troubleshooting. These manuals are to be indexed in the plant O & M manual. The troubleshooting guide shall include typical operation problems and solutions. The guide shall include a telephone number for factory troubleshooting assistance.~~

~~(f) Emergency procedures. The plant O & M manual shall detail emergency operations procedures for possible foreseeable emergencies, including power outage, equipment failure, development of unsafe conditions, and other emergency conditions. The details shall include valve positions, flow control settings, and other information to ensure continued operation of the facility at maximum possible efficiency.~~

~~The manual shall also detail emergency notification procedures to be followed to protect health and safety under various emergency conditions.~~

~~(g) Safety. The manual shall provide general information on safety in and around the plant and its components. Each unit process discussion shall include applicable safety procedures and precautions. For unit processes or operations having extreme hazards (such as chlorine, closed tanks, etc.), the discussion shall detail appropriate protection, rescue procedures, and necessary safety equipment.~~

~~(moved to Section 18(c)(iv))(h) Maintenance manuals. Maintenance manuals shall be required for each piece of equipment. These manuals must meet the requirements of the engineer and contractor for installation and startup of equipment. The information included in the manufacturer's manuals shall not be included in the O & M manual.~~

~~The manual shall have a neatly typewritten table of contents for each volume arranged in a systematic order. The general contents shall include product data; drawings; written text as required to supplement product data for the particular installation; and a copy of each warranty, bond and service contract issued.~~

~~The manuals for equipment and systems shall include a description of unit and component parts; operating procedures; maintenance procedures and schedules; service and lubrication schedule; sequence of control operation; a parts list; and a recommended spare parts list.~~

(a) 2018 TSS, parts 8.2-8.2.4(b), system design; 8.3, valves; 8.4-8.4.4(d), hydrants; 8.5-8.5.2(c), air relief valves; 8.6, valve, meter, and blow-off chambers; 8.7.3, installation of water mains, cover; 8.7.4, installation of water mains, blocking; 8.7.6, installation of water

mains, pressure and leakage testing; 8.7.7, installation of water mains, disinfection; 8.7.8, installation of water mains, external corrosion; 8.7.9, installation of water mains, separation from other utilities; 8.8.2-8.8.2(b), separation distances from contamination sources, parallel installation; 8.8.3-8.8.3(b), separation distances from contamination sources, crossings; 8.8.6, separation distances from contamination sources, sewer manholes, inlets, and structures; 8.9.1, surface water crossings, above-water crossings; 8.9.2-8.9.2(c); surface water crossings, under water crossings; 8.11.1, water services and plumbing, plumbing; 8.12, service meters; are herein incorporated by reference.

~~(formerly Section 14(a)(i))~~(b) ~~Types~~ Distribution systems shall be constructed of commercial pipe ~~approved for water systems include~~ that conform to the following standards:

~~(formerly Section 14)(a)(i)(A))~~(i) PVC ~~water~~ pipe: ~~ASTM D2241, less than 4" diameter (10 cm); AWWA C900: 4" (10 cm) and larger diameter.~~

~~(formerly Section 14)(a)(i)(A))~~(A) ~~ASTM D2241, l~~Less than ~~4"~~ four inches diameter ~~(10 cm)~~, ASTM D 2241; or

~~(formerly Section 14)(a)(i)(A)~~(B) ~~AWWA C900: 4" (10 cm)~~ Four inches and larger diameter, AWWA C900.

~~(formerly Section 14)(a)(i)(C))~~(ii) Ductile iron ~~pipe:~~, AWWA C151~~.~~;

~~(formerly Section 14)(a)(i)(D))~~(iii) ~~Glass fiber - reinforced thermosetting - resin pressure pipe:~~ Fiberglass pressure pipe, AWWA C950~~.~~; or

~~(formerly Section 14)(a)(i)(E))~~(iv) ~~Polyethelyene~~ Polyethylene pipe:

(A) ¾ inch through three inches diameter,AWWA C901~~.~~;

(B) Four inches through 65 inches diameter, AWWA C906; or

(v) Other material submitted with the permit application and approved by the Administrator.

~~(formerly Section 14(a)(iii))~~(c) ~~Joints. Packing and jointing materials used in the joints of pipe shall be flexible and durable.~~ Flanged piping shall not be ~~used~~ allowed ~~for buried service except for connections to valves; push-on or mechanical joints shall be used~~ pipe except for connection to valves.

(d) New water mains shall be sized after the hydraulic analysis required by Section 9(l)(i) of this Chapter and the design shall demonstrate that:

~~((formerly 14(b)(ii))~~(i) ~~Pressure. All watermains, including those not designed to provide fire protection, shall be sized after a hydraulic analysis based on flow demands and pressure requirements. The system shall be designed to maintain a minimum~~

~~pressure of 20 psi (138 kPa) at ground level at all points in the distribution system under all conditions of flow. The normal working pressure in the distribution system shall be not less than 35 psi (276 kPa)~~. At maximum day demand plus current State of Wyoming-required fire flow, or the fire flow of an authority having jurisdiction, the pressure in the municipal distribution system will not fall below 20 pounds per square inch (psi); and

~~((formerly 14(b)(ii))~~(ii) The normal system working pressure shall be greater than 35 psi.

~~(formerly Section 14(b)(iii))~~(e) ~~Fire protection.~~ When fire protection is ~~to be~~ provided, the ~~system design~~ water main system shall be ~~such that~~ designed to also serve fire flows ~~can be served~~.

~~(formerly Section 14(d))~~(f) Hydrants~~.~~shall:

~~(formerly Section 14(d)(i))~~(i) ~~Hydrant leads. The~~ Have hydrant leads ~~shall be a~~ that are a minimum of ~~6~~ six inches ~~(0.15 m)~~ in diameter. ~~Valves shall be installed in all hydrant leads~~.

~~(formerly Section 14(d)(i))~~(ii) Have v~~V~~alves ~~shall be~~ installed. ~~in all hydrant leads.~~;

~~(formerly Section 14(d)(ii))~~(iii) Be ~~Protection~~ protected from freezing~~.~~ at hydrant leads and barrels. ~~Provisions shall be made to protect fire hydrant leads and barrels from freezing. The use of hydrant weep holes is not allowed when groundwater levels are above the gravel drain area. In these cases it will be necessary to pump the hydrant dry or use other means of dewatering.~~

~~(formerly Section 14(d)(ii))~~(iv) ~~The use of hydrant weep holes is not allowed when groundwater levels are above the gravel drain area. In these cases it will be necessary to pump the hydrant dry or use other means of dewatering.~~Where groundwater levels are above the gravel drain area, hydrants shall be pumped dry or otherwise dewatered and hydrant weep holes shall not be used; and

~~(formerly Section 14(d)(iii))~~(v) ~~Drainage. Hydrant~~ Have drains ~~shall not be~~ that are not connected to or located within 10 feet ~~(3.05 m)~~ of a sanitary sewer~~s~~ or storm drain~~s~~.

~~(formerly Section 14(e)(i))~~(g) Fire hydrants or active service taps may be substituted for air relief ~~valves on~~ in 6- and 8-inch lines.

~~(formerly Section 14(f))~~(h) ~~Excavation, bedding, installation, backfill.~~Where excavation is performed for distribution systems:

~~(formerly Section 14)(f)(i)~~(i) ~~Excavation.~~The trench bottom shall be excavated for the ~~pipe bell~~ bell of the pipe; ~~All rock shall be removed within 6 inches (15.2 cm) of the pipe. The trench shall be dewatered for all work.~~

~~(formerly Section 14)(f)(i)~~(ii) All rock shall be removed within ~~6~~ six inches ~~(15.2 cm)~~ of the pipe~~.~~;

~~(formerly Section 14)(f)(i)~~(iii) The trench shall be dewatered for all work~~.~~;

~~(formerly Section 14(f)(ii))~~(i) ~~Bedding.~~ Distribution system ~~B~~bedding for rigid pipe shall be designed in accordance with ASTM C12 ~~- types~~ Classes A, B, or C~~- for rigid pipe. and~~ Flexible pipe bedding shall be designed in accordance with ASTM D2321 ~~- types~~ Class I, II, or III ~~- for flexible pipe.~~;

(j) Distribution system pipe shall be joined to ensure a watertight fitting and installed in accordance with the following standards, as applicable:

(i) For ductile iron pipe, AWWA C600;

(ii) For PVC pipe, AWWA M23; and

(iii) For HDPE pipe, AWWA M55.

~~(formerly Section 14)(f)(iv)~~(k) ~~Backfill.~~ Backfill for distribution systems shall~~: be performed without disturbing pipe alignment. Backfill shall not contain debris, frozen material, unstable material, or large clods. Stones greater than 3 inches (7.6 cm) in diameter shall not be placed within 2 feet (0.6 m) of pipe. Compaction shall be to a density equal to or greater than the surrounding soil.~~

~~(formerly Section 14)(f)(iv)~~(i) B~~b~~e performed without disturbing pipe alignment~~.~~;

~~(formerly Section 14)(f)(iv)~~(ii) ~~Backfill shall n~~Not contain debris, frozen material, unstable material, or large clods~~.~~;

~~(formerly Section 14)(f)(iv)~~(iii) Not contain rocks or ~~S~~stones that are greater than ~~3~~ three inches ~~(7.6 cm)~~ in diameter ~~shall not be placed~~ within ~~2~~ two feet ~~(0.6 m)~~ of pipe~~.~~; and

~~(formerly Section 14)(f)(iv)~~(iv) ~~Compaction shall be~~ Be compacted to a density equal to or greater than the surrounding soil.

~~(formerly Section 14(g))~~(l) Distribution systems shall meet the following requirements for ~~S~~separation of ~~watermains,~~ water mains from sanitary ~~sewers~~ and storm sewers~~.~~:

(i) Where the minimum vertical or horizontal separation distances required by incorporation by reference of 2018 TSS parts 8.8.2 and 8.8.3 of paragraph (a) of this Section cannot be met, the sewer or water line shall be placed in a separate conduit pipe or meet the flow-fill requirements of paragraphs (ii) and (iii) of this Paragraph (l);

(ii) Flow-fill for pipelines shall comply with the following:

(A) Cement-treated fill, non-shrink backfill, low-density concrete backfill, or structural backfill may be used as flow-fill when the material has a 28-day compressive strength of 30-60 psi;

(B) The pipe to be encased shall be laid on a four to six-inch of bed of washed gravel that has been widened, with the walls of the trench benched away from the center-line of the trench, so the pipe is uniformly supported over the length or supported on blocks no further than 10 feet apart;

(C) The flow-fill and washed gravel or blocks shall rest on an undisturbed trench bottom;

(D) The pipe shall not move laterally or float during placement of the flow-fill and the line and grade of the pipe shall be maintained; and

(E) The flow-fill shall extend from trench sidewall to trench sidewall and extend at least two inches above the top of the pipe.

(vii) Flow-fill for pipe crossings shall comply with the following:

(A) To the extent possible, there shall be no joints or taps within nine feet of the crossing;

(B) The flow-fill shall extend from undisturbed earth at the bottom of the lower pipe to at least two inches above the top of the upper pipe;

(C) The block of flow-fill shall be wide enough to ensure the structural integrity of the installation; and

(D) Pipes that cross one another shall be separated by a minimum of two inches when encased in flow-fill.

~~(formerly Section 14(i))~~(m) Cross-connections shall comply with the following requirements~~.~~:

~~(formerly Section 14(i)(i))~~(i) ~~Cross-connections.~~ There shall be no water service connection installed or maintained between a public water supply and any water user whereby unsafe water or contamination may backflow into the public water supply.

~~(formerly Section 14(i)(i)(A))~~(A) ~~Applicability. In order~~ ~~t~~To protect all public water supplies from the possibility of the introduction of contamination due to cross -connections, the water supplier shall: ~~require backflow prevention devices for each water service connection in accordance with Table 1 which appears at the end of this section , with the~~

~~exception of (B)(I) residential water service connections and (B)(II) domestic non-residential water service connections. The water supplier shall take appropriate actions which may include immediate disconnection for any water user that fails to maintain a properly installed backflow prevention device or comply with other measures as identified in Section 14 (i) of these regulations.~~

~~(formerly Section 14(i)(i)(A))~~(I) ~~r~~Require backflow prevention devices for each water service connection in accordance with ~~Table 1 which appears at the end of this section~~ Table 4 of this Section, with the exception of (B)(I) residential water service connections and (B)(II) domestic non-residential water service connections~~.~~;

~~(formerly Section 14(i)(i)(A))~~(II) ~~The water supplier shall t~~Take appropriate actions ~~which~~ that may include:

~~(formerly Section 14(i)(i)(A))~~1. ~~i~~Immediate disconnection for any water user that fails to maintain a properly installed backflow prevention device; or

~~(formerly Section 14(i)(i)(A))~~2. ~~c~~Compl~~y~~iance with other measures as identified in ~~Section 14 (i) of these regulations~~this Section~~.~~;

~~(formerly Section 14(i)(i)(A)(I))~~(III) Any high hazard non-residential connection to any public water supply shall be protected by the ~~appropriate~~ backflow prevention device required by Table 4.

~~(formerly Section 14(i)(i)(A)(III))~~(IV) Water suppliers shall establish record keeping and management procedures to ensure that requirements of this regulation for installation and maintenance of backflow prevention devices are being met.

~~(formerly Section 14)(i)(i)(B)~~(B) The method of backflow control, selected from Table ~~1~~4, shall be determined based upon the degree of hazard of the cross-connection and the cause of the potential backflow. Hazards shall be classified as high hazard or low hazard. The potential cause of the backflow shall be identified as being back-siphonage or back-pressure.

~~(formerly Section 14(i)(i)(B)(I))~~(I) Residential water service connections shall be considered to be low hazard back-siphonage connections~~,~~ unless determined otherwise by a ~~h~~Hazard ~~c~~Classification.

~~(formerly Section 14(i)(i)(B)(II))~~(II) Domestic non-residential water service connections (such as schools without laboratories, churches, office buildings, warehouses, and motels) shall be considered to be low hazard back-pressure connections~~,~~ unless determined otherwise by a ~~h~~Hazard ~~c~~Classification conducted by the water supplier. ~~Examples include schools without laboratories, churches, office buildings, warehouses, motels, etc.~~

~~(formerly Section 14(i)(i)(B)(III))~~(III) Any water user's system with an auxiliary source of supply shall be considered to be a high hazard, back-pressure cross-connection. A reduced pressure principle backflow device shall be installed at the water service connection to any water user's system with an auxiliary source of supply.

~~(formerly Section 14(i)(i)(B)(IV))~~(IV) All water loading stations shall be considered high hazard connections. A device, assembly, or method consistent with Table ~~1~~4 shall be provided.

~~(formerly Section 14(i)(i)(B)(V))~~(V) Non-domestic commercial or industrial water service connections (such as restaurants, refineries, chemical mixing facilities, sewage treatment plants, mortuaries, laboratories, laundries, dry cleaners, irrigation systems, and facilities producing or using hazardous substances) shall be considered to be high hazard back-pressure connections, unless determined otherwise by a ~~h~~Hazard ~~c~~Classification. ~~Examples include restaurants, refineries, chemical mixing facilities, sewage treatment plants, mortuaries, laboratories, laundries, dry cleaners, irrigation systems, facilities producing or utilizing hazardous substances, etc.~~ For some of these service connections, a ~~h~~Hazard ~~c~~Classification may result in a determination of a back-siphonage or low hazard classification. The backflow prevention device required shall be appropriate to the degree of hazard established by the ~~h~~Hazard ~~c~~Classification. Where potential high hazards exist within the non-residential water user's system, even though such high hazards may be isolated at the point of use, an approved backflow prevention device shall be installed and maintained at the water service connection.

~~(formerly Section 14)(i)(i)(C)~~(C) Determination of the hazard classification of a water service connection is the responsibility of the water supplier. The water supplier may require the water user to furnish a ~~h~~Hazard ~~c~~Classification ~~s~~Survey to be used to determine the ~~h~~Hazard ~~c~~Classification.

(D) Hazard Classification Surveys that have been conducted by Hazardous Classification Surveyors that have been certified by another state certification program shall include the following information for Administrator approval:

(I) Documentation that indicates the Hazard Classification Surveyor has received certification from the regulatory agency that issued the current certification that states the name of the Hazard Classification Surveyor, the status of their certification, the date originally issued, the expiration date, and the classification for which the Hazard Classification Surveyor is certified; and

(II) Any disciplinary action imposed against the applicant; if any.

~~(formerly Section 14(i)(i)(E))~~(E) All backflow prevention devices ~~must~~ shall be in-line serviceable (repairable), in-line testable except for devices meeting ASSE ~~Standard #~~1024, and installed in accordance with manufacturer instructions and applicable plumbing codes.

~~(formerly Section 14(i)(i)(F))~~(F) All backflow prevention devices must have a certification by an approved third party certification agency. Approved certification agencies are:

~~(formerly Section 14)(i)(i)(F)(I)~~(I) American Society of Sanitary Engineers (ASSE),

~~(formerly Section 14)(i)(i)(F)(II)~~(II) International Association of Plumbing/Mechanical officials (IAPMO)~~,~~; and

~~(formerly Section 14)(i)(i)(F)(III)~~(III) Foundation for Cross-Connection Control and Hydraulic Research, University Of Southern California (USC-FCCCHR).

~~(formerly Section 14(i)(i)(G))~~(G) Backflow prevention devices at water service connections shall be inspected and certified by a certified backflow assembly tester at the time of installation. Certification of the assembly tester shall be by one of the following:

~~(formerly Section 14)(i)(i)(G)(I)~~(I) The American Society of Sanitary Engineers (ASSE)~~,~~; or

~~(formerly Section 14)(i)(i)(G)(II)~~(II) American Backflow Prevention Association (ABPA)~~,~~;

~~(formerly Section 14)(i)(i)(H)~~(H) Backflow prevention devices installed at high hazard non- residential-cross connections shall be inspected and tested on an annual basis by a certified backflow assembly tester.

~~(formerly Section 14(i)(i)(I))~~(I) ~~The administrator may conduct inspections of backflow prevention devices.~~ If any device is found to be defective or functioning improperly, it ~~must~~ shall be immediately repaired or replaced. Failure to make necessary repairs to a backflow prevention device will be cause for the water service connection to be terminated.

~~(formerly Section 14)(i)(i)(J)~~(J) All public water suppliers shall report any high hazard backflow incident within seven ~~(7)~~ days to the ~~Wyoming Department of Environmental Quality, Water Quality~~ Division. The backflow incident shall be reported on a form provided by the ~~a~~Administrator.

~~(formerly Section 14)(i)(ii)~~(ii) ~~Recycling water.~~ Neither steam condensate nor cooling water from engine jackets or other heat exchange devices shall be returned to the public water supply after it has passed through the water service connection.

~~TABLE 1~~ Table 4. Backflow Prevention Devices, Assemblies and Methods

	Degree of Hazard		
	Low Hazard	High Hazard	Notes

Device, Assembly or Method	Back-Siphonage	Back-Pressure	Back-Siphonage	Back-Pressure	
Airgap	X	X	X	X	See Note 1 and Note 2
Atmospheric Vacuum Breaker	X		X		Not allowed under continuous pressure
Spill-proof Pressure-type Vacuum	X		X		
Double Check Valve Backflow Preventer	X	X			
Pressure Vacuum Breaker	X		X		
Reduced Pressure Principle Backflow	X	X	X	X	See Note 2
Dual Check	X				Restricted to residential services

~~(formerly Section 14, Table 1)~~Note 1: Minimum Airgap for Water Distribution. For spouts with an effective opening diameter of ~~one-half~~ ½ inch or less, the minimum airgap when the discharge is not affected by side walls shall be one inch. The minimum airgap when the discharge is affected by sidewalls shall be ~~one-and-one-half~~ 1 ½ inches. For effective openings greater than ~~one-half~~ ½ inch, the minimum airgap shall be two times the effective opening diameter when the discharge is not affected by sidewalls. The minimum airgap when the discharge is affected by sidewalls shall be three times the effective opening diameter.

~~(formerly Section 14, Table 1)~~Note 2: Extreme Hazards. In the case of any water user's system where, in the opinion of the water supplier or the Administrator, an undue health threat is posed because of the presence of extremely toxic substances or potential back pressures in excess of the design working pressure of the device, the water supplier may require an airgap at the water service connection to protect the public water system.

Section 17. Laboratory Requirements.

(a) 2018 TSS, parts 2.8.1-2.8.1(h), testing equipment, is herein incorporated by reference.

~~(formerly Section 15)(a)~~(b) ~~Test procedures.~~ Test procedures for analysis of monitoring samples shall conform to the ~~15th Edition of *Standard Methods for the Examination of Water and Wastewater*~~ Standard Methods for the Examination of Water and Wastewater.

~~(formerly Section 15(b))~~(c) ~~Testing requirements.~~ All treatment plants shall have the capability to perform or contract for the self-monitoring analytical work required by the Safe Drinking Water Act, ~~and/or state regulation~~ 42 U.S.C. §300f et seq. All plants shall, in addition, be capable of performing or contracting the analytical work required to assure good management and control of plant operation and performance.

~~(formerly Section 15(c))~~(d) All laboratories used for the tests, analysis, and monitoring required by this Section shall meet the following ~~Minimum~~ requirements~~.~~:

~~(formerly Section 15(c)(i))~~(i) ~~Location and space.~~ The laboratory shall be located away from vibrating machinery or equipment ~~which~~ that might have adverse effects on the performance of laboratory instruments or the analyst and shall be designed to prevent adverse effects from vibration.

~~(formerly Section 15)(c)(ii)~~(ii) ~~Materials.~~ Walls shall have an easily cleaned, durable and impervious surface. ~~Two exit doors or openings shall be located to permit a straight exit from the laboratory; one exit shall be directly to the outside of the building. Panic hardware shall be used. Interior doors shall have glass windows.~~

~~(formerly Section 15)(c)(iii)~~(iii) ~~Cabinets and bench tops.~~ Cabinet and storage space shall be provided for dust-free storage of instruments and glassware. ~~(formerly Section 15)(c)(iii) Bench top~~ Benchtop height shall be 30 inches ~~(0.91 m)~~. ~~Tops~~ Benchtops ~~should~~ shall be field joined into a continuous surface with acid, alkali, and solvent-resistant cement~~s~~.

~~(formerly Section 15(c)(iv))~~(iv) ~~Hoods.~~ Fume hoods shall be provided where reflux or heating of toxic or hazardous materials is required. A hood shall not be situated near a doorway, unless a secondary means of exit is provided. All fume hood switches, electrical outlets, and utility and baffle adjustment handles shall be located outside the hood. Light fixtures shall be explosion-proof. ~~Twenty-four hour~~ 24-hour continuous exhaust capability shall be provided. Exhaust fans shall be explosion-proof.

~~(formerly Section 15)(c)(v)~~(v) ~~Sinks.~~ The laboratory shall have a minimum of ~~2~~ two sinks per 400 ~~ft^2 (37.2 m^2)~~ square feet (not including cup sinks). Sinks shall be double well with drainboards and shall be made of epoxy resin or plastic. All water fixtures shall ~~be provided with~~ have reduced pressure zone backflow preventers. Traps shall be constructed of glass, plastic, or lead and be accessible for cleaning ~~shall be provided~~.

~~(formerly Section 15)(c)(viii)~~(vi) ~~Water still.~~ Distilled water shall conform to the quality specified by ~~*Standard Methods for the Examination of Water and Wastewater*, 15th Edition~~ Standard Methods for the Examination of Water and Wastewater 2018.

~~(formerly Section 15)(d)~~(e) ~~Portable testing equipment.~~ Portable testing equipment shall be provided where necessary for operational control testing.

Section 18. Operation and Maintenance Manuals.

~~(formerly Section 16(a))~~(a) ~~Where required. Plant operation and maintenance manuals are required for each new or modified treatment or pumping facility.~~ Each new or modified treatment or pumping facility shall have an operation and maintenance manual (O & M Manual) located at the facility.The manuals shall provide the following information as a minimum:

~~(formerly Section 16)(a)(i))~~(i)Introduction~~.~~;

~~(formerly Section 16(a)(ii))~~(ii) Description of facilities and unit processes within the plant from influent structures through effluent structures~~.~~;

(A) The size, capacity, model number (where applicable), and intended loading rate of facilities and unit processes;

(B) A description of each unit, including the function, the controls, the lubrication, and maintenance schedule;

(C) A description of start-up operations, routine operations, abnormal operations, emergency or power outage operations, bypass procedures, and safety;

(D) Flow diagrams of the entire process, as well as individual unit processes that show the flow options under the various operational conditions listed in paragraph (a)(ii) of this Section; and.

(E) The design criteria for each unit process, including the number, type, capacity, sizes, and other relevant information.

~~(formerly Section 16(a)(iii))~~(iii) Plant control system~~.~~;

~~(formerly Section 16)(a)(iv)~~(iv) Utilities and systems~~.~~;

~~(formerly Section 16)(a)(v)~~(v) Emergency ~~operation and response.~~ procedures, including:

(A) Details of emergency operations procedures for possible foreseeable emergencies, such as power outage, equipment failure, development of unsafe conditions, and other emergency conditions;

(B) Emergency operations valve positions, flow control settings, and other information to ensure continued operation of the facility at maximum possible efficiency during emergencies; and

(C) Emergency notification procedures to be followed to protect health and safety under various emergency conditions.

~~(formerly Section 16)(a)(vi)~~(vi) Permit requirements and other regulatory requirements~~.~~;

~~(formerly Section 16)(a)(vii)~~(vii) Staffing needs~~.~~;

~~(formerly Section 16)(a)(viii)~~(viii) Index ~~to~~ of manufacturer's manuals~~.~~;

(ix) Index of equipment maintenance manuals; and

(x) General information on safety in and around the plant and its components, including the following safety information:

(A) Each unit process discussion shall include applicable safety procedures and precautions; and

(B) For unit processes or operations having extreme hazards (such as chlorine and closed tanks), the discussion shall detail appropriate protection, rescue procedures, and necessary safety equipment.

~~(formerly Section 16)(b)~~(b) ~~When required. Acceptance of the final operation and maintenance manuals~~ Administrator approval of the final O & M Manual is required prior to plant startup.

~~(formerly Section 16)(c)(i)~~(c) ~~Each unit. The~~ Public water supply facilities shall have an equipment maintenance manual located at the facility for each piece of equipment. Each equipment maintenance manual shall: ~~describe each unit, including the function, the controls, the lubrication and maintenance schedule. The manual shall also include start-up operations; routine operations; abnormal operations; emergency or power outage operations; bypass procedures; and safety.~~

(i) Have a typewritten table of contents for each volume arranged in a systematic order;

(ii) Include the following general contents:

(A) Product data;

(B) Drawings;

(C) Written text as required to supplement product data for the particular installation;

(D) Copies of each warranty, bond, and service contract issued;

(E) Descriptions of unit and component parts;

(F) Operating procedures;

(G) Maintenance procedures and schedules;

(H) Service and lubrication schedule;

(I) Sequence of control operation;

(J) Parts list; and

(K) Recommended spare parts list.

~~(formerly Section 16(e))~~(iii) ~~Troubleshooting guide. Each equipment maintenance manual shall i~~Include a section on troubleshooting~~.~~ that shall include: ~~These manuals are to be indexed in the plant O & M manual. The troubleshooting guide shall include typical operation problems and solutions. The guide shall include a telephone number for factory troubleshooting assistance.~~

~~(formerly Section 16(e))~~(A) ~~t~~Typical operation problems and solutions~~.~~; and

~~(formerly Section 16(e))~~(B) ~~a~~A telephone number for factory troubleshooting assistance~~.~~; and

~~(formerly Section 16)(h))~~(iv) ~~Maintenance manuals. Maintenance manuals shall be required for each piece of equipment. These manuals must m~~Meet the requirements of the engineer and contractor for installation and startup of equipment. ~~The information included in the manufacturer's manuals shall not be included in the O & M manual.~~

Section 19. Incorporation by Reference.

(a) The following codes, standards, rules, and regulations referenced in this Chapter are incorporated by reference:

(i) American National Standards Institute/National Sanitation Foundation Standard 53, Drinking Water Treatment Units - Health Effects (2019), referred to as "NSF/ANSI 53," available at https://webstore.ansi.org/Standards/NSF/NSFANSI532020;

(ii) American National Standards Institute/National Sanitation Foundation Standard 55, Ultraviolet Microbiological Water Treatment Systems (2020), referred to as "NSF/ANSI 55," available at https://webstore.ansi.org/Standards/NSF/NSFANSI552021;

(iii) American National Standards Institute/National Sanitation Foundation Standard 61, Drinking Water System Components - Health Effects NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021, referred to as "NSF/ANSI/CAN 61-2020/NSF/ANSI/CAN 600-2021," available at https://webstore.ansi.org/Standards/NSF/NSFANSI612021600;

(iv) American National Standards Institute/National Sanitation Foundation Standard 372, Drinking Water System Components-Lead Content 372-20, referred to as "NSF/ANSI/CAN 372-20," available at https://webstore.ansi.org/Standards/NSF/NSFANSI3722020;

(v) American National Standards Institute/National Sanitation Foundation Standard 419, Public Drinking Water Equipment Performance – Filtration, referred to as "NSF/ANSI 419-2018," available at https://webstore.ansi.org/Standards/NSF/NSFANSI4192018;

(vi) American Petroleum Institute Specification 5L, Line Pipe, Forty-Sixth Edition (2019), referred to as "API 5L," available at https://www.techstreet.com/api/standards/api-spec-5l?gateway_code=api&product_id=2010552;

(vii) American Water Works Association Standard A100, Water Wells, A100-20, referred to as "AWWA A100-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/83080725;

(viii) American Water Works Association Standard C200, Steel Water Pipe, 6 In. (150 mm) and Larger, C200-17 (2017), referred to as "AWWA C200," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/63106282;

(ix) American Water Works Association Standard C300, Reinforced Concrete Pressure Pipe, Steel-Cylinder Type, C300-11 (2011), referred to as "AWWA C300," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/59483818;

(x) American Water Works Association Standard C301, Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, C301-14 (2014), referred to as "AWWA C301," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/81647229;

(xi) American Water Works Association Standard C600, Installation of Ductile-Iron Mains and Their Appurtenances, C600-10 (2010), referred to as "AWWA C600," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/25724;

(xii) American Water Works Association Standard C601, AWWA Standard for Disinfecting Water Mains, C601-81 (1981), referred to as "AWWA C601," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/18646;

(xiii) American Water Works Association Standard C652, Disinfection of Water Storage Facilities, C652 (2011), referred to as "AWWA C652," available at ttps://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/81912774;

(xiv) American Water Works Association Standard C900, Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm through 300 mm), for Water Transmission and Distribution, C900-07 (2007), referred to as "AWWA C900," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/18943;

(xv) American Water Works Association Standard C901, Polyethylene (PE) Pressure Pipe and Tubing, 3/4 in. (19 mm) through 3 in. (76 mm), for Water Service, C901- 20 (2020), referred to as "AWWA C901," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/86488411;

(xvi) American Water Works Association Standard C906, Polyethylene (PE) Pressure Pipe and Fittings, 4 in. through 65 In. (100 mm Through 1,650 mm), for Waterworks, C906-21 (2021), referred to as "AWWA C906," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/105341623;

(xvii) American Water Works Association Standard C950, Fiberglass Pressure Pipe, C950-13 (2013), referred to as "AWWA C950," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/34040472;

(xviii) American Water Works Association Standard D100, Welded Carbon Steel Tanks for Water Storage, D100-11 (2011), referred to as "AWWA D100-11," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/28162;

(xvix) American Water Works Association Standard D102, Coating Steel Water-Storage Tanks, D102-17 (2017), referred to as "AWWA D102-21," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/92298590;

(xx) American Water Works Association Standard D103, Factory-Coated Bolted Carbon Steel Tanks for Water Storage, D103-19, referred to as "AWWA D103-19," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/80453600;

(xxi) American Water Works Association Standard D104-17, Automatically Controlled, Impressed-Current Cathodic Protection for the Interior of Steel Water Storage, referred to as "AWWA D104-17," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/65522513;

(xxii) American Water Works Association Standard D106-20, Sacrificial anode Cathodic Protection Systems for the Interior Submerged Surfaces of Steel Water Storage Tanks, referred to as "AWWA D106-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/84700967;

(xxiii) American Water Works Association Standard D107-16, Composite Elevated Tanks for Water Storage, referred to as "AWWA D107-16," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/54635993;

(xxiv) American Water Works Association Standard D108-19, Aluminum Dome Roofs for Water Storage Facilities, referred to as "AWWA D108-19," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/80933896;

(xxv) American Water Works Association Standard D110-13 (R18), Wire- and Strand-Wound, Circular, Prestressed Concrete Water Tanks, referred to as "AWWA D110-13 (R18)," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/72304450;

(xxvi) American Water Works Association Standard D115-20, Tendon-Prestressed Concrete Water Tanks, referred to as "AWWA D115-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/83072907;

(xxvii) American Water Works Association Standard D120-19, Thermosetting Fiberglass-Reinforced Plastic Tanks, referred to as "AWWA D120-19," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/79004100;

(xxviii)American Water Works Association Standard D121-12, Bolted Aboveground Thermosetting Fiberglass Reinforced Plastic Panel-Type Tanks for Water Storage, referred to as "AWWA D121-12," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/29429;

(xxix) American Water Works Association Standard M23-20, PVC Pipe – Design and Installation, Third Edition, M23, referred to as "AWWA M23-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/81145714;

(xxx) American Water Works Association Standard M55-20, PE Pipe-Design and Installation, Second Edition, M55, referred to as "M55-20," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/84701177;

(xxxi) American Water Works Association Manual M42, Steel Water Storage Tanks, 2013, referred to as "AWWA M42," available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/36253113;

(xxxii) American National Standards Institute ASSE Standard 1024, Dual Check Backflow Preventers, ASSE 1024-17 (2017), referred to as "ASSE 1024," available at https://webstore.ansi.org/Standards/ASSE-Sanitary/ASSEStandard10242017;

(xxxiii)ASTM International Standard A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless, A53M-18 (2018), referred to as "ASTM A53, available at https://www.astm.org/a0053_a0053m-18.html;

(xxxiv)ASTM International Standard A134, Standard Specification for Pipe, Steel, Electric-Fusion (Arc)-Welded (Sizes NPS 16 and Over), A134M-18 (2018), referred to as "ASTM A134," available at https://webstore.ansi.org/standards/astm/astma134a134m18;

(xxxv) ASTM International Standard A135, Standard Specification for Electric-Resistance-Welded Steel Pipe, A135M-19 (2019), referred to as "ASTM A135," available at https://webstore.ansi.org/standards/astm/astma135a135m19;

(xxxvi) ASTM International Standard ASTM A139 / A139M – 16, Standard Specification for Electric-Fusion (Arc)-Welded Steel Pipe (NPS 4 and Over), (2016), referred to as "ASTM A139," available at https://www.astm.org/a0139_a0139m-16.html;

(xxxvii) ASTM International Standard A409, Standard Specification for Welded Large Diameter Austenitic Steel Pipe for Corrosive or High-Temperature Service, A409M-15 (2015), referred to as "ASTM A409," available at https://webstore.ansi.org/Standards/ASTM/ASTMA409A409M15;

(xxxviii) ASTM International Standard C12, Standard Practice for Installing Vitrified Clay Pipe Lines, C12-17 (2017), referred to as "ASTM C12," available at https://webstore.ansi.org/standards/astm/astmc1217;

(xxxix) ASTM International Standard C14, Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe, C14-15a (2015), referred to as "ASTM C14," available at https://webstore.ansi.org/standards/astm/astmc1415a?gclid=Cj0KCQiA95aRBhCsARIsAC2xvfxIaQ66MqCuC40LMUwG0WMe0kbvHUvuxW6F3Nc7jy92bGyVdNFHiaoaAo-uEALw_wcB;

(xl) ASTM International Standard C76, Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe, C76-19a (2019), referred to as "ASTM C76," available at https://webstore.ansi.org/Standards/ASTM/ASTMC7619a;

(xli) ASTM International Standard D2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications, D2321-18 (2018), referred to as "ASTM D2321," available at https://webstore.ansi.org/Standards/ASTM/ASTMD232118;

(xlii) ASTM International Standard D2846, Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems, ASTM D2846/D2846M-19A (2019), referred to as "ASTM D2846," available at https://webstore.ansi.org/Standards/ASTM/ASTMD2846D2846M19a;

(xliii) ASTM International Standard D2996, Standard Specification for Filament-Wound "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe, D2996-17 (2017), referred to as "ASTM D2996," available at https://webstore.ansi.org/Standards/ASTM/ASTMD299617;

(xliv) ASTM International Standard D2997, Standard Specification for Centrifugally Cast "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe, D2997-15

(2015), referred to as "ASTM D2997," available at https://webstore.ansi.org/Standards/ASTM/ASTMD299715;

(xlv) ASTM International Standard D3517, Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pressure Pipe, D3517-19 (2019), referred to as "ASTM D3517," available at https://webstore.ansi.org/Search/Find?in=1&st=ASTM+D3517-19;

(xlvi) ASTM International Standard F480, Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80, F480-14 (2014), referred to as "ASTM F480," available at https://webstore.ansi.org/Standards/ASTM/ASTMF48014;

(xlvii) ASTM International Standard F645, Standard Guide for Selection, Design, and Installation of Thermoplastic Water- Pressure Piping Systems, ASTM F645-18b, (2018), referred to as "ASTM F645," available at https://webstore.ansi.org/Standards/ASTM/ASTMF64518b;

(xlviii) ASTM International Standard F877, Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems, ASTM F877-20, (2020), referred to as "ASTM F877," available at https://webstore.ansi.org/Standards/ASTM/ASTMF87720;

(xlix) ASTM International Standard F2389, Standard Specification for Pressure-rated Polypropylene (PP) Piping Systems, ASTM F2389-21, (2021), referred to as "ASTM F2389," available at https://webstore.ansi.org/Standards/ASTM/ASTMF238921;

(l) ASTM International Standard F2806, Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe (Metric SDR-PR), ASTM F2806-20, (2020), referred to as "ASTM F2806," available at https://webstore.ansi.org/Standards/ASTM/ASTMF280620;

(li) ASTM International Standard F2855, Standard Specification for Chlorinated Poly(Vinyl Chloride)/Aluminum/Chlorinated Poly(Vinyl Chloride) (CPVC-AL-CPVC) Composite Pressure Tubing ASTM F2855-19, (2019), referred to as "ASTM F2855," available at https://webstore.ansi.org/Standards/ASTM/ASTMF285519;

(lii) ASTM International Standard F2969,Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) IPS Dimensioned Pressure Pipe ASTM F2969-12(2020), (2020), referred to as "ASTM F2969," available at https://webstore.ansi.org/Standards/ASTM/ASTMF2969122020;

(liii) Standard Methods for the Examination of Water and Wastewater, published by American Public Health Association, American Water Works Association, and Water Environment Federation, 23rd Edition (2018), referred to as "Standard Methods for the

Examination of Water and Wastewater 2018, available at https://engage.awwa.org/PersonifyEbusiness/Store/Product-Details/productId/65266295;

(liv) Code of Federal Regulations 40 CFR Part 141, in effect as of July 1, 2011, available at: http://www.ecfr.gov;

(lv) Code of Federal Regulations 40 CFR 143.3, in effect as of July 1, 2021; available at: http://www.ecfr.gov;

(lvi) Code of Federal Regulations 40 CFR 173.3(e), in effect as of November 7, 2018, available at: http://www.ecfr.gov;

(lvii) United States Department of Agriculture, Natural Resources Conservation Service, Part 631 National Engineering Handbook, Chapter 32 Well Design and Spring Development, Part 631.3201(b)(iii), in effect as of January 2010, referred to as "USDA NRCS Part 631 National Engineering Handbook," available at https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=26985.wba;

(lviii) Recommended Standards for Water Works, published by Great Lakes Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, (2018), referred to as "2018 TSS," available at https://www.mngovpublications.com/catalog/Default.asp?CatalogID=21656&Provider_ID=1241868;

(lix) United States Environmental Protection Agency, Long Term 2 Enhanced Surface Water Treatment Rule Toolbox Guidance Manual, 2010, referred to as "Toolbox Guidance Manual," available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1009JLI.txt;

(lx) United States Environmental Protection Agency, Ultraviolet Disinfection Guidance Manual For The Final Long Term 2 Enhanced Surface Water Treatment Rule, 2006, referred to as "Ultraviolet Disinfection Guidance Manual for the Final LT2ESWTR," available at https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=600006T3.txt; and

(lxi) United States Environmental Protection Agency, Membrane Filtration Guidance Manual, 2005, referred to as "US EPA Membrane Filtration Guidance Manual,"available at https://nepis.epa.gov/Exe/ZyNET.exe/P1008S15.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2006+Thru+2010&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C06thru10%5CTxt%5C00000021%5CP1008S15.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL.

(b) For these codes, standards, rules, and regulations incorporated by reference:

(i) The Environmental Quality Council has determined that incorporation of the full text in these rules would be cumbersome or inefficient given the length or nature of the rules.

(ii) This Chapter does not incorporate later amendments or editions of incorporated codes, standards, rules, and regulations.

(iii) All incorporated codes, standards, rules, and regulations are available for public inspection at the Department's Cheyenne office. Contact information for the Cheyenne office may be obtained at http://deq.wyoming.gov or from (307) 777-7937.

BEFORE THE
ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

IN THE MATTER OF REVISIONS TO WATER QUALITY RULES AND REGULATIONS: CHAPTER 12, DESIGN AND CONSTRUCTION STANDARDS FOR PUBLIC WATER SUPPLIES	**)** **)** **)** **)** **)**	**STATEMENT OF PRINCIPAL REASONS FOR ADOPTION**

INTRODUCTION

The Environmental Quality Council, pursuant to the authority vested in it by Wyoming Statute (W.S.) § 35-11-112 (a)(i), has adopted revisions to Wyoming Water Quality Rules: Chapter 12, Design and Construction Standards for Public Water Supplies.

The Department of Environmental Quality, Water Quality Division reduced inefficiencies within Chapter 12 by incorporating specific sections of the Recommended Standards for Water Works, 2018 Edition, by reference, in accordance with W.S. § 16-3-103(h).

The adopted revisions include new paragraphs that require public water supplies that propose acidization to submit plans that describe existing wells in the proposed area, mitigation plans, local geology, and placement and integrity of the annular seal and casing of the well so that the Water Quality Division may ensure the acidization activities do not negatively impact underground sources of drinking water that are in the vicinity of the proposed activities.

The adopted revisions also include the addition of requirements for treatment technologies, including ultraviolet and membrane technologies, that have become widely used since the chapter was originally promulgated in 1985.

Finally, the adopted revisions include the correction of outdated references, formatting, numbering, and grammar errors; the removal of metric units that are redundant to English units; the removal of introductory statements that are redundant to passages that follow the removed statements; the removal of requirements that are not within the statutory authority of the Water Quality Division; the reorganization of sections to group passages with other similar passages; the reorganization of passages to clarify requirements; and the addition of a new section that identifies the information incorporated by reference, in accordance with W.S. § 16-3-103(h).

The Council finds that these regulations are reasonable and necessary to accomplish the policy and purpose of the Act, as stated in W. S. § 35-11-102, and that they have been promulgated in accordance with rulemaking provisions of the Wyoming Administrative Procedure Act.

Dated this _____ day of _____, 2022.

_____	_____
Hearing Examiner – ***Printed Name***	Hearing Examiner – **Signed Name**
Wyoming Environmental Quality Council	Wyoming Environmental Quality Council

Department of Environmental Quality

To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Mark Gordon, Governor

Todd Parfitt, Director

TO: Honorable Mark Gordon, Governor

FROM: Todd Parfitt, Director
Department of Environmental Quality

SUBJECT: Proposed Rules for Wyoming Department of Environmental Quality, Water Quality, Chapter 12

DATE: August 15, 2022

PRIORITY: **HIGH**–Deadline for response is **August 29, 2022**

SUMMARY: The Department is proposing to amend Chapter 12, Design and Construction Standards for Public Water Supplies by adding new requirements for public water supplies that propose well acidization, updating water treatment technologies passages, and incorporating by reference the Recommended Standards for Water Works, 2018 Edition. Specific information on the changes can be found in the Statement of Principal Reasons and the accompanying supporting documentation.

AGENCY CONTACT NAME: Keenan Hendon

AGENCY CONTACT PHONE: (307) 777-7075

AGENCY CONTACT EMAIL: keenan.hendon2@wyo.gov

Governor's Response Options (to be completed by Governor's Office):

✓ Agency may proceed.

_____ Delay public comment and set up meeting with

Kat Wendtland 8/19/22

Signature: Governor's Counsel

Notice of Intent to Adopt Rules

A copy of the proposed rules may be obtained at https://rules.wyo.gov

Revised June 2020

1. General Information

a. Agency/Board Name*: Environmental Quality

b. Agency/Board Address: 200 W 17th St | c. City: Cheyenne | d. Zip Code: 82001

e. Name of Agency Liaison: Keenan Hendon | f. Agency Liaison Telephone Number: 777-7075

g. Agency Liaison Email Address: keenan.hendon2@wyo.gov

h. Date of Public Notice: 9/1/22 | i. Comment Period End Date: 5/31/22

j. Public Comment URL or Email Address: http://wq.wyomingdeq.commentinput.com/

k. Program: Water Quality

Amended Program Name (*if applicable*):

* ☐ *By checking this box, the agency is indicating it is exempt from certain sections of the Administrative Procedure Act including public comment period requirements. Please contact the agency for details regarding these rules.*

2. Legislative Enactment

For purposes of this Section 2, "new" only applies to regular non-emergency rules promulgated in response to a Wyoming legislative enactment not previously addressed in whole or in part by prior rulemaking and does not include rules adopted in response to a federal mandate.

a. Are these non-emergency regular rules new as per the above description and the definition of "new" in Chapter 1 of the Rules on Rules?

☒ No. ☐ Yes. If the rules are new, please provide the Legislative Chapter Numbers and Years Enacted (e.g. 2015 Session Laws Chapter 154):

3. Rule Type and Information

For purposes of this Section 3, "New" means an emergency or regular rule that has never been previously created.

a. Provide the Chapter Number, Title and Proposed Action for Each Chapter. *Please use the "Additional Rule Information" form to identify additional rule chapters.*

Chapter Number	Chapter Name	
12	Design and Construction Standards	☐ New ☒ Amended ☐ Repealed
	Amended Chapter Name (*if applicable*): Design and Construction Standards for Public Water Supplies	
		☐ New ☐ Amended ☐ Repealed
	Amended Chapter Name (*if applicable*):	
		☐ New ☐ Amended ☐ Repealed
	Amended Chapter Name (*if applicable*):	
		☐ New ☐ Amended ☐ Repealed
	Amended Chapter Name (*if applicable*):	
		☐ New ☐ Amended ☐ Repealed
	Amended Chapter Name (*if applicable*):	
		☐ New ☐ Amended ☐ Repealed
	Amended Chapter Name (*if applicable*):	

4. Public Comments and Hearing Information

a. A public hearing on the proposed rules has been scheduled. ☐ No. ■ Yes. Please complete the boxes below.

Date:	Time:	City:	Location:
11/15/22	9:00 a.m.	Cheyenne	Capitol Extension Public Meeting Room 5, Herschler Building, 122 W. 25th Street

b. What is the manner in which interested persons may present their views on the rulemaking action?

☐ By submitting written comments to the Agency at the physical and/or email address listed in Section 1 above.

■ At the following URL: http://wq.wyomingdeq.commentinput.com/

A public hearing will be held if requested by 25 persons, a government subdivision, or by an association having not less than 25 members. Requests for a public hearing may be submitted:

■ To the Agency at the physical and/or email address listed in Section 1 above.

☐ At the following URL: _____

c. Any person may urge the Agency not to adopt the rules and request the Agency to state its reasons for overruling the consideration urged against adoption. Requests for an agency response must be made prior to, or within thirty (30) days after adoption, of the rule, addressed to the Agency and Agency Liaison listed in Section 1 above.

5. Federal Law Requirements

a. These rules are created/amended/repealed to comply with federal law or regulatory requirements. ■ No. ☐ Yes. Please complete the boxes below.

Applicable Federal Law or Regulation Citation:

Indicate one (1):

☐ The proposed rules meet, but do not exceed, minimum federal requirements.

☐ The proposed rules exceed minimum federal requirements.

Any person wishing to object to the accuracy of any information provided by the Agency under this item should submit their objections prior to final adoption to:

☐ To the Agency at the physical and/or email address listed in Section 1 above.

☐ At the following URL: _____

6. State Statutory Requirements

a. Indicate one (1):

■ The proposed rule change *MEETS* minimum substantive statutory requirements.

☐ The proposed rule change *EXCEEDS* minimum substantive statutory requirements. Please attach a statement explaining the reason that the rules exceed the requirements.

b. ■ The Agency has completed a takings assessment as required by W.S. 9-5-304. A copy of the assessment used to evaluate the proposed rules may be obtained:

■ By contacting the Agency at the physical and/or email address listed in Section 1 above.

☐ At the following URL: _____

7. Additional APA Provisions

a. Complete all that apply in regards to uniform rules:

☒ These rules are not impacted by the uniform rules identified in the Administrative Procedure Act, W.S. 16-3-103(j).

☐ The following chapters do not differ from the uniform rules identified in the Administrative Procedure Act, W.S. 16-3-103(j):

_____

(Provide chapter numbers)

☐ These chapters differ from the uniform rules identified in the Administrative Procedure Act, W.S. 16-3-103(j) (see Statement of Principal Reasons).

_____

(Provide chapter numbers)

b. Checklist

☒ The Statement of Principal Reasons is attached to this Notice and, in compliance with Tri-State Generation and Transmission Association, Inc. v. Environmental Quality Council, 590 P.2d 1324 (Wyo. 1979), includes a brief statement of the substance or terms of the rule and the basis and purpose of the rule.

☐ If applicable: In consultation with the Attorney General's Office, the Agency's Attorney General representative concurs that strike and underscore is not required as the proposed amendments are pervasive (Chapter 3, *Types of Rules Filings*, Section 1, Proposed Rules, of the Rules on Rules).

8. Authorization

a. I certify that the foregoing information is correct.

Printed Name of Authorized Individual	Todd Parfitt
Title of Authorized Individual	Director
Date of Authorization	

TAKINGS CHECKLIST

	CRITERIA	YES	NO
1.	Does the action affect private property? (If no, no further inquiry is necessary.)	X	
2.	Is the action mandated by State or federal law? (If yes, go to question 3. If no, go to question 4.)		X
3.	Does the proposed action advance a statutory purpose?		
4.	Does the action result in permanent occupation of private property?		X
5.	Does the action require the property owner to dedicate property or grant an easement?		X
6.	Does the regulatory action interfere with the owner's investment-backed expectations?		X
7.	Does the character of the government action balance the public interest and private burdens?	X	
8.	Does the action deprive the owner of all economically viable uses of the property?		X
9.	Does the action have a significant impact on the landowner's economic interest?		X
10.	Does the action deny the owner a fundamental attribute of ownership?		X
11.	Does the action serve the same purpose that would be served by directly prohibiting use of the land?		X
12.	Could the problem which has necessitated the action be addressed in a less restrictive manner?		X

If these questions are answered yes, legal counsel should be consulted, for it is possible the proposed action will be a taking.

Water Quality Rules and Regulations Chapter 12
Takings Checklist Analysis for Proposed Revisions

1. *Does the action affect private property?* Yes. The proposed revisions to Chapter 12 may indirectly impact private property in that the revisions may impact the conditions placed on public water supplies that are privately owned.

2. *Is the action mandated by State or federal law?* No. The action is not mandated. The action is intended to ensure that public water supply well acidization activities are properly conducted and do not negatively impact underground sources of drinking water that are in the vicinity of the proposed activities, in cases of public water systems that intend to acidize new wells during well completions. The action is intended to update existing regulations pertaining to public water systems.

4. *Does the action result in permanent occupation of private property?* No. The proposed revisions do not require the design or construction of public water systems.

5. *Does the action require the property owner to dedicate property or grant an easement?* No. The chapter does not dictate the specific placement of public water systems on private property nor does it require easements.

6. *Does the regulatory action interfere with the owner's investment-backed expectations?* No. The design and construction standards that applicants must comply with in order to obtain a permit are not prohibitive.

7. *Does the character of the government action balance the public interest and private burdens?* Yes. The purpose of Wyoming Statute § 35-11-302 as declared by the Wyoming legislature is "to prescribe standards for the issuance of permits for construction, installation, modification or operation of any public water supply and sewerage system, subdivision water supply, treatment works, disposal system or other facility, capable of causing or contributing to pollution.

8. *Does the action deprive the owner of all economically viable uses of the property?* No. The revisions do not prescribe any proposed uses of the property.

9. *Does the action have a significant impact on the landowner's economic interest?* No. The revisions do not reduce or eliminate reasonable profitable uses of the property nor do they contribute to a severe reduction in property value.

10. *Does the action deny the owner a fundamental attribute of ownership?* No. The revisions do not deny property owners of the right to possess, exclude others, or dispose of all or a portion of their property.

11. *Does the action serve the same purpose that would be served by directly prohibiting use of the land?* No. Directly prohibiting use of the land would be much more restrictive than the proposed revisions.

12. *Could the problem which has necessitated the action be addressed in a less restrictive manner?* No. Less restrictive provisions could potentially endanger human health, the environment, or private property rights.

MEMORANDUM

TO: Nicole Budine, Wyoming Assistant Attorney General

FROM: Jennifer Zygmunt, Water Quality Division Administrator

DATE: July 25, 2022

PRIORITY: **HIGH** – Deadline for response is **August 8, 2022**

SUBJECT: **Request for review of proposed rules for statutory authority**

The Department of Environmental Quality (DEQ), Water Quality Division (WQD) is seeking a statutory authority review of proposed revisions to Water Quality Rules Chapter 12, Design and Construction Standards for Public Water Supplies. WQD is proposing to incorporate specific sections of the Recommended Standards for Water Works, 2018 Edition by reference; add new paragraphs that require public water supplies that propose acidization to submit plans that describe existing wells in the proposed area, mitigation plans, local geology, and placement and integrity of the annular seal and casing of the well so that the Department of Environmental Quality, Water Quality Division may ensure the acidization activities do not negatively impact underground sources of drinking water that are in the vicinity of the proposed activities; add requirements for treatment technologies, including ultraviolet and membrane technologies; correct outdated references, formatting, numbering, and grammar errors; remove requirements that are not within the statutory authority of the Water Quality Division; reorganize passages to clarify requirements; and add a new section that identifies the information incorporated by reference, in accordance with W.S. § 16-3-103(h).

WQD took public comment on the proposed rules between November 5, 2021 and February 14, 2022. WQD) presented the proposed revisions to Chapter 12 to the Water and Waste Advisory Board (WWAB) at meetings held on December 21, 2021, March 15, 2022, and May 3, 2022. On May 3, 2022 the WWAB voted 2-2 on a motion to move the proposed rule forward to the Environmental Quality Council (EQC). DEQ Director Parfitt has advised WQD to proceed with plans to present the revisions to the EQC at their November 15, 2022 hearing.

WQD has reviewed the requirements of W.S. 35-11-302(a)(iii) and (vi) of the Act and has determined this rulemaking to be in procedural compliance with the statute. WQD has reviewed and responded to the Takings Checklist provided by the Attorney General's Office. WQD requests a response as noted below regarding the review of the proposed rules for statutory authority. Once WQD receives your response, we will proceed as appropriate.

Per the Attorney General's Rules Handbook, you will find enclosed:

- A copy of the draft memo to Governor Gordon
- A copy of the draft Statement of Principal Reasons for Adoption
- A copy of Chapter 12 in strike and underline format
- A copy of Chapter 12 in clean format
- A response to the Attorney General's Takings Checklist.

If you have any questions or need additional information regarding the proposed rules please contact me or Keenan Hendon of my staff.

Attorney General's Response Options:

X — Proposed Rules are within the Division's statutory authority, may seek permission to proceed from the Governor's Office.

_____ — Proposed rules exceed statutory authority, delay proceeding with rulemaking

Nicole Budine — 8/4/2022

Signature: Nicole Budine — Date

JZ/gjt

TO: Honorable Mark Gordon, Governor

FROM: Todd Parfitt, Director
Department of Environmental Quality

SUBJECT: Supplemental Information Related to Proposed Rules for Wyoming Department of Environmental Quality, Water Quality, Chapter 12

DATE: August 15, 2022

PRIORITY: **HIGH**–Deadline for response is **August 29, 2022**

AGENCY CONTACT NAME: Keenan Hendon

AGENCY CONTACT PHONE: (307) 777-7075

AGENCY CONTACT EMAIL: keenan.hendon2@wyo.gov

SUPPLEMENTAL INFORMATION: As noted in the request for approval to proceed with rulemaking, the Department is proposing to amend Chapter 12, Design and Construction Standards for Public Water Supplies. The following supplemental information summarizes the Water Quality Division's (WQD) determination that consultation and advice of the Water and Waste Advisory Board (WWAB) under Wyoming Statutes (W.S.) § 35-11-114(b) has been satisfied in order to proceed with the associated request for approval to begin formal rulemaking.

The WQD presented revisions to Chapter 12 to the WWAB three times, at meetings held on December 21, 2021, March 15, 2022, and May 3, 2022. At the May 3, 2022 meeting, the WWAB voted 2-2 on a motion to move the proposed rule forward to the Environmental Quality Council (EQC).

The two board members opposed to the motion expressed concern that the proposed revisions contained incorrect and unclear references. In response, the WQD has carefully considered these concerns and has conducted an additional review of the proposed rule to ensure the use of correct references and to clarify incorporation by reference language. The WQD will include these non-substantive revisions in the rulemaking materials submitted to the Environmental Quality Council.

The two board members opposed to the motion also felt another public comment opportunity associated with the WWAB's review was warranted. The WQD has considered this advice but does not agree that an additional public comment period would add value at this time because of the substantive public outreach already conducted: the WQD held an informal public outreach comment period in October 2020; the proposed rule was available for public comment for a total of 130 days in association with the WWAB meetings; the WQD responded in writing to all comments received during the public comment opportunity and contacted each commenter individually to ensure comments were understood and

addressed; and the WQD hosted a webinar to provide an overview of the proposed rule and answer questions from the public. Only one member of the public provided comments during the March 2022 meeting, and, during that meeting, the WWAB advised the WQD that another public comment period would not be necessary if the WWAB had an additional meeting to review the rule.

Upon receipt of the Governor's Office approval to proceed with formal rulemaking, the WQD will provide a 45-day public comment opportunity prior to the EQC hearing, in accordance with W.S. § 16-3-103(a)(i). Additionally, the WQD will provide the EQC with all WWAB comments to ensure EQC members are informed of the concerns raised by members of the WWAB.

The WWAB has consulted and advised the WQD Administrator on the entirety of the proposed rule and that advice has been thoroughly considered and incorporated as appropriate by the WQD Administrator. It is the WQD's determination that the WWAB has satisfied its statutory requirement to advise the Administrator on the proposed rule, per W.S. § 35-11-114(b).

Finally, it is important to update the chapter in a timely manner to ensure public water systems are constructed and modified in accordance with current standards, specifications, and treatment technologies. With the state poised to potentially receive over $413 million for drinking water infrastructure projects over the next five years under the Bipartisan Infrastructure Law, it is particularly important to ensure we are operating under up-to-date standards and specifications to support defensible and consistent decision-making to protect public health and to give the regulated community current information to support long-term planning and avoid compliance issues.

JZ/KH/GJT

WYOMING WATER AND WASTE ADVISORY BOARD

RE: Water Quality Rules, Chapter 12

TRANSCRIPT OF WWAB HEARING PROCEEDINGS

Pursuant to notice duly given to all parties in interest, this matter came on for hearing on the 21st day of December, 2021, at the hour of 10:31 a.m., at the Capitol Extension Room 4, Herschler Building, 122 West 25th Street, Cheyenne, Wyoming before the Wyoming Water and Waste Advisory Board. Mr. Alan Kirkbride, Chairman, presiding, with Mr. James Cochran in attendance, and Mr. Brian Deurloo, Ms. Lorie Cahn, and Brian Dickson also in attendance virtually.

Ms. Nicole Budine, Attorney for the Board, present virtually; Ms. Jennifer Zygmunt, Water Quality Administrator; Mr. Bill Tillman, SRF Principal Engineer; Mr. Keenan Hendon, Water and Waste Water Section Manager; and Ms. Gina Thompson, Water Quality Division, were also in attendance, as well as various members of the public.

P R O C E E D I N G S

(Hearing proceedings commenced 10:31 a.m., December 21, 2021.)

CHAIRMAN KIRKBRIDE: I think we're present and accounted for. I don't see anybody else clamoring at the door here, so why don't we start.

Would you like to --

MS. ZYGMUNT: Thank you, Mr. Chairman, Members of the Board. We are pleased to be here today to present our revised Chapter 12 to you, the Wyoming Water Quality Rules.

My name is Jennifer Zygmunt. I'm the Administrator of the Water Quality Division appointed in August. And with me today I have Bill Tillman, who is our SRF Principal Engineer. Bill works primarily in the SRF program, but also extensively with rules and also enforcement actions.

I will note that Bill is retiring on December 29th. He's been with us a long time, so we will miss him. I know he's worked with the Board on many rule packages. I just wanted to pass that news on and let you know how much we appreciate Bill and all of his efforts over the years.

And I'm also pleased to introduce Keenan Hendon to the Board. Keenan is our new Water and Wastewater

Section Manager. He joined us in August, I believe.

MR. HENDON: August.

MS. ZYGMUNT: He took over for Rich Cripe, who left the DEQ in May. So we're very pleased to have Keenan on board. He brings a lot of great experience from other state agencies, including Water Development and State Lands.

So I'll start with a brief overview of why we're here today, the purpose of the rule, the revisions that we've made, and then I'll turn it over to Bill and Keenan to walk through the rule revisions in detail and also through the public comments we received on this rule.

Chapter 12 establishes a design and construction standards for public water supplies. Entities that wish to construct, install or modify public water supply need to meet these standards when they're applying for a permit to construct under Chapter 3 of our rules.

And as a quick reminder, Wyoming doesn't have primacy for many of the drinking water regulatory programs under the Safe Drinking Water Act. EPA Region 8 directly implements the Public Water System Supervision Program in Wyoming, which includes things such as developing regulations for drinking water protection, managing compliance with those regulations and conducting sanitary surveys. But we, Wyoming DEQ, issues the permits to

construct these facilities, so it's important that we work with EPA on these standards to make sure that communities can remain in compliance with both EPA's regulatory programs and our regulatory programs. So there are areas of overlap, and you'll hear some of those later today in our presentation and some of the public comments.

So why are we revising Chapter 12 now? First, it hasn't been updated in quite some time. We first promulgated this rule in 1984. It was updated in 2003, 2006 and 2012. But those are very minor revisions and only tackle either cross-reference updates or specific subsections. So, in essence, it's about 4 years -- 40 years since Chapter 12 has had a complete reevaluation.

As you can imagine, in 40 years technology has changed, and it's important to incorporate the modern technologies for drinking water treatment into our rules to make sure that communities have up-to-date options for drinking water protection in the state. In particular, you'll see updates related to ultraviolet treatment and membrane technology.

Third, we're going to talk about incorporation by reference. And I appreciate some of the comments that we heard in the previous Division's presentation this morning. But we have done quite a bit of incorporation by reference into this chapter, and that did start under Governor Mead's

initiative in 2013 to streamline our rules. So we've incorporated the 10 States Standards into the rule. It's also known as the Recommended Standards for Waterworks. 10 States Standards is the short name, which we -- which you'll hear a lot.

We do understand that there are pros and cons to incorporation by reference, and we'll look forward to some discussions and questions on that. We'll be happy to provide some more perspective.

You know, even though that initiative came out under Governor Mead's administration, I do feel that streamlining and efficiency's important under any administration, so it is my goal as administrator to make as good of a product as we can for the regulatory community. And I do feel incorporation by reference is the way to go. However, it's my responsibility to recommend these rules to our director after consultation with the advisory board. So we will take feedback on that aspect of the rule. And, again, we do recognize that there are pros and cons to going that route.

We have been able to reduce this rule by about 10 pages from the previous version due to the incorporation by reference. I will note that if we put in the standards -- this is a copy of the 10 States Standards. It's 144 pages. So if we incorporated the language back in, we would see

significant increases to this rule. So something to consider.

Fourth, another major revision to Chapter 12 is that we've added requirements for public water supplies that are proposing acidization to submit detailed information about wells in the area and geologic conditions in the area to make sure that those acidization activities aren't affecting underground sources of drinking water.

And this came about due to special -- a special investigation in the state a few years ago. And while acidization didn't end up being the cause of the water quality concerns, it did point out some areas where we could strengthen our rules to make sure groundwater was being protected.

And then, finally, this rule has undergone our Attorney General edits for streamlining, consistency and clarity per their directive to review all our rules. I know that you're now becoming familiar with seeing those edits and that they can be quite overwhelming when you're looking at them in a strike and underline version.

I think Gina has done a great job trying to digest what the actual changes are, even pointing out where we're just moving information versus where we've actually added language or removed language. So, again, we know that can be a lot to understand and track changes, and we'd

be happy to answer questions today to help understand what were Attorney General edits and what were removal of language or addition of language.

And I do feel, even though they're challenging, the Attorney General edits are leading to better rules products for our Division, so we've enjoyed working with the Attorney Generals to make those edits.

So we do recognize these are extensive updates to this chapter. Again, it's been 40 years -- almost 40 years since we've given this chapter a comprehensive look. It has been a significant undertaking for staff. We have been working on this rule about five to six years.

Staff turnover within the Division has also been a challenge. So I would just like to thank the staff who have worked on this chapter over the years to get it to this point where we're ready to present it to you today.

I'll also note that we originally brought this rule to you in 2019. At that time we had only proposed revisions for well acidization. The Board proposed -- or advised us to move forward to the EQC at that time. Between the Advisory Board meeting and the EQC meeting, we have further edits through our Attorney General's Office. And understandably that caused quite a bit of concern with our stakeholders, so at that time we opted to withdraw the rulemaking and start over and have incorporated the broader

revisions we are bringing before you today.

So we know this is an important rule to the state. Many entities are very interested in that rule -- our public water systems, municipalities, private engineering firms, the Wyoming Association of Rural Water Systems, also known as WARWS, and other stakeholders. We did informal outreach for this chapter in October of 2020, and worked with WARWS and one private engineering firm to incorporate feedback at that time, and we appreciate their comments.

As you saw in your handouts, we had ample public comments on this chapter, again which reflects a high interest from the regulated community and other stakeholders in these standards. We received over a hundred comments from eight different entities. Most of those were received during the 30-day public notice period that started on November 5th. We did also receive two comment letters yesterday on Monday and staff did a great job working very hard yesterday to respond to those comments. So what we're presenting to you today are responses to all hundred-plus comments that we received on this rule.

The comments addressed some important aspects that we'll hear you about today. Again, I do look forward to more conversation on incorporation by reference and some

other specific topics that are important subjects to discuss when we talk about design and construction standards for public water supplies.

So with that, unless anybody has any questions for me, I'll turn it over to Bill.

Yes, Mr. Chairman.

CHAIRMAN KIRKBRIDE: Yes, I have a question about the 10 States Standards. What are those 10 states? Are they regional? Are they -- and then what -- are they a division of the EPA, or do they have -- what authority do they make decisions? And do we -- does Wyoming have input somewhat on these?

MS. ZYGMUNT: Yes, thank you, Mr. Chairman. That's a good question. I'm actually going to defer that to Bill or to Keenan to talk about what the 10 States Standards are.

CHAIRMAN KIRKBRIDE: Okay. That's all I had. Anybody else got some general, for Ms. Zygmunt, questions? Okay.

BOARD MEMBER DEURLOO: Mr. Chairman, I do have one question, if you don't mind.

CHAIRMAN KIRKBRIDE: Yes. Go ahead, Brian.

BOARD MEMBER DEURLOO: Thank you.

Hi, Jennifer. Thank you for that overview. Just a question for -- what sort of input do -- does your

staff -- or the people that have to implement these rules for Chapter 12, what district people, or even in Cheyenne, set up members of the DEQ, what sort of input process do you have as you roll this out to your staff statewide? And what kind of timing do you give them and -- if you can kind of just go through that process and how you get your staff involved, please.

MS. ZYGMUNT: Yes. Mr. Chairman. Board Member Deurloo, thank you for the question. It's a good one. Again, this has been a long-term effort for the Division. Again, we've been working on this five to six years. It's gone through ample internal review with our staff, including Bill and other district engineers in the Cheyenne office and across the state.

As I mentioned, we did do informal outreach in October 2020, where we sent the scope of revisions that we were thinking about to interested parties, including all of our public water systems, Wyoming Association of Rural Water Systems, and asked for feedback at that time. Again, at that time, we can received comments from WARWS and one private engineering firm.

And so while I think folks have been aware that we've been working on Chapter 12, I think this past 30-day public comment period, again that started on November 5th, is really the major public comment opportunity that folks

have had to look at the final draft rule and provide comments.

After -- or during the public notice period, we did reach out to WARWS and had a targeted conversation with them about some of the revisions that we made and addressing certain subjects. And then also we had a targeted conversation with EPA to gain some of their feedback and go over some of the revisions that we had made.

So, again, we have been doing outreach at the beginning of the rule, and now during the public comment period for the rule. And if the Board advises us to move forward to the EQC during this meeting, there would be another public comment opportunity prior to the EQC meeting.

Does that answer the question, Board Member Deurloo?

BOARD MEMBER DEURLOO: Yes. Thank you, Ms. Zygmunt. I appreciate that.

So do you -- yeah, you said that in your introduction. Thanks for repeating some of that information.

Do you feel that it's -- people saw this like -- and they saw the 2020 -- people had a -- a -- had time to look at 20- -- or 2019 and 2020. Do you feel that from

this last month of public comment that people are waking up or getting a lot more comments saying this is real and it's getting close to the end? I don't know. I'm just kind of looking for your feelings for why are we having so many comments in this last 30 days where we hardly had any input in the last two years? If you can speak to that a bit.

MS. ZYGMUNT: Yes. Mr. Chairman. Board Member Deurloo, it's a good question. I don't know that I have a good answer to that.

However, Mr. Chairman, if I can turn it over to Mr. Tillman, I think he has some more input that may help answer the question.

MR. TILLMAN: This is Bill Tillman, again, SRF Principal Engineer, as well as rules and enforcement.

And over the past couple years I think part of the reason why we probably didn't get comments is that we were still working on the draft internally.

And speaking to some of your questions, Board Member Deurloo. Through the draft process, we -- as we were drafting it, we spent time at each of the district offices in different sections talking about the contents, things they liked, didn't like, things that they weren't getting, as far as when we were receiving applications for particular projects, things that were missing.

So throughout the drafting process of all the

different sections, we interacted with each of the staff members in their district offices and individually fielded comments from them regarding, you know, changes that we were making. So I guess throughout the last five or six years, we've kind of hashed this out internally, you know, over and over again.

Now, the fact that we received quite a few comments over the last 30 days, particularly the last few days, in addition to those, I think that just speaks to people's concerns, people's interests. I don't think that the two years previous had any bearing on that, because they didn't have any product to look at. It wasn't available to them. We were still, I guess, working on it internally. So that speaks to their lack of comments over the last few years. But I believe that the comments we did receive were fairly spread out. Some of them were more on format and content. I believe that the EPA was -- in particular, they had more comments on individual technologies and specifics within the treatment sections. But overall, I believe the comments were fairly spread out across the board as far as different interests, the people exposed, I guess, their concerns with what we were doing.

Hopefully that answers your question, Board Member Deurloo.

BOARD MEMBER DEURLOO: Thank you,

Mr. Tillman. I appreciate that.

Mr. Chairman, I have no further questions at this time.

CHAIRMAN KIRKBRIDE: Anyone else?

All right. Ma'am, you may proceed.

MS. ZYGMUNT: Thank you, Mr. Chairman. Would you like us to follow up on your question about the 10 States Standards first before we go into the rules?

CHAIRMAN KIRKBRIDE: Yeah. If you want to.

MR. HENDON: Absolutely. Keenan Hendon, Wyoming -- or Wyoming DEQ, the Water/Wastewater Section Manager.

So the Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, that's -- that is the entity or the group, the board, that works together to provide the recommended standards for waterworks. And they're comprised -- they started off in 1950. Excuse me.

BOARD MEMBER CAHN: Excuse me.

MR. HENDON: Yes.

BOARD MEMBER CAHN: For some reason you're breaking up. So maybe if you could speak closer to the microphone, that might help.

MR. HENDON: Is this a little bit better?

BOARD MEMBER CAHN: Fantastic.

MR. HENDON: All right. Perfect.

So the Great Lakes-Upper Mississippi River Board of State and Provincial Health and Environmental Managers started off in 1950. Excuse me. They had met subsequently over the years. Most recently they've prepared this 2018 standard. And the states that participate and entities that participate are Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, New York, Ohio, Ontario, Pennsylvania and Wisconsin. So a number of states that are similar in region and weather and acclimation. Also a number of states incorporated by reference, so they incorporate the same rules as presented for their water systems and for their designs of the well.

CHAIRMAN KIRKBRIDE: So we like these standards because we like them, right? Because they're suitable?

MR. TILLMAN: Chairman Kirkbride, it's not so much that they're suitable. But, I guess, in the engineering industry, specifically I believe in civil engineering, this has been kind of the Bible, if you will, for designing water treatment systems for municipalities or special districts. It's kind of -- like I said, it's an unwritten document that engineers go by. That's why we typically call it the 10 States Standards and everybody knows what that document is.

And so that's why -- unfortunately, when our rules were first promulgated, the consultant that, I guess, put these rules together essentially took the 10 States Standards almost verbatim for large swaths of our rule. And since that was the case, that was kind of our impetus for our incorporation by reference. Because as I went through it, I would find pages, paragraphs, that were identical, and I mean word for word what they were saying. So it just made sense for us to make that incorporation by reference, one, because it was standards that we use, and also to meet the requirement that the governor gave us at that time to reduce our rules. But as you see, our -- the number didn't reduce all that much. But then, again, there was quite a few new technologies and things that we had to add to the chapter that were not spoken to before. So it was kind of a balance, if you will, of subtraction and addition that came to the total number that we're at right now.

CHAIRMAN KIRKBRIDE: Thank you.

Okay. Anything else on that?

All right. Proceed.

MS. ZYGMUNT: Thank you, Mr. Chairman. I'll turn it over to Bill now to walk us through the rule and the revisions that we made.

MR. TILLMAN: Chairman Kirkbride. I'd like

to begin with, as our administrator, Ms. Zygmunt, alluded to, that the Attorney General, they made quite a few changes as far as to layout, orientation, format, and those sorts of things. I'm not going to speak to those for each and every section. It's pervasive throughout the chapter.

Additionally, there was grammar and punctuation changes. A lot of rearranging. If you look at the strike and underline version, it makes my head spin. I imagine it did yours as well. It seems like there was a lot going on, but there was a lot that was removed, a lot of things that were -- places were changed as far as where they were for, I guess, readability and for just cohesiveness, as far as we had some things spread out in different sections that really should have been put together, and we tried to accomplish that through part of the rewrite.

In addition, in the incorporation by reference, the fact that we had large parts of the chapter that were incorporated by reference, we tried to do that at the beginning of each section, those parts that were incorporated. So in some sections it's not as much, in other sections, as in Section 12, the treatment section, is quite an extensive list of what is incorporated by reference. But we tried to do that up front in each section, and everything that followed that is an exception to those things that were incorporated. So that's kind of

format that we followed.

I understand that for some folks that may create some -- a bit of a headache because they've got to kind of go back and forth. But speaking as a professional engineer, I spent 20 years in refining before I came to the regulatory side, and I can say that I don't believe I had any design -- and I mean any design -- that I used one book exclusively that I could use to finish a design. I've used several books, several references, looking at materials, different techniques, maybe even different components. So that part of the design incorporating by reference and using multiple documents to me is nothing new and something that is expected as an engineer. Your boss just wants an answer. He doesn't really care how many things you have to look at to get him that answer, he just wants an answer.

So I understand that as -- from -- from the public saying that it would be nice to have it all in one spot, but from an engineering perspective, it's never been in one spot. So that's my perspective on that.

Moving forward, though, I'd like to go through each section and give you just kind of general summary. I'm not going to go in detail. If you have questions about each section or in a section, please bring those up as we're going along. But I'd like to begin, if you would allow me.

CHAIRMAN KIRKBRIDE: Please do.

MR. HENDON: Say, Bill.

MR. TILLMAN: Yes.

MR. HENDON: If I could, I'd just like to also state that the 10 States Standards is available online for purchase. It's $13 in cost. So it is available. It's out there. We're also looking at options to prepare and provide that online, if we can, through our website. And we're also going to make sure it's available through our satellite offices as well for review and for our design engineers throughout the state to come in and take a look, if they need to.

CHAIRMAN KIRKBRIDE: All right.

MR. TILLMAN: Beginning with Section 1, which is our Authority. There were minor changes to that, and just restated our statutory authority to promulgate rules.

In Section 2, Applicability, again, this is minor changes where we added words to clarify the applicability of the rules that are presented in our chapter.

Section 3 is compliance with our new standards. And that's where we had some comments. Some people were concerned that the new changes to the chapter that they had to go through their facility and radically change what they already had or what had been approved prior to that. But

in the new section, existing facilities are going to be covered under previous -- or the existing Chapter 12 design. Any new construction or modification to existing facilities would then be required to follow the new conditions in the new chapter.

In Sections 4, 5 and 6, where we discuss the incorporation by reference, the definitions that were used, some taken out, and also other technologies. There's nothing new in those sections. Those were brought over from the previous Chapter 12. Of course the incorporation by reference, how we're doing that, is discussed in detail.

The other technologies section is, again, something that was in the previous Chapter 12, and it just allows for anything that's developed recently or we're not aware of or maybe some unique niche treatment possibility, that people can bring that forward in application and bring us basically information, pilot plant data, maybe full-scale data that supports that the new technology is applicable for a particular treatment issue that they're dealing with. But we still have that as an alternative for folks to present new ideas to us that we're not aware of for application for treatment facilities.

In Section 7, under Permits, Applications, and Recordkeeping, again, this -- we added a part there that was not previously in the Chapter 12. It's in our Chapter

3, as far as how we accept applications for permits. But we're no longer requiring that application be submitted in triplicate hard copy. We had that same language where they submitted in a form acceptable to our Administrator, but basically that gives our district engineers the flexibility to request only one electronic copy and maybe one hard copy, again, hopefully making it easier for our applicants to submit information, and also for us to deal with that information.

Applicants also need to -- we had a section where we put it in the rule that they have to give us secure access to the facility through easements or public road access. Again, this was something that was in the document permit that was issued that spoke to the fact that we need to have access to do inspections and other sorts of things to carry out our regulatory duties, but now we put it in the rules so that they also understand it in the chapter as well as in the paperwork they receive that we will need to have access to the site.

We also included in the chapter -- that was also Chapter 3 but not in Chapter 12 -- the requirement that most of the documents that we receive in an engineering application or engineering report needs to be signed and sealed by a registered professional engineer or registered professional geologist, depending on the discipline area

that was discussed in the application or the project.

Also, in this section we discuss -- or we codify what was previously a procedural way we handled things, namely in water wells and storage tanks. In water wells that were permitted, that was essentially what we call a two-step process, where we issue a permit for them to drill the well, construct it and get data from it. And once we got that data, then we would evaluate the data, the water quality, and then issue another permit to allow them to actually hook that to the distribution system. So, again, that was kind of a two-step process that was understood.

One that was not so well understood was when we had water storage tanks that were funded through the Water Development Office, it was kind of -- kind of a mishmash of how we got through that, because Water Development needed to bid the project prior to actually all the engineering being done. But as a part of that bid, they needed to receive a permit from us saying that we would allow the storage facility to be constructed. And so you kind of see we didn't have all the information, so we were reluctant to give them that permit, but they needed that permit in order to get the bids out. So we amended that. We put it in rule to where we understand that when they initially apply for a water storage tank permit, especially one that's funded by Water Development, we know that we're not going

to have all the information specifically, the foundation information or the geologic information that supports that, we're not going to have initially. So we'll give them a permit to go out to bid that talks about some more or less the general aspects of the tank. But within those bid documents, we require that they acknowledge that they would come back to us and that the remaining parts of the tank construction and design would be per Chapter 12 and be approved by us and they will receive a second permit to complete construction of that tank.

And that was, again, something that was not necessarily codified in rule, but it was a procedural -- that was kind of understood when people came to us, and we thought it was important that that in particular was put in the rules so people understood that when you're having a tank funded by Water Development, that it was going to be a two-step process, and that, you know, it's going to take some time, but it was understood by both parties the process that was -- it was going to take.

CHAIRMAN KIRKBRIDE: Okay.

MR. TILLMAN: In Section 8 and Section 9, we discuss -- in Section 8 is Plans and Specifications and Section 9 is the engineering report. And in both of those sections nothing significant changed there, although we did add a little specificity as to the different types of

application that we get, be it from projects that involve distribution systems in particular or a section of a distribution system, as opposed to major changes to a treatment works operation.

But what we did there was basically specify what we would want in the engineering report, as well as in the plans and specs for the individual types of projects that we would get so that the applicant would know kind of the information that we needed to have, because sometimes, again, we weren't necessarily getting the specific information we needed for a particular type of project, and it was not spelled out in the previous chapter exactly what we were expecting to receive. So we tried to clarify that.

In Section 10, we added a requirement there. It's in the minimum design and construction standards. I believe before it was called just general design considerations. But we wanted to add and have the design engineer, when they were proposing either new treatment works or modification to treatment works, that we added a degree or considered a degree of flexibility in the plant design from anywhere from changes in that water quality to the need to possibly increase the treatment capacity if a service area increased or even adding new treatment technology. We wanted to make sure that the design and how it was constructed made it easier to make those

modifications if they were required. And it was something that we wanted to make sure that, again, the design engineer considered at the outset of that application and that project modification.

CHAIRMAN KIRKBRIDE: I have a question.

MR. TILLMAN: Yes, sir.

CHAIRMAN KIRKBRIDE: Backing up just a little on applying for permits. It seems to me like it's so many entities, individuals, and otherwise, apply for permits from governmental agencies. It seems like to me people feel they have encountered an unreasonable delay. I don't know if delay, but it just takes a long time to get the permit back. And I just wonder, what's your experience with this?

MR. TILLMAN: Chairman Kirkbride, I understand, and I've heard that same feedback from certain individuals, that they feel like it's taken more time than they felt necessary to receive a permit. Some of that has to do with our staffing issues that we've had over the last three or four years. We've just now, I believe, in the last three or four months come up to a full staff, where I believe the last four or five years previous to that we were short at least two to three engineers. So, you know, from the district engineers that had assistance, they didn't have that assistance. So, again, you have one

man -- one person handling all those applications.

In addition to that, many times we don't get all the information necessary to review the application and to issue that permit. And it's incumbent upon the applicant to give us that information. And sometimes it's not the applicant, it's the engineering company or people working for the engineering company that don't necessarily -- it's not on the top of their list to get us information that we're missing. They felt like they gave us everything they thought they needed to give us, but we didn't receive it. So there's some back and forth with that as well as far as receiving the proper information.

Additionally, and one they don't like to hear, is that statutorily we do have 60 days to complete a permit, to issue a permit. And many times consultants, engineers will think that theirs is fairly simple and they submit it to us, and then we get a call literally within a couple of days of receiving the application asking us if we started working on it yet, or if we could move that up a little bit in the list. And absolutely we cannot do that. We work on them and review them as they come in. Unfortunately, if there's 15 ahead of you, you're number 16 and we can't start working on that until we kind of plow through rest of them.

And so there's a combination of things that

contribute to that perceived delay. Again, part of it is, again, lack of staff at one point. But, again, many times it's information that we're requesting going back and forth, you know, trying to get that information to make sure it's complete so we can do that review.

CHAIRMAN KIRKBRIDE: All right. And then I'm not the only one that complains to you guys, but that's just a general statement.

Is there -- are they -- is the demand for -- I assume it's mostly modifications in the state here; is that right?

MR. TILLMAN: Primarily. You don't get a lot of brand-new treatment works that are being constructed. You get many modifications to existing treatment works. There's some emergent contaminants that are coming up, peat moss, peat humus, some of those types of things.

So, yeah, you're correct, Chairman Kirkbride, that most of them are modifications, you know, to an existing system.

CHAIRMAN KIRKBRIDE: And the workload is -- is fairly heavy?

MR. TILLMAN: It's increasing. There are certain districts that get a significant more applications than others, particularly this district, the southwest

district and the northeast district, which is -- northeast is Casper, kind of run up to Sheridan and then go to the border there.

The Sheridan-Gillette area is doing a lot of work. In addition to down here, we're getting not only subdivisions, but a lot of modifications to existing system. Maybe not so much in the southwest district, but I believe that the northwest is all starting to pick up as far as the number of applications they're getting for other entities, kind of mobile home parks, trailer parks, things like that. So there are some that have more activity than others, so that kind of contributes to some of the delays that they might be seeing.

CHAIRMAN KIRKBRIDE: Uh-huh.

MR. HENDON: Yes, Chairman Kirkbride, if I can also add to that. A number of our districts are seeing increased subdivision applications. And so that is a number of folks moving into our state, which is good, but it's creating an increased workload for all of us, so...

CHAIRMAN KIRKBRIDE: Uh-huh. Thank you.

BOARD MEMBER CAHN: Chairman Kirkbride.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: Bill, I wanted to ask you. You mentioned that you guys weren't getting what you needed for Sections 8 and 9. Can you give an example --

and why you had to make these changes to the rule. Can you give us some examples of what you felt were deficiencies and submittals that the rule is addressing?

MR. TILLMAN: The rule really -- excuse me, Board Member Cahn. I don't think that we've added significantly to, I guess, the detail, but I would say that, you know, for instance, they would give us a plan and profile and then not give us existing utilities that were in the ground. And so you can't make an evaluation as to whether or not they're going to have issues with crossing, with distance separation, or anything like that.

We also don't receive information strictly on -- from a design standpoint, from the design engineer sometimes on particulars about technologies that they are proposing. I can't give you specifics right now, but, again, those are things that we're looking forward to make our evaluation. And, again, we have to go back to them to receive that information. And right now, I'd say over the last couple of years -- and it's going to get worse -- the consultants that we're dealing with are exceptionally busy. With the infrastructure money that's coming out and people trying to get projects on the board, we're -- we're getting not necessarily delayed from them on purpose, but I think their -- their being busy to the extent that when we ask questions, they don't get back to us right away, and we

wait until we get that information, because, again, we're receiving other applicants. We try to move on and come back to it as we receive that information.

And this goes to not only just treatment works. I believe it also extends -- I've seen it on septic systems as well to where folks feel like they've given us information that we've asked for distance separations, photos, contact with the installers, and we just don't get that. They felt like they had given us everything. And so we wait until we get that to where we have enough information to where we can issue that permit with confidence that we don't have any environmental issue or construction problems with what's being proposed.

I don't know if that answers your question, Board Member Cahn.

BOARD MEMBER CAHN: Thank you.

CHAIRMAN KIRKBRIDE: Okay. Go ahead.

MR. TILLMAN: Moving on to Section 11.

CHAIRMAN KIRKBRIDE: Would you give us -- where is 11, more or less?

MS. THOMPSON: You're going to start --

CHAIRMAN KIRKBRIDE: What page?

MS. THOMPSON: It starts on page 32 -- or line 3284 --

CHAIRMAN KIRKBRIDE: There we go.

MS. THOMPSON: -- page 12-73 of that green version. And paragraph (a) is going to start on line 3530, page 12-79.

CHAIRMAN KIRKBRIDE: Okay. Thank you. Go ahead.

MR. TILLMAN: Sorry, Chairman Kirkbride. Part of my summary, I didn't get specific on where I was starting.

CHAIRMAN KIRKBRIDE: Happens to us all a little bit.

MR. TILLMAN: My apologies.

Again, Section 11, which is Source Development, we added some of the isolation distances that we had changed in the Chapter 25, which had to do with septic systems. We added those in the chapter.

We included some additional standards for incorporation by reference for piping materials. We also added, as our -- Administrator Zygmunt has previously talked about, those requirements for water wells that are going to be stimulated by acid and acidization. We added requirements for that.

In addition, we did not have previously any design consideration for spring development, and that's something that many of our communities have springs as a source of their drinking water, and they're good, viable --

good water quality, and so we needed to have some conditions for that, and we've added that to the section as well.

In Section 12, on Treatment, again, I think that was to me kind of the meat of the matter. We added additional technologies regarding UV light disinfection membranes, specifically as it speaks to reverse osmosis membranes, RO membranes.

We added technology as far as bag and cartridge filtration. And, in addition, we added conditions for pre-engineered skid-mounted units at treatment plants for, you know, folks that have a smaller application, that that would be something that would be applicable to their problem.

Additionally, we added a table for contact time for chlorine residuals for specific types of filtration. And we added that with the help of EPA Region 8.

In Section 13, we have really no substantive changes there. That was the Clinical Application, that people do within water treatment. Nothing really to note there, any changes.

In Section 14, regarding Pumping Facilities, we added requirements for booster pumps that are going to be added or going to be proposed for firefighting -- fire suppression that wasn't previously there.

In Section 15, we discuss Finished Water Storage. And this is where I believe our unique position with the EPA in regards to the Safe Drinking Water Act and primacy is a problem at times, mainly because, as Zygmunt -- Administrator Zygmunt mentioned, we issue the construction requirements for treatment plants. The EPA Region 8 does the monitoring, and -- I guess monitoring for those plants. And they do their sanitary surveys for the installations.

And that's where we kind of hit a disconnect, if you will, because we, from a construction standpoint, look at things differently, maybe, than they do from a monitoring standpoint. And so we run into problems quite often with 24 mesh screens. 24 mesh is a -- the higher the number, the tighter the opening. So it's tighter than a bug screen on your house, probably.

And EPA -- and this is my opinion -- they're looking at 24 mesh from the standpoint of biological contamination. We look at it from an engineering perspective, from, you know, how is it applicable and how does it work? And we kind of have a disconnect there.

24 mesh is prescribed for overflows and for vents on water storage tanks. And there can be issues with that. In overflows, 24 mesh can cause problems with being able to discharge enough water in an overflow situation. Additionally, 24 mesh, when you come to vents on the top of

tanks, being that that mesh is fairly tight, it can have a tendency to get frost, moisture, freeze over and cause some issues as far as operations there.

Within the section we've offered, I guess, alternatives to the strict use of 24 mesh. That was vetted by Region 8 EPA. If you noted, they had no comments in regards to that section in our alternatives to 24 mesh, so on overflow situations, rather than strictly putting 24 mesh on the end of an overflow pipe, we offer mechanical device, duckbill or flapper valve, backed by a 4 mesh screen, which has a much larger opening, but doesn't tend to obstruct the flow that a 24 mesh would. And, again, we've had acceptance and concurrence from Region 8 with those alternatives, so we feel good that not only do we offer what they're looking for in their sanitary survey strictly from a 24 mesh being on the end of a piece of pipe, but we also give the entity an alternative to some of the issues that may be raised by adding -- simply adding 24 mesh to a piece of pipe from an operational standpoint. And we feel like, again, the fact the EPA did not comment on that, that they're in support of our recommendations and conditions.

CHAIRMAN KIRKBRIDE: Well, 4 mesh sounds like it was very different from a 24.

MR. TILLMAN: Yeah.

CHAIRMAN KIRKBRIDE: Will a baby mouse float through a 4?

MR. TILLMAN: 4 mesh won't allow a baby mouse to float through. You will get bit by a mosquito. But, again, what it's backed by, again, that mechanical -- that duckbill, if you will -- is a rubber device that basically -- it closes pretty darn tight. But if something were to try to squeeze through that, then we would provide that screen as a backup in the flange that supports that to try to mitigate any entrants from that perspective. So it's the best we can do -- or we feel to offer protection as well as not impede its intended use.

In Section 16, on Distribution Systems, again, we added additional standards for materials and distribution pipe. Additionally, we added a condition to allow the use of flow-fill when we cannot achieve --

BOARD MEMBER DEURLOO: Mr. Chairman, I'm sorry. This is Brian Deurloo. I have to -- if I can just come back to that 24 mesh just for a moment, if you don't mind. So -- Mr. Chairman, do you mind if I ask a question?

CHAIRMAN KIRKBRIDE: No. Please go ahead, Brian.

BOARD MEMBER DEURLOO: Thank you.

Mr. Tillman -- is Tillman or Tiller? Sorry.

MR. TILLMAN: Tillman.

BOARD MEMBER DEURLOO: Tillman. Hi, Mr. Tillman.

So with this mesh size, are -- I've not actually seen a picture of one of these. I deal with meshes a lot with water filtration, so forth like that. But it seems to me -- I've heard that there are cases within Wyoming where that kind of mesh has caused problems, and, actually, potentially quite costly damage to some water treatment plants. I think maybe down in the southeast corner of the state. I'm not positive about that.

But would size 16 mesh be okay? It's slightly larger, allows a little more debris to go through. Because 24 mesh is on the outlet; is that correct? You're talking about 24 mesh at the outlet to prevent things from coming in?

MR. TILLMAN: That is correct. And what you're alluding to is -- is very near and dear. That one happened in the town of Pine Bluffs. There was some other circumstances that caused the problem -- I guess the situation that caused the overflow incident. But, yes, they had a problem where they had 24 mesh. They were instructed to put 24 mesh over the end of their overflow pipe retroactively from the design. So understanding that the design pipe was sized for a particular flow, and when you put 24 mesh, a tight mesh screen, on the end of it, now

you've impeded the ability of that pipe to flow the required amount of water.

And what happened was they accidentally filled the wrong tank when they thought they were filling a new tank. And subsequently they were watching it, thinking it was filling up. And it filled up, overflowed, could not release the amount of water that it needed to, and subsequently broke the roof of that concrete tank, lifted it up. When the operator realized that he wasn't seeing flow out, the overflow that he should, he remembered what he had put over that end. He immediately loosened that. I believe that screen shot roughly 20, 30 yards out to the yard, relieved a bunch of water. And then he heard the thud of the roof as it settled back down on the tank.

So, yes, it was quite extensive damage. And it was, in my opinion -- you might find others that will disagree -- that was directly related to adding the 24 mesh screen on the end of the overflow pipe without doing enough engineering to understand what implications you were imposing on yourself from an operational standpoint.

Would 16 mesh be better? Yes, it would. But then understand that when the EPA performs their sanitary survey, their surveyor's not an engineer. He's looking at the requirements. He says 24 mesh. If he doesn't see 24 mesh, he dings it as not being in compliance. So that's

why we opted for what we put in our -- what we're proposing in the chapter, so that, you know, we have an alternative to the 24. And, again, it's not something that the EPA is advertising, but they're in support of our alternatives.

And if you were to put 16 mesh, again, that would be better, but you run the risk of being in noncompliance of the sanitary survey.

MS. ZYGMUNT: And Mr. Chairman and board Deurloo, if I can add to that. So we do absolutely recognize the concerns with 24 mesh, particularly when it may be used on a retrofitted system. So it is something that we will be keeping an eye on from an engineering perspective very closely to make sure that there are the appropriate designs to prevent the situation like what happened in town -- in the town of Pine Bluffs from happening again in the state.

So it is on our radar. We will be keeping a close eye on it. But as Bill just described, it is important that we don't put our communities in a spot where they're out of compliance with either us or the EPA. And we do feel that this is a viable solution to give our communities options while ensuring that they have the proper engineering designs to, again, prevent a situation like the town of Pine Bluffs.

BOARD MEMBER DEURLOO: Okay. Thank you.

Are we -- if -- we've already recognized there's an issue with -- with the 5,900 lines we've gone through at blazing speed, it's kind of funny we're sitting here discussing 24 mesh or 16 mesh, but that's what we've chosen to do.

So the -- are we pushing back on those standards? We in Wyoming have found that that is an issue. If somebody puts 24 mesh at the end of an outlet pipe or overflow lines, some debris is caught, that has caused massive damage for a municipality, they may have a difficult time paying for it. What steps are we taking -- I know that's a little bit maybe outside the bounds of the discussion today, but I'd like to know what steps are we taking to push back to say, hey, this isn't working for us. We got to -- how does the DEQ -- how does the DEQ do that in regards to the EPA?

MS. ZYGMUNT: Mr. Chairman. Board Member Deurloo, it's a good question. And this will be an ongoing discussion we'll have with EPA to make sure we're working with them. And, you know, at the end of the day we do need to be working with EPA because of the overlap between our two programs.

So recognizing the differences, again, I think there are viable options, given the options that Mr. Tillman described and situations where 24 mesh can work

provided, you know, a solid engineering design is done on the system to make sure that there's a proper airflow and other factors to consider.

I will point out that other western states of very cold climates such as Wyoming use 24 mesh screen, and we're not seeing issues consistently with 24 mesh. So it can work, provided that the proper engineering design accompanies use of 24 mesh.

I had indicated to EPA that if we run into a situation where they're requiring 24 mesh as part of a sanitary survey, and we don't feel it can work from engineering design, we will address those on a case-by-case basis and have that conversation with our EPA Region 8 counterparts.

BOARD MEMBER DEURLOO: Thank you, Ms. Zygmunt.

Thank you, Chairman.

CHAIRMAN KIRKBRIDE: Uh-huh. Okay. Go ahead.

MR. TILLMAN: Again, moving on to Section 16, Distribution Systems. I believe I mentioned that we've added additional standards for materials for distribution pipe. Also, we added a section where our conditions for flow-fill when we can't achieve pipe separation distances that we need, specifically between usually water and sewer

pipe, require that they have a conduit and then fill that with kind of a slurry concrete just so we can mitigate possibility of cross-contamination if we happen to get some leaking -- leaking joints or connections within those pipes.

Additionally, we added a condition for accepting hazard classifications for by -- by people that are certified in another state. Many times that hazard classification, that that person is certified to make that evaluation, and we just allowed for acceptance of people that are certified in other states.

In Section 17, as far as Laboratory Equipment, again, there's no substantive changes there in that section.

And Section 18, regarding Operation and Maintenance, we've added provisions to the O&M manual that we require. Specifically we added a description of facility and all of its processes. We want details of the emergency operations of the facility. And also we'd like additional information or more information than we currently get about the safety systems within a facility and all its components. And that's for the people occupying and operating that facility so that they understand how they're supposed to operate in emergency situations and all the safety parameters that are designed

into their facility.

And with that, I've quickly summarized what we've done in Chapter 12. Like I said, the majority of what we did, I believe, was through the reorganization that was authored and helped by the Attorney General, in addition to the incorporation by reference eliminated and moved quite a bit of materials. So that was the bulk of what was done.

But also we did add what we feel are needed changes, conditions that were added to the chapter to hopefully get a better product when we were processing or reviewing applications for modifications to treatment plants and distribution systems.

CHAIRMAN KIRKBRIDE: All right.

MS. ZYGMUNT: So, Mr. Chairman, we do know this was a high-level overview. I think Bill did a great job going through the sections to give you a sense of what we changed. We would be happy to go through the sections in detail, if you'd like, or just open it up to high-level questions that you'd like to discuss, again, recognizing this is the first time we've presented this extensive revision to the Board.

CHAIRMAN KIRKBRIDE: All right. Questions or comments for the Board at this time? Thoughts?

BOARD MEMBER CAHN: This is Lorie. I'll have a lot of questions that are real specific, so I think

the -- I'm not sure how DEQ wants to proceed. If they want to go through the specifics and then take public comment and then Board discussion, or how -- how -- how -- how DEQ plans on addressing the specifics.

MS. ZYGMUNT: Mr. Chairman. Board Member Cahn, we are open to how the Board would like to proceed. We'd be happy to go section by section and take specific comments, if that's your pleasure.

CHAIRMAN KIRKBRIDE: Well, if we're working toward ultimately approving, I suppose we need to go and deal with the comments we have.

Lorie, perhaps you want to -- I mean, do we need to go section by section or can we go to -- well, can we go to your comments? Well, maybe -- maybe I guess that can be -- we can go section by section, I guess.

Would that be -- is that all right? Would that suit you, Lorie?

BOARD MEMBER CAHN: Well, there's a lot of people on -- listening in that are from the public. So maybe we could take public comments and then go through -- and then do the specifics with DEQ. Just because there's a lot of people online, I'm sure they're busy and can go to them first. That would be just a suggestion.

BOARD MEMBER DEURLOO: Chairman Kirkbride, I would second that. I don't know if I can second that.

But what Board Member Cahn is speaking about, it may be -- is that she's a thorough individual when it comes to changes, and it may be good to have public comment first, would be my recommendation.

CHAIRMAN KIRKBRIDE: I would think that's fine.

That's fine, Gina? Either way?

All right. Well, if that's okay with you guys, let's do -- we're going to open it up to public comment now.

MS. THOMPSON: Okay. So we do not have any members of the public in the room with us, but we have quite a few of you online. So what I'd like to invite you to do is if you're interested in speaking on the record today, go ahead and use your reactions button and raise your hand, and we will just work through the list and call on you to provide your comment.

Just a reminder, when it's your turn, please introduce yourself, speak clearly, make sure you introduce the organization you represent, and -- yeah, go ahead. If there's any of you interested -- I don't see anyone raising their hand -- but go ahead and do that at this time.

CHAIRMAN KIRKBRIDE: Do they end up at the top of the list there?

MS. THOMPSON: It looks like we have a

Lenz. So if you want to go ahead and introduce yourself.

MR. LENZ: Hello. Yes. This is Brian Lenz, Town Engineer for Jackson. Thanks for having the meeting and working on these regulation updates.

I had been going through it, and I had one -- probably have a few questions -- but where you incorporate the 10 States Standards by reference, I could not easily find those -- the 2018 version of those standards on a Google search. And so I guess I would -- from utilizing it on a permitting side for our projects, but also others, it's like the more specific what those standard -- the title of the standards, the version of the standards, who wrote the standards, and where you can get the specific standards that you're incorporating would be helpful.

And I did see there was -- I don't have the reference right now which line, but there was a reference to them further down in the document after they were adopted that was different than the language used in the adoption. And -- sorry, I don't have more to comment on it than that, but I think that's an important -- something that's important to be clear and make sure that when people are -- when consultants and the public are using a document, that they are referencing the correct document. Thank you.

MR. HENDON: Hello, Brian. Keenan Hendon

here. I think that's something that we can definitely look into and provide a section for clarity for all of our entities to have a quick reference to find these standards and move forward in a quickly and concise matter. So I think it's something we can look into further.

CHAIRMAN KIRKBRIDE: Well, Mr. Hendon, you did have a -- you said there was a -- it was really fairly accessible to get those; is that correct?

MR. HENDON: It is accessible, perhaps, depending on how you're doing a Google search. If you're doing a Google search for the 10 States Standards, you may not come up with the -- I guess, perhaps you might -- might not land on the right location to access it.

MS. THOMPSON: Additionally, Mr. Kirkbride, we have the complete publication information listed in Section 19. However, Section 19 has grown quite lengthy. And it is the end of the chapter. One of the comments we received yesterday requested that we maybe put that information earlier in the chapter. That's something that we will be following up with our Attorney General's Office, to make sure that if we do that, that we do it in a way that doesn't make more work on their end to defend our rule. But we think we might be able to provide that publication information earlier so that people aren't struggling to find the document. Because Mr. Hendon is

correct, if you search 10 States Standards, not going to find it as easily as if you searched the complete title. And it actually is routed through the State of Minnesota. They are kind of the stewards of the rule.

MR. HENDON: So perhaps it's something we can just address on the front end of the documents to make it easy and concise for our entities and applicants to find the information directly and in a timely manner.

CHAIRMAN KIRKBRIDE: Mr. Lenz, does this address your -- or have we addressed your concern?

MR. LENZ: Yeah, I think that that would address it. I haven't had a chance to look at Section 19. I did try -- I tried searching the title that it was listed as where it was incorporated, and I think it's Broward -- Broward, Minnesota or -- broward.org that I can get the 2012 version, but I did not see the 2018 version that was listed in the document.

And I'm not a millennial, but I'm -- I do pretty well with Google, so -- but, yeah, it was just -- it was not straightforward, just based on that if you searched for the document right where it was adopted, that language.

CHAIRMAN KIRKBRIDE: Well, okay.

BOARD MEMBER CAHN: Chairman Kirkbride.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: Yeah, this is Lorie.

I would just like to say that I think Brian's comment brings up kind of a big picture issue for me, and that is that it's the first time the public's really had a chance to look at these, all these changes. And, you know, Brian is an implementing engineer -- county engineer for -- or, excuse me, Jackson engineer, for the town. And so he's not the only person we're hearing from had a problem finding these standards.

And so my point is that the 30-day public comment period, I don't think -- may not have been enough time for people to review it, all these changes, if they couldn't even get -- it's mostly incorporation by reference, and then people haven't been able to find the reference material. That, to me, just brings up an issue that I think we need more time on this. But I'll get to those comments later, but I just wanted to throw in my 2 cents. Thank you.

MS. ZYGMUNT: Mr. Chairman and Board Member Cahn, we certainly understand the concern, and we absolutely want to make sure there's ample public comment opportunity for this rule. So we welcome more discussion on that.

I do want to point out that we did post the 10 States Standards on our website, along with the material for the advisory board meeting, including the draft rule.

We apologize to the constituents if they weren't able to locate it.

We are looking into copyright issues to see if we can permanently post the 201810 States Standards on our website. I don't think we have an answer on that, but, absolutely, if we can post that on our website, we will. Otherwise, as Mr. Hendon said, we will make it very clear where people can access the standards online.

CHAIRMAN KIRKBRIDE: All right. Sounds like a good effort is intended here.

Do we have another member of the public who would like to --

BOARD MEMBER DEURLOO: Chairman Kirkbride, can I make one more comment on that, please, if you don't mind?

CHAIRMAN KIRKBRIDE: Sure. Sure, you can.

BOARD MEMBER DEURLOO: So I heard earlier that this 10 States -- sorry. This is Chairman -- or not chairman -- Brian Deurloo.

I heard that you can get these online for $13.95 or something earlier. How many public -- how many regulated public water treatment plants are in the state of Wyoming, out of curiosity? Does anybody have a plus or minus number?

MR. TILLMAN: Roughly -- excuse me, Board

Member Deurloo. I believe there are roughly 400 and some odd water -- public water systems within the state.

BOARD MEMBER DEURLOO: Okay.

MR. TILLMAN: No. I take that. I take that back. It's 200-something community and noncommunity, nontransient -- I believe there's 400 transient. So I believe the number's closer to 700.

BOARD MEMBER DEURLOO: Uh-huh.

Have you ever -- thank you.

Have you ever distributed -- like when we have a -- an incorporated by reference, like what we're doing here with the 10 States Standards, have you ever provided like the pamphlets or the documents to the regulated entities that are government owned? Like, for example, have you ever sent out something like the pamphlet that we're talking about here to all the regulated entities so they can review it, because it will be part of the standards coming up, have it in paper form?

MR. TILLMAN: No, we haven't. And, Gina, correct me if I'm wrong, but I thought that there was an issue with being able to copy it and just distribute it for copyright rules. And I don't know if we have the authority to buy enough copies for all entities that were interested in -- and just off the record -- or, excuse me, as another aside, we've never had -- in our 30-day comment period,

we've never had anyone contact us regarding being able to get a copy of that or wondered where they could get a copy or anything of that nature.

MS. THOMPSON: So just to clarify. We had an individual out of Sheridan that asked where they could get a copy. And the organization that publishes the 10 States made that digital copy available to us at no charge. But as far as making a printed copy available, we -- we -- that is not our normal practice for any reference material. The Administrative Procedures Act kind of governs how we handle these incorporation by reference. And it requires that we keep a copy of the reference material and that we note where individuals who need a hard copy can get that information. And that information is contained in Section 19.

So we're required to have one at least in the Cheyenne office, which is what we include in the chapter. And then DEQ is committed to providing a hard copy to all of our field offices. Additionally, we can clarify that Section 19 entry to make sure that the Web address is included for that material so that people can just click on it. I believe that that is an acceptable inclusion at the Secretary of State level when they review the rules. You know, that's a piece that they would look for is does that -- you know, did the format of our incorporation by

reference meet the standard.

So potentially, while we wouldn't purchase a hard copy and mail it to every public water supply, we would make sure that there was one available at the main office and the four field offices.

BOARD MEMBER DEURLOO: Thank you, Gina.

Yeah, I finally did find the reference on like third from -- fourth from the bottom or something like that. On line 2885 on the clean version is where you do that. So I'd probably, like you said earlier, move that up in the importance -- or the list under those things in Section 19. Thank you for that discussion.

Mr. Chairman, I have no more comments on that.

CHAIRMAN KIRKBRIDE: All right. If not, is there another member of the public who would like to --

BOARD MEMBER CAHN: Excuse me. I had one more thing on that.

CHAIRMAN KIRKBRIDE: Okay, Lorie. Sorry.

BOARD MEMBER CAHN: So I guess I just wanted to clarify what Mr. Hendon said. If somebody googles the standards and decides to order their $13 copy, I just want to clarify they have to wait to get that copy in the mail. They're not just going to get an instant digital copy online; is that correct?

MS. THOMPSON: No, that is incorrect. So

the digital copy is $13.95. That is an instant download, I believe. And then there's a hard copy that if someone wishes to receive a paper copy, they can purchase one through the same Web page. And it's 19.95 to cover the State of Minnesota's publishing costs. And I'm not entirely sure if there's shipping, but it is a difference in price to cover the publishing -- the cost of publishing a hard copy versus an electronic download.

BOARD MEMBER CAHN: Thank you, Gina, for clarifying that.

CHAIRMAN KIRKBRIDE: I'm sorry. I can't do chat very well. Is there somebody else with a hand raised?

MS. THOMPSON: Mr. Lenz, if you were -- if your comment has been addressed, if you could lower your hand.

And then we would like to recall that in the Chapter 18 presentation earlier, there was a gentleman from the Board of Public Utilities that noted that he would like to make a comment.

So, Mr. Bassett, if you were interested in making a comment, this would be the time to raise your hand so we could call on you.

MR. BASSETT: My comment has been addressed. Thank you.

MS. THOMPSON: Oh, okay.

And so it looks like a Mr. -- it looks like Mr. Strong has a comment potentially.

MR. STRONG: Yes. This is Frank Strong. I am the Engineering and Water Resource Division manager for the Cheyenne Board of Public Utilities. I just want to comment on glad to see these regulations are being updated. I know we provided quite a few comments for your consideration. We'd be happy to help you guys work through any of those to make it clear what we were getting at. Hopefully we can have a good product when we're done. Thank you.

CHAIRMAN KIRKBRIDE: Are we going to go over public -- those comments?

MR. TILLMAN: At your discretion, Chairman Kirkbride.

CHAIRMAN KIRKBRIDE: Yeah, okay. Well, if we have more live comments, let's take them now.

MS. THOMPSON: Mr. Chairman, I'm not seeing any other hands raised. So we're at the speak now or forever hold your peace or at least hold your peace until the next comment period. So if there are any other interested parties, please raise your hand, otherwise we'll return it to the Board's discussion.

CHAIRMAN KIRKBRIDE: Okay.

MS. THOMPSON: I'm just not seeing any,

sir.

CHAIRMAN KIRKBRIDE: And we'll try to keep our eyes peeled in case there's another hand that comes up on the chat.

BOARD MEMBER CAHN: Chairman Kirkbride.

CHAIRMAN KIRKBRIDE: Yes, Lorie.

BOARD MEMBER CAHN: I guess I'd like to suggest maybe now we start going through -- start going through section by section with responses to comments, to the public comments, EPA comments, and then Board discussion. And then I think at some point maybe members of the public, if something comes up, that they thought, oh, geez, I want to comment or something on that, maybe they can use the chat feature, raised hand, so we can see what their concerns might be. Thank you.

CHAIRMAN KIRKBRIDE: I think that's fine. If there's no -- no problem with that, let's -- we'll go -- start chapter by chapter -- or I mean section by section. Yes.

MS. ZYGMUNT: Thank you, Mr. Chairman. So my understanding is you'd like us to go section by section and work in the comments we received on each section as well?

CHAIRMAN KIRKBRIDE: Yes. Yes.

MS. ZYGMUNT: All right.

CHAIRMAN KIRKBRIDE: Also, it's 11:45. Let's kind of get an idea of what -- whether we going to need a lunch break. If we're going to go solidly until 3:00, we probably need a lunch break. If we're going to -- I don't know how to project it. This could take a while, though, so --

BOARD MEMBER CAHN: Mr. Chairman.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: I would like to suggest that we take a lunch break now, and then we can continue in the afternoon sort of uninterrupted or whatever. So that would be my suggestion. So it's 11:45.

CHAIRMAN KIRKBRIDE: Anybody have a problem with that? Okay. How much time do we need? What traditionally -- do we need an hour? 45 minutes? What?

MS. THOMPSON: It is nearly noon, and we are in the Capitol Complex, and so all the other kiddos are going to be clearing out for lunch as well. So potentially an hour would give you enough time to -- for the folks in the room to grab some lunch. And these folks that are -- you know, are joining us remotely from their offices or from home, that we give them a chance to go and gather lunch, if they need to, at the busy noon hour. So an hour I feel, would be appropriate, sir.

CHAIRMAN KIRKBRIDE: Okay. All right.

Let's -- how about 12:50 we'll ring the gavel. How about that? Yes? All right. Good. Everybody? Okay. See you then.

(Meeting proceedings recessed 11:46 a.m. to 12:51 p.m.)

CHAIRMAN KIRKBRIDE: We're going to resume the meeting of the Water and Waste Advisory Board. All the board members are on, as well as our presenters.

And welcome to any of the public who is joining us on Zoom or otherwise. We're glad to have you.

We're about to proceed now to go through Chapter 12, as presented, kind of section by section, and take comments. We're also going to -- as we go along, we've had a number of comments from the public and deal with them -- if they haven't been dealt with otherwise -- deal with responses to those questions.

And we wanted to make it available for the members of the public and to be able to -- if you have something that is timely, to interject, please raise your hand, and we'll try to note that and pick it up. I can't see really well from where I'm sitting. I've got a glare. And if we don't get your hand for a while, we'll try to get you. But the intent is that we kind of deal with each of these areas and try to deal with them as they come up.

Yes, Gina.

MS. THOMPSON: Mr. Chairman, I will note that we did receive a written comment in the electronic portal while we were at lunch, and so at your leisure, sir, I can read -- it's two pages, but I can read it into the record, since you won't have access to it during the meeting for a printed-out version. I don't have print capabilities in the building.

CHAIRMAN KIRKBRIDE: All right. Is it appropriate now?

MS. THOMPSON: It looks like it covers multiple topics. There's a general statement, a statement on Section 12, Treatment, some comments on Pumping Facilities, and then some comments on Distribution Systems in Section 16.

CHAIRMAN KIRKBRIDE: I suppose you should just go ahead with it now.

MS. THOMPSON: Okay. I'll go ahead and read that in.

So this comment is from Mr. Brian Sepe, and Mr. Sepe states generally due to the size and complexity, the format of the proposed rules is challenging to use. Consider adding a table of contents illustrating each section and the associated page numbers. Because many sections have major subsections, these could be labeled as subheading and included in the table of contents. The

partial inclusion of specific 10 States Standards by reference only may lead to issues when interpreting and enforcing the standards. The user must cross-reference back to specific sections of the TSS. In several instances only select portions of the TSS are referenced. Consider incorporating the full text, with permission, of each included sections of the TSS directly into the appropriate subsections of Chapter 12. The verbiage will need to be modified to merge with the contents of the proposed rule. As the rule is proposed now, that merging will need to be made by users and/or the reviewer, which may cause a confusion.

Water treatment process design is very specific to the waters being treated. The use of pilot or demonstration plants is essential to most all surface water treatment plants of sufficient size. The cost and time associated with successful pilot studies must yield benefits to the design permitting process. Consider bolstering Section 6 so that once a study has provided proven results those findings are the basis for compliance with potential conflicting requirements that may be more generally written.

Concerning Section 12, Treatment, for paragraph 12(h), proprietary treatment systems often incorporate tube settlers. These systems may or may not require routine

cleaning beyond normal blowdowns, as tube cleaning may be only an annual occurrence. These types of systems would not comply with 12(h)(iv) as written.

On paragraph 12(m)(ii), is it missing or is there misnumbering?

On 12(m)(iii), the use of ozone may be driven by several factors, depending on the process or design goals. Taste and odor may be secondary or incident benefit. When used as a pre-oxidant, the dosage and contact time presented in (iii) is excessive and may be detrimental.

Concerning paragraph (r) and (s), Section 93.3(b) of the TSS has not been included by reference. Without the inclusion of 93.3(b), the proposed Chapter 12 rules do not address land application of dewatered sludge except for the liquid lime softening sludge in paragraph (r)(iv).

Alum sludge is specifically addressed in subsection (s), but sludge from ferric sulfate or ferric chloride is not. Consider including TSS Section 93.3(b). It is an appropriate method to be considered depending on site-specific conditions.

Concerning Section 14, Pumping Facilities. Paragraph (d)(iii), six air changes an hour is excessive in a pump station where sensitive electrical gear is in a segregated or isolated room. Consider allowing exceptions where applicable.

And in paragraph (g)(iii), pump and pipeline design must consider surge. Pressure relief valves may provide the appropriate level of protection for some designs. Categorically excluding relief valves should be reconsidered.

For Section 16, Distribution Systems. At paragraph (a), the proposed Chapter 12 does not include TSS 8.5, which provided a method to address inflow prevention via AWWA C514. Consider inclusion of this section of the TSS.

And at paragraph (f), air relief and vacuum breakers are essential in most large transmission systems. It is not always practical to provide a segregated depth piping to the surface, such as within paved areas. Alternate designs to drain the vaults or add inflow preventers need to be considered.

And that concludes Mr. Sepe's comments, sir.

CHAIRMAN KIRKBRIDE: All right. Just briefly, do things -- are these things you've considered otherwise? Did you hear something that -- I mean, I assume you'll want to analyze all that, but --

MS. ZYGMUNT: Yes, Mr. Chairman. I think we might need some time to analyze those comments. Some of the issues, such as numbering, we can double-check to make sure we haven't misnumbered sections. In regards to the

technical comments, I think we would be challenged to respond to all those today, but I'll let Mr. Tillman and Mr. Hendon speak if they feel differently.

MR. TILLMAN: Chairman Kirkbride. Oh, sorry about that.

Chairman Kirkbride, yes, we probably need to look at those. I was listening as Gina was reading those off, and I believe that some of the other comments that we received are similar in nature that we may have addressed.

Just off the top of my head, the one on ozone, I think we changed the fee rate on ozone that another commenter thought the rate that we had previously had presented issues with DDPs and some other operational considerations that may occur in some facilities. So I think we've addressed that one.

And I think a couple others we may have addressed in other comments similar, but off the top of my head, I'd definitely want some time to look at that in detail before we reply to those.

CHAIRMAN KIRKBRIDE: Sure.

MR. HENDON: Mr. Chairman, I could concur with Bill and Jennifer's sentiments with taking time to go back and review those comments and provide an in-depth review from the necessary comments with regards to his concerns.

CHAIRMAN KIRKBRIDE: Surely that's -- Mr. Sepe isn't, by any chance, on the call, is he?

MS. THOMPSON: I don't see him included on the participant list, sir.

CHAIRMAN KIRKBRIDE: Okay. All right. Therefore, I think we can go and proceed with what our plan was.

Bill, go ahead.

MR. TILLMAN: Chairman Kirkbride, we'd like to address the comments, as Board Member Cahn suggested. I think the way we'd like to go about that is to go through at least the general comments that we received. And then I would like to, I guess, engage Ms. Cahn and ask her if there were specific parts of each section as we get to them that were of concern to her, or if there were comments that she noted that were of concern, rather than kind of reading through the list, because I think some of them tended to overlap. But if she could provide those areas she was concerned with and those specific comments, we can get to those and address those in this format. Think that would be acceptable?

CHAIRMAN KIRKBRIDE: How about that, Lorie? What did you have -- how do you think it would be best to go about it?

BOARD MEMBER CAHN: Well, I'm not sure the

members of the public that are -- made comments that are in here. Have they had access to the responses to the comments?

MS. THOMPSON: We posted -- we did post the responses to the comments to the website yesterday, but obviously not everyone may have read them. We can screen share as we go through.

MS. ZYGMUNT: And, Mr. Chairman, let me clarify. So most of the responses to comments we've had on the website for about a week, I believe, because there were two sets of responses to comments. And I'm going to look at Gina for help here.

MS. THOMPSON: I believe we sent the initial responses to the Board on Friday, and then we received additional comments on Monday. And we made sure everything was posted yesterday, which was Monday. So the public did not have the weekend to look at that responses to comments, I don't believe.

MS. ZYGMUNT: Yes. Thank you, Gina.

I retract my comment. Gina's correct. They were posted yesterday.

And, again, we do accept comments -- just to clarify for people who are not familiar with the process. So prior to the advisory board meeting we request comments by a certain time to allow us to provide responses in a

timely manner. Again, we received more comments than we were expecting. And then we do also allow comments right up to the advisory board meeting so we can receive comments at any point during that time. And I'd just like to acknowledge it can be a challenge to turn those around in a timely manner.

CHAIRMAN KIRKBRIDE: Sure.

BOARD MEMBER CAHN: I want to thank you guys for a quick -- the quick turnaround that you did. I was very impressed with how quickly you got the comments up. So I think people from the public who are listening in can go to the website and see how their comments were respond -- those that made comments or those that didn't but are interested can see what others have said and how responded.

And, Bill, to -- I want to clarify. It's not just me, necessarily, that's going to have comments. So I think we would -- what we typically do, we'll open it up to anybody on the Board that wants to comment on a section. And maybe to help speed things along, because I know we only have two hours left to get a lot of stuff covered, if you guys -- you and Keenan can focus on more important issues, technical issues, and maybe things that either were big issues that somebody brought to your attention that you agreed with and you're going to make the change or

something that they brought up but you didn't agree with and why you wouldn't be making the change I think would be helpful, so -- and maybe we want to start -- I don't know if we want to start with general comments or if we want to end with the general comments, but maybe -- maybe we start with them.

MS. ZYGMUNT: Yes. Mr. Chairman. I recommend we start with the general comments, and then we can just highlight each section again, note the major changes and associated comments with each section.

CHAIRMAN KIRKBRIDE: We'll accept that plan. Go ahead.

MR. TILLMAN: Okay. Chairman Kirkbride, I'd like to begin with just the general comments. Beginning with Cheyenne BOPU. Cheyenne BOPU asked do plant mods or upgrades require the entire plant to meet these requirements? How will new standards be applied to existing plant modifications and expansions?

I believe we addressed that in the chapter where we suggest that any existing facility is under the purview of the existing Chapter 12. It's not until they perform modifications or build something new that we would impose the new requirements of the chapter on that part being modified. And, obviously, with -- being that it's not a black and white integration of new parts to old parts, we

would obviously work with an entity to try to figure out what was the best place to make that break, that separation of new to old, and make sure that it's not an undue burden for the compliance with the new set of rules that we've imposed.

MR. HENDON: Mr. Chairman, I'd also just like to add that this comment was probably one of the more common comments that we got with regards to questions and the outreach to the community.

MR. TILLMAN: Let's see. Next Mr. Dayton Alsaker. Mr. Alsaker commented, and I quote, I previously provided some specific comments about the draft Chapter 12, but I'd like to provide a more general comment. Why is this being done? Wyoming's version of Chapter 12 has served the state and its water systems worked well for many years. Why now incorporate other standards? I don't see this as a benefit -- as benefitting Wyoming, its water system for those that work with the water systems, even on the regulatory side. I'd like to see us stay with the State's version of these standards that have served us well. Maybe some minor revising/updating is needed, but I don't see a benefit to basically rewriting them or doubling their length.

Also, the major federal ARPA and infrastructure funding coming our way in 2022, everyone involved will be

working overtime to keep up with the projects and spending these additional funds wisely to maximize the benefit to our water systems. Now does not appear to be the time to take on additional duties that can slow down more important tasks.

And our response to Mr. Alsaker, as Administrator Zygmunt mentioned earlier, these revisions to Chapter 12 didn't just start recently. We started them several years ago. I believe 2014, 2015. And we've been working on them as staff and as time has allowed. It's taken us quite a bit of time to get to this point where we're at. Didn't foresee, I guess, the COVID and all the infrastructure and different things that have come along since then. And absolutely that's going to impact the municipalities as well as government agencies that deal with those municipalities, in addition to the funding that they're looking at. It's going to be a tremendous burden on everyone involved. But we don't feel that modifying these rules impacts that in any way -- in any way or form, and that those activities are kind of independent of our revising of this chapter.

And it's necessary to update this. As we've demonstrated, new technology, things that were procedural that were not codified that we had to talk people through, now we've tried to put into the rules so we can see them

beforehand.

So we understand his concern and kind of frustration that when you get used to something, then it changes on you, that it's something to get used to. But we feel that the new version of Chapter 12 will be a better product for him to work with.

Let's see. Another comment from Darwin Dick of Tetra Tech. Mr. Dick commented this subject matter is primarily related to the type of wells allowed by Chapter 12.

MR. HENDON: It's in the --

MR. TILLMAN: Excuse me. I was making sure it was still in general comments. It seemed to be somewhat specific. But continuing on. Related to type of wells allowed by Chapter 12, and if dug wells should still be permitted. Chapter 12 makes reference to dug wells that should be constructed according to the State Engineer's Office. Chapter 12 also includes concrete pipe or well casing materials which is assumed to be for dug wells. Dug wells are older technology and would typically deliver groundwater under direct influence of surface water. Subsequently, how and where are procedures for classifying wells or groundwater wells or groundwater wells under direct influence of surface water? Are there microscopic particular analysis requirements covered that confirm

classification of shallower water wells? Also, are shallow horizontal infiltration galleries or in-bank filtration options available as options for well water intakes? Appropriate classification of wells will dictate the level of treatment required for results of MPAs.

Our response, we considered the comment. Dug wells would be individual wells that are proposed to be converted to a public well -- water well. These wells would need to meet all public water system construction requirements for Water Quality permitting review and would need to demonstrate to the agency that with primacy for drinking water, which is Environmental -- Environmental Protection Agency Region 8, that the well meets the EPA requirements, and that wells are not under the direct influence of surface water.

And, unfortunately, this is where we kind of overlap, because we do not have the authority to make that designation of the water source. Region 8 EPA does. So although we have regulations considering how to construct the well, how the well is analyzed in its classification is dictated by Region 8. So we have complementary responsibilities in that regard.

Those were all the general -- those were the only couple of general comments that we have.

MS. ZYGMUNT: One more. Mr. Hooten's.

MR. TILLMAN: Oh, sorry. My mistake. One more. From Mr. Andy Hooten.

Mr. Hooten commented rather than incorporating the 10 States Standards you want and excluding other at the beginning of the section, I would recommend placing the applicable 10 States Standards in the section where it makes sense. The proposed format was difficult to follow and did not provide clear intent.

And we considered his comment, and we tested the suggested format earlier in our drafting process, and internally we found that to be more cumbersome than the way we ended up now with stating the parts of the 10 States Standards that are included at the beginning of the section. So we've kind of gone both gamuts, and we feel that where we're at now, putting the inclusion of the 10 States Standards, those sections at the beginning of each section, is more appropriate and seemed to be a better read than the way we had it before.

Okay. And that concludes the general comments.

The next set of comments are in Section 4. I didn't know if any of the board members had any concerns in Sections 1, 2, 3 that we need to address.

BOARD MEMBER CAHN: I think maybe we can have a Board discussion on general comments.

MR. TILLMAN: Okay.

BOARD MEMBER CAHN: And if -- Mr. Chair, may I start?

CHAIRMAN KIRKBRIDE: You certainly may.

BOARD MEMBER CAHN: Okay. I guess, you know, one of my concerns -- or things that I need to understand is what -- what happened or what -- I mean, obviously you're saying there's some new technologies that aren't being addressed because the standards are 40 years old. What's driving this -- you know, driving you to redo the standards besides that? What's the direction from the current governor in terms of, you know, reducing regulations or incorporation by reference? That sounds like that doesn't come from the governor's office, so I guess what's current -- I think we address that a little bit, but just kind of what's the current -- what's the word I'm looking for -- you know, path that the DEQ wants to take on this?

Let me just -- and then, you know, just kind of a general concern that we have a huge number of political -- of public comments being made on this, bigger than I've seen on anything for quite a while. And so I appreciate the fact that you need more time to go over what people are bringing up. But I'm a little concerned about, you know, how we got to -- and I don't know if there's an answer, but how do we get to a place where we have a lot of unhappiness

with this when we're close to -- you know, this far along. And so I have some concerns about kind of process and how we could maybe do -- what we can learn from this and how it can be done better, maybe, next time.

And then just kind of a general comment about the difficulty that people are -- who have to -- are the practitioners we're hearing from in the state that have to implement this, the difficulty of going back and forth between the incorporation by reference. And so I guess it just still brings up the question for me do we really have to do incorporation by referencing? What's -- if what we're really referencing is 150 pages long, or whatever, and would increase the regulation by that, why aren't we just taking those sections we want instead of incorporating by reference, putting them in, and then seeing how much -- does it improve the readability.

And I understand from your response to comment you guys started on that path but then changed your mind to do incorporation by reference because it wasn't working. I think that's what I read.

I don't know. I guess I've given you enough things to -- I'll forget where I started. So maybe you can answer those, and then I'll continue my general comments. Sorry.

MS. ZYGMUNT: Yes. Mr. Chairman. Board

Member Cahn, yeah, there's a lot packed into that question, so let me see if I can take it part by part.

I'll start off, and then I'm sure Bill and Keenan will have things to add. I'll speak to the incorporation by reference. And, again, to answer your question, I cannot speak for any directives from the governor's office about rules at this time, but we did start down this process -- we started working on Chapter 12 when Governor Mead was in office with the streamlining initiative in effect.

Even after his administration ended -- again, as I stated earlier this morning, I do think it's in the interest of any agency to look for opportunities to streamline and increase efficiency when we can. And I do support incorporation by reference as a way to do that in regulatory documents.

Again, we recognize the pros and cons. And, you know, we did hear feedback that it is challenging to look through multiple references, but I also will repeat Bill's comment that that is a bit of a standard in the engineering field, that you commonly have multiple references that you're working from. So I don't think that we're departing from, you know, what the standard is in the field or what other agencies do.

I would like to continue down the incorporation

by reference, but, of course, we'll take the public feedback that we heard and feedback from the Board, and if it's the Board directive that we need to reconsider some feedback, that's something I'll discuss with Director Parfitt.

I will, excuse me, reemphasize, though, that if we added back all the 10 States Standards sections that we referenced, it would significantly increase the length of this rule. I think we're talking around a hundred pages would be added since we refer to it pretty extensively.

We did hear some challenging feedback about the incorporation by reference, but there's other people that feel it can work too. So I would just acknowledge both, that I do think incorporation by reference has challenges, but it can be a workable solution.

Let's see. Board Member Cahn, I'm trying to think of the other parts of your question there. And, again, the driver of this rule, yes, it is nearly 40 years old. Again, we need to have updated modern technology in those rules so that our communities have the appropriate standards to design these facilities, construct these facilities so that we are protecting public health by having quality drinking water.

Let me stop there and see if Bill or Keenan would like to add anything.

MR. TILLMAN: No, I -- Board Member Cahn, just to echo sentiments of Administrator Zygmunt. I don't think that, you know -- it's six of one, half a dozen of the other whether or not you try to put all of what we've incorporated by reference from the 10 States Standards into our chapter. There are still other standards, as we refer to, AWWA, NSF, several others entities that we reference in the document as well. So we wouldn't just be incorporating the 10 States Standards and putting in their words. We would -- would also have to include everything else that we've incorporated.

So I think, again it's six of one, half a dozen the other, whether or not you have one or two documents or you have a single one that's the size of an encyclopedia. I still think that you're going to reference other documents in order to make sure that that design's complete.

So, again, I don't feel that that's a pervasive argument. I think we've had a couple of people say that. We've had also people say to the contrary that they can work with what we've got. There are other people that had no comment on the incorporation by reference. So it's a -- I understand the personal nature that some people feel it's difficult to get through, but I think in general, as an industry, that is not -- I would not consider that to be

cumbersome.

MS. ZYGMUNT: And, Mr. Chairman, Board Member Cahn, I remember the second part of the question, and I'll speak more to the process and the public notice. And certainly understand the question and the concerns. And we were a bit surprised by the number of public comments on this as well.

In terms of what we could do differently, I think in the future, for this rule and others that are similar to it, we would likely rethink our initial public outreach and consider having a draft document to start from at that point, which might give people, you know, more concrete target to start providing comments on.

Again, we did do informal outreach in October of 2020. Only garnered two comments. So perhaps during that informal outreach, when we have a better tentative draft, I'll say, might be a better way to better give people an idea of what we're proposing. So we're very open to looking at that process and seeing how we can make improvements in the future, and, you know, complete outreach up front to, you know, reduce the public comments at this point.

Again, it has been challenging to receive comments for this up to the point of the board meeting. I think that is something else that we could consider in

coordination with Administrator Engels, if that is the best way to go about it. We want to make sure that people who are commenting have a clear idea of how we'll be able to respond to their comments and make sure that the board members have complete information by the time that we meet.

So those are just some of my initial thoughts. And we were open to looking at how to do our processes better. And, again, if it's the Board's direction that we need to take more time to look at the public comments and feedback from the Board, we certainly understand that perspective.

CHAIRMAN KIRKBRIDE: One of my thoughts is that I think most of us have had the experience of having a problem and calling somebody at some office for help, and they say, oh, no, you got to call Person B. You call Person B, and they say, oh, no, you got to call Person F. Well, when -- and it's very frustrating. And I think if you -- I would favor the incorporation by reference to simplify things. But you want to have it accurate. You want -- that needs to be user friendly too so that you go to the right place, it seems to me. And I think as long as you're careful in doing that, I would think that's a preferable way. That's personal opinion from a distance.

BOARD MEMBER CAHN: Yeah. I guess another part of my comments about the incorporation by reference,

if I may, Mr. Chair.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: You know, when I worked for the -- for most of my career I worked in Idaho. And Idaho has a regulation that -- I can't remember -- it might be 135 pages or so. Somewhere along what we're talking about this might become. But I remember it being very, very easy to use and having everything in one place. And I didn't find it cumbersome to use something, and it was -- you could click on -- you know, when you looked at it online, you could click on a section from the beginning and it'd take you right to where -- you know, where you were going. So that's -- that's one of the things.

Another thing -- so I -- I would prefer that to incorporation by reference. And I think we're hearing, you know, a split where some members of the public like it and some members don't. But I think, you know, if the goal is to increase efficiency and streamline, I think we have to look at whose perspective is that from, because if it's from the perspective of DEQ, maybe it's streamlined or efficient to have incorporation by reference. But from user perspective, practicing engineers in the state, it's less efficient and less streamlined.

And I think -- so -- so I guess I'll just leave it at that, other than to say I think if -- if you were to

write out everything that you want instead of incorporating by reference, I think we could differentiate between things that are AWWA, or, you know, things that are always in regulations not all spelled out. We've always referred to things like that.

And, you know, whereas referring to the 10 States Standards, they're really not standards. The title of it is recommend -- something like recommend -- I'll have to pull it up again, but it's something like recommended practice. And so, you know, in my mind, it's one thing to incorporate EPA requirements when -- by reference, when everybody can pull those up, or -- yeah, so it's recommended standards for waterworks is the title.

So in my mind, there's some -- there's a bunch of questions. One is, you know, if we're doing something -- like when we do RCRA or HMLA, you know, citing EPA makes sense, because everybody can look those up. And no matter which state you work at, the EPA rules aren't going to change. But anyways -- so one of my questions has to do with is this recommended standards from midwestern states -- and provinces, Ontario -- is that even appropriate for Wyoming, and should -- maybe we should be looking at states closer to us that are in the Rocky Mountains, you know, maybe some of the issues that people bringing up have to do with -- maybe they're not at issue

in the midwestern states.

So I guess I would recommend that DEQ look at the Idaho standards and see if maybe -- you know, that would be one suggestion, to see if maybe that looks user friendly to them. And the second is, I guess I would like to see -- and obviously I'm just one person -- but I would want to see going back to a stakeholder group. And we certainly have a number of people now that have -- around the state, from all parts of the state, that are saying we're concerned about the usability of this, and we have some concerns about technical things, put together user group, stakeholder group that includes not just users but obviously the practition -- the people who are -- who are out in the field looking at these sites and helping people who are regulating, you know, like the district engineers that we have within Wyoming -- within DEQ, and having -- going back kind of to the drawing board to -- to rethink this.

And, you know, perhaps maybe -- 10 States Standards -- I'm not sure why that was chosen. Maybe that's not the -- and that was chosen -- I mean, Bill -- I appreciate what you said, Bill. I think you said it was chosen like 40 years ago to -- to start with, and that's kind of what we're stuck with. Well, if we're redoing the regulations, maybe we're not stuck with it. Maybe, you

know, we should -- we should, you know, not use 10 States Standards. So I'm kind of -- I think there was enough concerns about it that maybe -- maybe that's not the appropriate -- and, as I said, it's recommended practice.

So I'm concerned about referencing -- incorporating by reference things that are not a regulation by something like the EPA. And, you know, if it's a procedure that AWWA has, or whatever, those -- those are typically -- I don't think -- I don't think -- if you -- I don't think we have to say, if we do an incorporation by reference for AWWA, that, therefore, we have to do everything else incorporation by reference. Or if we spell out what we want, that we can't refer to an AWWA and incorporate that by reference. So I think there could be a mix and match of what makes sense and what makes it most user friendly.

And then -- and then another thing I'll say, you know, when Bill talks about engineers needing to refer to a bunch of different references. Well, yeah, we all do that when we're, you know, putting things together. But it's different, in my mind, when we're looking at a regulation. You know, what -- what do we have to -- what do we have to fit -- you know, what we're building, what does it have to fit? And in my mind it's easier to know where you're going if you know -- if you have it all in one spot, whereas how

do I get there? Yes, I'll refer to a whole bunch of different manuals and references to get there. So I'll just leave that on the table.

MS. ZYGMUNT: Mr. Chairman. Board Member Cahn, let me start with some initial thoughts on how to respond to those comments, which we certainly understand. And I think I might not go exactly in order here.

But first, you know, the 10 States Standards are robust. Again, they're used widely in the engineering field, so I have absolute confidence that we're referring to appropriate standards to incorporate into our regulations.

This is different than you've seen in our other rule packages, that this is not a primacy program. So there are not corresponding EPA regulations we would point to like we would for some of our Clean Water Act, Safe Drinking Water Act programs. So there's a difference there that we're -- it's not apples and apples to some of the other rules that you've seen where we are pointing back to EPA regulations.

You know, and, again, recognizing your concerns, Board Member Cahn, about public outreach. I feel -- you know, again, there were a lot of comments, but I don't feel like they're anything that we can't work through with the commenting entities. I'm not seeing any deal breakers.

And so, you know, given your request to take this back to square one with the stakeholder group, I'll consider that, but I don't feel like that would be an appropriate step at this time, given the work that has been done. And, again, I think we have received some very good comments, but after people have time to digest our responses, we can work with those commenting entities further, but I don't think we need to roll it back to square one of the stakeholder group.

I think that answers a few of your questions, Board Member Cahn. And let me turn it over to Bill for his thoughts.

MR. TILLMAN: I guess to echo the sentiments of Administrator Zygmunt, the 10 States Standards or recommended practices for waterworks is something that's used all across the country. It's not just the Great Lakes. It's used from California to New York, down to Florida, up to Washington. Just about everyone in the civil engineering field is familiar with those standards, and they use those exclusively.

As a matter of fact, I believe it's Montana paraphrases the 10 States Standards, and they say so right up front. The 10 States Standards are not -- you can, I guess, incorporated fully, but they basically paraphrased them.

North Dakota uses 10 States Standards exclusively. Colorado has also paraphrased the 10 States Standards. They just didn't mention that up front. So to shed any, I guess, concern about the 10 States Standards and their ability to design water treatment systems is a misnomer. They're used exclusively, extensively, and will be used in the future.

They're regulated by engineers, by boards. They review those regularly. Yes, they were initially part of our standards, our rules 40 years ago. They've been updated every five to six years since, hence the 2012 standards, the 2018 standards. There will be other standards. So they're reviewed constantly by engineers, by entities for their appropriateness, for their content.

And I think there's a significant difference between engineering design standards that we're calling regulations and other types of regulations for Air -- Air, Solid and Hazardous Waste, things like that. So to mix those two together, I don't think that is appropriate as far as an analysis of how they look.

Secondly, and, again, I'll reiterate, you will never find all the things you need in a single document. Even if we have all the 10 States Standards written out in Chapter 12, someone's still going to pull out a pump manual, a materials manual, some other pamphlet, an

individual component manual to try to figure out does this work for me? Is this appropriate for this application?

So to try to -- I guess, to give the incentive that we can have everything in one spot and it can be done and be efficient in one spot, I don't think that's appropriate. I don't think that would be relative for an engineer or the regulated communities who are going to be doing the engineering, that's not what they would be -- something they would look at.

BOARD MEMBER CAHN: I see that Brian has his hand up.

CHAIRMAN KIRKBRIDE: Mr. Deurloo.

MR. HENDON: I'm not sure his mic's on.

MS. THOMPSON: Brian, it looks like you're muted. Oops.

BOARD MEMBER DEURLOO: How now brown cow.

MS. THOMPSON: We can hear you. Oh, there you are. Okay. Yeah, this technology...

BOARD MEMBER DEURLOO: Okay. Very good. Yeah. Great. Well, I really appreciate -- thank you, Mr. Chairman.

I really appreciate what the DEQ is saying right there in the last comment by Mr. Tillman. And it finally hit me how much time is saved by referencing by incorporation, especially with the 10 States Standards,

which it seems appears they're updated every three to five years, recently. And I can see why it would be an advantage to do that, because it also saves us on the Board time every three to five years. If we reference those, rather than writing our own in that we thought was the end all and be all as a good reference for standards, I think it would save us all time if we did allow that. I mean, it's not like -- that way that we went ahead with reference by incorporation. So, yeah, you sold me on that.

As we were -- it's all really good comments on this. And I have to say it's good work. You guys have done a tremendous amount of work on Chapter 12. And water is a touchy subject, especially clean water, drinking water. It's going to become even more of a deal. Every day water's becoming more valuable, and we need to make sure that we have good standards for its protection.

I had to remind myself -- as you guys were talking, I walked and went to the wall map. And I just tried to discover and remind myself how many rivers from Wyoming go to the Mississippi River. We have the Yellowstone River, the Bighorn River, the Powder River, the Belle Fourche, the North Platte, which includes Crow Creek, all flow to the Missouri River Basin into the Mississippi Basin. So more than half the water probably leaving the state of Wyoming is feeding the Mississippi River in the

long run.

So we are actually a part of the upper river -- or at least could be. And so my question to the staff -- or for discussion is would it be -- have we considered joining the 10 States Standards, seeing how we're part of the Upper Mississippi? Or to Lorie's point -- I mean, wouldn't there be an advantage to joining that, that we can have a seat at the table, because as a board, each state gets one vote.

And, let's see -- or, you know, as Lorie was speaking about, is there a western states, because we also, you know, feed into the Colorado River. And then also feed into the Columbia River. There's major watersheds we feed in all over the place. So we're at a pretty pivotal point with our regulations, and people may look up to us if we do a good job on these.

So also I'd like to finally -- it is 1:38 right now, by my standards -- or by my clock. We are -- I'm happy to go to however late it takes with you guys, but we're going to have to figure out some way to kind of, you know, more hastily either answer these questions or address them or set up a second meeting or something like that. I'm saying it's still 1:30. We've got some time, but I wanted to bring this to everybody's attention. Thank you, Mr. Chairman, for the time.

CHAIRMAN KIRKBRIDE: Thank you.

MS. ZYGMUNT: Board Member Deurloo, yeah, thanks for the comments. I don't have enough historical knowledge to tell you if we have considered joining the 10 States Standards or what would be involved there. We will absolutely look into it for you. It's a good question.

And we're not currently aware of any other comparable western state manuals. And, again, that's a question that we can keep on our radar.

I'm going to look at Bill and see if he has anything to correct me with there.

MR. TILLMAN: No, I'm not aware of any other guidance manual for designing water treatment systems other than this recommended practice of 10 States Standards. That's what -- pretty much across the country. Even at national conventions with SRF, people are referencing that document as something that they look to for designing systems or for new treatment options, things like that. So I don't think there's another document similar to that in nature for designing water treatment systems or distribution systems for drinking water.

BOARD MEMBER CAHN: Mr. Chair.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: I just wanted to

clarify something that Brian said. I just wanted to make sure everybody understands that -- or my understanding, just to make sure -- want to make sure I'm correct -- is that even if we adopt the 10 States Standards and they go through in three years or five years and they make an upgrade, they change it, we're locking in time the 2018 standards if we approve -- if this regulation goes forward until such time as we go through another rulemaking. So even if they come up with a 2022 change, we're locked in at 2018 until we go through rulemaking again, and then we can incorporate the most current of the TSS at that time. Thank you.

MS. ZYGMUNT: Mr. Chairman. Board Member Cahn, that is correct. When we reference the 10 States Standards, we will be referencing the current manual, which is 2018. We would -- if that manual is updated in 2022, we would have to go through rulemaking again to reference the 2022 standards. But at that point, the incorporation by reference makes the rules revisions easier by just changing the manual that we're referencing at that point.

MR. TILLMAN: Also, Chairman Kirkbride, if I remember correctly -- Gina, correct me if I'm wrong -- I believe that we were given direction from our Attorney General that we could not say future references or future editions of this document. We have to cite a specific

document that we're referring to when we're referring to any type of information that we're inferring from. So we cannot just say every future edition of the 10 States Standards we'll adopt. We have to wait until it comes out, see what they change, and then adopt certain aspects of it, just as we have done now. So, unfortunately, that's not legally one of the things we're allowed to do.

MS. THOMPSON: That's correct, Bill. It's actually spelled out in the Administrative Procedures Act. And we have to include a statement that includes the date that we are adopting. And then we also have to include a statement that says we are not adopting any future iterations. And that language is really specific. And any time you have a rule that's promulgated in any DEQ rule right now where we're doing incorporation by reference, you'll see that statement at some point in the chapter, because, otherwise, it's ambiguous and we don't want to be in violation of any part of the act, so...

CHAIRMAN KIRKBRIDE: Thanks for that clarification.

All right. Well, are we back to -- Lorie, do you have some things -- any more on Section 1, 2 and 3, or does any other board member?

BOARD MEMBER CAHN: I do not.

BOARD MEMBER DEURLOO: No, sir.

CHAIRMAN KIRKBRIDE: All right. Why don't you guys go on.

MR. TILLMAN: Chairman Kirkbride, the next comment was regarding Section 4(a) from Mr. Alsaker. I'll read his comment. Mr. Alsaker recommended removing the statement that '18 TSS applies unless noted, instead referencing the relevant TSS section for each WQD Chapter 12 section. Mr. Alsaker asked are there any places where it's noted that sections of '18 TSS do not apply?

Our comment, DEQ/WQD has considered comments. Section 4(a) states that chapters incorporating by reference all sections of the 2018 TSS, except Section 1.0, the first paragraph of each subsequent section of proposed revisions of Chapter 12 states that the 2018 TSS sections apply to the material within, and we will try to keep the passage as written.

So we felt like we've done our best to tell which sections it applies to and where it's applicable, as opposed to not applicable, as he recommended. It just seemed to make more sense of what applies as opposed to what doesn't apply.

Do we have any of comments from the Board as far as that section goes, Section 4?

BOARD MEMBER CAHN: Mr. Chair, I do.

CHAIRMAN KIRKBRIDE: All right. Lorie, go

ahead.

BOARD MEMBER CAHN: Yeah. So this is confusing the way this is written, because as I go through the 10 States Standards and I write out all the things you guys have referenced of the way you say, you know, this Section .1.1 and Section .1.3, and whatever, and you're skipping sections, to me that doesn't mean you're incorporating the whole thing. You're specifically incorporating sections that you call out.

So I agree with -- I agree with Mr. Alsaker's comment that this could be better worded. It would almost be this -- this chapter refers to sections of the recommended standards for water, and -- you know, and -- because we're not incorporating the whole thing by reference. Otherwise why would we go through in each section and say this section, this section, this section, this section?

So I think maybe DEQ either misunderstood the comment or didn't really address it in the response.

MR. TILLMAN: Chairman Kirkbride. Board Member Cahn, I felt that we addressed it, because you can say either what's included or what's excluded. And either way, you're going to have someone that's going to read it and say why didn't you tell me about the parts -- the other parts. So we've opted for, I guess, on the positive, on

the affirmative, of what's included as opposed to what you can include. And absolutely we did not incorporate by reference the entire document, and that is on purpose, because there are lots of sections where we disagree with what they propose. And so, therefore, we have to incorporate by reference specific parts of the standard. And I guess it's -- you know, is your glass half full or half empty, depends on how you look at it, whether or not you include or exclude in that opening statement.

BOARD MEMBER CAHN: Bill, I think we're in violent agreement with each other about how we're doing it. I think it's how it's being explained. So I think, like when it says "unless otherwise noted," I don't think there's anywhere in here where we say we're not incorporating X, Y and Z. I think we're incorporating -- we're saying we're incorporating A and not B and C and not D. So I think -- I think it's -- I think you and I are saying the same thing. It's just that I don't think this statement on line 203, 204 is saying what you're saying. That's what I'm trying to say.

MS. ZYGMUNT: Yes. Mr. Chairman. Board Member Cahn, I understand what you're asking. And I think it is just how we presented our response and response to comments document, but we are on the same page with Bill's explanation of how we're incorporating sections of the 10

States Standards. So we'll take a look at that language.

And we can also work with our Attorney Generals to rewrite 4(a) to meet the intent of the Administrative Procedures Act and make that a little bit clearer for you.

BOARD MEMBER CAHN: Thank you.

MR. TILLMAN: Continuing on --

CHAIRMAN KIRKBRIDE: Go ahead.

MR. TILLMAN: -- Chairman Kirkbride.

CHAIRMAN KIRKBRIDE: Yes, please.

MR. TILLMAN: We don't have any comments in Section 5.

The next section we have comments from the public is Section 6(b)(iii) through (iv). And the comment -- the Region 8 comment, this section appears to allow the use of alternative treatment --

THE REPORTER: You're going to have slow down, please. Slow down.

MR. HENDON: Not so fast.

MR. TILLMAN: This section appears to allow the use of alternative treatment technologies not directly covered under Chapter 12 regulations based on theoretical evaluation of the design that demonstrates a reasonable probability that the technology meets -- will meet the design objectives.

Says why this is of concern, it seems like a

fairly old standard for use of new or novel treatment technologies. These technologies could be used for microbial reduction credit under surface water treatment rules. Suggests for facilities producing finish water for consumption, that data for a full-scale comparable installation or pilot plant be required instead of only a theoretical evaluation.

Our response, we considered the comment. The passage in this section allows for systems that propose new and innovative technologies. District engineers evaluate these types of applications under this section for compliance with the chapter and for other water quality considerations. These applications go through a thorough review and approval process before we issue them. And so we understand that adding a pilot plant or operating facility that incorporates new technology for information for data to see how well it works is one thing, but that's not always possible or practical. And the way we wrote the section, it allows for folks to give us theoretical information based on other evaluations of new technology that gives us a sense of whether or not it can work or can't work. And to exclude that would limit -- limit the possibility of new innovative technology. So we feel that leaving it the way it is gives a wider acceptance of new treatment technologies that could be available to us.

Any comments from the board members on that comment and passage?

BOARD MEMBER CAHN: Mr. Chair.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: We blew past the definitions, and I had some comments on the definitions. So after we take this Section 6, maybe we can go back to the definitions.

CHAIRMAN KIRKBRIDE: Was that in a different section, Lorie? Am I --

BOARD MEMBER CAHN: Yes.

CHAIRMAN KIRKBRIDE: Okay. Since we're on 6, and -- we got anything on 6?

Okay. Let's go back to 5, then.

MR. TILLMAN: Chairman Kirkbride, we did not have any comments on the definition in Section 5, so that's why I did not comment.

CHAIRMAN KIRKBRIDE: That's fine.

MR. TILLMAN: But, Board Member Cahn, if you have comments or questions on the definitions, please proceed.

BOARD MEMBER CAHN: Yeah. I have comments on Section 5.

So on line 348 it says this may include mechanically driven drives, and it just seems like driven

drives is -- could probably be better worded to just include mechanical drives. So that's just a minor comment, but...

And then on line 359 to 361, I think they were talking about offstream reservoirs. And I think there was a public comment -- I guess there wasn't. I'm sorry.

Offstream reservoir is a term that's not used in the rest of the document, unless it's in the 10 States Standards. And then if it's in the 10 States Standards, this brings up kind of a procedural question. Do we have to have in our definitions everything that's in the 10 States Standards for definitions?

MR. TILLMAN: Board Member Cahn, we tried to make sure any definition that we put in Section 5 is used in the chapter. Apparently we missed one. And if that is not used in the chapter at all, we will delete that one. We do not include definitions that are strictly in the 10 States Standards. That's not part of our direction from the AG as far as what we need to include from a definition standpoint.

BOARD MEMBER CAHN: Okay. And then I would just ask, since I didn't see it referred to at all in here, I wonder how -- I guess I have a question about how often -- how many of those are there in Wyoming, offstream reservoirs. Is it a setting that occurs or not? Do we

have lots of them or none of them or one?

MR. TILLMAN: Board Member Cahn, I cannot answer that question. I don't know. I did not -- I can't remember. I think this came -- this definition came in when we were in a discussion, I believe, on wells and some other things. I'm not sure we have any offstream reservoirs, at least in my world.

MS. ZYGMUNT: Mr. Chairman. Board Member Cahn, we can look into that question and get back to you.

BOARD MEMBER CAHN: Okay. And then I just have a -- just kind of a general English usage term -- or thing that would apply in other places potentially. On line 38, we talk about utilized water provided by the public water supply. And typically "utilize" refers to a use other than which that thing is designed for. So I think just to simplify language, you can just use the word "use." So just to watch for when you use utilize, and if it really means just use, use "use." So that's all I have on Section 5.

MS. ZYGMUNT: Board Member Cahn, can you clarify where that is? I do not see it immediately.

BOARD MEMBER CAHN: Yeah. It's on line 381.

MS. ZYGMUNT: Oh, thank you.

BOARD MEMBER CAHN: And then I have

comments on Section 6.

MR. TILLMAN: Board Member Cahn, if you have your comments on Section 6, please continue.

CHAIRMAN KIRKBRIDE: Yeah. Yeah.

BOARD MEMBER CAHN: I'm having problems with my comments showing up. I think EPA had a comment in Section 6 on line 563, EPA comment 1.

MR. TILLMAN: Yes, Board Member Cahn. We addressed that. Basically they're -- they consider us allowing for a theoretical information regarding new technologies. They consider that a low bar, and why don't we have a pilot plan for that. And, again, my comment -- or the DEQ's comment was basically sometimes that's not practical to have a pilot plan or a full-scale demonstration of new technologies. Sometimes theoretical information, theoretical data, is all that we have, and it's all that is practical at that time for what's being presented. So we -- we would like to keep the passage as written to allow for those -- that information to be conveyed to us.

BOARD MEMBER CAHN: Okay. Thank you. I'm sorry. I forgot you mentioned that. I apologize.

MR. TILLMAN: Any other comments on Section 6 or Section 5 from board members?

CHAIRMAN KIRKBRIDE: Hearing none, proceed.

MR. TILLMAN: Okay. The next section we received comment on was Section 7. The first comment is from Region 8. Region 8 commented, the proposed Chapter 12 regulations do not require applicants to submit as constructed record drawings to Wyoming DEQ after a permitted project is constructed. It is acknowledged that statements of completion are described with each general individual permit issued. However, Chapter 12 should familiarize and require this as-built verification process.

Their suggestion, add a citation requiring all permitted construction projects to provide an engineer's certification to Wyoming DEQ and require that the registered professional engineer to provide documentation to Wyoming DEQ that the project was constructed according to the permit requirements.

Our response, we have considered the comment. Water Quality Rules Chapter 3 Section 11(b) identifies the permit application process for as-built drawings, and the section will remain as written.

It is already part of our procedure that the notice of completion that engineers -- that we requested engineers send back to us has a section where it -- you check the box that you constructed the project as -- as the submitted application information -- excuse me, as the

information that was submitted on the application, or there was modifications to that application based on things that were found, discovered as construction was going on. And, again, depending on the nature of those changes, if it was just a minor change, an elevation change that were a couple inches, maybe half a foot, we wouldn't consider that worthy of noting on a new drawing. But if they dug into the ground and found, oh, we have to completely change the alignment, where it goes, we now cross another pipe, those are types of things that are already in place that we receive as-built or new drawings of those changes after construction is noted.

Also, in our Chapter 3, that is not a part of Chapter 12, we also require if there are changes, they tell us about those things. We just did not feel that it was necessary to include that clarification in this chapter when this chapter was providing for design construction details as opposed to, you know, when you were constructing the project things you ran into. We thought those were adequately addressed in Chapter 3 and didn't need to be commented again in Chapter 12.

Any comments from the Board on that -- on that comment or response?

CHAIRMAN KIRKBRIDE: I don't hear any.

MR. TILLMAN: Moving on. We have another

comment in Section 7. Section 7(d). Mr. Darwin Dick noted that we have an incorrect numbering. We addressed that.

Section 7(e), we received a comment from Jason Palmer of the City of Green River. Mr. Palmer requested that this section include a requirement that the responsible charge operator review, formerly chief operator, commenting that operators ultimately have to make things work that are constructed and need a say in the design.

Our comment, we considered -- we have considered the comment, DEQ and Water Quality Division expects that's as part of the design engineer's due diligence, the review by the responsible charge operator or public works director will have been taken into consideration as part of the submitted design. DEQ and Water Quality Division will leave the requirement as written, but recommends that local governments include this collaboration of coordination of the design engineer in the contract forces and design.

Do we have any comments from the Board in regards to that comment or our response?

CHAIRMAN KIRKBRIDE: Sounds like we don't.

MR. TILLMAN: Hearing none, moving on. That was all the comments we had in Section 7.

The next comments come in Section 8.

MR. HENDON: Are there any -- excuse me,

Mr. Chairman, are there are any further comments from the board with regard to Section 7?

CHAIRMAN KIRKBRIDE: I don't think so.

MR. HENDON: Okay. Sorry to interrupt, Bill.

MR. TILLMAN: In Section 8(c)(i), Darwin Dick from Tetra Tech, his comment, with respect to the requirement that are transmission and distribution lines project, plans, view include existing location of utilities. Mr. Dick recommended that Chapter 12 revision adopt ASCE Standard 38-02 Guideline for the collection and depiction of existing subsurface utility data.

We've considered that suggestion. And the intent was to ensure that the existence and location of all subsurface utilities are included on the project plan set. We didn't agree that it was necessary to add another layer of formatting requirements to that information as necessary for -- as an extra layer of formatting requirement. We think that basically the information that we're requesting is just location of existing utilities, as long as it's discernible and defined on the plan views that we get, that that's adequate. That we didn't think it was necessary to add another set of guidelines to convey that information.

Do we have any comments from the Board regarding that -- that comment from the public for our response?

BOARD MEMBER CAHN: I have, Mr. Chair.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: So I have to go back to the previous section. I have a lot of comments, and so it's hard for me to -- I'm trying to read them all and figure out what's really important and which ones can wait.

And it's -- when -- it starts really on line 728, when we're talking about an alternative two-step permitting. And I sort of have a bigger overall comment when we're looking at alternatives. I struggle with this a lot with the rules, and that is when should something be a policy and when should something be in the rule. So if you want flexibility for alternatives, which are in section (g), and their -- then it's line 746, there's alternative procedure. Line 758, there's an alternative procedure, et cetera. So a lot of the rest of the Section 7, I would probably say all of it, because it follows under that, would it be appropriate, as a policy or procedure -- you know, procedure, as opposed to being part of the rule?

MR. TILLMAN: Board Member Cahn, that's one of the things we were given direction from the Attorney General's Office. To make it enforceable it needs to be in the rule. Policy is not enforceable. So if we try to enforce policy, people could push back and say that it's not -- not a part of our regulations. That's why anything

that we're adamant about that, that we're going to try to enforce, that we're going to require that they do, we try to make that a part of the rule.

And the addition that we add to Section 7 is part of those what we call the two-step process for permitting water wells and for permitting water storage tanks that are funded by WDO. We just wanted -- we added that for clarity, because it was something that was a part of a discussion when people submitted applications that they weren't aware of, and then when they called us and we told them about that procedure, it was basically new news. It typically impacted their schedule of how they were trying to plan the project and execute the project.

So we felt that it was appropriate that those types of procedures be vet -- vetted, I guess, through the rule so the people were aware up front that when you have these types of projects, here's the procedure and here's the timeline that it goes by, so that they weren't caught off guard and it did not impact significantly their project as far as when they're trying to complete them.

So I guess, in our opinion, what we've added added clarity to what we were already doing, because it was not written or codified in any way. It was more or less if they didn't ask about it, they wouldn't have been aware of it. But now it's in our rule that anyone that's -- may

possibly be considering or they're getting asked to do something like that, they understand now the procedure and the time it takes to execute that rather than thinking they could submit it and go in one shot.

BOARD MEMBER CAHN: Okay. Thank you, Bill. I appreciate that.

MR. TILLMAN: Do we have any other comments from the Board on Section 7?

Moving on to another part of Section 8.

BOARD MEMBER CAHN: Please wait. Please give me some time to look through all my comments. I'm still trying to sort out which ones I can call Gina up afterwards and say here's an English -- you know, grammatical one. So I'm trying to sort through my comments. So just give me a chance to get through, please.

Yeah, I do have a question on line 10 -- 1047. And that's -- it's talking about a Wyoming registered engineer. And I -- my question is does it -- is it necessary that they're licensed in Wyoming, or can an engineer coming over from, you know, Fort Collins or something do it?

MR. TILLMAN: Board Member Cahn, yes, they have to be a registered Wyoming engineer. Typically if you're registered in one state, reciprocity is easily attained in another state, but we do require that they have

a Wyoming registered engineer.

BOARD MEMBER CAHN: Okay. I have another question on line 1079. It's talking about the formation. So it says "The elevation and designation of geological formations, water levels, formations penetrated, and other details to describe the proposed well completely." I'm not sure now -- now I'm not understanding my comment. I have how far below the penetration should they go in giving elevations? Perhaps formations can be deleted or specify how far below the penetrating formations they should describe. I'm not sure -- oh, I understand my comment.

So this is before, correct? This is the listing of plans. I'm just trying to refresh where we are, what section. With all the redline/strikeout, it's hard to -- actually, that's another general comment I want to bring up, and that is by having these things with -- the way we do it in Wyoming was, you know, section and then (a) and then (i), and it's just gets so hard to know -- I mean, I've always had this problem. It's so hard to get to know where you are. Whereas when I looked back and refreshed my memory on what, say, Idaho did, having, you know, 1.1, 1.2, and you knew where you were, having a numeric thing. And it's kind of above everybody's pay grade, and that's not how we do it in Wyoming. But it sure makes it confusing.

And I guess my first question would be is there

any opportunity to change that to something that's more user friendly?

MS. ZYGMUNT: Mr. Chairman. Board Member Cahn, no, that is not at our discretion to change at this time.

Gina, would you like to add anything about the Secretary of State requirements?

MS. THOMPSON: Yes. So as the rules registrar for the state, the Secretary of State's Office sets the format and outline and other specific requirements for all state agencies. So while -- while we're -- you know, we periodically struggle with this numbering system in DEQ, all state agencies are subject to this. There are no exemptions. We don't get -- there's no variance process.

If our rule doesn't meet their strict outline requirements, we don't get a rule. So they have the ability to forbid our promulgation if we do alternate numbering. So at this time, you know, it's not something that we can push back on or ask about, because it doesn't just affect DEQ. It affects all the agencies. And it's -- it just -- it's something that we're subject to.

BOARD MEMBER CAHN: Okay. Thanks. I was --

BOARD MEMBER DEURLOO: Mr. Chairman. And,

Lorie, first -- Mr. Chairman. I would have to agree. I think it's backwards, big A being the smallest, and I -- what would it take to approach the Secretary of State? Who would offer the change in lettering and numbering so it makes it easier? Like what we're trying to do is make things easier for everybody. That's the whole goal is to simplify as much as possible and regulate the things that we need to.

How would one go about changing it to the more of a numeric -- numeric style, like, say, over a course of 10 years? I know it's probably like changing from imperial to metric, which I am all in favor of, for the record. But I'm not going to go there right now. But how does one go around doing that, please?

MS. ZYGMUNT: Mr. Chairman. Board Member Deurloo, I don't know at this point. I would recommend contacting Secretary of State. I think the most that we can do would be to try to find a contact. I'm not familiar enough with their system to know if it's in regulations. So, again, my recommendation would be to contact the Secretary of State directly. But at this time, that's not a message that our Division would carry.

BOARD MEMBER DEURLOO: Okay. Thank you.

BOARD MEMBER CAHN: Mr. Chair.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER CAHN: So I do understand my comment on line 1078. I had to kind of back up to see where it was.

So we're talking about plans and specifications. And they're saying -- this is requesting the -- saying we need to know the elevation and destination of geologic formations, water levels, formations penetrated, and other details to describe the proposed well completely. So it's a little bit vague in terms of how far below the penetration are you -- should they be going in giving elevations. And they haven't drilled the well yet. So, you know, how far below the proposed penetration do you want them to describe? I mean, we're not going all the way to China.

MR. TILLMAN: Chairman Kirkbride. Board Member Cahn, I believe Kevin Frederick was involved with the UIC group in helping us draft that section. And I believe that he was referring to probably as far as that aquifer that they're proposing to use for drinking water, drill to that depth. So I'm thinking everything that they know down to the depth of that aquifer that they're looking to use for drinking water is my guess, is what he's intending for that elevation.

BOARD MEMBER CAHN: Yeah. So my point is that this is very unclear. What -- you know, what's the

bar somebody meets -- because it's a proposed well, so it's not like this is a completion drawing for a completed well. And so elevation and designation of geological formations will -- how far down -- it's not giving anybody any inclination about how far below where they're planning on putting in the proposed wells should they go.

MR. HENDON: Chairman. Board Member Cahn.

BOARD MEMBER CAHN: It penetrated, that's like -- go ahead.

MR. HENDON: Chairman. Board Member Cahn, perhaps we can add in a simple definition or declaration that states how far below the end of their planned well and how far below that they need to explain the other formations presented with regards to well and plans and specs. So we can just have capstone statement with, I guess, a minimum standard below the --

THE REPORTER: Below the?

MR. HENDON: Below the end of their proposed well.

BOARD MEMBER CAHN: Or to the --

MR. HENDON: Or the casing. The casing.

BOARD MEMBER CAHN: -- that they're being -- that they're planning on getting water from, maybe it's the bottom of the formation from what they're getting water from. But maybe you want to know what there is below

that for an aquitard or anything.

So, anyways, I don't have the answer to this. I just think that it needs to be better specified.

MS. ZYGMUNT: Board Member Cahn, we'll consult with the groundwater section. And, as Keenan indicated, we'll add some clarification there.

BOARD MEMBER CAHN: Then I have a comment on line -- on the section that starts on line 1126. And it uses -- on line 1127, it uses the term "all," but then at the end on line 1129, it says "when applicable." And so I say is "when applicable" necessary when the list is "all"? If it's not part after all, it's not applicable. So I thought it was confusing having both the terms "all" and "when applicable."

I'll let you guys figure that out. I don't have --

MR. TILLMAN: Board Member Cahn, let us take a look at that. Let me read that real quickly before we formulate a response.

BOARD MEMBER DEURLOO: Lorie, what line number was that again, please?

BOARD MEMBER CAHN: It's lines 1126 through 1129. And it basically reads the type, size, strength, operating characteristics, rating or requirements for all mechanical, electrical equipment, including machinery,

valves, piping, electrical apparatus, wiring and meters, laboratory fixtures and equipment, operating tools, special appurtenances and chemicals when applicable. So it's either -- it's all of those things and -- so or when applicable, so...

MS. THOMPSON: Mr. Chairman and Ms. Cahn. When I read that, all mechanical and electrical equipment, those -- I think that's a separate concept. So we want it for all mechanical and electrical equipment, including all those examples. And laboratory fixtures and equipment and operating tools and special appurtenances and chemicals -- and chemicals, when applicable. So "when applicable" only applies to chemicals.

BOARD MEMBER CAHN: Okay. So I would then -- if that's true, then I would say "and, when applicable chemicals." And then it's clear that -- and then we have to have an "and" after -- oh, and we do have "and meters" -- wait. We'd have to have an "and" after tools and before special appurtenance.

MS. THOMPSON: And potentially, if I might suggest, that might be a good candidate to break that up a bit.

BOARD MEMBER CAHN: Yes.

MS. THOMPSON: Because that is a very long string, and I can see where that would be confusing.

BOARD MEMBER CAHN: Yes. That's all I have on Section 8.

MR. TILLMAN: All right. Okay. Chairman Kirkbride, moving on.

CHAIRMAN KIRKBRIDE: Uh-huh.

MR. TILLMAN: Next comment on Section 8 from Darwin Dick was just considering a numbering error and adding something to a list. We corrected the numbering error and considered the suggestion, put the design engineer responsible for researching the information that is regulated by Wyoming Public Service Commission as a part of their due diligence. The proposed standard that he recommended was ASCE 3802 falls outside our regulatory authority and is better adopted by local governments.

That was the last comment that we had on Section 8. Do we have any other comments from the Board regarding Section 8 or any other concerns to that section?

BOARD MEMBER CAHN: Yes, I do. Can you kind of explain to me what you anticipate an engineering design report to do? When is it prepared, and what -- what's its purpose, and what do you envision is in that?

MR. TILLMAN: The design report typically is to put into words what they're trying to achieve with the project, what the proposed -- what project is. The problem is trying to solve, how it proposes to solve that,

and any, I guess, variances or things that they want to consider or need to consider in application of that design for that problem. Different than plans and specs. Plans and specs are typically drawings and spec sheets. The engineering report is a verbal description of what they plan to do and any, I guess, other considerations they had to take into account to make the design workable and fit our rules and regulations. And, therefore, that's why, when we modified that, the engineer that we were working with at the time -- or a couple of engineers -- they noted that when they got necessarily engineering design reports, let's say on a treatment works, they weren't necessarily getting all the things they were expecting to be described or talked about. So in that section we tried to annotate exactly what we would expect from the different types of applications that we received, be it treatment works or distribution systems or things of that like. And there was -- whether it was new or existing, it mattered kind of what that was in the type of information we received.

So I guess that's the best way we can address that comment.

BOARD MEMBER CAHN: Okay. Let me -- let me go through and find my specific comments.

MR. TILLMAN: And, Board Member Cahn, there isn't really any standard template that we expect from

them, and that's why we kind of gave them an outline, because we weren't getting the information that we wanted or the description of what they were trying to do or why they chose -- I guess certain design parameters can also be described in that engineering report.

So it's a verbal description that we look for to help us understand the who, when, where and why of a design.

BOARD MEMBER CAHN: So some of the stuff seems a little bit more prescriptive and detailed than you're kind of describing to me. So I guess I would ask you to kind of look through this list as you do your reviews to see if some of this may be -- is either out of place or -- like, for instance, there's a description on -- on line 1892, it starts out "A summary of the likely drilling and completion challenges that will be faced, including description of the engineering design, management, monitoring, and drilling and completion practices that will be used to successfully construct the well in accordance with this Chapter." And I will say a lot of this stuff isn't really known ahead of time, so, you know, I'm not sure that some of the stuff really belongs in an engineering -- kind of a high-level conceptual report, or -- so...

And then, again -- let's see. "The methods that

will be used to overcome lost circulation, bore instability, and deviations from vertical" -- I mean, I think a lot of the stuff you aren't going to know until -- I mean, you have might have some contingency plans of what you're thinking you're going to do, but I think a lot of this is just really premature. It's really more appropriate for -- at the back end, after you've put in your well, not while you're proposing your well.

MR. TILLMAN: Chairman Kirkbride and Board Member Cahn. That section in particular was -- arose from the issues that they came up with in Gillette Madison in that acidizing. And you're correct, there's some of that information you're not going to know. But on the other hand, we're requesting that they do their due diligence to try to find out that information, because that was probably some of the issues that we ran into, is that -- or that we do run into when people drill some wells. They'll claim they don't know anything about the geology, where they're going into. And sometimes they don't. But at the same time, if we're going to permit them to drill those wells, to the best of our ability we have to request that we get that information so that we can try to protect the environment and the aquifers and those existing wells to the best that we can. And it is very well understood that some of that information would not be known up front. But

at the same time, through other means, through other documents, through maybe other drilling logs in the area, maybe -- and I don't know how far apart that needs to be, because I know geology can change from an acre of land from one corner to the next, but we would ask that that person, the engineer, do their diligence, use all their channels, to try to figure out where that information might reside. And if they don't -- if they can't come up with that information, let us know to their ability what they do know and what they're planning so that, again, we can try to make a calculated decision and an agreed decision with the permittee that with all we know and what all we know of that area, we're in pretty good shape that we're not going to have any issues.

So, again, there is some -- there is some understanding that we may not get all that we're asking for, but we're still going to ask for that, and we're obligated to ask for that in trying to protect the environment.

BOARD MEMBER CAHN: Okay. It just -- it sort of seems like a lot of information based on one -- maybe you can quickly summarize what happened in Gillette with that acidization problem. Just quickly.

MR. TILLMAN: I guess the best way I can summarize that is that they were trying to, you know,

stimulate a well through acidization. And I guess they had accompanying ranchers, other residents, that all the sudden saw the pH in their water in their well drop to -- I think it was below 2. It was around a 1 or something like that. To where animals wouldn't go near it. And they're kind of going what's going on here?

And so part of the investigation -- we didn't understand whether or not it was part of the stimulation of that well that got away from them, that they didn't know the geology, the formation, the cracks, fissures, and all those sorts of things that may have led to possible acid getting into a formation or into an aquifer that they weren't aware of. But as it turned out, it seemed that the geology, the natural components in the dirt, in the earth, lended itself towards an acidic liquid. And so it was something that was naturally occurring, but it just so happened to be at the same time that they were trying to stimulate a well in a nearby area. So it was kind of happenstance that they discovered that it was natural geology chemistry that was contributing to that low pH water different than injecting acid into the ground, trying to fracture or stimulate, you know, water production.

So, again, that was part of the drive to try to understand more of what's going on subsurface prior to someone drilling a well and drilling a hole and saying,

hey, I think we've got water, so that we have fully understood what we might run into. And, again, that's a might, and I think we're -- the public puts that on the Department that we do our diligence to the best that we can to understand what that might be in the future, because whether we're wrong or we're right, they're going to expect that we -- we permitted that well and we knew what we were doing when we did permit that well.

BOARD MEMBER CAHN: So it seems -- it sounds to me like we had a problem and we thought it was acidization. So because of that, we are bringing in all these new requirements. But then it turned out not to be that. So I'm a little bit -- it seems like a lot of prescriptive stuff for one example that didn't turn out to be what we thought it was.

MS. ZYGMUNT: Can I -- if I can interject. So Mr. Chairman. Board Member Cahn, Bill gave a good summary of the Gillette Madison project. And, yes, it did not turn out to be acidization of the well causing the water quality problems, but as we mentioned this morning, that investigation pointed to areas where we needed more information -- information to make sure that we are doing, as Bill said, a regulatory due diligence to protect groundwater.

We will take another look at this language, but

I'm feeling pretty confident that it's language that we need to address what we learned through the Gillette Madison project. So we understand your comment. We will consider that feedback. But I do just want to make it clear why we have included this language and why it is important to the State.

BOARD MEMBER CAHN: Okay. Thank you.

And then going on to line 1916. It says "If any damage to the casing" -- sorry, 1915. "If any damage to the casing is found, the applicant shall describe how defective areas will be repaired and if there is a need for additional well bond logging." And, I guess, is there an example where when well bond logging wouldn't be needed for damaged or defective casing?

MR. TILLMAN: Excuse me, Board Member Cahn, could you please repeat that?

BOARD MEMBER CAHN: Yeah. So on line 1915 and 16, we're talking about if any damage of the casing is found, and said the applicant shall describe how defective areas will be repaired and if there is a need for additional well bond logging. And I'm thinking isn't there -- is there an example where you wouldn't need well bond logging for damaged or defective casing?

MR. TILLMAN: Board Member Cahn, I believe that not always when they drill a well is bond logging

required. In some instances where they know they've got problems or they had an issue with putting in that casing, I think that where bond logging can give them indication as to where that problem is, how -- how pervasive or how long or depthwise that problem exists, and gives them indication what they can do.

In some instances, bond logging is not -- is not necessary, is not even asked for. So I guess what we're trying to do there was in the event that they're putting in casing, they know they had issues, that bond logging can give them some information, some intel, as to what they need to do and how they can solve and rectify the problem that they've run into.

BOARD MEMBER CAHN: But you're saying it wouldn't always need to be well bond logging if there's damage to the casing or defective areas?

MR. TILLMAN: Not always, but, again, I would leave that -- I'm not a driller, and I would leave that to the drilling -- the drilling people, geologists, to determine whether or not that bond logging would give them that information, that additional information that they need to make a repair or to not -- or deem it's not severe enough to be repaired.

But that would be something I would defer to that specialist -- that geologist to make that determination.

BOARD MEMBER CAHN: Okay.

MS. ZYGMUNT: Mr. Chairman, if I could interrupt. So we are at 2:30. And Mr. Deurloo pointed out earlier that we will not likely get through all sections of the rule today. If it would be a good plan, we could finish the section that we're on now, Section 9, and then it might be the best use of time to then talk about what the Board would like us to do from this point forward.

CHAIRMAN KIRKBRIDE: I think that's fine. Go ahead.

BOARD MEMBER DEURLOO: Mr. Chairman, I'll make -- just as a -- I've been involved with lots of drilling, lots of coal-bed methane wells and core wells and oil wells and so forth. And that line 1915 seems -- Lorie, it seems fine to me. When there's -- when the original bond log finds a problem in the well, whether it be annulus cement or casing or whatever. There's an innumerable amount of tools you can send down wells to -- downhole to determine what the problem is. And so I think that's pretty -- I believe it's pretty well written to allow the experts to -- you know, they need to notify the DEQ that something's gone wrong, but there's additional bond logging if necessary to figure out what's wrong with it.

BOARD MEMBER CAHN: Okay. Thank you, Brian.

MR. TILLMAN: Chairman Kirkbride, we're now into Section 9.

BOARD MEMBER CAHN: Excuse me. I think --

MR. TILLMAN: Go ahead.

BOARD MEMBER CAHN: -- we had decided -- oh, I see. We're just finishing Section 9. I'm sorry. Go ahead.

MR. TILLMAN: Comments that we had on Section 9, the first one was from Cheyenne BOPU. Basically it was a number -- numbering error in 9(a). We will address that.

In Section 9(b)(iv), from Mr. Dayton Alsaker. Mr. Alsaker commented a design engineer may not know about all the services that are connected to a new waterline. It seems this comes later by the system owner through their cross-connection control program by the person designated to conduct this evaluation.

And we've considered this comment. Each new water service connection is required to be permitted. DEQ, Water Quality Division requires that the review at that time of the design for the overall type of hazard, and we will review future changes to assist them to permit conformance. DEQ anticipates that the design engineer will conduct their analysis to the best of their knowledge and future connections will need to be considered as new

details emerge.

So at the time that they, I guess, apply for their permit, all the information that they know regarding service connection needs to be evaluated for its having connection. And to the best of their extent, if they don't know, and they don't know what the services will be, when those services are applied for a permit, that at that time we will evaluate what those connections are and their hazard classification, and then assign them that classification at that time and move forward with the installation.

Any comments from the board members or -- on that comment or our response?

CHAIRMAN KIRKBRIDE: I don't hear any.

MR. TILLMAN: Objection. Moving on to the next comment in Section 9. Section 9(e)(ii)(A). Region 8 EPA commented that this section requires water systems that are collecting water quality data for surface water sources to conduct two water quality sampling events; one during spring runoff and one during late summer or early fall low flow. There are concerns that this may not capture the expected seasonal variability of some water quality parameters. They suggest that we increase the sampling frequency for some water quality parameters that are expected to be highly variable.

Our response, Water Quality Division has considered this comment. Paragraph B, capital B, states this data shall be sufficient for the Division to determine that the process safely and reliably complies with the water quality standards required by 40 CFR Part 141. When combined with Part B, the sampling frequency is flexible so that DEQ, Water Quality Division, may require additional sampling as needed. And depending on what information we get, we can always ask for more. And so we would request this passage remain as written.

Do we have any comments from the board members regarding that comment or our response to that comment?

CHAIRMAN KIRKBRIDE: I don't hear any.

BOARD MEMBER CAHN: Um, have we gotten to Mr. -- which section are we in right now? I mean, we're Section 9. Which part are we in right now?

MR. TILLMAN: We're in Section 9. The comment was from Region 8, and the Section 9(e)(ii)(A).

BOARD MEMBER CAHN: Okay. I guess I'll want to go back to the previous comment by Dayton Alsaker. You have to excuse me. We have so many pieces of paper, and I'm trying to shuffle through all of them on my computer, and it's just really hard to keep track of where we are and what people said.

So his comment on 9(b)(iv).

MR. TILLMAN: Uh-huh.

BOARD MEMBER CAHN: He said -- Mr. Alsaker commented that a design engineer may not necessarily know about all the services that are to be connected to a new waterline. And I'm thinking that the comment -- the passage could actually be reworded, I think, to address his comment. I think it's the way it was worded.

And then I'll have to switch back to line 1781. Sorry. I have -- we have so many files for this, I can't even find --

BOARD MEMBER DEURLOO: Yeah, it's really difficult. I feel your pain, Lorie, because we're going off comments and then we're going off the document that was written for public comment and one that's corrected. It's all over the place, trying to figure out which number we're on.

BOARD MEMBER CAHN: Yes. So line 17 -- oh. Line -- I think it's at 1681. I've got to get there on another -- okay.

BOARD MEMBER DEURLOO: I'd like to make -- Lorie, while you're looking, Mr. Chairman, if I may for a moment?

CHAIRMAN KIRKBRIDE: All right.

BOARD MEMBER DEURLOO: So, Mr. Chairman, if I'm understanding, because I'm like Lorie, kind of jumping

back and forth here. You're reading comments from the public that were based upon their referring to 9(b)(ix) or what have you, you know, we're trying to follow that down, and that's the lines. But then the most recent one that we're looking at is the last -- the second to last file on your website. It's -- it's the Chapter 12 strike and underline, yet you're referring to with the public comments on this -- not the -- sorry.

I'm looking at the -- sorry. Never mind. So, yeah, I do have a question here. When you're -- when -- because I'm jumping back and forth. When the comments from like EPA come and they say we want to make a comment and on 9(e), you guys have made -- as of December made updates to those incorporating some of the comments into the rules, right -- into the draft rules, right?

MS. ZYGMUNT: Mr. Chairman. Board Member Deurloo, that is correct. So the response to comments are just organized by section with a header to give you a sense of what passage in the rule. But the most recent strike and underline that Gina provided does include any edits we made to the rule itself based on the comments.

BOARD MEMBER DEURLOO: Got it. And where my train came off the rails was at 9(b), because it would have 9(a) to 9(t). And I think that is referring like this updated -- updated numerals? Is that right, or am I wrong

on that? Because on 9(b), the old ones, you go from 9(a) to 9(g), skip (b), (c), (d), (e), (f). And so are you referring to old numbering here when you say 9(b) or the new?

MS. ZYGMUNT: The new numbering would be my understanding, Board Member Deurloo.

BOARD MEMBER DEURLOO: Okay. Yeah.

MS. ZYGMUNT: We do recognize this is confusing. We get confused ourselves, and it is a big challenge. And I just have to give kudos to Gina, because she does a phenomenal job trying to track these changes and present them in a digestible way. So we recognize the challenge that we're throwing at you, particularly with this size of rule. We're open to feedback how we can present that information more clearly, but it is a big challenge. We get that.

BOARD MEMBER DEURLOO: Sorry. I'm not trying to complain about this. I'm trying to figure out different ways or if there's an easier way.

Thank you. I'll bet Lorie's got her thoughts together by now. Thank you.

BOARD MEMBER CAHN: Well, on that, Brian, I think in the response to comments, if it could give the line number that the comment -- you know, Section 9(b)(iv), if we got that that refers to 1781 to 1782 in the

redline/strikeout version, then that would help us jump to that part. But anyway, so what --

BOARD MEMBER DEURLOO: I agree.

BOARD MEMBER CAHN: I think Mr. Alsaker has a really good point here. He says -- so the language in the proposed language says "A determination of the degree of hazard of all water service connections" -- and this is line 1781 -- "to be connected to the proposed project. A hazard classification shall be identified for each connection and recommended mitigation measures shall be described for each hazard." And what he's saying is design engineer's not going to necessarily know about -- for a new waterline, the design engineer's not going to necessarily know all the services that are to be connected. So he says that -- you know, seems this comes later by the system owner through their cross-connection control program. So are we asking for stuff that it's not -- they might not even know, or -- or we asking for it in the wrong place? I mean, you know, does the cross-connection control permit -- are we regulating it in two places, is kind of what I'm asking. But -- that's number one. And number two, his -- I think his point is since this isn't going to be known, maybe -- I'm saying maybe DEQ could reword and take out the word "all" on 1781. So it's determination of the degree of hazard of water service connections to connect -- or

anticipated to be connected to the proposed pipe -- or known to be future connections or something. Because obviously there's lots of unknowns. And by using the word all, somebody could say, well, you never told us about this. And they can say but I didn't know about it at the time. So I think we need something to cover the event where a future use is not anticipated at the time. This is, again, an engineering design report. So this is this high-level, upfront document.

So, again, I think there's a lot of detail in here that seems to me to be too early on in the project. It -- we're at the planning stage, not the done and reporting stage. So I would just ask DEQ to kind of look through -- that's the stuff in here we talked about, maybe looking through and seeing if there's some stuff here that is really too detailed through this stage. And I think this is an example where maybe the word "all" might need to come out, as well as maybe some other things. So I'll leave it at that.

MR. TILLMAN: Board Member Cahn, when they submit an application, they don't submit application to install a waterline. They just say we want to stick a line in the ground. Typically with an application they're installing for a subdivision, for a business, for a service, for an apartment building. They know something

about what they're doing. They may not know the extension that we're going to go, you know, another couple hundred yards and add another subdivision. They may not know that at that time, but at the time they're usually putting in an application for water system, they have a fairly good idea what the initial use of that water system's going to be.

That's all we're asking. To the extent that they don't know what the extension might be, if they put a plug and valve at the end of the line saying we can extend that further if someone wants to incorporate that area or someone wants to buy, you know, that piece of land and do something else with it, and they don't know what that looks like, we understand that.

But we argue that when they put in a line for a subdivision, they know what residences are. They know where they're going to be plugged in. They know whether they're going to have a strip mall or if they're going to have apartment buildings. And all we're asking is that they evaluate those hazard classifications at that time.

And you're absolutely correct, sometimes they don't know. But that's what we're saying, when they do know and they go to apply for that permit to finish that construction, at the time when they do know, they give us that hazard classification based on the information that they're going to build.

MS. ZYGMUNT: And I think, Board Member Cahn, that the way we can potentially write that to support what Bill just said and address your concern would be all known or anticipated water service connections, and then as a response indicates we would work with them on future modifications. But as Bill said, we do need to know upfront everything they are anticipating at that time.

BOARD MEMBER CAHN: Jennifer, I -- Jennifer, I appreciate that. I think adding that language "known or anticipated at the time" type language would really help.

MS. ZYGMUNT: Great.

MR. TILLMAN: Chairman Kirkbride, that concludes Section 9. So I think we're at a point where we need to, I guess, discuss our path forward.

CHAIRMAN KIRKBRIDE: Anybody else got anything on 9?

Okay. All right. Path forward, what do you think?

MS. ZYGMUNT: Mr. Chairman, we're certainly open to feedback. I think after what we've heard today, you know, I'm seeing a couple needs. First, people need time to digest the material that we've presented. We also need time to digest the comment that Mr. Sepe provided today via our Smart Comment Portal. So we will definitely

take a look at that and can update response to comments and draft documents.

I'm tentatively foreseeing the Board might like another public notice comment period on this rule. Obviously we would do that before bringing the rule back to the Board at the first quarter of 2022. So we're open to doing that again. I do not feel, again, that we need to go back to square one, start over with the stakeholder group. I think the comments have identified, excuse me, entities that we can do some targeted outreach with, look at their comments and their questions, provide responses, do a little bit more outreach that way to better prepare us to come back to you at your next board meeting with further revisions and/or additional responses to comments.

Those are my initial thoughts, but, again, I'm open to feedback on what the Board would like to see.

BOARD MEMBER DEURLOO: Mr. Chairman, this is Brian Deurloo. May I make a comment?

CHAIRMAN KIRKBRIDE: Please do.

BOARD MEMBER DEURLOO: Thank you.

As just a thought, I think we're just throwing some ideas on how to proceed. This is the first time that I have -- Chairman Kirkbride and I joined the Board at the same time --- I don't know how many years, three, four years ago now -- and it's the first time I've seen that we

haven't got all way through like a single rule and had to carry on to the next one.

I would be willing to meet sometime in January, even before the next quarter. Like we don't have to wait the full quarter to get to it, otherwise it might take us a year to get this passed.

I don't know -- we've already had a public comment on this draft of the rules. I don't know if I recommend another public comment on the whole thing when we've already covered one-third of it today. If it please the Board, and I'd open it up for comment, that we just continue with this discussion and -- between now and -- or sometime in January. Maybe Lorie can share some of her grammatical and other comments with Gina between now and then, we pick up right where they left off and then plan on completing it even before the first quarter board meeting, potentially. So I guess what I'm talking about is maybe a special session to continue discussion.

MS. THOMPSON: Those special meetings are -- they're allowed under the Rules of Practice and Procedure that govern rulemaking. And if you -- if you want, I can pull up that rule to see what the requirements are. I think -- I think that's one of your decision options. But if you -- if it pleases the Chairman, I can look up that rule and see what the requirements are for a

special meeting.

CHAIRMAN KIRKBRIDE: All right. What is the timeline that the Division needs? I mean, are you wanting to keep this moving?

MS. ZYGMUNT: We're absolutely willing to keep this moving. It will not take significant time to respond to Mr. Sepe's comment from this morning. Again, if we need to do targeted outreach with the individuals who have commented so far, I think having a meeting in January -- toward the end of January would give us time to do that.

CHAIRMAN KIRKBRIDE: Is any Board unwilling or think it's a better idea to wait?

BOARD MEMBER COCHRAN: Mr. Chairman.

CHAIRMAN KIRKBRIDE: Yes.

BOARD MEMBER COCHRAN: I might ask what is proposed for the first quarter meeting?

MS. ZYGMUNT: I might have to look at Gina, see what she has on her radar.

MS. THOMPSON: So my understanding, as of this week, our sister division has no topics ready for your next meeting. DEQ anticipates -- or we had anticipated bringing the new rule to you governing the fees for the electric sequestration projects and the special revenue account. That rule has not been through our preliminary

attorney review, and so that one would not be ready for an early January meeting. We had anticipated bringing that to you in March. That those -- that project is the only one that I'm aware of at this time.

MS. ZYGMUNT: Mr. Chairman -- and, Gina, thank you for the reminder. Yes, that would be Chapter 29. I'll give you a heads-up that is only five pages, though, so in terms of you doing a review of that rule, it should not be a significant lift, much different than Chapter 12.

So I think we're open. We can go either way. If the board feels it's important enough to keep this moving, meet toward the end of January, we'd be happy to do that. If we wanted to wrap both chapters into one meeting, the new Chapter 29, coming back to Chapter 12, we would be fine waiting until February, March as well.

BOARD MEMBER CAHN: So would we just -- let me ask just a couple questions. So, I mean, I see one option we just hold onto our comments that we have on the rest of the chapter and we leave the public comment period open, because I think, in my mind, given the problems that some people had expressed their frustration in finding the 10 States Standards, we need to give more people time to comment on these. So we can leave them as is, and at our next meeting pick up and maybe cut off the public comment period so many days before our meeting so that you have a

chance to go over them and -- and then continue our discussion with the rest of the chapter. And then you go back and make changes, if necessary. Otherwise, maybe the Board just says, yeah, we're addressing these comments adequately at that meeting and go forward.

So I see one option would be to -- to continue the public comment period and continue -- basically continue this meeting until either January or the next time that we're going to have a quarterly meeting anyways. I'm afraid that if we do another alternative, which is you guys go back and revise it now and come back to us with a new one, all the comments -- it's going to make a lot of work for the Board, because all the comments that we've -- I have spent days and days and days.

I cannot -- I've never spent this much time on a new -- on the regulations and the comments as I have on this, and I don't want to lose what -- what work I've already done and have to redo it and figure out where does what I've got -- wrote before apply to new rules and everything else. So -- but I'm willing to do that if -- if you prefer to take it now and go back to the drawing board and then have a new public comment period with new rules, new revised rules. So I think we've got kind of two options, and I guess I'm looking for feedback on what DEQ thinks and what other board members think about that.

MS. ZYGMUNT: Mr. Chairman. Board Member Cahn, yeah, we clarify we certainly don't feel we need to go back to the drawing board. We feel we have a good product that's still obviously in development. We have a good initial round of feedback. We certainly don't want to create additional work for the Board. And we know how big of a lift this has been for us, so we can appreciate the time that it's taken you to go through this significant chapter as well.

So that said, I am going to, you know, have Gina double-check me here as I talk out loud. But if we wanted to extend the public comment period so that people have time to look at the 10 States Standards and during that time we'll make -- do some outreach to make sure people know where they can find the 10 States Standards and then have a clear cutoff date before the next Board meeting, that would be a workable solution for us as well. But compared to what we've done in the past board meetings, where the public notice goes up to the meeting, a clear cutoff date for those comments well in advance of the meeting will help assure that we can wrap up any comments and get a clear product to you before the meeting that you have time to review.

Gina, can you correct me on anything there?

MS. THOMPSON: Yeah, I would agree, that

would be consistent with how we've handled other similar extended comment periods. And, you know, I would reiterate if we do extend this, that closing it off well in advance of the Board, so that we can finalize any changes, give them to you in time for you to review them, we can certainly do that. With that extension of the comment period, we would -- we would follow our typical public process. We've done an ad before. So we'd probably do a newspaper ad, do our listserv, do our hand mails, and then make adjustments to your advisory board Web page resources so that there's isn't confusion on what we're asking people to look at. So...

BOARD MEMBER CAHN: I'd like to add something. And I think, you know, with us losing -- with you losing Bill -- and good luck to you, Bill, in your next endeavor -- I think we're losing a lot of institutional knowledge and expertise, and so I would like -- you know, I don't know who's replacing Bill or who's going to be working on this, but it would -- I think particularly, because we're losing Bill, I think it would be really important that whatever stakeholder group also has people within DEQ that have the experience base working with the -- I'd like the district engineers to be involved, so -- anyways, just want to ask that, you know, you guys work with your district engineers as well as the

stakeholders within the state.

MS. ZYGMUNT: Absolutely, Mr. Chairman, Board Member Cahn. Pretty much all the staff in the Water and Wastewater Section have been involved in this rule. Yes, we are very sad to lose Bill. We have not talked him out of retirement yet, and I don't think we will over the next week. So it is a challenge every time we lose that historical knowledge within the agency and the Division.

I have failed to introduce Anthony earlier. Anthony Rivers is in the room with us. He is one of our newest additions to the Water and Wastewater Section. And he's been working with Bill to help assimilate some of that historical knowledge on this rule and has been a big help on bringing this revised chapter to where it is now. So Anthony will be picking up some of the workload, but we will be working with all of our district engineers, because that historical knowledge is important. And, again, Board Member Cahn, we will outreach to entities that have reached out to us in comments.

BOARD MEMBER CAHN: Thank you.

MS. ZYGMUNT: And one other note, Mr. Chairman. You know, as appropriate, and we want to be cognizant of public meetings laws, but if there are times when we could facilitate one on outreach with board members to help answer questions, we'd be happy to look into that

too. We might need to consult with Gina and our Attorney Generals just to make sure we are following all appropriate procedures there. But if it would help to do some specific outreach with you guys one on one, we'd be happy to do that.

CHAIRMAN KIRKBRIDE: I believe we've come to some kind of consensus, unless somebody's got -- seemed like to me, Gina, you look for a time, huh? Explore a time for ways you had -- you had mentioned quite a few hoops you had to jump through.

MS. THOMPSON: Right. Go ahead, Mr. Deurloo.

BOARD MEMBER DEURLOO: Oh, thank you. Mr. Chairman. So I hear -- like the question is do public comment or not do public comment before the next meeting, I suppose, maybe is what I'm hearing. We could move the -- we could move the first quarter advisory board meeting up to -- well, I don't know. It's just a matter of timing, and I'm wondering what the staff prefers, that we do extend the public comment period or we finish the review process here.

It seems to me -- I could be wrong, but it seems to me that we will -- if we go through this, it's one of the most important -- it's a very -- not most important, but very important rule. Will we be sending this to public

again after our next one? You know, so we've taken onboard the comments we already have. I'm not trying to make a motion for the next meeting or anything like that. I'm just kind of wondering, are we going to be sending this out for public comment again after our next meeting? I think that might dictate if we hold or extend public comment on this one. Am I right or off base there?

MS. ZYGMUNT: So, Mr. Chairman, Board Member Deurloo, I think I'll answer your question, but once the advisory board advises us to move forward with the rule, it will go to the Environmental Quality Council. There will always be a public notice before the Environmental Quality Council meeting. And I'm going to be looking toward Gina here as well, but we are required to have a public notice before each advisory board meeting as well. So there -- if -- regardless, before the next advisory board meeting, there will be another public comment opportunity for folks to comment on this rule. Did that answer your question or confuse?

BOARD MEMBER DEURLOO: That answered my question. Yes, it totally did. Thank you.

BOARD MEMBER CAHN: And I would like to propose that we just extend the public comment period that we're in right now, that ends at the end of this Board meeting. I think we just extend that. I've been on the

Board a long time. We've done that many times before. So we just -- I would propose we just extend this public comment period. And I don't know if we're having our meeting in March or January or whatever, but if there's other business to be done, then we can combine -- have one Board meeting in March that has other business, then maybe we would end the public comment -- you know, extend it now for another -- it's the holidays, so maybe we extend it for 45 days, or something like that, because the holidays and now that people know where they can get a copy of the 201810 State Standard. So that would be my proposal.

MS. ZYGMUNT: Mr. Chairman, I propose we try to have the next board meeting in early March, and at that meeting finish up Chapter 12, finish your discussion on Chapter 12, and that should also give us time to wrap up Chapter 29. Again, it's a five-page rule, it should be very straightforward. It should be similar to other rules that we've promulgated.

So I think that would be a reasonable agenda for one meeting. It would be more efficient for us if we could try to combine them into one meeting. So that is what I would propose, and I would support Board Member Cahn's proposition to extend the current public notice period for at least 45 days. If we had the Board meeting in early March, perhaps we could cut off the public notice period

sometime mid-February to give us time to wrap the comments and deliver products to you.

BOARD MEMBER CAHN: That sounds good to me. Thank you.

CHAIRMAN KIRKBRIDE: Do I hear a motion to that effect or any other?

BOARD MEMBER CAHN: I so move.

BOARD MEMBER COCHRAN: Second. Jim Cochran.

CHAIRMAN KIRKBRIDE: Any discussion? We'll vote. All in favor say aye.

COUNCIL MEMBER COCHRAN: Aye.

BOARD MEMBER DEURLOO: Mr. Chairman, I'm sorry. Didn't get my mute off. So, again, I do have a discussion. So to me, Lorie still moves, I'm just being clear. So sounds like what we're looking at doing is extending the public comment period by 45 days, and we'll revisit Chapter 12 as it currently stands with additional response to comments to the public comments at our next -- the first quarter advisory board meeting. Is that what I heard?

CHAIRMAN KIRKBRIDE: I believe that's it.

BOARD MEMBER CAHN: I'll just clarify that I think we're looking at extending the public comment period to middle of February, so maybe not necessarily

talking about number of days, just extending it. We want to just end it significant enough time before our board meeting that DEQ has a chance to respond to whatever comments they receive by the time we have our meetings. So I would say mid-February would -- considering the holidays, rather than saying 45 days, it's just -- I like the idea of let's say we're cutting off the public comment period in mid-February, and then have our March meeting, deal with chapter 29, plus this, or whatever else business comes up at the time.

BOARD MEMBER DEURLOO: Okay. Thank you.

CHAIRMAN KIRKBRIDE: Clear?

BOARD MEMBER DEURLOO: That was my discussion, Mr. Chairman.

CHAIRMAN KIRKBRIDE: Any other discussion? Proceed to vote. All in favor say aye.

BOARD MEMBER COCHRAN: Aye.

BOARD MEMBER CAHN: Aye.

BOARD MEMBER DEURLOO: Aye.

CHAIRMAN KIRKBRIDE: All opposed.

All right. That passes. We'll do.

Any further business -- when will we be hearing, do you think?

MS. THOMPSON: That is a good question, Mr. Chairman. We had not discussed. I think that's the

last item on our agenda before you adjourn, which would be the discussion scheduling of the next meeting. And if you want to adjourn the public part and have the discussion without the transcriptionist typing, I'll run back and forth on our schedule, you're welcome to adjourn the public part so Kathy doesn't have to type it all.

CHAIRMAN KIRKBRIDE: Well, then, I declare the meeting adjourned.

(Hearing proceedings concluded 3:07 p.m., December 21, 2021.)

C E R T I F I C A T E

I, KATHY J. KENDRICK, a Registered Professional Reporter, do hereby certify that I reported by machine shorthand the foregoing proceedings contained herein, constituting a full, true and correct transcript.

Dated this 24th day of January, 2022.

KATHY J. KENDRICK
Registered Professional Reporter

Proposed Revisions to Water Quality Rules, Chapter 12, Design and Construction Standards for Public Water Systems

Analysis of Comments Received Prior to February 14, 2022 Notice Period End Date related to the December 21, 2021 and March 15, 2022 Water and Waste Advisory Board Meetings

March 2, 2022

Prepared by:
Wyoming Department of Environmental Quality
Water Quality Division
Water and Wastewater Section

Commenters:

Darwin Dyck, Tetra Tech
Jason Palmer, City of Green River
Dayton Alsaker
EPA Region 8
Cheyenne Board of Public Utilities (BOPU)
Andy Hooten
Jeffery Rosenlund
Dave Engels, American Council of Engineering Companies of Wyoming
Bryan Seppie, Joint Powers Water Board
Wyoming Association of Rural Water Systems
Craig Barsness, Shoshone Municipal Pipeline
Ben Jordan, Weston Engineering
Toni Stassinos
Ty Ross, Nelson Engineering
Frank Page, Morrison Maierle
Brian Lenz, Town of Jackson

Chapter 12 Comments and Responses

General Comments

American Council of Engineering Companies of Wyoming, Ben Jordan, Bryan Seppie, Cheyenne BOPU, Darwin Dyck, and Ty Ross: The commenters identified typos and incorrect numbering throughout the chapter.

Department Response: WDEQ/WQD has corrected the passages as needed.

Cheyenne BOPU and Jason Palmer: Cheyenne BOPU asked when plant modifications require the entire plant to meet the proposed requirements and how will new standards be applied to existing plant modifications. Mr. Palmer requested a definition of "modification," such as recoating.

Department Response: WDEQ/WQD considered the comment. Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. WDEQ/WQD will issue a permit to modify the facility that requires the facility to meet the minimum design standards that are in effect when the permit to modify is issued that apply to the modification without altering any other minimum design standards that apply to the facility under its existing permit. WDEQ/WQD will work with permittees as needed to seek compliance with Chapter 12, while to the extent possible, minimizing the burden on permittees when bringing existing facilities into compliance.

American Council of Engineering Companies of Wyoming, Bryan Seppie, Dayton Alsaker, Andy Hooten, Frank Page, and Brian Lenz: The commenters noted concern at using two sets of standards instead of just Chapter 12. The commenters were concerned that the incorporated 2018 TSS is difficult to find online. Some commenters questioned how WDEQ/WQD will resolve potential conflicts between Chapter 12 and the 2018 TSS. Some commenters recommended that WDEQ/WQD incorporate the material differently throughout the chapter, such as adding the pertinent 2018 TSS reference in the paragraph where it applies. Some commenters recommended that WDEQ/WQD use alternate formats and include a table of contents.

Department Response: WDEQ/WQD has included incorporations of the parts of the 2018 TSS that we determined are appropriate for systems in Wyoming and has included other requirements to address conditions as needed. After considering several options WDEQ/WQD determined the current proposed approach is the most effective given the various conditions that we needed to tailor from the 2018 TSS and the volume of overall material that is incorporated by reference, not only from the 2018 TSS but also from the American National Standards Institute, American Water Works Association, and the other entities noted in Section 19. After the rule is promulgated, WDEQ/WQD will update the guidance documents related to this Chapter to assist readers with navigation of the rule and the incorporated material.

WDEQ/WQD does not expect an overlap of language between what is incorporated by reference and what is explicitly stated in Chapter 12. If for some reason there is a conflict, the WDEQ/WQD reviewing engineer or Water and Wastewater Section Manager will resolve the conflict on a case-by-case basis, with input from the Administrator as needed.

WDEQ/WQD will have a copy of incorporated materials available for public inspection at WDEQ/WQD's Cheyenne office, as stated in Section 19(b)(iii), and anticipates making a public copy of the 2018 TSS available at our various field offices as well. WDEQ/WQD will post the digital document on WDEQ/WQD's website, similar to the posting we have provided for this rulemaking comment period. The incorporated version of the 2018 TSS is available online at:
https://www.mngovpublications.com/catalog/Default.asp?CatalogID=21656&Provider_ID=1241868
for purchase in hard copy or as a digital download.

The overall format of the rule is set by the Secretary of State under the Rules on Rules for State Agencies. Tables of contents are not allowed in official rules that are signed into effect by the Governor.

WDEQ/WQD tested alternative incorporation by reference formats earlier in our drafting process and found that it made sections difficult to follow. The incorporation by reference format will remain as written.

Frank Page: Mr. Page commented, " It is acknowledged that all formal rules and regulations are required to follow the Secretary of State - Rules on Rules. However, these antiquated rules were set up for manual typewriters and make reading, using and referencing the rules more complex, cumbersome and difficult than necessary. It is suggested that the rules on rules be reviewed and revise to make them easier to use.

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD is subject to the Secretary of State's Rules on Rules for State Agencies and has no statutory authority to revise them.

Frank Page: Mr. Page commented, "In the past the Ten States Standards have been used and referred to by WYDEQ, university courses and consultants as a reference. The 2018 TSS is mentioned in the Notice as being incorporated by reference. If it is now going to be used as a regulatory document, then the regulated community should be fully advised of this action. The Public Notice does not adequately advise Wyoming system operators and consultants who will be affected by this change."

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD has published and distributed notification of our intent to incorporate the Recommended Standards for Water Works for review and comment by the regulated community on November 30, 2020 and on November 5, 2021. The supporting documentation noted in the November 30, 2020 public notice as "additional information" explains that WDEQ/WQD intends to incorprate materials by reference and the November 5, 2021 notice explicitly states that WDEQ/WQD intends to incorporate the Recommended Standards for Water Works, 2018 Edition by reference. WDEQ/WQD proposes no edits to resolve this comment.

Darwin Dyck, Tetra Tech: Mr. Dyck wondered "if dug wells should still be permitted. Chapter 12 makes reference to dug wells that shall be constructed according to State Engineer's Office. Chapter 12 also includes concrete piping for well casing material which is assumed to be for dug wells. Dug wells are older technology and would typically deliver groundwater under direct influence of surface water. Subsequently, how and where are procedures for classifying wells as groundwater wells or groundwater wells under direct influence of surface water? Are there Microscopic Particulate Analysis (MPA) requirements covered that confirm classification of shallower water wells? Also, are shallow horizontal infiltration galleries or in-bank filtration options available as options for raw water intakes? Appropriate classification of wells will dictate level of treatment required per results of MPAs."

Department Response: WDEQ/WQD has considered the comment. Dug wells would be individual wells that are proposed to be converted to a public water supply (PWS) well. These wells would need to meet all PWS construction requirements for WDEQ/WQD's permitting review. Dug wells would need to demonstrate they are not under the direct influence of surface water through MPA sampling.

American Council of Engineering Companies of Wyoming: ACEC commented, "As somewhat of a general comment, most State-funded contracts require that engineering costs not exceed 20% of the construction costs. While we are more than happy to comply with any new, additional standards requirements, and that we are capable of complying with these requirements, the State should recognize that it becomes just that much more difficult to stay within the 20% requirement."

> **Department Response:** WDEQ/WQD has considered the comment. The comment pertains to engineering costs that are applied to government-funded projects and does not pertain to the proposed design standards in Chapter 12. Justification of engineering costs and activities are the responsibility of the public water supply, the engineering consultant, and the funding provider. WDEQ/WQD's proposed standards are consistent with design standards that are widely used throughout the United States and Canada and disagrees that complying with the proposed standards will be economically unreasonable.

American Council of Engineering Companies of Wyoming: ACEC commented, "A lot of the changes to the regulations appear to make the language more clear and concise, this is appreciated."

> **Department Response:** WDEQ/WQD appreciates the support of our efforts to make the chapter clearer and more concise.

Wyoming Association of Rural Water Systems: WARWS commented, "We encourage the DEQ to add the source water protection language in the 10 State Standards such as 1.1.7.2h."

> **Department Response:** WDEQ/WQD considered the comment. At this time, WDEQ/WQD addresses source water protection planning on a voluntary basis. We look forward to continuing to work together with WARWS on voluntary development of source water protection plans.

Toni Stassinos: Ms. Stassinos commented that "there is dirt" in her water "if it sits for anytime. Dirt in my bath water. Tastes bad."

> **Department Response:** The comment is outside of the scope of the proposed rulemaking. However, WDEQ/WQD has advised the commenter to reach out to the City of Rock Springs or to our district engineer, depending on the source of her water.

Section 2

2(a)(i) and (iii)

Ty Ross: Mr. Ross noted that W.S. 35-11-301(a)(v) states that "no permit to operate shall be required..."

Department Response: WDEQ/WQD has considered the comment. W.S. 35-11-302(a)(iii) allows the Administrator to recommend rules governing "Standards for the issuance of permits for construction, installation, modification or operation of any public water supply and sewerage system." Entities that have questions regarding whether a permit to construct is needed should contact WDEQ.wQD to discuss specific situations. The passages will remain as written.

2(b)

Ty Ross: Mr. Ross commented, "This is overly broad and appears to indicate that a PTC would be required for routine or emergency maintenance."

Department Response: WDEQ/WQD has considered the comment. Generally, routine and emergency maintenance are not considered to be "construction, installation, or modification of any component of a public water supply facility." Routine and emergency maintenance are required to be included in the Operation and Maintenance Manual, pursuant to Chapter 12 Section 18. The passage will remain as written.

Section 3

Ty Ross: Mr. Ross commented, "This section is titled "Timing...", but speaks nothing of it."

Department Response: WDEQ/WQD has considered the comment. The section explains that facilities that were permitted in the time before the adoption of this version of Chapter 12 will still be covered under the issued permit—permittees will not be required to automatically reapply or retrofit their facility. It also explains that facilities that are newly constructed or modified will be required to comply with this version of Chapter 12 after it becomes effective. The section will remain as written.

Section 4

4(a)

Dayton Alsaker: Mr. Alsaker recommended removing the statement that "18 TSS applies unless noted," and instead referencing the relevant TSS section for each WQD Ch12 section. Mr. Alsaker asked "Are there any places where it is noted that sections of 18TSS do not apply?"

Ty Ross: Mr. Ross commented, "aka the 2018 Ten States Standards or '2018 TSS'"

American Council of Engineering Companies of Wyoming: ACEC recommended that the "2018 TSS" be defined before or on Line 966. ACEC also wondered if WDEQ/WQD will omit the year reference.

Department Response: WDEQ/WQD has revised the paragraph to " This Chapter incorporates sections of the Recommended Standards for Water Works, A Report of the Water Supply Committee of the Great Lakes--Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2018 Edition, referred to as "2018 TSS," as noted in Section 8(a), Section 9(a), Section 10(a), Section 11(a), Section 12(a), Section 13(a), Section 14(a), Section 15(a), Section 16(a), and Section 19(a)(liv) of this Chapter."

The first paragraph of each subsequent section in the proposed revisions to Chapter 12 states which 2018 TSS sections apply to the material within.

Removing the year reference in 2018 TSS would be a violation of W.S. § 16-3-103(h)(ii). The reference format will remain as written.

Section 5

Frank Page: Mr. Page commented, "Add – Ten States Standards (TSS). 2018 TSS is referenced throughout the text but the acronym "2018 TSS" is not defined until page 12-64."

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD has revised the passage at Section 4(a) to more clearly describe the incorporated reference. Additionally, Section 19 also identifies publication information for the referenced material.

Ty Ross: Mr. Ross commented, "the Act."

Department Response: WDEQ/WQD has revised Section 1 and has revised the only instance of the phrase "the Act" in the Chapter. The recommended edit is no longer applicable and the passage will remain as written.

5(u)

Ty Ross: Mr. Ross requested the passage be edited to "'mechanical drives."

Department Response: WDEQ/WQD has revised the passage from "mechanically driven drives" to "mechanical drives."

5(v)

Ben Jordan: Mr. Jordan noted concern that the definition of mineralized water poses a conflict with development of both surface and groundwater sources for public water systems, as public water systems across the state for whom water with a total dissolved solids concentration of less than 500 mg/L is not available and treatment to reduce the total dissolved

solids concentration to below 500 mg/L would be an extreme financial burden without a significant improvement in quality. Mr. Jordan requested a change to Chapter of an alternate concentration for "mineralized" water, such as 1,000 mg/L.

> **Department Response:** WDEQ/WQD considered the comment. The requirements for wells that encounter mineralized or polluted water have been in place since Chapter 12 was originally promulgated in 1985. The existing and proposed versions of the Chapter require that wells that encounter mineralized water shall be constructed to prevent the mineralized water from entering the well, moving up and down in the annular space outside the casing, or mixing with waters from different aquifers within the well. Neither the existing nor the proposed Chapter explicitly require treatment to levels below 500 mg/L but both do specifically require applicants that propose to use mineralized water as a public water supply to demonstrate compliance with drinking water standards. The proposed revision adjusts this language to specifically require compliance with the National Drinking Water Standards at 40 CFR Part 141. As the requirements pertain to well construction, require compliance with a national standard that the primacy agency EPA will also enforce, and as WDEQ/WQD has not been made aware of any extreme financial burdens to implement this requirement since 1985, the definition and associated passages will remain as written.

5(z)

Frank Page: Mr. Page requested definitions for water service connections related domestic, commercial, and industrial.

> **Department Response:** WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

Section 6

Bryan Seppie: Mr. Seppie requested that WDEQ/WQD revise Section 6, "so that once a study has provided proven results, those findings are the basis for compliance with the potential conflicting requirements that may be more 'generally' written."

> **Department Response:** WDEQ/WQD considered the comment. Many plant designs that would fall under this section contain proprietary information. Pilot plants that don't meet the general requirements are evaluated on a case-by-case basis.

6(b)(iii)-(iv)

EPA Region 8: Region 8 suggested for facilities producing finished water for consumption, that data for a full-scale, comparable installation or a pilot-be required, instead of only a theoretical evaluation.

Department Response: WDEQ/WQD has considered the comment. The passages in this section allow systems to propose new and innovative technologies. District engineers evaluate these types of applications under this section for compliance with the Chapter and for other water quality considerations. These types of applications go through a thorough review and approval process before issuance. The passages will remain as written.

Section 7

American Council of Engineering Companies of Wyoming: ACEC requested that WDEQ/WQD include "WDEQ's responsibility in record keeping requirements" and suggested that WDEQ/WQD add a "record keeping requirement that WDEQ maintain records required for permit approval in their system for future reference."

Department Response: WDEQ/WQD applies retention schedules to its records, including records associated with issuing Chapter 3 permits to construct in accordance with Chapter 12. Retention schedules identify the time period for which records must be kept to ensure records are preserved until they have served their intended purpose. Retention schedules are prepared by the Wyoming State Archives in consultation with the WDEQ/WQD; final schedules are approved by the State Records Committee. Because of this process and the need to review and, if needed, update retention schedules periodically, it is not appropriate to include retention schedules within our rules. WDEQ/WQD staff are available to provide more information to interested parties about our retention schedules, and our efforts to improve digital records management to increase the ability to find and access records.

EPA Region 8: Region 8 noted that "the proposed Chapter 12 regulations do not require applicants to submit as-constructed record drawings to Wyoming DEQ after a permitted project is constructed..." and requested that WDEQ/WQD "add a citation requiring all permitted construction projects to provide an engineer's certification to Wyoming DEQ and require the registered professional engineer to provide documentation to Wyoming DEQ that the project was constructed according to the permit requirements."

Department Response: WDEQ/WQD has considered the comment. Water Quality Rules Chapter 3, Section 11(b) identifies the permit application process for as-built drawings. Chapter 12 will remain as written.

Jason Palmer: Mr. Palmer requested that this section include a requirement for the "responsible charge" operator's review (formerly Chief Operator).

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD expects that, as part of the design engineer's due diligence, the review by the responsible charge operator or public works director will be taken into consideration as part of the submitted design. WDEQ/WQD will leave the requirement as written but

recommends that local governments include this collaboration and coordination of the design engineer in the contract for system design.

7(g)

Ben Jordan: Mr. Jordan noted, "Does this section of the draft regulations mean that a new well would be able to be connected to the public water system following submittal of the appropriate data?

Department Response: WDEQ/WQD considered the comment. Section 7(g) through 7(g)(ii)(C) explains that well applications can be permitted as a two-step process. The well can be constructed, developed and tested during the first step. Upon submitting well test and water quality data, the Administrator can authorize the well connection to the system. WDEQ/WQD has revised this paragraph to more clearly describe the process.

7(g)(iii)

American Council of Engineering Companies of Wyoming: ACEC commented, "...there could be a considerable amount of time necessary between when the construction contract is awarded to the general contractor and the time that construction could start, given the need for a second DEQ permit to construct being issued. Assuming that DEQ is allowed up to 60 days to review each application, this could substantially slow down the schedule for actual construction."

Department Response: The two-step permitting process described in Section 7 is WDEQ/WQD's codification of a current practice that we use for the permitting of tanks that are funded through the Wyoming Water Development Office (WDO). For these projects, the foundation and geologic information are not yet available when the applicant initially seeks a permit to construct so that they may go out to bid. The purpose of including this information in the rule is to inform design engineers and their clients of what they can expect from WDEQ/WQD for WDO-funded projects.

7(g)(iii)

Frank Page: Mr. Page commented that "...The "Final" plans may not be specific for the actual tank and tank appurtances, as most Public Works projects are competitive bid projects with "Approved Equal" provisions...Is the intent to have the proposed contractor/fabricator supplied "Shop Drawings" be submitted for review, rather than the Bid Set submitted for review? It is suggested the narrative be clarified to include 'Specific Manufacturer/Supplier Final Engineering Shop Drawings, Specifications, Calculations' be submitted to WYDEQ and USEPA Region 8 for review and approval, prior to the design engineer's approval of the shop drawings."

Mr. Page also noted that " coordination within WYDEQ, and between WYDEQ and USEPA – Region 8 could be improved...There is a disjoint between the permit process and the final constructed project. Many of the issues of concern that are noted in the Sanitary Sewer reports could be addressed, efficiently and more economically at the permit stage, before fabrication and construction. Retrofitting a storage facility after project completion is expensive and should be avoided if possible." Mr. Page requested "a joint review of permit applications and inspections by both agencies at the same time, and joint inspections, prior to approval of the "Permit-to-Construct"; or "USEPA convey primacy and provide funding and support to WYDEQ to handle public water system regulatory role."

> **Department Response:** WDEQ/WQD has considered the comment. The proposed process is intended to allow flexibility for projects with bidding constraints and does not specifically pertain to our USEPA interaction. WDEQ/WQD is aware that final plans for tanks and wells are not always available until after the bidding process is complete, which is why we are proposing a process to allow a secondary submittal of these details for Administrator approval. At this time, WDEQ/WQD does not intend to request primacy and related funding for the drinking water program. WDEQ/WQD is committed to working with USEPA on a case-by-case basis and does not believe that revisions to Chapter 12 are warranted to address our partnership.

Section 8

8(c)(i)

Darwin Dyck, Tetra Tech: With respect to the requirement that transmission and distribution lines project plan views include "existing locations of utilities", Mr. Dyck recommended that this Ch.12 Revision adopt the ASCE Standard 38-02, Guideline for the Collection and Depiction of Existing Subsurface Utility Data.

> **Department Response:** WDEQ/WQD has considered the comment. The intent of the passage is to ensure that the existence and locations of all subsurface utilities are included in a project plan set. WDEQ/WQD does not agree that it is necessary to add an extra layer of formatting requirements as long as the necessary information is discernable and defined within the plan views.

Frank Page: Mr. Page commented, "Providing elevations on ALL appurtances, is a high standard, that would increase costs and clutter drawing. Elevations should be included for low, high and some intermediate points but are not necessary on all appurtances. The design engineer and the WYDEQ reviewing engineer should have discretion on this requirement."

> **Department Response:** WDEQ/WQD has revised the passage to "Pertinent elevations shall be indicated on ~~all~~ appurtenances."

8(c)(ii)

American Council of Engineering Companies of Wyoming: ACEC requested that WDEQ/WQD provide a definition of size when a profile is required and a more concise definition of what lines need to be profiled as opposed to "all water lines".

> **Department Response:** WDEQ/WQD has considered the comment. The information noted in the comment is typically necessary to build and complete projects. WDEQ/WQD typically requests information that is already available. WDEQ/WQD proposes to leave the passage as-is to maintain flexibility but welcomes discussion of this passage for specific projects if the concern arises.

8(e)(i)

Darwin Dyck, Tetra Tech: Mr. Dyck recommended adding to the list of requirements under paragraphs (e) and (f) "Identification of existing subsurface utilities [in accordance with Subsurface Utility Engineering standard ASCE 38-02, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data]."

> **Department Response:** WDEQ/WQD has considered the suggestion. The design engineer is responsible for researching this information, which is regulated by the Wyoming Public Service Commission as part of the due diligence of the design. The proposed standard ASCE 38-02 falls outside of the regulatory authority of WDEQ/WQD and is better suited to adoption by local governments. The requirement will remain as written.

8(e)-8(e)(xii)(H)

Ben Jordan: Mr. Jordan requested that, "This section should be revised and physical constraints of legible drawings be considered" since "Much of the requested information belongs in the engineering design report and in drawings or specifications."

> **Department Response:** WDEQ/WQD considered the comment. This is an existing requirement in WQR Chapter 12 Section 7, Plans and Specifications, that conforms to the Ten States Standards. In both the current version of and proposed revision to Chapter 12, there are two sections pertinent to the submission of project design deliverables: Plans and Specifications and Engineering Design Report. The proposed revision of Chapter 12, Section 8 for Plans and Specifications is written to explicitly state informational requirements for any technical documents that will be submitted. The proposed revision of Chapter 12, Section 9 for Engineering Design Report provides for the compositional requirements of the report itself as well as additional details on the requisite information. WDEQ/WQD acknowledges that there is some conceptual overlap and has revised paragraph 8(e) to remove "drawings" for clarity.

Section 9

9(a)

Ty Ross: Mr. Ross commented, "(1.1.1.15) Wrong reference #, and why not just specify parts 1.1.15-1.1.17? The specific surface and ground water subsections are included generally under 1.1.7 – why call them out specifically?"

> **Department Response:** WDEQ/WQD has considered the comment. WDEQ/WQD has corrected the reference to 1.1.15. WDEQ/WQD is not proposing to incorporate 1.1.7.2(h) so 1.1.7.1 and 1.1.7.2(a-g) will remain. WDEQ/WQD has revised the passage to " 1.1.1-1.1.2, 1.1.4-1.1.6, 1.1.7.1-1.1.7.2(a-g), 1.1.8-1.1.10, 1.1.15-1.1.17, Engineer's Report."

9(b)(iv)

Dayton Alsaker: Mr. Alsaker commented that a design engineer may not necessarily know about all the services that are to be connected to a new water line, that "this comes later by the system owner through their cross-connection control program, by the person designated to conduct this evaluation."

Department Response: WDEQ/WQD revised the passage to the following: "A determination of the degree of hazard of all known or anticipated water service connections to be connected to the proposed project. A hazard classification shall be identified for each connection and recommended mitigation measures shall be described for each hazard."

9(e)(ii)(A)

EPA Region 8: Region 8 suggested "increasing the sample frequency for some water quality parameters that are expected to be highly variable (examples include turbidity, TOC / DOC, and UV transmittance)."

> **Department Response:** WDEQ/WQD has considered the comment. Paragraph (B) states "the data shall be sufficient for the Division to determine that the processes safely and reliably comply with water quality standards required by 40 CFR Part 141." When combined with paragraph (B), the sampling frequency is flexible so that WDEQ/WQD may require additional sampling as needed. The passage will remain as written.

9(f)(iii)

Ben Jordan: Mr. Jordan noted, "The term "aquifer" is not defined in Chapter 12; therefore, it is not clear when a pre-application meeting will be required.

Department Response: WDEQ/WQD considered the comment. WDEQ/WQD does not have the statutory authority to define "aquifer" for the purposes of withdrawing water. The right to extract water from the proposed wells is governed by the State Engineer's Office and applicants are subject to W.S. 41-3-901, which identifies an aquifer as "any underground geological structure or formation having boundaries that may be ascertained or reasonably inferred, in which water stands, flows or percolates." For the purposes of Chapter 12, applicants will be expected to provide documentation of information that is consistent with the documentation they submit to the State Engineer's Office.

If an applicant is proposing to install a well for the purposes of drawing water for a public water supply, Chapter 12, Section 9(f)(iii) requires a pre-meeting when the application indicates the proposed well will be drilled through multiple aquifers. If the applicant is proposing to drill their proposed well through multiple "underground geological structures or formations having boundaries that may be ascertained or reasonably inferred, in which water stands, flows or percolates" then that applicant will need to request a pre-meeting with WDEQ/WQD so that we can discuss the proposed plan and ensure that the applicant understands all of the construction standards they will need to meet so their design and resulting water will comply with the Environmental Quality Act. WDEQ/WQD will not add a definition as requested.

9(g)(ii)

Ben Jordan: Mr. Jordan noted, "Many downhole video cameras do not have sound recording capacity or the sound is not readily heard. Furthermore, when video logging a well, the videographer and observers often speculate what is being observed and speculations may be erroneous and corrected at a later point in time. Subsequent viewings of video logs in a controlled environment with suitable lighting often result in identification of features not seen in the field. Written descriptions are more accurate than real-time narrative and are adequate for describing the logs. The requirement for a recorded narrative should be removed.

Department Response: WDEQ/WQD considered the comment and recognizes that the term "narrated video" may cause confusion. WDEQ/WQD has changed the passage from "a recording of a narrated video" to read, "...a video log of the well inspection accompanied by a written description of the location…".

9(j)(A)

Ty Ross: Mr. Ross commented, "What if looping is proposed simply as a measure of redundancy?"

Department Response: WDEQ/WQD has considered the comment. Water main looping projects that are only intended as a measure of redundancy will still require an application to construct or modify. An engineering design report is required for all

applications for permits to construct or modify public water supplies. The section will remain as written.

Ben Jordan: Mr. Jordan noted, "Water main upsizing or looping may not be for fire flows. Suggest changing the text to state, "…and maximum day plus fire flows if required or provided will be improved…."

Department Response: WDEQ/WQD considered the comment. Section 9(a) of the proposed revision incorporates by reference 2018 TSS section 1.1.6 (a & b), Engineer's Report - Flow Requirements, in which paragraph (b) states, "fire flows, when fire protection is provided, meeting the recommendations..." If fire flows will not be required or provided by the project, the district engineer may not require it as part of the hydraulic analysis. The passage will remain as written.

9(k)

Frank Page: Mr. Page suggested that WDEQ "include criteria on what constitutes a repair versus a remove and replacement, include in definitions."

Department Response: WDEQ/WQD has considered the comment. Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. This passage and Section 5 will remain as written.

9(l)

Frank Page: Mr. Page commented, "It is suggested to include criteria on what constitutes a new water main, include in definitions."

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

9(l) and 9(l)(ii)(A)

Ben Jordan: Mr. Jordan noted, "How can a hydraulic model be calibrated on fire hydrant test flow data if the system doesn't exist? Should line 618 state that this section refers to extension of new mains for existing water systems? Or does there need to be a section (m) that discusses requirements for new public water system distribution systems where hydrant testing is not possible?

Department Response: WDEQ/WQD considered the comment. WDEQ/WQD will revise the passage by adding to 9(l)(ii)(A), "...calibrated based on existing fire hydrant test flow data, when available, or based on modeling;".

Section 10

10(a)

Cheyenne BOPU: Cheyenne BOPU asked, "[When] piping color code does not match existing plant, do modifications/expansions need to meet this color code or existing color code?"

> **Department Response:** WDEQ/WQD has considered the comment. 2018 TSS, 2.14 applies to piping color. WDEQ/WQD would expect that the proposed piping color meet the requirements in place at the time of the application for modification per Chapter 3, Section 9(a)(iii). Applicants that are unable to comply with the permitting requirements would need to discuss the options with WDEQ/WQD prior to being granted a permit.

10(b)(i)

Ty Ross: Mr. Ross commented, "Speak to whether the prescribed #s include some irrigation component, and/or whether irrigation should be considered separately."

> **Department Response:** WDEQ/WQD has considered the comment. The paragraph requires consideration of the maximum daily demand per capita, which includes consideration of lawn/yard irrigation. Consideration of agricultural irrigation is required under 10(b)(I)(B). The passage will remain as written.

10(o)

Cheyenne BOPU: Cheyenne BOPU recommended adding/adopting NSF61 reference to this section for "clarity and simplification."

> **Department Response:** WDEQ/WQD has considered the comment and has revised the paragraph as requested.

10(t)(ii)

EPA Region 8: Region 8 suggested "requiring all surface water treatment plants to conduct instantaneous flow monitoring, regardless of maximum daily design flow."

> **Department Response:** WDEQ/WQD has revised the passage to "~~For plants with a maximum daily flow of 50,000 gpd (189 m3/d) or more, t~~The meter shall also record the instantaneous flow rate.

10(u)

EPA Region 8: Region 8 suggested: "also requiring systems to have a low chlorine residual alarm, where a continuous chlorine analyzer is required (2018 Ten States Standards Section 4.4.3 requires a continuous chlorine analyzer at facilities with a capacity of 0.5 MGD or greater, or that serve a population greater than 3,300, which is appropriate)."

> **Department Response:** WDEQ/WQD has removed 2018 TSS 4.4.3 from Section 10(a) and has added 4.4.3(a,b,d) to Section 12(a). WDEQ/WQD has moved the passage from 10(u) to 13(c). At 13(c) WDEQ/WQD has revised the passage to "Chemical application facilities shall include an alarm for high effluent turbidity, low chlorine residual, and chlorine leaks when chlorine gas is used. The alarm shall be located at an attended location."

Cheyenne BOPU: Cheyenne BOPU asked if the "attended location" requires 24/7 attendance?

> **Department Response:** WDEQ/WQD has considered the comment. WDEQ/WQD anticipates that some systems include multiple operational shifts and others operate the facility remotely. Chapter 5, Section 15(a)(ii) requires initiation within one hour of "operational and technical actions upon notification" of an alarm. As long as the initiation of a resolution is possible remotely, WDEQ/WQD would not require 24/7 attendance.

Section 10(v)

EPA Region 8: Region 8 suggested: "requiring a continuous combined filter effluent turbidimeter, either in lieu of or in addition to the finished water turbidimeter."

> **Department Response:** WDEQ/WQD has revised the passage to "Water treatment plants with a capacity of 500,000 gpd or more shall be provided with continuous finished water turbidimeters (including recorders) that demonstrate compliance with the Guidance Manual for Compliance with the Surface Water Treatment Rules, Turbidity Provisions.

Section 11

Wyoming Association of Rural Water Systems: WARWS commented, "We have concerns about legacy private wells. These are wells that were permitted under the SEO Minimum Construction Standards, but do not meet the DEQ construction standards, or setback requirements, but become sources for public water systems as land uses change. There should be some sort of review process and strategy that allows the SEO, EPA and DEQ to communicate with the new PWS on what is expected to put the well into service as a PWS."

> **Department Response:** WDEQ/WQD considered the comment. Chapter 12, Section 11(e)(vii)(F) allows the conversion of private wells to public water supply wells

as long as the application demonstrates that the well will comply with all of the minimum construction standards in the chapter. Chapter 12, Section 9(g) identifies the information that WDEQ/WQD will require in the engineering design report so that we can determine whether the proposed well conversion will comply with Chapter 12. WDEQ/WQD will not permit converted wells that do not demonstrate compliance with the Chapter. As WDEQ/WQD already identifies the permit process for converted wells, the chapter will remain as written. However, WDEQ/WQD will consider this topic as an item to include in our guidance materials that will accompany Chapter 12 upon its promulgation, and we look forward to continuing to work with WARWS on this topic.

11(a)

Cheyenne BOPU: Cheyenne BOPU asked if the list of succeeding sections from the 2018 TSS, "…3.2.7, well pumps, discharge piping, and appurtenances; 3.2.7.3, discharge piping; 3.2.7.4, pitless well units; 3.2.7.6, casing vent requirements; 3.2.7.7, water level measurement; and 3.2.7.8, observation wells, are herein incorporated by reference," means that 2018 TSS sections "3.2.7.1, 3.2.7.2, and 3.2.7.5" do not apply?

Department Response: 2018 TSS sections 3.2.7.1, 3.2.7.2, and 3.2.7.5 are not in paragraph (a); therefore, they are not incorporated by reference.

Ty Ross: Mr. Ross commented, "This extensive cross reference will breed confusion."

Department Response: WDEQ/WQD has considered the comment. Paragraph (a) contains the incorporated material that is pertinent to source development. As this topic is complex, and WDEQ is not proposing to adopt all of 2018 TSS Part 3, it is necessary to individually identify the sections of the 2018 TSS that are incorporated. The passage will remain as written.

Ben Jordan: Mr. Jordan noted, "Comparison of sections of 2018 TSS with the proposed Chapter 12 regulations for determining conflicts is onerous and difficult. There are multiple conflicts in the requirements between the two documents that will be hard to resolve. There are also requirements of 2018 TSS that will not work for some well designs used in Wyoming and open hole well requirements are not addressed.

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

11(e)

EPA Region 8: Region 8 suggested that WDEQ/WQD "add language requiring all groundwater sources to provide a raw water sample tap that represents the water quality for the individual groundwater sources, which may include wells, springs or infiltration galleries."

Department Response: WDEQ/WQD has considered the comment. Section 10(a) incorporates 2018 TSS 2.10, which identifies requirements for sample taps. Additionally, at 11(e)(xxx) WDEQ/WQD proposes to revise Chapter 12 to the following language:

11(e)(xxx): Designs for groundwater sources that are subject to 40 CFR 141.402(a)(1)(i) and either 40 CFR 141.402(a)(1)(ii) or 40 CFR 141.402(a)(1)(iii) shall demonstrate compliance with 40 CFR 141.402(e).

Other states, such as Washington and New Jersey, do not explicitly require the sample tap via rules but tie it to the federal requirement guidance. WDEQ/WQD proposes to handle the requirement in a similar manner and will direct applicants to the upcoming Region 8 guidance that ties the federal requirement to the sample tap.

11(e)(i)

Ben Jordan: Mr. Jordan noted, "2018 TSS Part 3.2.1.1 does not agree with the requirements of Lines 890 to 892.

Department Response: WDEQ/WQD has removed the reference to 3.2.1.1 in Section 11(a).

Ben Jordan: Mr. Jordan noted, "The requirements of this section, as compared to the current Chapter 12 regulations, will pose a challenge for small water systems i.e. rest areas, campgrounds, visitors centers, rural stores, that can be shut down if a well is out of service, especially with the removal of sections of Chapter 12 allowing hydropneumatic tanks. The economic impact of requiring two wells meeting maximum daily demand or installation of storage meeting twice the maximum daily demand will be significant. This will also potentially lead to issues meeting disinfection by-product requirements, water aging requirements, etc.

Department Response: WDEQ/WQD considered the comment. The proposed requirement is an existing requirement of the current Chapter 12. Hydropneumatic tanks are still allowed and are incorporated by reference in the 2018 TSS sections 7.2 through 7.2.4. The section will remain as written.

11(e)(ii)(A), Table 1

EPA Region 8: Region 8 suggested that WDEQ/WQD "provide additional guidance either within the regulations or separately. Situations where additional distance may be prudent include where fractured rock, solution channels, or highly transmissive alluvial aquifers are present. Subsurface study, as in (e)(ii)(C), may be of value in these situations as well. Determination of aquifer properties may also help to evaluate their potential use as a water supply."

Department Response: WDEQ/WQD has considered the comment. Applications with geologic concerns such as those noted in the comment are reviewed by

WDEQ/WQD's Groundwater Section in addition to the Water and Wastewater Section design review. The setback requirements in this section are consistent with requirements in Water Quality Rules Chapter 25. Through the permitting process and based on the authorities outlined in Water Quality Rules Chapters 3, 12, and 25, the Administrator has the discretion to require additional conditions, such as a subsurface study, on a case-by-case basis. WDEQ/WQD will not revise the passage and will rely on our existing processes.

Ty Ross: Mr. Ross recommended renaming Tables 1 and 2 to Table 11-1 and 11-2.

Department Response: WDEQ/WQD will keep the naming convention for tables that is consistent with other Water Quality Rules. The table titles will remain as written.

11(e)(iii)

Ben Jordan: Mr. Jordan noted, "Power line clearance requirements or overhead equipment vary by voltage per OSHA requirements. Setting a 10-foot clearance requirement may not be suitably protective.

Department Response: WDEQ/WQD considered the comment and recognizes that there are numerous different minimum safety distances for operating or constructing near power lines between federal, state, and industry regulations. WDEQ/WQD has revised the section by removing electrical safety offsets because operators and personnel are still required to adhere to all federal, state, or jurisdiction authority safety guidelines.

11(e)(iii)(B)

Ben Jordan: Mr. Jordan noted, "It is not clear what is meant by "casing" that will be pulled. Should this be pump column pipe?

Department Response: WDEQ/WQD considered the comment. The passage begins by describing the subject as, "the top of the casing and any other well opening." Its intention is to require that the well is fully accessible within the structure for maintenance, repairs, or column pipe or pump removal. However, WDEQ/WQD will revise the passage to, "Wells located in a structure shall be accessible to pull the casing, pipe, or pump."

11(e)(iv)

Ben Jordan: Mr. Jordan recommended rewording the passage to "Testing and records maintained for water wells shall be as follows:"

Ty Ross: Mr. Ross recommended revising the passage to "Systems employing wells..."

Department Response: WDEQ/WQD has revised the passage to "Applicants for wells shall complete testing and maintain records as follows."

11(e)(iv)(A)

Ben Jordan: Mr. Jordan noted, "The term "stabilized drawdown" should be replaced with text that clarifies the intent. Water and Wastewater district engineers have different interpretations of the term and it should be consistent. Consideration should also be given to design based on the results of longer testing, such as 7 days. For instance, if a well is pumped at 100 gpm for seven days then that data is more meaningful than a well pumped at 150 gpm for one day for determining the design pumping rate.

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

11(e)(vii)(B)

Ty Ross: Mr. Ross recommended revising the passage to "wells that employ a concrete apron."

Ben Jordan: Mr. Jordan noted, " What is the reference to Chapter 26? A review of Chapter 26 found no clear relevance. Having to cross reference multiple chapters is onerous, prone to confusion, especially when chapters are updated, and can contribute to mistakes. Consider removing the reference and include any needed text from Chapter 26 into Chapter 12 to prevent issues.

Department Response: **Department Response:** WDEQ/WQD has considered the comment. WDEQ/WQD has confirmed that EPA no longer requires the concrete apron as part of the sanitary survey process. WDEQ/WQD has revised the passage to include the specific reference to Chapter 26, Section 8, which pertains to casing requirements. As the passages in Chapter 26, Section 8 cover several pages, WDEQ/WQD will not restate the information from Chapter 26.

WDEQ/WQD has revised the passage as follows, "~~d~~Drilled, driven, jetted, or bored wells shall have an unperforated casing that extends from a minimum of 12 inches above the concrete surface ~~for concrete~~ and 18 inches above natural ground surface. The design shall demonstrate compliance with Water Quality Rules, Chapter 26, Section 8."

11(e)(vii)(C)

Ben Jordan: Mr. Jordan noted, "The term "gravel pack" should not be used. Gravel is rarely, if ever, appropriate for use in construction of public water supply wells and implies that it is acceptable. Filter pack is a more appropriate term."

Department Response: WDEQ/WQD considered the comment and recognizes that the term "gravel pack" may seem outdated considering the usage of synthetic and non-gravel materials for filter packs. However, preliminary search of technical publications shows that the industry terms "filter pack" and "gravel pack" are used interchangeably (though the hyphenated term "gravel-pack" normally refers to the sand component of the engineered commercial filter pack). The 2018 Recommended Standards for Waterworks uses only the term "gravel pack" to refer to filter material that is placed in the annular space between the well screen and hole. The National Groundwater Association Manual of Water Well Construction Practices refers to "artificial filter packs" as being engineered, for formations that lack sufficient coarse-grained materials and appropriate grading, from selected materials of prescribed grain sizes based on formation material sample sieve analyses. US Geological Survey publications and well-performance studies also use both terms interchangeably and refer to gravel and sand as being primary materials for filter packs.

Filter materials can be gravel and sand or alternative materials such as resin-coated sand, garnet, glass beads, and aluminum oxides. Commercial artificial filter packs are commonly made of gravel and/or naturally occurring quartz sand gravel-pack.

In order to prevent confusion on this subject, WDEQ/WQD will revise the passage to "In gravel-packed or artificial filter-packed wells, aquifers containing inferior quality water shall be sealed by pressure grouting, or with special packers or seals, to prevent such water from moving vertically in gravel or filter-packed portions of the well. Gravel/filter-packed wells shall meet the following..."

11(e)(vii)(C)(I)

Ben Jordan: Mr. Jordan noted, "Installation of cement in the top 10 feet of the borehole where there is no surface casing is problematic with wells using pitless units. A large excavation is required for installation of the pitless unit, electric lines, and the discharge piping. Filling the resultant void will result in considerable costs that are unnecessary and also will cause problems in removing large amounts of concrete or grout if and when work is required on any of the infrastructure. The annular seal beneath the pitless unit should be relied upon for protection of the water source.

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

11(e)(vii)(C)(II)

Ben Jordan: Mr. Jordan noted, "What is the justification for using at least 10 feet of surface casing? The seal for the production casing should extend to just above the top of the

production zone for a screened well and into a confined open hole well. The surface casing is used to provide borehole stability during the well drilling and construction process, not to provide an annular seal. As with the comment above, if a pitless unit is installed, then the permanent surface casing will most likely be removed to a depth of 8 feet. Having 2 feet of surface casing left in place with cement between the casings is not something that needs to be regulated.

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

11(e)(vii)(D)

Ben Jordan: Mr. Jordan noted, " The requirement of extending the casing into the confining layer "overlying" the water-bearing zone and sealing with grout is problematic. In many geologic settings the confining layer overlying the production zone is comprised of shale which is not competent and if left open will result in sloughing and production of solids and turbid water. The requirement is also in conflict with the requirement of the State Engineer's Office of setting the production casing at least 10 feet into the target aquifer and cementing the casing in place. Consideration should be given to rewrite this section to avoid issues.

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

11(e)(viii)

Ben Jordan: Mr. Jordan noted, "What is the purpose of the "required size to allow for sampling'? This language seems out of place.

Department Response: WDEQ/WQD considered the comment. The passage indicates that the casing size needs to allow for the equipment associated with sampling. The passage will remain as written.

11(e)(ix)(A)

Ben Jordan: Mr. Jordan noted, "Some packers, such as liner-hanger-packers that are used in both oil field and deeper water wells use seals that are mechanical metal-on-metal or mechanical that use seals that are not neoprene but are NSF 61 certified. Suggest that this section state that packers with neoprene or other NSF 61 certified materials shall be installed to…….

Department Response: WDEQ/WQD has edited the passage to the following: "Neoprene or other NSF 61 certified material packers shall be installed to seal the annular space between casings to prevent the migration of mineralized, polluted, or otherwise inferior quality water."

11(e)(xii)

Ty Ross: Mr. Ross commented, "If employed."

Ben Jordan: Mr. Jordan noted, "This requirement indicates that the well casing is to extend up a particular distance above a finished floor or concrete apron. The use of concrete aprons around wells is generally unnecessary and counterproductive. EPA no longer requires them for public water supply wells. Concrete aprons are not needed because the annular space seal must already be protective of the well and a properly contoured ground surface will direct surface water drainage away from the wellhead. Concrete aprons will move with frost conditions and quite often result in electrical conduit seal failure, even when using expansion fittings, exposing the well to significant risk of contamination. I have observed many well completions with failed conduits from frost action with dirt, insects, and even rodents in the wellhead. Concrete aprons provide preferred burrowing sites for rodents which then directs surface water flow back to the wellhead and thus compromises the well integrity. This section should require that the finished grade around the well slope at one inch per foot.

> **Department Response:** WDEQ/WQD considered the comments. WDEQ/WQD has confirmed that EPA no longer requires the concrete apron as part of the sanitary survey process and has revised the passage as follows, "Upper terminal well designs that include ~~The~~ a concrete floor ~~or apron of an upper terminal well construction for a public water supply well~~ shall demonstrate a slope of one inch per foot away from the casing ~~at a slope of one inch per foot~~.

11(e)(xiv)

Ben Jordan: Mr. Jordan noted, "A submersible pump can have a check valve in the pump column pipe but will not have a foot valve. A foot valve is installed at the bottom of the pipe column for a centrifugal pump on the ground surface.

> **Department Response:** WDEQ/WQD considered the comment and removed the term "(foot valve)" from the passage.

11(e)(xvii)

Ben Jordan: Mr. Jordan noted, "It is agreed that each well needs to have an accurate flow meter to collect production data. The proposed rule suggests having a separate meter capable of measuring the total wellfield discharge, although a strict interpretation of the wording in the sentence indicates total wellfield production must be measured at each well. The range of production from a wellfield will have significant variations in flow conditions that may not be accurately recorded by a single large meter as appears to be intended in this section. A wellfield meter will be expensive and probably provide less accurate and conflicting results when

compared with individual well meters. A wellfield meter will cause most operators frustration, will not be read, and impose unnecessary costs on most public water systems.

> **Department Response:** WDEQ/WQD considered the comment. Unless otherwise approved by the Department based on documentation provided by the design engineer, an instantaneous and totalizing flow meter equipped with nonvolatile memory shall be installed on the discharge line of each well in accordance with the manufacturer's specifications. Meters installed on systems with variable frequency drives shall be capable of accurately reading the full range of flow rates.

11(f)

EPA Region 8: Region 8 suggested that "WDEQ's regulations more clearly define sources for ground water development that are not wells, and require source monitoring prior to development to reduce the risk of developing GWUDI or contaminated water. Ideally, "spring" water daylights at ground surface through some artesian pressure produced by a cohesive confining layer such as "hard pans" (caliche, iron deposits), high plastic clays, or competent bedrock. It is important to be able to differentiate competent bedrock from highly fractured bedrock caused by weathering or by structural processes such as tectonic forces. The length, breadth and thickness of the confining layer needs to be determined and considered to ensure that the layer is physically able to protect the water source that will be developed. This will allow for the potential "clean capture" of the water, as the confining layer will protect the aquifer's vertical recharge ability. EPA also recommends that the recharge area should be identified."

> **Department Response:** WDEQ/WQD has considered the comment. WDEQ/WQD looks forward to continuing to work with EPA on GWUDI concerns on a case-by-case basis as we do not believe that revisions to Chapter 12 are warranted to address this concern. Following WDEQ/EPA conversations on GWUDI concerns, WDEQ/WQD will consider revising Chapter 12 at a later date if needed.

11(f)(i)

Ben Jordan: Mr. Jordan noted, "Will this rule prohibit developing a spring that issues from a canyon wall, such as Periodic Spring? Or can the development excavate to where at least three feet of cover is provided? It is not clear if the intention of this section is to prohibit the development of groundwater where the spring vent occurs naturally at a depth of more than 3 feet below ground level or if 3 feet of cover is required.

> **Department Response:** WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

11(f)(ii)

Ben Jordan: Mr. Jordan noted, "There is no (b)(iv) in Section 11 of Chapter 12.

Department Response: WDEQ/WQD has corrected the reference to paragraph (e)(ii).

11(f)(iii)

Ben Jordan: Mr. Jordan noted, "What is the "spring protection area"? A definition of the term would clarify how far away sources of contamination must be removed.

Department Response: WDEQ/WQD considered the comment. The section has been updated to the following at f(ii): "The horizontal setback for spring development shall be no less than the setback distances in e(ii) of this Section. The Administrator may require additional setback distances to prevent contamination from the ground surface of other contamination. This area will be known as the spring protection area."

11(f)(i)(C)(II)

Ty Ross: Mr. Ross commented, "(minimum width) What does this mean? Wall thickness? No plastic spec?"

Department Response: WDEQ/WQD has revised the passage as follows: "Made of concrete, with a minimum width or wall thickness of six inches~~, or plastic~~; and"

11(f)(vi)

EPA Region 8: Region 8 commented: "The spring collection site shall be equipped to disinfect water prior to distribution and shall include sampling ports before and after the disinfection application point." Region 8 suggested that WDEQ/WQD "clarify this sentence to make clear if operational disinfection will be required for spring sources."

Department Response: WDEQ/WQD has considered the comment and has revised the paragraph to "The spring collection site shall be equipped to disinfect water prior to distribution and shall include sampling ports before and after the disinfection application point. The equipment shall be maintained and available to operate for its intended use."

Section 12

Wyoming Association of Rural Water Systems: WARWS commented, "We are very pleased to see the membrane section of the 10 State Standards adopted and fully support that section."

Department Response: WDEQ/WQD appreciates WARWS's support of this revision.

12(a)

Ty Ross: Mr. Ross commented, "Would it take less room to just add the text of each section?"

Department Response: WDEQ/WQD has considered the comment. Incorporating the text verbatim would add a significant number of pages to the chapter. As WDEQ/WQD has determined incorporation of the full text would be "inefficient given the length or nature of the rules," the passage will remain as written.

12(b)(i), 12(j)(j)(a), 12(x)(A)(l), 12 (m))

EPA Region 8 and Ben Jordan: Region 8 and Ben Jordan suggested "using units of NTU for all turbidity references..." Region 8 also suggested lowering the maximum allowable feed water turbidity for both slow sand filters and diatomaceous earth filters to 10 NTU."

Department Response: WDEQ/WQD has considered the comment and has revised the Chapter as recommended.

12(h)

Bryan Seppie: Mr. Seppie commented, "Proprietary treatment systems often incorporate tube settlers. These systems may or may not require routine cleaning beyond normal "blowdowns" --- thus tube cleaning may only be an annual occurrence. These types of systems would not comply with 12. (h),(iv) as written."

Department Response: WDEQ/WQD considered the comment. The passage requires that cleaning be provided but does not prescribe frequency. The passage will remain as written.

12(i)

Cheyenne BOPU: Cheyenne BOPU suggested adding "Media Filtration" instead of just "Filtration systems" to clarify that the following subsections do not apply to "membrane filters".

Department Response: WDEQ/WQD has considered the comment. Membrane filters are specifically incorporated in Section12(a). Each subparagraph under paragraph (i) identifies the applicability of the requirements. The passage will remain as written.

12(i)(ii)(F), 12(i)(ii)(J)

Darwin Dyck, Tetra Tech: Mr. Dyck requested confirmation of the allowable minimum backwash flowrate, specifically for *air-assisted* backwash - 12-15 gpm/sqft.

Department Response: WDEQ/WQD considered the comment and reviewed the 2018 TSS. Section 12(i)(ii)(F) will remain as written. However, WDEQ/WQD will revise Section 12(i)(ii)(J) to add the minimum flowrate for air-assisted backwash as follows: "The minimum flowrate for air-assisted backwash shall be 12 gpm/ft^2."

12(i)(ii)(G)

Darwin Dyck, Tetra Tech: Mr. Dyck suggested that the duration of the backwash waste cycle should be "flexible based on operator input and whether or not air assisted backwash is provided."

Department Response: WDEQ/WQD will leave the section as written because it appropriately conveys the intent, which is that the backwash waste cycle is a facility design and construction requirement. Operator input should be solicited during the design process.

Cheyenne BOPU: Cheyenne BOPU commented: "Our existing plant cannot provide this much water in a backwash cycle. What kind of plant modification would require update to meet this criterion?"

Department Response: WDEQ/WQD considered the comment. Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. WDEQ/WQD will issue a permit to modify the facility that requires the facility to meet the minimum design standards that are in effect when the permit to modify is issued that apply to the modification without altering any other minimum design standards that apply to the facility under its existing permit. WDEQ/WQD will work with permittees as needed to seek compliance with Chapter 12, while to the extent possible, minimizing the burden on permittees when bringing existing facilities into compliance.

12(i)(ii)(H)

Cheyenne BOPU: Cheyenne BOPU commented: "Our backwash water is not disinfected and barely chlorinated. Is this requiring backwash pumps to be located after sufficient contact time? Does this disinfection requirement prevent the use of biofiltration?"

Department Response: WDEQ/WQD has considered the comment. The requirement is an existing one that was previously located at Section 10(i)(ii)(B)(IV)(2.). This requirement is specific to filtered and disinfected water and does not affect the location of backwash pumps. The degree of disinfection is not specified and does not prevent the use of biofiltration.

12(i)(ii)(K)

Cheyenne BOPU: Cheyenne BOPU commented: "Our existing plant does not include

surface wash system. What kind of plant modification would require update to meet this criterion?

> **Department Response:** WDEQ/WQD has considered the comment. The requirement is an existing one that was previously located at Section 10(i)(ii)(B)(IV)(5.)). Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. WDEQ/WQD will issue a permit to modify the facility that requires the facility to meet the minimum design standards that are in effect when the permit to modify is issued that apply to the modification without altering any other minimum design standards that apply to the facility under its existing permit. WDEQ/WQD will work with permittees as needed to seek compliance with Chapter 12, while to the extent possible, minimizing the burden on permittees when bringing existing facilities into compliance.

12(i)(ii)(L)

Darwin Dyck, Tetra Tech: Mr. Dyck suggested that "Automated block and bleed valving system can be provided as an option for backflow prevention if air gap is not available between backwash / filter-to-waste discharge and HWL of the backwash waste storage / holding basin."

> **Department Response:** WDEQ/WQD notes that the design requirement is not intended to explicitly describe specific technologies but does require that applicants take adequate measures to prevent backflow. "Automated block and bleed valves" may be considered adequate technology as determined in the permitting review process. The section will remain as written.

12(i)(vi)(F)

Cheyenne BOPU: Cheyenne BOPU asked, "We have two pumps for 8 filters; does firm yield for plant capacity suffice here?"

> **Department Response:** WDEQ/WQD has considered the comment. The requirement is an existing one that was previously located at Section 10(i)(ii)(B)(VII). Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. WDEQ/WQD will issue a permit to modify the facility that requires the facility to meet the minimum design standards that are in effect when the permit to modify is issued that apply to the modification without altering any other minimum design standards that apply to the facility under its existing permitWDEQ/WQD will work with permittees as needed to seek compliance with Chapter 12, while to the extent possible, minimizing the burden on permittees when bringing existing facilities into compliance.

12(i)(viii)

Darwin Dyck, Tetra Tech: Mr. Dyck commented: in reference to the 10-minute minimum for the filter to waste cycle, that the "Duration of filter-to-waste cycle should be flexible and be site specific. Monitoring and low turbidty can be confirmed to end filter-to-waste cycle to minimize waste."

Department Response: WDEQ/WQD considered the comment. While close monitoring by the operator may result in a slightly shorter cycle and slightly less waste, WDEQ/WQD expects that changing the requirement would require additional revisions to the criteria under which an operator may consider the cycle complete. The change would also require additional design requirements for monitoring equipment, which would require their own design parameters and maintenance cycles. The section will remain as written

12(i)(x)(C)

Ty Ross: Mr. Ross commented, "Add a section addressing cartridge filtration."

Department Response: WDEQ/WQD has considered the comment. Paragraph 12(p) outlines the requirements for bag and cartridge filters.

12(j)(i)

Cheyenne BOPU: Cheyenne BOPU suggested adding/adopting NSF61 here.

Department Response: WDEQ/WQD revised the passage as requested.

12(j)(i)(B)

Darwin Dyck, Tetra Tech: Mr. Dyck recommended, in reference to the addition of chlorine, that an "inline static mixer" be included as an option because "installation of inline static mixer does not require 10 pipe diameters" (upstream of the discharge).

Department Response: WDEQ/WQD has considered the comment and will leave the section as written. This requirement is method-specific regarding the application point of chlorine solution, i.e., "to a pipeline discharging to a clearwell", and as such it would thereby necessitate application to "center of the pipe at least 10 pipe diameters upstream…" Alternative methods are not prohibited by this section and their effectiveness must be demonstrated to the WDEQ/WQD engineer reviewing the application.

12(j)(ii)(A)

EPA Region 8: Region 8 recommended that WDEQ/WQD "more clearly specify that the contact time requirements in Table 3 are after the baffling factor has been applied to the reactor, not

before. Also consider adding a requirement that all plants treating surface water and GWUDI have the capability to monitor the free chlorine residual using a handheld analyzer with a digital readout (or continuous analyzer, if required based on population served or design flow), water temperature, and pH at locations necessary to evaluate adequate CT and verify that adequate inactivation is being consistently achieved. The pH and temperature can be grab samples in most cases, but the system needs to have the appropriate monitoring equipment to be able to collect and analyze the samples."

Department Response: WDEQ/WQD has considered the comment. Paragraph 12(j)(ii)(A) has been revised to the following: "Filtration types shall comply with the contact time and minimum chlorine residuals required in Table 3 of this Section after the appropriate baffling factor has been applied to the reactor. Contact times assume a baffling factor of 0.1 unless documentation justifying the use of a higher baffling factor is provided."

WDEQ/WQD has reviewed Section 10(a) and Section 12(a) and has reorganized and edited the references to the 2018 TSS in these paragraphs for clarity. All of 2018 TSS 4.4.3 is now incorporated into Section 12, which addresses the request to require analyzers with digital readouts. Additionally, WDEQ/WQD has moved 2018 TSS 2.9 from Section 10(a) to Section 12(a) to address the request for a requirement for monitoring capability.

To address the concern regarding the use of "should" in the 2018 TSS, WDEQ/WQD has added a paragraph at Section 4(c) to indicate that the term "shall" replaces "should" where it is used in the 2018 TSS. "Shall" is the mandatory term that WDEQ/WQD uses throughout the Water Quality Rules.

12(k)

EPA Region 8: Region 8 recommended that WDEQ/WQD specify "which UV requirements apply to all systems, and which are specific to systems using the UV treatment for microbial reduction credit under the Surface Water Treatment Rules or Ground Water Rule."

Department Response: WDEQ/WQD has considered the comment. As WDEQ/WQD will not be evaluating whether systems that choose UV disinfection will qualify for the microbial treatment credits and the qualification will be determined by EPA based on the design engineer's submittal, the passage will not be revised to differentiate between surface water or other systems. However, to clarify that these systems are not mandatory and that they are a choice for PWSs to make with the advice of their design engineer, we are proposing to revise the passage to "Systems that propose disinfection via ultraviolet light shall comply with the following requirements."

12(k)(i) and 12(k)(i)(B)

EPA Region 8: Region 8 recommended that WDEQ/WQD "include a reference to monitoring the UV Transmittance (UVT) at 254 nm and a 1 cm path length. Include a reference to capturing the range in UV transmittance of the influent water over a 12 month period, and consider requiring a buffer between the minimum validated UVT of the reactor, and the minimum observed UVT. This is particularly important in situations where a system has limited ability to treat the water to increase the UVT."

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD will not incorporate EPA's buffer suggestion at this time, as information was not provided to describe conditions for specific buffer values and the specific circumstances that WDEQ/WQD would need to evaluate in order to require the suggested buffer. WDEQ/WQD proposes to revise the passage as follows:

(B) UV Transmittance (UVT) ~~at~~ reported for a wavelength of 254 nm and a pathlength of 1-cm;

(C) A description of the UVT range over a 12-month period;

12(k)(ii)(N)

EPA Region 8: Region 8 recommended that WDEQ/WQD remove "the reference to NSF Standard 55 from this section. Refer specifically to NSF Standard 55A for any references to this standard, and only reference it as an option for small UV units (equal to or less than 40 gpm production rate)."

Department Response: WDEQ/WQD has considered the comment and has removed the reference to NSF/ANSI Standard 55 as requested.

12(k)(iii)(A)

EPA Region 8: Region 8 recommended that WDEQ/WQD provide "a definition for all UV dose terms cited in the regulation for clarity, definitions are included in the EPA UV Disinfection Guidance Manual. Suggest changing the reference to RED at line 1600 to "a validated dose that meets or exceeds the required dose" and line 1603 to "minimum required validated dose used for system design". Suggest changing the reference to RED in line 1623 to "validated dose that meets or exceeds the required dose"."

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD has added the terms "reduction equivalent dose," "required dose," "validated dose," and " calculated dose" to Section 5. WDEQ/WQD proposes to revise passages at Section 12(k)(iii) as follows:

(iii) Ultraviolet treatment systems shall ~~be designed to comply~~ demonstrate compliance with UV Disinfection Guidance Manual for the Final LT2ESWTR and the

following dose requirements:

(A) The UV disinfection system shall deliver ~~the Reduced Equivalent Dose (RED)~~ a validated dose that meets or exceeds the required dose at the end of lamp life, with fouled sleeves.

(B) The ~~RED~~ minimum required validated dose used for system design shall incorporate a Combined Age and Fouling Factor (CAF), calculated as

(E) The ~~RED~~ validated dose that meets or exceeds the required dose shall be delivered under maximum flow and design (UVT) condition, with the larger UV unit out of service.

12(k)(iv)(B)

EPA Region 8: Region 8 recommended that WDEQ/WQD allow "certification to NSF Standard 55A (for small UV units, less than or equal to 40 gpm) or the DVGW or ONORM standards. If NSF Standard 55A is allowed, consider including specific requirements for use of a reactor that has the NSF55A certification only (i.e. lamp age counter/ alarm, automatic fail safe solenoid valve that shuts off flow when power is lost or dose is low, etc)."

Department Response: WDEQ/WQD has considered the comment. Per our additional discussion with EPA, the passage will state "The bioassay testing and results shall demonstrate validation by an independent third party in full compliance with the U.S. EPA's Ultraviolet Disinfection Guidance Manual."

12(k)(v)(C)(I)

Darwin Dyck, Tetra Tech: Mr. Dyck commented: "Do not understand the reference to manufacturer's guidelines for electromagnetic or other flowmeter installation in regards to UV reactors. Flow conditioning vanes and shorter straight pipe diameters should be permitted if allowed by UV reactor manufacturer."

Department Response: WDEQ/WQD disagrees that this passage could cause confusion because it is consistent with the 2018 TSS. Different manufacturers may have different requirements and "flow conditioning vanes" with shorter straight pipes may be acceptable to the approving engineer provided they can be demonstrated to achieve the same result. The requirement is only one of three options allowed by paragraph 12(k)(v)(C) for ultraviolet piping configurations and it does not preclude the use of other technologies. The passage will remain as written.

12(k)(vi)(B)

EPA Region 8: Region 8 recommended that WDEQ/WQD only require "UV transmittance

monitoring for systems that use the calculated dose monitoring strategy. EPA Region 8 has not required systems to monitor the UV transmittance for the intensity set point dose monitoring strategy, or for small reactors that are certified to the NSF 55A standard. UV feed water monitoring conducted prior to UV unit installation must indicate that the range of UV transmittance values in the UV feed water are within the validated operation range of the reactor (with a buffer between the two values recommended)."

Department Response: WDEQ/WQD has considered the comment and has revised the passage to "For systems that use the calculated dose monitoring strategy, ~~E~~each reactor shall be capable of measuring or calculating the UV transmittance;"

12(m)(iii)

Darwin Dyck, Tetra Tech, EPA Region 8, and Bryan Seppie: The commenters noted the proposed minimum applied feed rate of ozone of 15 mg/L is too high and may cause additional problems such as formation of DBPs and excessive bromate.

Department Response: WDEQ/WQD has considered the comments and has revised the passage to "If ozone is used for taste and odor control, there shall be at least ~~30~~ 10 minutes of contact time to complete all reactions~~.~~ and ~~T~~the minimum applied feed rate of ozone shall be ~~15~~ 1 mg/L, or the design shall identify a contact time and feed rate that demonstrate the application of ozone will not cause an exceedance of the maximum contaminant levels identified at 40 CFR 143.3."

12(o)

EPA Region 8: Region 8 recommended that WDEQ/WQD "consider incorporating the NSF 419 standard for membrane filtration requirements."

Department Response: WDEQ/WQD has considered the comment. As the paragraph already incorporates the requirements of the Membrane Filtration Guidance Manual, incorporating the NSF 419 standard into the paragraph would be duplicative. The passage will remain as written.

12(o)(i)

Ty Ross: Mr. Ross commented, "Who publishes this manual and where do you get it?"

Department Response: WDEQ/WQD has considered the comment. All of the details for materials that are incorporated by reference into Chapter 12 are listed in Section 19. For the Membrane Filtration Guidance Manual, the United States Environmental Protection Agency is the author, and the direct link to the online document is included in the Section 19 details. Additionally, all referenced materials are available for inspection at the WDEQ Cheyenne Office.

12(p)(i)(B)

EPA Region 8: Region 8 recommended that WDEQ/WQD "change the reference to require demonstration of at least a 3-log removal of particles size 1 micron and above with an associated log reduction credit of 2-logs for Giardia and Cryptosporidium."

> **Department Response:** WDEQ/WQD has considered the comment. Per our additional conversation the passage will state "The filter shall demonstrate at least a ~~2~~ 3-log removal of particle size 1 micron and above with an associated log reduction credit of 2-logs for Giardia and Cryptosporidium;"

12(p)(i)(C)

EPA Region 8: Region 8 recommended that WDEQ/WQD "change the challenge testing requirements reference in this section to the LT2ESWTR Toolbox Guidance Manual, Chapter 8. Also consider adopting the NSF 419 standard for bag and cartridge filter challenge testing requirements."

> **Department Response:** WDEQ/WQD has considered the comment and has revised the paragraph as suggested to "Removal efficiency shall be determined through challenge testing as outlined in ~~Membrane Filtration Guidance Manual, Chapter 3~~ Toolbox Guidance Manual, Chapter 8 and NSF/ANSI 419" and has added the LT2ESWTR Toolbox Guidance Manual to the incorporated materials list in Section 19.

12(p)(iii)

EPA Region 8: Region 8 recommended that WDEQ/WQD "remove the NSF 53 reference and change it to NSF 419 and/or the EPA LT2ESWTR Toolbox Guidance Manual, Chapter 8."

> **Department Response:** WDEQ/WQD has considered the comment and has revised the paragraph to "Filter and housing specifications shall include a description of the materials of construction, surface area per filter, and the minimum and maximum operating pressure, and shall ~~be evaluated under NSF/ANSI 53~~ meet the requirements of NSF 419 and the Toolbox Guidance Manual, Chapter 8."

12(p)(viii)

EPA Region 8: Region 8 recommended that WDEQ/WQD "increase the disinfection treatment requirement for bag and cartridge filtration to 1.0 log Giardia."

> **Department Response:** WDEQ/WQD has considered the comment and has revised the passage to "All surface water or GWUDI systems using bag or cartridge filter technology shall provide at minimum disinfection that meets 4.0-Log virus inactivation

and ~~0.5~~ 1.0-Log Giardia inactivation or shall demonstrate that combined filtration and disinfection will provide 3-log removal."

12(r)

Darwin Dyck, Tetra Tech: Mr. Dyck recommended adding an "initial paragraph to cover handling and disposal of typical process waste to include filter backwash waste, filter flushing cycles, filter-to-waste and clean-in-place MF/UF waste. Require backwash waste basin / holding tank where discharging to a sanitary sewer. Also include reference to EPA Filter Backwash Recycle Rule and limitations of recycle flow - 10% of treatment capacity."

Department Response: WDEQ/WQD considered the comment and the section will remain as written. WQD does not feel it is necessary to make additional requirements on specific wastes because it may not be applicable to all types of facilities and applications.

12(r)

Bryan Seppie: Mr. Seppie commented, "Section 9.3,b of the TSS has not been included by reference. Without the inclusion of 9.3,b, the proposed Chapter 12 rules do not address land application of dewatered sludge except for the liquid lime softening sludge (see (r)(iv)).

Alum Sludge is specifically addressed in subsection (s) but sludge from ferric sulfate or ferric chloride is not. Consider including TSS section 9.3 b, it is an appropriate method to be considered: dependent onsite specific conditions."

Department Response: WDEQ/WQD considered the comment. 2018 TSS Section 9.3(b) applies to sludges that are generated out of the precipitative softening process and overlaps with the passage at 12(r)(iii)(D), which covers mechanical dewatering of sludge. WDEQ/WQD proposes to incorporate 9.5 through 9.5.3, which covers iron or red water wastes. Additionally, WDEQ/WQD has reorganized paragraphs (r) and (s) for clarity.

12(r)(ii)

Ty Ross: Mr. Ross commented, "and/or is applicable."

Department Response: WDEQ/WQD has considered the comment. Statements that include both "and" and "or" may potentially be unclear and may lead to difficulties in enforcement. WDEQ/WQD purposely clarified the passage to eliminate these difficulties. The passage will remain as written.

12(r)(iv-v)

Ty Ross: Mr. Ross commented, “may be employed.”

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD has reorganized the paragraph and the suggested edit no longer applies.

12(s)

Cheyenne BOPU: Cheyenne BOPU asked, “What about ferric sludge?”

Department Response: WDEQ/WQD has considered the comment. Ferric waste, or waste filter wash water from iron and manganese removal plants is described in the incorporated 2018 TSS at part 9.5.

12, Table 3

Ty Ross: Mr. Ross commented, “Table 12-1? Provide the flexibility for the designer to calculate project specific, requ’d CT.”

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD will keep the naming convention for tables that is consistent with other Water Quality Rules. The table title will remain as written. Paragraph (A) allows for flexibility of the baffling factor and contact time if documentation is provided in the permit application.

Section 14

14(d)(iii)

Bryan Seppie: Mr. Seppie commented that “six air changes an hour is excessive in a pump station where sensitive electrical gear is in a segregated/isolated room. Consider allowing exceptions where applicable.”

Department Response: WDEQ/WQD considered the comment. The passage is required by the current version of Chapter 12 and is consistent with EPA’s Wastewater Technology Fact Sheet, In-Plant Pump Stations, EPA 832-F-00-069 September 2000 and regulations from neighboring states. The passage will remain as written.

14(g)(iii)

Darwin Dyck, Tetra Tech: Mr. Dyck recommended identifying and adding “surge anticipation valves” as acceptable means for surge control.

Dayton Alsaker: Mr. Alsaker commented, “For smaller pumps surge control may not always [be] required. Is this saying surge control is always to be provided and that pressure relief valves are not acceptable even with smaller pump stations? I don't agree with either of these requirements.”

Bryan Seppie: Mr. Seppie commented, "Pump and pipeline design must consider surge. Pressure relief valves may provide the appropriate level of protection for some designs. Categorically excluding relief valves should be reconsidered."

> **Department Response:** WDEQ/WQD considered the comment. The purpose of the section is to: 1) require that surge control methods shall be employed, and 2) state explicitly that "pressure relief valves" are not acceptable. WDEQ/WQD does not intend to include specific technologies as options. Other methods such as "surge anticipation valves" may be acceptable provided that their adequacy can be demonstrated to the approving engineer.
>
> Due to the pressure and liquid volume with pipelines, the best practice is to use surge tanks and absorbers to prevent the expelling of liquid into the atmosphere. WDEQ/WQD proposes to revise the passage, without changing the exclusion of relief valves as surge control, to "A surge analysis shall be provided to demonstrate if ~~S~~surge ~~control~~ protection devices ~~shall~~ will be ~~provided~~ needed to protect the piping. Pressure relief valves are not acceptable as surge control."

14(h)

Dayton Alsaker: Mr. Alsaker asked if booster pumps are defined?
"It appears this applies to a booster pump installed in a service line, but this should be clarified."

> **Department Response:** WDEQ/WQD considered the comment. Booster pumps are not defined as the term is self-defining. In the subsequent sections, booster pumps are referred to and regulated under various scenarios and "service-line" booster pumps are not explicitly prohibited. The passage will remain as written.

14(h)(v)

Jason Palmer: Mr. Palmer asked if this requirement for home booster pumps only affects new construction?

Andy Hooten: Mr. Hooten commented: "It is suspected that these exist on private residence's service lines in the area and might be needed in the future depending on future development near the maximum water supply elevation of the system. How are we to proceed? Can these be allowed with proper backflow prevention inside a residential dwelling, or trigger a low hazard rating rather than a B (I)? How are these to be prevented as individual homeowners or contractors may not consult WDEQ standards prior to installation?

> **Department Response:** This is an existing passage that was formerly located at Section 12(o) that applies to any new or modified construction. Individual residence

booster pumps are prohibted; however, booster pumps on water mains that service an area/subdivision with low pressure are allowed. WDEQ/WQD will work with individual communities on a case-by-case basis to address individual residences as needed.

14(i)(i)

EPA Region 8: Region 8 recommended that WDEQ/WQD include "a reference to the discharge pipe requirements for air release / vacuum relief valves on finished water lines that requires 1) an 8 inch minimum air gap and 2) #24 mesh at the discharge..."

Department Response: WDEQ/WQD has considered the comment and has revised the paragraph as follows: "Air release valves shall be provided where the pipe crown is dropped in elevation. The discharge pipe from the valve shall have a minimum of an 8-inch air gap and shall be covered with a #24 mesh non-corrodible screen."

14(i)(ii)

Ty Ross: Mr. Ross circled a stricken "be."

Department Response: WDEQ/WQD has revised the passage to "Each pump shall either have an individual suction line or shall have multiple suction lines that demonstrate similar hydraulic and operating conditions."

Section 15

Frank Page: Mr. Page commented, "The revised standard has removed minimal criteria from the WYDEQ Chapter 12 text and incorporates by reference the 2018 TSS criteria. This will require having to review both sets of regulations. This will likely cause confusion and may prove to be cumbersome. It is suggested that WY coordinate with USEPA Region 8, the 2018 TSS and provide minimum acceptable criteria to be used on Wyoming projects for water. Chapter 12 should also allow discretion the design engineer and the WYDEQ reviewing engineer for the use of professional judgement when needed."

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD chose to propose the incorporation of the Recommended Standards for Water Works, 2018 Edition (2018 TSS) in accordance with Wyoming Statute (W.S.) § 16-3-103(h) as we have determined that "incorporation of the full text in agency rules would be cumbersome or inefficient given the length or nature of the rules." WDEQ/WQD chose to incorporate portions of the Ten States Standards and not all of the standards as we realized that some tailoring is necessary. WDEQ/WQD has incorporated the Ten States standards into the rule in a manner that complies with the Wyoming Administrative Procedures Act at W.S. § 16-3-103(h)(ii). The proposed revisions are the minimum standards for the design and construction of public wate supplies. While WDEQ/WQD understands that circumstances may arise that require design

engineer and WDEQ discretion, WDEQ/WQD will work with a permittees to seek compliance with Chapter 12 and while not adding an undue burden on a permittee

Section 15

15(a)

Cheyenne BOPU: Cheyenne BOPU commented that the 2018 TSS section 7.0.2, Location of finished water storage structures, seems "very restrictive". "Our existing tanks do not meet this design criterion."

Department Response: WDEQ/WQD considered the comment. Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. WDEQ/WQD will issue a permit to modify the facility that requires the facility to meet the minimum design standards that are in effect when the permit to modify is issued that apply to the modification without altering any other minimum design standards that apply to the facility under its existing permit. WDEQ/WQD will work with permittees as needed to seek compliance with Chapter 12, while to the extent possible, minimizing the burden on permittees when bringing existing facilities into compliance.

15(c)(ii)

Darwin Dyck, Tetra Tech: Mr. Dyck requested confirmation that "inlet velocity should be a maximum of 10 ft/sec and not a minimum of 10 ft/sec."

Dayton Alsaker: Mr. Alsaker commented: "Mixing is very important and must be provided, however requiring an inlet velocity of 10 fps, seems excessive or restrictive to the design when other considerations on providing adequate mixing/turnover can be considered. This matter is also covered in (d) and (e)."

Cheyenne BOPU: Cheyenne BOPU commented: "What about a tank filled by gravity with varying flow rates?" and "The inlet [minimum] velocity is higher than we allow in our transmission mains. This seems like an unneeded energy loss and can limit height of tank. If mixing [is] provided in tank, is this still required?"

Ben Jordan: Mr. Jordan noted, "What is the reason for an inlet velocity of 10 feet per second? For systems with storage set at a distance from the wells or water supply, friction losses in the pipeline to achieve the velocity will be very high resulting in increased energy costs, potential increases in pressure class of the transmission lines, and in some instances increases in well casing diameters (with higher construction costs) to overcome the additional head requirements. If flushing is a concern then it would be far cheaper to require flushing hydrants on the fill line.

Department Response: WDEQ/WQD considered the comments. The reason for a minimum inlet velocity of 10 fps is to remain applicable as a design standard to any system regardless of

its size; for the purposes of mixing and water age when no other apparatus or method is used such as with equipment, gravity mixing or varying flow rates. This minimum flow rate may not be required by the district engineer if a different but effective method is employed. This passage has since been revised for clarity to include "unless other mixing equipment is employed." WDEQ/WQD has moved the inlet velocity from the paragraph (c)(i) and has moved it to paragraph (e) as follows, "The minimum inlet velocity shall be 10 ft/sec unless ~~A~~ demonstration of employed mixing system or lower inlet velocity ~~shall be considered to~~ addresses disinfection by-product formation, stratification, stagnation, freezing, and other water age issues."

15(c)(iii)

Cheyenne BOPU: Cheyenne BOPU commented: "This is a little unclear. What about gravity fed (floating) tanks?"

> **Department Response:** WDEQ/WQD has considered the comment. After additional conversation with the commenter, Water Quality Rules Chapter 3, Section 9(a)(iii) identifies the requirements for modifications. WDEQ/WQD will issue a permit to modify the facility that requires the facility to meet the minimum design standards that are in effect when the permit to modify is issued that apply to the modification without altering any other minimum design standards that apply to the facility under its existing permit. WDEQ/WQD will work with permittees as needed to seek compliance with Chapter 12, while to the extent possible, minimizing the burden on permittees when bringing existing facilities into compliance.

Darwin Dyck, Tetra Tech: Mr. Dyck requested that the device requirements be confirmed and the paragraph should be revised to be "consistent with EPA and District Engineer requirements"; commenting that a "recent project required overflow piping modifications to include both duckbill valve and non-corrodible #4 mesh screen per EPA comment. If sealed flapper valve were used, #4 mesh stainless steel screen would also be required." Mr. Dyck is concerned that #24 mesh for overflow / drain lines is considered to be too fine.

> **Department Response:** WDEQ/WQD considered the comment. The passage will remain as written because it conforms with EPA Region 8 Sanitary Survey requirements, as well as the 2018 TSS Section 7.0.7.a, which is incorporated by reference in this Chapter at Section 15(a).

Ty Ross: Mr. Ross commented, "What does this mean? State more clearly. 'or the storage tank water age of 100 percent filled in a 24 hour period will have an average of greater than two days..."

Department Response: WDEQ/WQD has revised the passage to "For designs that demonstrate the storage tank has a small daily demand and a high fire water storage requirement, or the storage tank water age ~~of 100 percent filled in a 24 hour period will have~~

~~an~~ average ~~of~~ is greater than two days, the design shall demonstrate that a volume equal to at least 20 percent of the tank volume will be delivered to the storage tank each time pumping is initiated."

15(f)-(i)(ii)(B)

Darwin Dyck, Dayton Alsaker, Craig Barsness, Jeffery Rosenlund, and Frank Page : The commenters noted their concern towards requiring #24 mesh screen. The commenters requestd that screen no finer than #16 be required. The commenters noted concern that #24 mesh is too fine, that this size is too restrictive of airflow, that it plugs too easily, and that freezing can lead to blockages that cause damage.

Department Response: WDEQ/WQD has considered these comments. The proposed paragraph allows the applicant options to choose for overflow lines either a mechanical device, such as a sealed flapper or duckbill valve, with a mesh size of #4 or finer (such as #16 mesh), or #24 mesh. For vents, applicants may also choose between #24 mesh or a combination of #24 mesh and a coarser mesh.

The proposed choices for overflow lines and vents are consistent with current EPA sanitary survey requirements and the 2018 TSS. The proposed revisions balance consistency with EPA requirements with design flexibility.

For designs that propose only #24 mesh, the permittee or operator should then inspect vents and overflow lines during operation and maintenance practices. Additionally, the permittee or operator should inspect vents and overflow lines following overflow events, as part of operation and maintenance practices. Design and installation options to allow the removal or temporary removal of #24 mesh during an overflow event should be considered.

WDEQ/WQD understands the concern that #24 mesh may become plugged by ice or frost, which is why the requirement at Section 15(i)(ii) is included. Designs may either include #24 mesh on its own or include #24 mesh in combination with a coarser mesh. WDEQ/WQD expects that simple mechanical devices, such as clamps, may be employed to attach the mesh but would allow for release of the #24 mesh in an overflow or pressure event, while still leaving the coarser mesh in place. An additional example to address freezing would be to include a solar panel with heat tape or heating coils that could aid in preventing freeze/frost.

WDEQ/WQD recognizes existing systems may have physical constraints that could make meeting #24 mesh requirements difficult. Entities with concerns should contact WDEQ/WQD to discuss concerns and options for specific situations with WDEQ/WQD.

WDEQ/WQD has reviewed the potential costs of combining coarser mesh with mechanical devices and finds that the additional devices are not economically unreasonable.

WDEQ has reorganized the passages to more clearly indicate that applicants may choose either #24 mesh or a finer mesh that includes a sealed flapper valve or duckbill valve.

Section 16

Andy Hooten: Mr. Hooten commented: "Current Section 14.a.iv has been removed from the rules/regs – "All service connections shall be constructed in conformance with the Uniform Plumbing Code". Is there a replacement? I assume you intend to no longer allow copper service lines as copper is not listed in 16.b. Please clarify."

Mr. Hooten commented: "Service Lines. It is common, at this time, to install water service lines with SDR9 Poly and sanitary sewer services with SDR35. Several new home builders will change the SS service material to schedule 40 and install both services in the same trench, as allowed by Section P2906 of the 2018 IRC. Is it WDEQ's desire to continue the 10' separation of service lines or will reviewing agencies be able to determine if they desire schedule 40 pipe and single trenches? Which codes/rules/regs govern? Does WDEQ desire to adopt TSS 8.11?"

Department Response: WDEQ/WQD considered the comment. While WDEQ/WQD intentionally struck the service line reference to the Uniform Plumbing Code that was previously located at Section 14(a)(iv), we intended to include the 2018 TSS reference to 8.11.1, which includes a reference to local codes for applicable plumbing code requirements and includes a reference to 2018 TSS 2.21 for material requirements, and to 8.12 for service meter information. We have corrected Section 16(a) to include parts 8.11.1 and 8.12.

16(a)

Bryan Seppie: Mr. Seppie commented, "The proposed Chapter 12 does not include TSS 8.5 which provided a method to address inflow prevention (via AWWA C514). Consider including this section of the TSS."

Department Response: WDEQ/WQD considered the comment and has revised the paragraph to include TSS 8.5, which includes 8.5.1 and 8.5.2.

16(b)

Ty Ross: Mr. Ross commented, "conforms."

Department Response: WDEQ/WQD has corrected the passage.

Ty Ross: Mr. Ross commented, "Add polyethylene large diameter, AWWA C906."

Department Response: WDEQ/WQD has added this standard to the passage.

16(b)(i)(B)

American Council of Engineering Companies of Wyoming: ACEC commented, "It appears that C909 water pipe (molecular-oriented PVC) is not being allowed. It is very similar to C900 PVC pipe, and offers some advantageous properties. Why is C909 being disallowed?" "Why can't cathodically-protected steel be used as a distribution system pipe material?"

Department Response: The American Water Works Association Standard C909 is already incorporated for transmission lines and interconnecting process piping at Chapter 12, Section 11(c)(xvii).

Applicants that wish to install materials not included in the Chapter would need to discuss the options with WDEQ/WQD prior to being granted a permit. Cathodically protected steel pipe would be allowed as long as the Engineering Design Report describes the cathodic protection that is proposed to be used and how it will be designed for the proposed application.

16(b)(iv)

Andy Hooten, Ty Ross: Mr. Hooten and Mr. Ross requested the inclusion of AWWA C906 to the Section.

Department Response: WDEQ/WQD has edited Section 16 and this standard is now included in paragraph (b)(iv)(B).

16(c)

Cheyenne BOPU: Cheyenne BOPU asked if this requirement prevents the use of flanged caps and flanged meters? Cheyenne BOPU asked if this requirement applies to "all restrained joint pipes; e.g. can flanged pipe joints be used in lieu of thrust block if thrust block installation [is] not feasible?"

Andy Hooten: Mr. Hooten commented: **"**Flanged piping is not allowed. Have above-ground installations been considered in regards to this item, i.e. Creek crossings?"

Department Response: WDEQ/WQD considered the comments. The condition applies to buried pipe. Above ground flanged connections are allowed. WDEQ/WQD has revised the passage to state "Flanged piping shall ~~only be allowed~~ not be allowed for buried pipe except for connection to valves."

16(d)(ii)

Dayton Alsaker: Mr. Alsaker commented: "So, hydrants cannot be used for flushing of lines not designed to have fire flows? When longer mains are sized at 8" or larger due to the resulting losses because of their length, hydrants can provide a means for the needed flushing."

> **Department Response:** WDEQ/WQD considered the comment. Upon further review of the 2018 TSS, part 8.4 describes these conditions more clearly. WDEQ/WQD proposes to remove 16(d)(ii) and incorporate 2018 TSS part 8.4.

16(e)(ii)

Ty Ross: Mr. Ross commented, on the striken 'in all hydrant leads,' "Keep this clause."

> **Department Response:** WDEQ/WQD has revised Section 16(a) to incorporate 2018 TSS part 8.4 for hydrants. The concern is addressed with the updated incorporated material. The passage at 16(e)(ii) will remain as written.

16(f)

Cheyenne BOPU: Cheyenne BOPU asked if an "air release valve" will suffice for the required provision for "air relief"? Cheyenne BOPU asked if this requirement means that there must be a "fire hydrant at every high point"?

> **Department Response:** WDEQ/WQD considered the comment. WDEQ/WQD will remove the passage at 16(f) and will add 2018 TSS 8.5, which covers air relief valves, to Section 16(a), which will allow air-relief valves.

Bryan Seppie: Mr. Seppie commented, "Air relief and Vacuum Breakers are essential in most large transmission systems. It is not always practical to provide segregated vent piping to the surface (ex. within paved areas). Alternate designs to drain the vaults or add inflow preventors need to be considered."

> **Department Response:** WDEQ/WQD considered the comment. Per additional conversation with the commenter, WDEQ/WQD notes that the chapter is revised to incorporate 2018 TSS parts 8.5.1 and 8.5.2.

Ty Ross: Mr. Ross commented, "Keep the old wording. FH are not the only means of air relief and this instance calls for auto air relief. This revision totally misses intent."

> **Department Response:** WDEQ/WQD has incorporated 2018 TSS 8.5.1 in lieu of maintaining the passage at 16(f).

16(g)

Dayton Alsaker: Mr. Alsaker recommended allowing an "alternate approach...to design the valve not to discharge into water that might accumulate in the manhole should the installation be subject to possible submergence..." as "designing manholes for air relief valves to prevent submerging the valves under all conditions is difficult."

Department Response: WDEQ/WQD considered the comment. The requirement is an existing one that was previously located at Section 14(e)(i). WDEQ/WQD is concerned that allowing a valve to be submerged could result in a discharge even if it is designed to not discharge. The passage will remain as written.

Jeffery Rosenlund: Mr. Rosenlund commented, "The requirement for a manhole to access valves at river crossings. This doesn't make sense in places where we've experienced creek crossings as the manholes would likely be under water. Having a valve in a manhole actually makes it harder to access a valve and close it than if it were in a valve box, especially if the area is flooded by a foot or two of water."

Department Response: The citation was not included in the comment, but WDEQ/WQD expects the comment pertains to Section 16(f)(ii). The requirement is an existing one that was previously located at Section 14(e)(i). WDEQ/WQD is concerned that allowing a valve to be submerged could result in a discharge even if it is designed to not discharge. Applicants that are unable to comply with the permitting requirements would need to discuss the options with WDEQ/WQD prior to being granted a permit.

16(h)(iii)

Ty Ross: Mr. Ross underlined the phrase "The trench shall be dewatered for all work."

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

Ty Ross: Mr. Ross commented, "Add "involving pipe that is jointed in the trench".

Department Response: WDEQ/WQD needs additional information and will discuss this item with the commenter before providing a formal response.

16(k)(iii)

Ty Ross: Mr. Ross struck out "place" and added "include placement of."

Department Response: WDEQ/WQD has considered the comment. The proposed revision does not conform to the construction in the preceding and following passages. As the current passage is clear, it will remain as written.

16(l)(i)

Cheyenne BOPU: Cheyenne BOPU suggested that this requirement may be less restrictive than the 18TSS because it reads as though the minimum horizontal distance requirement of 10 ft only applies when the vertical distance is less than 1.5 ft, and recommended that minimum horizontal distance be 10 ft, regardless of the vertical distance.

Department Response: WDEQ/WQD considered the comment. WDEQ/WQD has revised the paragraph to remove (k)(i) through (k)(iv) and has added 2018 TSS parts 8.8.2 and 8.8.3 to paragraph (a).

16(k)(v)

Cheyenne BOPU: Cheyenne BOPU recommended adding, “or encased in flow fill”, to the end of the section passage.

Andy Hooten: Mr. Hooten commented: **“**Would having the sanitary sewer pipe be the same material as the water pipe be acceptable rather than a separate conduit pipe i.e. C900 for Sanitary Sewer Pipe (TSS 8.8.4.b)?”

Ty Ross: Mr. Ross commented, “Not the only acceptable method, per DEQ policy. Also list sewer installed w/pressure-rated pipe and flow-fill.”

Department Response: WDEQ/WQD considered the comment. The reason the passage requires separate conduits is that it prevents possible contamination from leaking pipe or pipe joints when separation cannot be achieved. WDEQ/WQD has revised the passage to the following, “Where the minimum vertical or horizontal separation distances required by incorporation by reference of 2018 TSS parts 8.8.2 and 8.8.3 of paragraph (a) of this Section cannot be met, the sewer or water line shall be placed in a separate conduit pipe or meet the flow-fill requirements of paragraphs (ii) and (iii) of this Paragraph”

16(l)(iii)(D)

Andy Hooten: Mr. Hooten commented "may be" separated or "shall be" separated? I would suggest the following phrase, "when a pipe crossing is encased in flow-fill the minimum separation distance between the pipes shall be two inches, larger separations are encouraged".

Department Response: WDEQ/WQD has corrected the passage to “shall be

separated."

Ty Ross: Mr. Ross struck out "may be" and added "shall be vertically."

Department Response: WDEQ/WQD has considered the comment. The section has been updated to remove "may be" and replaced with "shall be."

16(m)

Andy Hooten: Mr. Hooten commented: "Table 1 and Table 4 are referenced several times in 16.l. I assume all these references should be Table 4. Please clarify."

Department Response: WDEQ/WQD corrected the passage to Table 4.

Ty Ross: Mr. Ross commented, "Cross-connection prevention."

Department Response: WDEQ/WQD has considered the comment. As the paragraph pertains to the defined term "cross-connection" and not only to prevention, the passage will remain as written.

16(m)(i)(A)

Ty Ross: Mr. Ross commented, "Rethink table labels, as Section # - 1, 2, etc."

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD will keep the naming convention for tables that is consistent with other Water Quality Rules. The table title will remain as written.

16(m)(i)(A)(I)

Ty Ross: Mr. Ross commented, "16-1(or 4 if the current convention is kept.)

Department Response: WDEQ/WQD has corrected the cross-reference. WDEQ/WQD will keep the naming convention for tables that is consistent with other Water Quality Rules. The table title will remain as written.

16(m)(i)(B)(IV)

Ty Ross: Mr. Ross commented, "16-1 (or 4)."

Department Response: WDEQ/WQD has corrected the cross-reference. WDEQ/WQD will keep the naming convention for tables that is consistent with other Water Quality Rules. The table title will remain as written.

16(m)(i)(D)

Ty Ross: Mr. Ross struck out “that have been” and “ous” and added “Hazard.”

Department Response: WDEQ/WQD has corrected the passage.

16(m)(i)(D)(I)

Ty Ross: Mr. Ross struck out “ous” and added “Hazard.”

Department Response: WDEQ/WQD has corrected the passage.

16, Table 4

Ty Ross: Mr. Ross added “or 16-1.”

Department Response: WDEQ/WQD has considered the comment. WDEQ/WQD will keep the naming convention for tables that is consistent with other Water Quality Rules. The table title will remain as written.

16, Table 4, Note 2

Ty Ross: Mr. Ross commented, “Then why isn't this instance checked in the Table?”

Department Response: WDEQ/WQD has considered the comment. Low hazard back-siphonage and back-pressure and high-hazard back-siphonage and back-pressure are all checked for the row “reduced pressure principle backflow.” The table will remain as written.

16 (m)(i)(H)

Jason Palmer: Mr. Palmer asked, “Who is responsible for having the backflow prevention devices installed at high-hazard non-residential cross-connections inspected and tested, e.g. city or property owners, and who maintains the records?”

Department Response: The public water supply is responsible for obtaining testing and certification and is responsible for maintaining the records.

Section 17

17(c)(vi)

Jason Palmer: Mr. Palmer commented that “Standard Methods” should be accompanied by the ‘current version’.

Department Response: WDEQ/WQD considered the comment. WDEQ/WQD is proposing to incorporate by reference the Standard Methods for the Examination of Water and Wastewater from 2018, as noted in Section 19. The proposed incorporation is for a specific version, which may or may not be the "current" version, in accordance with the Administrative Procedures Act, W.S. § 16-3-105(h)(ii)). If the Standard Methods for the Examination of Water and Wastewater is revised after the adoption and filing of this rule, WDEQ/WQD will evaluate whether or not to incorporate by reference the new version. If we proceed with incorporating the new version, WDEQ/WQD will proceed with a new rulemaking effort. For clarity, WDEQ/WQD will include the publication year noted in Section 19(b)(xlix) in the reference at 17(c)(vi).

Section 18

18(b)

American Council of Engineering Companies of Wyoming: ACEC commented, "Administrator approval of the final O&M manual will now be required prior to plant startup. While in theory this makes some sense, practically this prove very difficult to achieve. Getting all of the O&M manuals together into one document, then submitting and receiving approval from the Administrator, prior to startup will be difficult."

Department Response: WDEQ/WQD has considered the comment. The requirement is an existing one that was previously located at Section 16(b). The requirement is consistent with our operation and maintenance requirements for other programs within WDEQ/WQD. Applicants that are unable to comply with the permitting requirements would need to discuss the options with WDEQ/WQD prior to being granted a permit.

Section 19

Andy Hooten: Mr. Hooten commented:

"AWWA C901 ¾" through 3 inch for water service C-901-17. This has been updated to C901-20. Which version does WDEQ desire?"

Department Response: WDEQ/WQD has updated the reference in Section 19 to C901 to the 2020 version.

Ty Ross: Mr. Ross commented, "AWWA C906."

Department Response: WDEQ/WQD has added this standard to the list of incorporated materials.

Water and Waste Advisory Board Comments
December 21, 2021 Meeting
Chapter 12

General Comments

Lorie. Cahn: Ms. Cahn asked if Chapter 12 needs to include definitions of all of the terms of the 2018 Ten States Standards.

Department Response: WDEQ/WQD considered the comment. The 2018 Ten States Standards do not include a section of definitions. However, based on our review of the 2018 Ten States Standards, we do not feel any additional definitions are necessary at this time.

5(u)

Lorie Cahn: Ms. Cahn recommended revising "mechanically driven drives" to "mechanical drives."

Department Response: WDEQ/WQD revised the passage as requested.

5(x)

Lorie Cahn: Ms. Cahn noted the defined term "offstream reservoir" is defined, but is not used in the chapter. Ms. Cahn asked WDEQ/WQD to provide the number of offstream reservoir facilities in the State.

Department Response: WDEQ/WQD considered the comment. As the term "offstream reservoir" is not used in the chapter, WDEQ/WQD proposes to remove it from Section 5.

WDEQ/WQD consulted our database and EPA records and found that there are between 4 and 20 offstream reservoirs that are permitted in Wyoming.

5(cc)

Lorie Cahn: Ms. Cahn recommended revising "utilizing" to "use."

Department Response: WDEQ/WQD revised the passage as requested.

6(b)(iii)

Lorie Cahn: Ms. Cahn recommended revising the stricken "which" to "that" and removing "that" from "that the facility will meet..."

Department Response: WDEQ/WQD revised the passage as requested.

8(c)(ii)

Lorie Cahn: Ms. Cahn noted the passage may be missing helpful grammar and punctuation, such as an "and" before "material" and a comma if "material" does not go with "valve." Ms. Cahn recommended removing the comma after "valves."

Department Response: WDEQ/WQD revised the passage as follows:

(ii) Profiles of all water lines shall: ~~be shown on the same sheet as the plan view at legible horizontal and vertical scales, with a profile of existing and finished surfaces, pipe size and material, valve size, material and type. The location of all special features such as access manholes, concrete encasements, casing pipes, blowoff valves, and air-vacuum relief valves, etc., shall be shown.~~

(A) ~~b~~Be shown on the same sheet as the plan view at legible horizontal and vertical scales;

(B) ~~with~~Show a profile of:

(I) ~~e~~Existing and finished surfaces~~,~~;

(II) ~~p~~Pipe size and material~~,~~; and

(III) ~~v~~Valve size, material, and type.

(C) Show ~~T~~the location of all special features such as access manholes, concrete encasements, casing pipes, blowoff valves, and air-vacuum relief valves ~~shall be shown~~.

8(c)(iii)(A)

Lorie Cahn: Ms. Cahn noted that the passage is unclear and requested that WDEQ/WQD explain how the passage will be clarified.

Department Response: WDEQ/WQD has revised the passage as follows:

~~(formerly Section 7(c)(iii)(A))~~(A) The bottom of the stream, the elevation of the high- and low water levels, and other topographical features at ~~all locations where the water line is near or crosses streams or lakes.~~ points where:

(I) The water line is within 10 feet of streams or lakes; and

(II) The water line crosses streams or lakes.

8(e)(ix)

Lorie Cahn: Ms. Cahn noted the passage is unclear concerning the depth of the elevation The passage does not specify how far below the penetration the applicant should be in providing the elevation.

Department Response: WDEQ/WQD has revised the passage as follows: Provide from the ground surface to the total depth of the drilled borehole to include the elevation and designation of geological formations, water levels, formations penetrated, and other details to describe the proposed well completely;

8(e)(ii), line 1126 (11/5/21 strike/underline)

Lorie Cahn: Ms. Cahn noted the paragraph is unclear.

Department Response: WDEQ/WQD has clarified the passage as follows:

When applicable, The type, size, strength, operating characteristics, rating or requirements for all mechanical and electrical equipment, including machinery, valves, piping, electrical apparatus, wiring, and meters; laboratory fixtures and equipment; operating tools; special appurtenances; and chemicals~~, when applicable.~~;

8(e)(x)

Lorie Cahn: Ms. Cahn recommended removing the "and" after "screen intervals;"

Department Response: WDEQ/WQD revised the passage as requested.

9(b)(iv)

Lorie Cahn: Ms. Cahn requested that WDEQ/WQD review the passage and clarify "all" since some information may not be known at the time the application is submitted.

Department Response: WDEQ/WQD revised the passage to the following:

A determination of the degree of hazard of all known or anticipated water service connections to be connected to the proposed project. A hazard classification shall be identified for each connection and recommended mitigation measures shall be described for each hazard.

9(f)(ii)

Lorie Cahn: Ms. Cahn recommended revising "this data" to "these data."

Department Response: WDEQ/WQD revised the passage as requested.

10(b)

Lorie Cahn: Ms. Cahn recommended adding "that" to "shall demonstrate the."

Department Response: WDEQ/WQD revised the passage as requested.

10(b)(ii)

Lorie Cahn: Ms. Cahn recommended clarification of the passage.

Department Response: WDEQ/WQD revised the passage to "The plant capacity design shall ~~include documentation of the~~ demonstrate consideration of:"

10(b)

Lorie Cahn: Ms. Cahn recommended adding "that" to "demonstrate the facility will."

Department Response: WDEQ/WQD revised the passage to "demonstrate that the facility will..."

11(e)(ii)(C)

Lorie Cahn: Ms. Cahn recommended adding "in" to "required Tables 1 and 2 of this Section."

Department Response: WDEQ/WQD revised the passage to "required in Tables 1 and 2..."

11(e)(vii)(E)

Lorie Cahn: Ms. Cahn recommended removing ";" and "and." Ms. Cahn recommended replacing the stricken characters with "." after "annular space."

Department Response: WDEQ/WQD revised the passage as requested.

11(e)(vii)(E)(II)

Lorie Cahn: Ms. Cahn requested that WDEQWQD review the passage at 11(e)(vii)(E)(II) and determine if "the" is necessary to "the 40 CFR Part 141."

Department Response: WDEQ/WQD removed "the."

11(e)(xxvi)

Lorie Cahn: Ms. Cahn recommended removing "an."

Department Response: WDEQ/WQD revised the passage as requested.

12(b)

Lorie Cahn: Ms. Cahn recommended revising the passage back to the original language.

Department Response: WDEQ/WQD revised the passage to "The capacity of the water treatment or water production system shall be designed for the maximum daily demand at the design year."

12(e)(vi)

Lorie Cahn: Ms. Cahn noted the passage contains an extra "if."

Department Response: WDEQ/WQD revised the passage and removed the extra "if."

12(g)

Lorie Cahn: Ms. Cahn recommended removing "the" from "the flow rates."

Department Response: WDEQ/WQD revised the passage as requested.

12(i)(x)(B)

Lorie Cahn: Ms. Cahn recommended removing "of the."

Department Response: WDEQ/WQD revised the passage as follows:

Proposed diatomaceous earth filtration shall be pressure or vacuum type units ~~shall be of the pressure or vacuum type~~.

12(j)(i)(D)

Lorie Cahn: Ms. Cahn noted that "with" should it be "when." "with" seems to tie to the reference to “chlorinator” and this is a timing issue.

Department Response: WDEQ/WQD revised the passage as follows:

Standby equipment of sufficient capacity shall be available to replace the largest chlorinator unit. ~~except for a~~ wWell water systems providing no treatment other than disinfection are exempt from the requirements of this paragraph (D) and are not required to provide standby chlorination equipment

12(k)(i)(A-H) and (k)(ii)(A-N)

Lorie Cahn: Ms. Cahn noted that several words are capitalized that should be lower case.

Department Response: WDEQ/WQD revised the passage by changing the incorrectly capitalized words to lower case.

12(k)(iii)(E)

Lorie Cahn: Ms. Cahn recommended revising “with” to “when” or “if.”

Department Response: WDEQ/WQD revised the passage and the phrase has changed to “The validated dose that meets or exceeds the required dose shall be delivered under maximum flow and design (UVT) condition, ~~with~~ when the larger UV unit is out of service.

12(k)(iv)(G) and 12(k)(vi)(C)

Lorie Cahn: Ms. Cahn recommended revising “headloss” to “head loss.”

Department Response: WDEQ/WQD revised the passages as requested.

12(l)(i)

Lorie Cahn: Ms. Cahn recommended adding “that” to “designs shall demonstrate.”

Department Response: WDEQ/WQD revised the passage as requested.

12(l)(ii)(E), 16(l)(i)(B)(III), and 16, Table 4

Lorie Cahn: Ms. Cahn recommended revising “principle” to “principal”

Department Response: WDEQ/WQD revised the passages as requested.

12(l)(ii)(f)

Lorie Cahn: Ms. Cahn noted that "fluoride" is misspelled in the passage.

Department Response: WDEQ/WQD corrected the passage as requested.

12(l)(iv)

Lorie Cahn: Ms. Cahn noted that "loading" is misspelled in the passage.

Department Response: WDEQ/WQD corrected the passage as requested.

12(n)(iv)

Lorie Cahn: Ms. Cahn noted that the passage includes too many uses of "shall."

Department Response: WDEQ/WQD corrected the passage as requested.

12(o)(iv)

Lorie Cahn: Ms. Cahn noted that "Log" should be lower case.

Department Response: WDEQ/WQD corrected the passage as requested.

12(r)(i)

Lorie Cahn: Ms. Cahn recommended adding "to" or "into" to "discharged directly a sanitary sewer..."

Department Response: WDEQ/WQD corrected the passage to "shall be discharged directly into a sanitary sewer..."

13(b)(ii)

Lorie Cahn: Ms. Cahn recommended revising the construction of the second sentence to match the construction of the first sentence.

Department Response: WDEQ/WQD corrected the passage to "Tanks shall maintain structural integrity while in use."

14(g)(ii)

Lorie Cahn: Ms. Cahn recommended removing "(4)" from the passage.

Department Response: WDEQ/WQD corrected the passage as requested.

14(i)(ii)

Lorie Cahn: Ms. Cahn noted the use of "manifolded" is unusual in this context.

Department Response: WDEQ/WQD revised the passage to the following:

Each pump shall either have an individual suction line or shall have ~~the~~ multiple suction lines ~~shall be manifolded such that they will ensure~~ that demonstrate similar hydraulic and operating conditions.

15(c)(ii)

Lorie Cahn: Ms. Cahn noted the paragraph is incorrectly numbered.

Department Response: WDEQ/WQD corrected the passage as requested.

16(l)(i)(A)

Lorie Cahn: Ms. Cahn recommended that WDEQ/WQD review the passage and propose revisions for clarity.

Department Response: WDEQ/WQD revised the passage to the following:

(A) Applicability. ~~In order t~~To protect all public water supplies from the possibility of the introduction of contamination due to cross connections, the water supplier shall: ~~require backflow prevention devices for each water service connection in accordance with Table 1 which appears at the end of this section, with the exception of (B)(I) residential water service connections and (B)(II) domestic non-residential water service connections. The water supplier shall take appropriate actions which may include immediate disconnection for any water user that fails to maintain a properly installed backflow prevention device or comply with other measures as identified in Section 14 (i) of these regulations.~~

(I) ~~r~~Require backflow prevention devices for each water service connection in accordance with ~~Table 1~~ Table 4 ~~which appears at the end~~ of this ~~s~~Section, with the exception of (B)(I) residential water service connections and (B)(II) domestic non-residential water service connections~~.~~;

(II) ~~The water supplier shall t~~Take appropriate actions that may include:

1. ~~i~~Immediate disconnection for any water user that fails to maintain a properly installed backflow prevention device; or

2. ~~comply~~ Compliance with other measures as identified in this Section.

16(l)(i)(B)(V)

Lorie Cahn: Ms. Cahn recommended revising "utilizing" to "using."

Department Response: WDEQ/WQD corrected the passage as requested.

17(b)

Lorie Cahn: Ms. Cahn recommended revising "assure" to "ensure."

Department Response: WDEQ/WQD corrected the passage as requested.

18(a)(ii)(B)

Lorie Cahn: Ms. Cahn recommended removing the extra uses of "the" from the passage.

Department Response: WDEQ/WQD corrected the passage as requested.

18(c)(ii)(A-K)

Lorie Cahn: Ms. Cahn recommended removing the extra uses of "a" from the passages.

Department Response: WDEQ/WQD corrected the passages as requested.

WYOMING WATER AND WASTE ADVISORY BOARD

RE: WATER AND WASTE ADVISORY BOARD MEETING

TRANSCRIPT OF MEETING PROCEEDINGS

Pursuant to notice duly given to all parties in interest, this matter came on for meeting on the 15th day of March, 2022, at the hour of 9:06 a.m., before the Wyoming Water and Waste Advisory Board, Ms. Lorie Cahn, Acting Chairman presiding, and Mr. Brian Deurloo, Mr. James Cochran, with Mr. Brian Dickson and Mr. James Peters, Attorney for the Board, also in attendance virtually.

Ms. Nicole Budine, Attorney for the Division; Ms. Jennifer Zygmunt, Water Quality Administrator; Ms. Lily Barkau, Groundwater Section Manager; Mr. Keenan Hendon, Water and Wastewater Section Manager; and Ms. Gina Thompson, Water Quality Division, in attendance, as well as various members of DEQ staff and the public in attendance virtually.

I N D E X

P R O C E E D I N G S

(Meeting proceedings commenced 9:06 a.m., March 15, 2022.)

ACTING CHAIR CAHN: Call this meeting to order, the Water and Waste Advisory Board for the state of Wyoming on the 16th of March.

BOARD MEMBER DEURLOO: 15th.

ACTING CHAIR CAHN: 15th of March. Oh, dear. Thank you.

I don't know if, Jennifer, you want to start off. I would --

MS. ZYGMUNT: Sure.

ACTING CHAIR CAHN: I would -- actually, maybe just real quick. Our Board Chair Alan Kirkbride passed away recently, and I just thought -- we thought it would be nice to have a moment of silence for Alan.

(A moment of silence was observed.)

ACTING CHAIR CAHN: And I would like to invite -- if anybody on the Board would like to say something, please feel free or anybody in DEQ.

BOARD MEMBER DEURLOO: I'd just say he was a good guy. We joined the same day on the Board. We were Leadership Wyoming classmates. He was a gentle giant. Had the biggest hands I ever shook, I think, or darn near. He was a rancher, a gentleman, a Christian, and all-around

good guy, so I'll miss him.

BOARD MEMBER COCHRAN: He'll be missed.

MS. ZYGMUNT: Agreed. We'll miss his leadership and his kindness and his support for conservation and natural resources in Wyoming. He was a no-nonsense guy, and I'm sure he'd want us to continue on with the business today, and we look forward to the discussion, but we will miss him deeply. So thank you for the comments.

BOARD MEMBER DEURLOO: Thank you.

ACTING CHAIR CAHN: He was really thoughtful, kind, and fun to work with, and I just really enjoyed the good, kind person, so we will miss him.

Okay. With that, I think we'll do introductions, and then I'll turn it over to Jennifer.

So I'm Lorie Cahn. I'm the acting chair representing the public at large.

BOARD MEMBER COCHRAN: Jim Cochran, representing local government.

BOARD MEMBER DEURLOO: I'm Brian Deurloo. I represent industry.

BOARD MEMBER DICKSON: I'm Brian Dickson, representing the public at large.

MS. ZYGMUNT: Thank you, Madam Chairwoman. I'll do some DEQ introductions. My name is Jennifer

Zygmunt. I am the Water Quality Division Administrator.

MS. BARKAU: Lily Barkau, Groundwater Section Manager in the Water Quality Division.

MS. THOMPSON: Gina Thompson, Water Quality Division Policy and Planning Analyst.

MS. ZYGMUNT: And also in the room with us today we have Keenan Hendon, who is our Water and Wastewater Section Manager. And Anthony Rivers, also in the Water and Wastewater Section. They'll be presenting to us later on today regarding Chapter 12.

Via Zoom we will have Lindsay Patterson, our Standards Program Manager, and David Waterstreet, our Watershed Section Manager, to talk about Chapter 1 as well.

And then to note a couple other people. We have Nicole Budine, who is Water Quality Division's Attorney General. And then we also have Jim Peters on via Zoom. He is the Attorney General for the Board. So he is here to help with any questions that the Board may have procedurally. So please know that he is here as a resource as well.

So Madam Chairwoman, I think that covers introductions. At this point I would suggest to the Board that we could talk about elections and what the Board's preference to do there. If you would like to have reelections at this time or wait until we have a full board

again.

ACTING CHAIR CAHN: Open it up for discussion. I think the two ideas on the table are to wait until we have a full board and Alan is replaced, or elect officers at this point. So open up for discussion.

BOARD MEMBER COCHRAN: I guess I have to start with a question. What's the time frame typically to replace a board member?

MS. ZYGMUNT: It depends. The governor's office is aware of the vacancy. Sometimes the governor may have a candidate in mind, otherwise we will be suggesting candidates to the governor's office. So I'll put the word out now that if you have suggestions for a good replacement for the Board, please feel free to pass those names on to me and we'll give them to the governor's office.

Once they have candidates, I've generally found it may only take them a few weeks to review the nominations and make a decision. I would anticipate by the June -- or second quarter meeting we could have a replacement onboard.

ACTING CHAIR CAHN: I would also like to add that it has taken over a year sometimes to replace board members. So just keep that in mind, that it doesn't necessary -- it'd be nice if it happened quickly, but doesn't necessarily.

BOARD MEMBER DEURLOO: And point of

clarification on that board member. They can be nonpartisan now, so it doesn't matter if it's Republican or Democrat. And should be coming from agriculture, correct?

MS. ZYGMUNT: Correct. Right.

ACTING CHAIR CAHN: So does the conservation district count, if somebody was on the conservation district for agriculture?

MS. THOMPSON: I think it's just anyone whose background or job is related to agriculture. So the previous agriculture representative had been affiliated with -- hold on. I'm sorry. Apparently it's muted.

Thank you, Jim, for pointing that out. I believe for the discussion we're discussing reappointment of -- or appointments of the vacancy.

And so the agricultural representative, the previous gentleman was affiliated with one of the sugar factories in the state. So I don't -- I don't know if he was a grower or if he was just affiliated. So I think it's anyone in ranching or agriculture in general, which, you know, that's a good wide open sector, so hopefully we'll have a quick appointment, because there's more applicants and that kind of thing.

ACTING CHAIR CAHN: Any Board discussion?

BOARD MEMBER DEURLOO: If you're okay as the acting -- Madam Chairman, if you're okay as the acting

chairman for a while, I'm okay with delaying the vote for doing a vote on officers for the Board, if you're okay.

BOARD MEMBER COCHRAN: I would propose we put it on the agenda for the next meeting, and if we have somebody, that will be great. Otherwise, if it's going to drag on, we'll move forward.

ACTING CHAIR CAHN: Brian, any thoughts?

BOARD MEMBER DICKSON: This is Brian Dickson. I'm willing to wait until we have a full board.

ACTING CHAIR CAHN: Okay. So I have two -- I hear two ideas on the table. One, wait for a full board, and one is to do it -- put it on the agenda for the next meeting. So do I have a motion?

BOARD MEMBER DEURLOO: I move that we conduct business in today's meeting with the Board as currently structured. And -- and open the discussion for voting for executive members of the board next meeting.

ACTING CHAIR CAHN: Okay. Do I have a second?

BOARD MEMBER COCHRAN: Second.

ACTING CHAIR CAHN: Discussion? Okay. All in favor of the motion say aye?

BOARD MEMBER COCHRAN: Aye.

BOARD MEMBER DEURLOO: Aye.

BOARD MEMBER DICKSON: Aye.

ACTING CHAIR CAHN: Aye. The motion carries. We'll have this on the agenda at the next meeting, and in the meantime I'll act as the acting chair.

MS. ZYGMUNT: Okay. Madam Chairwoman, continuing on. So just a real brief review of the plans for today. We have three rules to talk to you about. We will start with Chapter 29, which is a new rule, a fairly short one that I think we can get through pretty quickly, involving carbon sequestration permit fees.

After that we'll take a break and hear from the watershed section about Chapter 1, which is our Surface Water Quality Standard. We're not going to get into proposed revisions on that chapter today, but that is a foundational rule to the Water Quality Division. So I asked Lindsay and David to start doing some 101 with the Board to get you prepared to see the changes with that rule, because they will be extensive. So I think it's a good opportunity to start reviewing that rule and why it is important to the Division.

And then we will wrap up with a second presentation on Chapter 12, which is our Design and Construction Standards for Public Water Supplies, which we talked about in December, and we will walk through presentation and go through the summary of revisions and response to comments that we have prepared for you.

So that is the goal for today. We can see how the agenda goes and whether or not we go through lunch, and we can make plans accordingly at that time. But we -- again, we look forward to the discussion on all three of those rules. These are all good rules. We feel we have good products, and we look forward to your input and advice on how we move forward.

Before we get into the rules, I did want to take an opportunity at the beginning of this meeting to just let the Board know about some concerns I have in both my role as the executive secretary for the Board and as the Water Quality Division Administrator. It has come to my attention that in the recent past we have had several instances of board members reaching out to Water Quality Division staff who aren't involved in the rulemaking projects with questions or concerns about the rules, and -- without notifying me first. And this has been causing a few problems that I just wanted to discuss with you.

First, and simply put, it does undermine my authority as the administrator to bring rules before this Board. And I think it also undermines the authority and the action of this Board to provide advice to us on these rules before I make a recommendation to the Director to proceed forward with formal rulemaking.

The staff who have been contacted may not have

full access to the range of information that I use to make any decisions in terms of a rule that we bring before you and a rule that we bring to the Director. And while they're trying to be helpful in providing information, again, it may not be the most accurate information to inform the Board on what we're proposing to move forward with. It can put them in an awkward spot in that they, again, want to be helpful, but they may not have the right information and it could cause confusion. And my concern is that can cause delays with rulemaking, potentially overturning years of work that we've put into a rulemaking decision.

Finally, that kind of communication can be considered ex parte contact or biased decision making. I do not want to get into the ins and outs of that, but refer State of Wyoming Board Handbook and some executive orders that speak to ex parte contacts specifically. Namely, that if that kind of contact occurs, we may need to read it into the administrative record. And that's just in the interest of transparency and making sure that we have unbiased decision making. So my request to you all is that if you have questions or concerns, please notify me first. And if you can't get ahold of me, contact the section manager. We are more than happy to have that conversation, and we'll bring in the appropriate staff to have those questions

answered.

And, again, this is will just make sure we're following appropriate procedures, documenting things appropriately, maintain transparency, giving you guys the right information so that we make effective use of your time in the time that we have for discussion at these board meetings.

So that is the message I wanted to convey in my briefing to you all. I appreciate your attention, and I'm happy to open it up for questions briefly this morning. I don't want to spend a lot of time discussing this, but I'm also available offline if we have any questions or concerns about appropriate procedures as we work through these rules. Again, having that discussion is not a problem. There's just an appropriate way to do it to make sure my staff are protected and you guys, as board members, are protected in your authority to act under the Environmental Quality Act.

So, Madam Chairwoman, that's the briefing I have to give you all today, and so I'll stop there, and glad to take any questions, if there are any.

ACTING CHAIR CAHN: I have a question about -- so if we have a question for staff, we contact you. You'll then bring in the appropriate -- the appropriate people, or can we request certain people come

in, whether or not they're working on it directly or not --

MS. ZYGMUNT: Absolutely.

ACTING CHAIR CAHN: -- if they have the expertise?

MS. ZYGMUNT: Yeah. If you know of somebody within the Division that you would like to be part of that conversation, please let me know when you notify me, and we can bring in those staff into the conversation, if you feel they could help address questions and concerns. That's not a problem.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: But then, you know, I and the section manager can be there to make sure that in addition to what that staff knows, you also have the information that I've incorporated into my decision making to the Director.

ACTING CHAIR CAHN: Then I had another question kind of related to that. On the website -- you know, I represent the public at large. And on the website there's no way to contact any board members directly.

MS. THOMPSON: That's correct.

ACTING CHAIR CAHN: Can you just go over that again for the new board members why that is?

MS. THOMPSON: Sure. So that goes back to the ex parte concerns as well. Because if someone from the

public is contacting you, there's -- there's no anonymity when we're getting questions and comments from the public. If they want to contact you, it has to be transparent and in the public eye. And so we've set it up to where we have one uniform email address that we use to communicate with you. But if a member from the public wanted to contact you directly, they would be able to send an email to that address, but it ensures that all of you get it at the same time and that the Division is aware of what the comment is as well.

So everybody gets all the same information at the same time. It also protects your privacy a little bit, depending on your level of concern. Before -- you know, at one point we had all of your physical addresses and your direct phone numbers on there. And like the agency's approach for all the advisory boards -- and this is consistent with the Environmental Quality Council's approach as well -- is to have a uniform email address, to not post all of your private information, your contact information, directly on the website and to make sure that when one of you is being contacted, you're all being contacted at the same time.

BOARD MEMBER COCHRAN: Madam Chair, I have a question. A little clarification on that. But we're okay to reach out to entities that we're representing?

Like if I see a comment placed by the Town of Guernsey on something, I can contact them and get clarification or no?

MS. ZYGMUNT: I'm not aware of any concerns with that.

Jim Peters, if you're available to weigh in on that question, you might be the more appropriate resource to answer that question.

MR. PETERS: Yeah. Happy to chime in there.

I think that communication is fine, but the important piece, as Gina mentioned, is making sure that what the results of that communication do become part of the record. So if you do have communications with entities related to proposed rules that are outside of the process, what would be important is that we summarize the contents of those communications and share that with the administrators and staff and the fellow board members just to make sure that they're aware of the communication that occurred and that it is part of the administrative record.

BOARD MEMBER COCHRAN: Thank you.

BOARD MEMBER DEURLOO: Madam Chair, may I ask a question?

ACTING CHAIR CAHN: Yes.

BOARD MEMBER DEURLOO: Thank you. I hear you loud and clear on that. Thank you for that

clarification. I appreciate it.

May I ask a -- just a brief answer. What steps do you take to take onboard comments from your general staff? Like if you open up Chapter 12, and, you know, these folks have been in the field implementing these rules for the last couple decades, some of them, what steps do you take to say, Hey, folks, we're going to open this up. What comments do you have? If you give me an overview on that, please.

MS. ZYGMUNT: Yeah. Thank you for that question. We do consult heavily with all the appropriate staff, and that includes staff who you see before you at these board meetings and staff that don't come to these board meetings. As an example, for Chapter 12, which we talked about -- and Keenan will get into this in his presentation -- we spent several years with most of the engineers in water and wastewater section having an opportunity to weigh in on that chapter. Their feedback is heard, and I take it very seriously. It is very valuable. If I don't incorporate it into the final decision, it doesn't mean that it hasn't been heard, it's just been factored in along with other feedback that I've heard before to make a decision.

So it is standard for -- when we start the rulemaking process, to have kind of an internal scoping

session with staff throughout the section, not just the section manager, but the folks that are involved in implementing these rules on a day-to-day basis do get an opportunity to weigh in on the process as we draft the new rules.

BOARD MEMBER DEURLOO: Excellent. Thank you.

ACTING CHAIR CAHN: I have a question. What about in a situation where somebody doesn't feel that they're being heard, and they become like a whistleblower, let's say. So how are they then protected? How does that work, and maybe James can help us with this. But how are they protected, if they have tried and they don't feel like they're heard, what are the options and -- so...

MS. ZYGMUNT: If I understand your question correctly, you know, staff are always welcome to approach their supervisor, section manager or me with concerns. Again, I take those concerns very seriously. I take their feedback very seriously. And, again, that is weighed into final decisions that are made.

I support open communication with staff, and they have an opportunity to provide their feedback. But, again, per the Environmental Quality Act, it is my authority as administrator to take all that feedback and make a final decision about the content of the rules that we bring

before you and then the content of the rules I recommend the Director move forward with the formal rulemaking.

So I think that's the best way I can answer your question, Lorie, is that --

ACTING CHAIR CAHN: I'm not sure that answers the question. So, you know, I know that whistleblowers are protected. So what if -- if something moves into that kind of a situation, where they're not feeling like they're heard and they want to, you know, go outside as a -- like whistleblowing -- whistleblowers are protected, at least federally. I don't understand how that works necessarily.

MS. ZYGMUNT: Okay. I understand your question. And I dont know if one of our attorneys can speak to state laws about whistleblowers. I don't have any further information at this point in terms of state laws.

BOARD MEMBER DEURLOO: James? James is the attorney; is that right?

ACTING CHAIR CAHN: James, can you weigh in, please?

MR. PETERS: Yeah, I'm not sure I have a whole lot to add at this -- as I understand, I think the question is if there's, you know, a member of staff that potentially has concerns with the rules and those concerns are raised in the appropriate channels. Is your question

what -- what is sort of the remedy if that staff member feels that those concerns haven't been heard? Am I understanding the question properly?

ACTING CHAIR CAHN: Yeah, that's correct. So if they're -- they become, let's say, a whistleblower -- I'll just use that term, because we all understand what that means -- and they want to go outside of DEQ, come to the Board or whatever, is that -- are they protected or is that not allowed or -- I dont know how that works in the state of Wyoming.

MR. PETERS: That is a great question that unfortunately I'm not sure I'm able to provide a lot of color on at this point. But I think as Administrator Zygmunt mentioned, I think the -- you know, the appropriate process would be to run that through the agencies, up the chain of command, essentially, within the agency, within DEQ.

I know that doesn't directly answer your question, but I'm not sure I've got a whole lot to add, and I apologize at this point.

MS. ZYGMUNT: I know it's not answering your question directly, Madam Chairwoman, but I can assure you that it is my policy and the agency's policy to have an open chain of command, and we encourage that communication. There is a chance to provide input, but at some point if

the decision makers need to make a decision, documentwide, go through this process with the advisory board, public notices and the EQC to get further feedback on the rule. So recognizing broader concerns about whistleblowers, I think we avoid that situation by having the open chain of command that we do, and open communication that is supported by myself and the Director.

ACTING CHAIR CAHN: And I appreciate that, but I would like maybe, James, you could get back to us on kind of whistleblower, you know, in the event that somebody doesn't feel heard, you know, going through the channels, what kind of protection, you know, there is for whistleblowers. Just if you can get back to us, James, on what happens in the state of Wyoming. I appreciate that. Thanks.

MS. ZYGMUNT: Okay. We will go ahead and move on to the next agenda item, which will be Chapter 29. The Board has the proposed rule. Again, you will be pleased to note this is only a two-and-a-half-page rule, so it should be a fairly straightforward discussion, but we are looking forward to talking with you about this proposed rule.

This is a new rule that establishes injection and closure fees associated with carbon sequestration facilities, also known as Class VI Underground Injection

Control Wells. Very simply put, carbon sequestration is the process of injecting carbon dioxide into underground geologic formations for purposes of long-term storage.

As a reminder, Wyoming is the second state in the nation to have primacy to permit these Class VI wells. We are very proud of that primacy. North Dakota is the other state. And the Board reviewed not too long ago Chapter 24, which is the rule we have to establish the Class VI permitting process.

Wyoming Statute 35-11-13 gives DEQ the authority to promulgate rules for these injection and closure fees. And these fees can include a per-ton injection fee or closure fee during the time that the owner or operator is injecting carbon dioxide.

The funds from the fees go into what is called the special revenue account, which is also authorized by statute. And those funds are to be used by the State after the site closes, the permit is terminated, and then the State is responsible for long-term monitoring, measurement, verification of the site. So the funds that go into the special revenue account are only used for that purpose.

Interest in carbon sequestration is high. We have received one application to date. We are anticipating more. Lily is fielding quite a few calls from interested companies, so we do feel it is important to get this rule

on the books to make sure once people start injecting, we are collecting the appropriate fees so we can fund that special revenue account so the state can do its job after site closure.

I will note that we did not receive any public comments on this rule. And, finally, I will note that we will propose a couple additional revisions to the rule today based on some legislation that was proposed this year and did pass. That legislation, without getting into too much detail, was related to long-term liability of these carbon sequestration sites. So not directly within the scope of our authority, but it is indirectly related to our permitting process and site closure, and indirectly related to these permit fees.

So based on some of these discussions that came out during that bill and its review, we have proposed a few additional minor revisions to our rule to further strengthen it with regards to the discussions about liability. That bill has not yet been signed. We do anticipate the governor will sign it. If the bill does not get signed, it is very easy for us to pull out that language as needed. So we'll pull that up on the screen and walk you through the additional language that we will add at that point.

But let me stop there, and let me turn it over to

Lily to walk through the rule and give you an outline how this process will go.

MS. BARKAU: Good morning. So I'm going to just walk through Chapter 29, Geological Sequestration Special Revenue Account Requirements. Starting with Section 1, I'll just give a brief overview of that particular section and ask if there's any questions that I can help clarify.

So in Section 1, this describes the authority of the regulations of the Environmental Quality Act that allows us to implement this rule.

Are there any questions on Section 1?

ACTING CHAIR CAHN: No.

MS. BARKAU: Section 2 provides definitions that are included in this rule that may need further clarification or definition for them, to include carbon dioxide stream, what a Class VI well is, and so forth.

Are there any questions on the definitions?

BOARD MEMBER DEURLOO: Madam Chair, I've got one, please.

On Class II well, it states "means any commercial or non-commercial well used to dispose of water or fluids directly associated with" and goes on. Water or fluids, there's -- I wonder if there would be any value just changing that to "material," so it includes "solid, gases,

and liquid." When you do inject down there, there's part -- it's getting into the minutia of the detail, but when you do an injection, whether it's CO2, water, or waste, or something like that, where there's inherently going to be gases, liquids, and solids in that waste. But if you only want water and fluids, that's what you get. But I wanted to have you consider changing it to "material."

MS. BARKAU: I think we can certainly take that back to consider it. However, this is a definition as provided by the Wyoming Oil and Gas Conservation Commission --

BOARD MEMBER DEURLOO: Okay. I wondered.

MS. BARKAU: -- which we are using their definition verbatim.

BOARD MEMBER DEURLOO: Fair enough. I'm fine with that.

MS. BARKAU: Section 3, Applicability. This chapter just applies to all owners, operators, and permittees of Class VI wells.

Pretty short section. Any questions on that?

BOARD MEMBER DEURLOO: That's the shortest section I've seen.

ACTING CHAIR CAHN: I would like to go back to the definition -- Definition, Section 2. Sorry.

MS. BARKAU: Okay.

ACTING CHAIR CAHN: Just minor editorials in carbon dioxide stream (a), is "any processing" and any -- the words "any substances," are those words necessary? And maybe, again, this is a definition from the legislature, and then we can't do anything with it. But I would -- I would say carbon dioxide stream means carbon dioxide plus associated substances derived from the source materials and process -- source materials, processing and substances added to the stream.

MS. ZYGMUNT: Madam Chairwoman, understanding the suggestion right now, that definition matches what we have in Chapter 24.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: I think we would be hesitant to reopen Chapter 24 to also change it there.

ACTING CHAIR CAHN: Sure.

MS. ZYGMUNT: But we can consider those proposed edits for a future time.

ACTING CHAIR CAHN: Yeah. That's fine.

MS. ZYGMUNT: Sure.

ACTING CHAIR CAHN: And then on (c)(i). I think there's an extra comma after geologic sequestration. So "Is not experimental in nature and injects carbon dioxide stream for geologic sequestration beneath the

lowermost formation..." I'm not sure between "sequestration" and "beneath" the comma is necessary. So I think it would read better without it.

MS. BARKAU: Again, that is one of those that matches the definition in Chapter 24.

ACTING CHAIR CAHN: That's fine. These are just editorial suggestions, so...

MS. ZYGMUNT: We will note that for the future.

ACTING CHAIR CAHN: Thank you. That's all I have on 2. Sorry.

And then -- does anybody have anything on 3 from the Board?

BOARD MEMBER COCHRAN: I have kind of a general comment, if I could.

On the fee, is that consistent with other injection wells?

MS. BARKAU: Currently Wyoming does not collect fees on our other UIC wells. I can only speak for Class I and V. I believe the Class III wells are associated with the mine permit under Land Quality Division. The Class II wells I'm not familiar if there is a fee associated with that, since that's under the old Wyoming Oil and Gas Commission.

BOARD MEMBER COCHRAN: So how is the fee

set, I guess?

MS. ZYGMUNT: Yes. Thank you for the question, and I think Lily will walk through that once we get into Section 4 --

BOARD MEMBER COCHRAN: Oh, okay. Sorry.

MS. ZYGMUNT: -- here, and she'll outline the process, and I think we may answer your question during that description.

MS. BARKAU: All right. Moving on to Section 4. These are the Requirements. This goes over how we will be collecting the fee and utilizing the fee.

So to begin with, we are proposing a seven cents per ton of carbon dioxide injected for the storage during the period of injection into the subsurface geologic formations. The fee will be based on reporting requirements outlined in our Water Quality Rules Chapter 24.

The Administrator will provide written notice of the amount of the fees on an annual basis, and those fees are due upon receipt.

Failure to pay those fees is considered a violation of Chapter 24.

Once those injections cease and the Administrator receives a plugging and abandonment final report, the Administrator will assess any remaining fees for that

calendar year and provide written notice of those fees to be provided upon receipt.

No further fees are assessed for the special revenue accounts if injections are not occurring.

Upon site closure, the -- this is when use of the funds occur. An owner or operator may apply for site closure if they demonstrate the requirements of Section 24 of Chapter 24. There's a pretty extensive list of requirements to receive site closure certification. We also will verify the release of all financial assurance instruments. Those financial assurance instruments are required during all phases of the carbon sequestration project. So bonds, liability insurance are required. They are returned to the owner or operator after the site is closed.

We will be discussing some edits to this section coming up in regards to the liability bill that's recently passed legislation, which also includes the transfer of title. But our primary -- primary focus is certification of site closure and issuance of a project completion certificate.

We will be evaluating the proposed cost estimate to ensure that the monies in the special revenue accounts are sufficient to address monitoring, measurement, and verification after site closure. Any funds that are needed

will be recommended to the director to require those additional fees.

And they will -- the owner or operator will need to make that additional payment prior to receiving their certificate of project completion, as well as certification of site closure.

Upon the conditions of site closure, then the Director will administer the funds in the account. And that is the process for developing and utilizing the special revenue accounts, and I'm open for questions now.

BOARD MEMBER COCHRAN: I'm good, thanks, Madam Chair.

BOARD MEMBER DEURLOO: Madam Chair, I have a few questions.

Seven cents for each ton, where did that amount come from?

MS. BARKAU: Yes. That amount is actually consistent with North Dakota, as mentioned the second state to have primacy. Their assessment came from a worst-case scenario of cleanup for a corrective action site or a state Superfund site of what it would take to address additional measures that are required.

BOARD MEMBER DEURLOO: So that calculation came from the state of North Dakota --

MS. BARKAU: Yes.

BOARD MEMBER DEURLOO: -- by way of consultancy, doesn't matter --

MS. ZYGMUNT: With our review.

MS. BARKAU: With our review.

MS. ZYGMUNT: Let me just take the seven cents. Lily had looked extensively at the research that North Dakota had completed, and we feel that it is appropriate for the same purposes here in Wyoming.

BOARD MEMBER DEURLOO: Okay. What's a typical well -- what's a typical CO2 well? I know they're different, like snowflakes, but how many tons can you put in a well per day?

MS. BARKAU: For example, as part of our valuation for the seven cents per ton, if we took a project that was going to be injecting 50 million tons over a 25-year span, you would be looking at about 2 million tons per year. So the annual -- annual cost would be approximately $140,000 per year, with -- at the end of the 25 years you're looking at $3.5 million to be included in the special revenue account.

While it's in the special revenue account, there's also interest. And at the end of the project, if we feel that the 3.5 million is not appropriate or sufficient based on cost estimates, we will require additional funds to be included. So a standard corrective

action project, a worst-case scenario, can range anywhere between $1 million and $5 million price.

BOARD MEMBER DEURLOO: That's just for plugging and abandonment of a CO2 -- or sequestration well.

MS. BARKAU: Excuse me, sorry. Plugging and abandonment is actually -- that occurs prior to site closure, and would not be included in this -- this cost. That cost would be directly paid for by the owner and operator --

BOARD MEMBER DEURLOO: Right.

MS. BARKAU: -- prior to site closure.

MS. ZYGMUNT: And if I may add to that. So just to remind the Board, we're talking very long time frames for Class VI permits.

BOARD MEMBER DEURLOO: Uh-huh.

MS. ZYGMUNT: Injection may occur for 25 years. But before they can get to site closure, as Lily mentioned, Chapter 24 outlines some very robust procedures they have to follow after they cease injecting to get to site closure. And primarily using both modeling and data -- and this is further supported by requirements in the Environmental Quality Act, that they have to show at least three years consecutive -- three years of consecutive data that this plume is stable.

So by the time they get to site closure, by the

time they get to permit termination, it could be another 50 years after site closure -- after they have ceased injecting. So we're talking about long periods of time.

But it's important that we get this injection fee, and that we get it right and we have the ability to require additional funds as needed at the cost estimate when they are putting in for site closure, because the State will be responsible for the long-term site care after the site closes and the permit is terminated.

So that's our goal is to ensure we have enough money in that account to carry out the activities the State will be responsible for in the long-term, which could be another 50 years after that. So we're talking about very long periods of time. Obviously none of us will be in our various positions at that time to make those decisions, but we are trying to set up the structure to ensure that funds are available. And the special revenue account was first envisioned by the 2019 carbon sequestration working group. That concept was ultimately put into statutes, now being put into rules. So for some context on the scope of time that we're looking at and why it's important that we get this funding and operate to the best that we can.

BOARD MEMBER DEURLOO: Thank you.

A follow-on question, Madam Chair.

Is there any value to indexing this cost per ton

to the consumer price index to allow for inflation and other things like that? I'm sure that's something you considered.

MS. BARKAU: Yes. That is actually incorporated into the cost estimates. So they're -- during the life of the project and the injection, they will be providing an annual cost estimate that includes inflation. So while the seven cents per ton is for the immediate use, that cost estimate for the site closure will account for inflation. And that's where if funds are insufficient at the end of the site closure, that cost estimate will be used to require that additional fund.

BOARD MEMBER DEURLOO: Thank you. I'm just trying to make sure we don't get in a pickle that we've been in in the past, with PNAs and all that stuff.

MS. ZYGMUNT: Understood.

BOARD MEMBER DEURLOO: I have other comments, but that's the only one on that one. Thank you.

ACTING CHAIR CAHN: Any other Board questions for Ms. Barkau?

BOARD MEMBER DEURLOO: Madam Chair, I have more comments on Number 4, if you want me to continue.

Okay. On 29-2, at the bottom of the page, I think it's letter (v), "consider project-specific risk assessments and projected timing of activities." Can we

just change that to schedule of activities or estimated schedule? That is a recommendation changing that. You can do with that what you may.

ACTING CHAIR CAHN: What line are you on?

BOARD MEMBER DEURLOO: The very bottom, (v).

ACTING CHAIR CAHN: What line number?

BOARD MEMBER DEURLOO: Oh, sorry. 91. Changing the words "projected timing" to "schedule of activities." Line number 94, on the next page (vi). It's a very weak statement, it reads basically the Administrator will "consider whether sufficient funds are available to carry out the required activities." I would make a recommendation that you consider changing it to stronger language like Administrator will "evaluate and make a determination whether the funds are sufficient to carry out the required activities."

MS. ZYGMUNT: Madam Chairwoman. Recognizing the comment, and we're happy to consider stronger wording there, we do need to keep a delineation of duties in that the Administrator can only consider and recommend. It will be Director's responsibility to finally determine if there are sufficient funds or insufficient funds --

BOARD MEMBER DEURLOO: Okay.

MS. ZYGMUNT: -- as outlined under (g) there.

BOARD MEMBER DEURLOO: I see.

MS. ZYGMUNT: But if there is a better way to strengthen the Administrator's activity there, we -- we could say evaluate and consider whether sufficient funds are available. But, again, it -- my next step then would be to recommend to the Director, and then he will make the final decision.

BOARD MEMBER DEURLOO: I see. Okay. I -- I like direct language, very direct and not passive, which most regulations are written, you get a bunch of passive verbs and so forth.

In any case, line number 103, it reads "...special revenue account to ensure that sufficient funds are available to carry out the required..." "Carry out," I'd just change that to "execute the required activities."

And then line 104, following on there, it reads "...activities on the date at which they may occur." I see. So that holds -- that reads "ensure that sufficient funds are available to execute the required activities on the date in which they may" -- never mind. Okay. Strike my thought there.

Then the next line, 106, it says "Upon determining the special revenue account..." It seems to me

that would probably read better if it starts with "If the special revenue account balance, including accumulated interest, is sufficient to cover the proposed cost estimate," and then insert the word "'then' the Director shall administer the funds in the account..." So make it an if/then statement there. That's my only comments on Section 4.

MS. ZYGMUNT: Would you mind reading your proposed edits one more time? I didn't catch --

BOARD MEMBER DEURLOO: That last one?

MS. ZYGMUNT: Yes.

BOARD MEMBER DEURLOO: Yeah. Sure. So I would strike -- starting on line 106, strike "upon determining the" and insert the words If the carrying on special revenue account balance.

And then on line 107, between the word "estimate" and "the," where -- just put the word "then," t-h-e-n.

MS. ZYGMUNT: Okay. Thank you.

BOARD MEMBER DEURLOO: Thank you.

ACTING CHAIR CAHN: Are there any other questions from the Board or comments?

MS. ZYGMUNT: So before we wrap up the discussion, if we can show you the additional proposed language following discussion of the sequestration language.

Go ahead and go up to Section 1, make sure we have everything.

So first change would be simply updating your cross-reference. So the proposed legislation, the past legislation creates some new sections of statute. So we simply need to update the applicable sections of statute to this rule. So instead of just 313 to 318, we will add 319 and 320.

ACTING CHAIR CAHN: Can you tell us what the title of those rules are?

MS. ZYGMUNT: I can. So Section 35-11-318 will now be titled Sequestered and Injected Carbon Dioxide; Definitions.

The new Section 35-11-319 will be Certificate of Project Completion, Release, Transfer of Title and Custody.

And then Madam Chairwoman, the new Section 320 is the Geologic Sequestration Special Revenue Account, previously Section 318, now Section 320, with addition of the two other sections.

ACTING CHAIR CAHN: So 318 changed to Sequestered and Injected CO2?

MS. ZYGMUNT: Correct.

The next proposed revision we have added to the rule would be (iv), under (f), and it adds language that the Administrator shall "Verify that title to the stored or

injected carbon dioxide has been transferred to the State if a certificate of project completion has been issued." So this refers to a process in the legislation that establishes a certificate of project completion and just adds a step here for the Administrator to verify that the title has been transferred if that certificate has been issued.

BOARD MEMBER COCHRAN: Madam Chair, what title is that? That's not a surface title.

MS. ZYGMUNT: No. It would be title to the injected carbon dioxide.

BOARD MEMBER COCHRAN: It's like a subsurface ownership?

MS. ZYGMUNT: Correct.

BOARD MEMBER DEURLOO: Madam Chair. Just for clarity. The recommendation, can you scroll back up on that?

I might consider changing that around, again, just making it start with "If a certificate of completion has been issued, then the Administrator will verify that title to restore carbon --

THE REPORTER: I'm sorry. I can't hear you very well.

BOARD MEMBER DEURLOO: I'd just turn it around. My -- my exposition writer in high school would

say start with "If a certificate of project completion has been issued, then the Administrator shall verify that title to the stored or injected carbon dioxide has been transferred to the State.

ACTING CHAIR CAHN: We wouldn't put in "Administrator shall," because that's on line 78, and we don't need that.

BOARD MEMBER DEURLOO: Take it for what it's worth. I just recommended maybe turn that around, because you're hanging the action on the end of it.

ACTING CHAIR CAHN: So it would just be, If a certificate of project completion has been issued, verify that title -- or verify title to the stored or injected --

BOARD MEMBER DEURLOO: Has been transferred to the State.

ACTING CHAIR CAHN: -- has been transferred to the State.

MS. ZYGMUNT: Yeah, we don't have any concerns if you prefer moving that "if" statement to the beginning, and the action's still "Administrator verifies."

BOARD MEMBER DEURLOO: Yes, please.

MS. ZYGMUNT: Okay. Then moving on the next change. Under (g), adding (ii), The Department shall not issue a certificate of project completion, if we determine that there are insufficient funds in the special

revenue account.

So, again, this is just an additional way to strengthen this rule, meaning that if we do not feel we have enough funds in that account for the State to do its job after site closure, we would not issue a certificate of project completion, and the injector would remain liable for future activities. So just an additional way to strengthen our ability to make sure that all requirements have been met before liability is transferred to the State and the State begins its activities of long-term site care.

BOARD MEMBER DEURLOO: Madam Chair. And to be clear, as far as somebody in the industry disagrees with your assessment, how would they contest that? Would they take that to the EQC, or how would that be contested?

MS. ZYGMUNT: Yes. That's a good question. And, you know, during this stage, during the review where they have submitted a site closure plan, and we're reviewing that to make sure they have met all requirements of Chapter 24 I think inherent in that process, there would be discussion with the company if we had concerns. I think there would be ample opportunity to go back and forth with that company to document our concerns, see if they can provide more information. There are many public comment opportunities during that process as well.

BOARD MEMBER DEURLOO: Okay.

MS. ZYGMUNT: So that would be another way to formally document concerns. But then the next answer would be yes, if we make a formal decision, it would be appealable to the Environmental Quality Council.

BOARD MEMBER DEURLOO: Got it. Thank you.

MS. ZYGMUNT: And then last but not least, under (h), simply updating the statute reference there, 35-11-318 to 320.

So Madam Chairwoman, that concludes the additional revisions we're proposing for Chapter 29.

ACTING CHAIR CAHN: Any further Board discussion?

How about members of the public? Is there anybody in the public that would like to comment?

Hearing none, I'll entertain a motion.

BOARD MEMBER DEURLOO: Can I ask one more question, Madam Chair, please? I wrote it on the front page, and so I forgot to look at it.

You said this is becoming more -- this is becoming maybe popular, that sequestration. Is there a carbon -- just out of curiosity, is there a carbon credit scheme that we're working with in the state that's going to incentivize or entice industry to inject CO2 in this state, or is there something that's going to drive this?

MS. ZYGMUNT: Madam Chairwoman. That's a

great question. I believe so. I am not up to speed on those discussions. I have heard some discussions about carbon credit markets. I believe Wyoming Energy Authority would be the better agency to reach out to for more information. I know we saw at the -- we saw some proposed legislation early on about carbon credit markets. At this time, I'm not aware of any further structure, but Lily's looking at me in a way she may know more than I do. So I'll let her speak.

MS. BARKAU: Madam Chair. So the carbon credit incentive is being somewhat discussed from the Wyoming Business Council and the Wyoming Energy Authority. But in regards to incentives, there is a tax credit called 45Q that is based on -- currently, it's $50 per ton for injections over 12 years. Then the current -- there's -- there are current discussions at the federal level to increase that to possibly $85 per ton. So lots of incentives there. For enhanced oil recovery it's about $35 per ton. So the incentives are higher in regards to the storage.

BOARD MEMBER DEURLOO: Follow-up question. So we're charging seven cents, and they're going to get an 80 -- $50 -- so I can see the incentive for sure.

Okay. Well, in the world of -- I'm an industry rep, so I can't -- I need to be careful how I state this.

But, you know, the boom and bust economy, that's not a bad idea to store up when you can. I'll leave it at that.

MS. ZYGMUNT: Well, and if I can add a comment. Again, when the operator is injecting, they have to carry significant financial assurance.

BOARD MEMBER DEURLOO: Absolutely.

MS. ZYGMUNT: Have to carry -- it's a very, very robust procedure for them to do risk assessment and establish bonds and financial assurance during the time they are ability and responsible during the permit term.

And, again, this special revenue account is just funding for long-term maintenance of that site. And I just wanted to note that because there was confusion as we worked through this discussion during legislature. The special revenue account isn't the sole financial backup. During the time they are carrying an active permit, they have to carry financial assurance for any unforeseen circumstances. I know that doesn't directly address your questions, but it -- there are I think some very well thought-out processes in terms of the financial responsibility of the company while they're injecting, and then what the role of the special revenue account is.

BOARD MEMBER DEURLOO: I understand.

MS. ZYGMUNT: Again, we think seven cents per ton is appropriate, but, again, this is going to be a

long-term process. And if we have reason to believe in the future that's not sufficient, I would imagine we'll be back before you with rules revisions at that time.

BOARD MEMBER DEURLOO: I've connected the dots in my head. Thank you.

ACTING CHAIR CAHN: Where are the fees assessed? The seven cents, where is that written in the --

MS. ZYGMUNT: So Madam Chairwoman, the process, as outlined, again we have the seven cents per ton established in the rule. Per reporting requirements under Chapter 24, two times per year they need to submit a report to us that will tell us how many tons of carbon dioxide they've injected. So once per year we will send them an invoice just multiplying that per-ton fee times the number of tons to come up with the assessed amount that they need to pay for that calendar year.

ACTING CHAIR CAHN: So to change that fee, then you come back before the Water and Waste Advisory Board to go out.

MS. ZYGMUNT: Correct. It would be a rule revision that we would bring before the Board, per our normal procedure.

ACTING CHAIR CAHN: Thank you.

BOARD MEMBER DEURLOO: I have no further comments, Madam Chair. Thank you.

BOARD MEMBER COCHRAN: I'm good.

ACTING CHAIR CAHN: Any more Board questions? Discussions?

Hearing none, I'd entertain a motion.

BOARD MEMBER DEURLOO: Let's see what to -- let's discuss what we want to move here.

ACTING CHAIR CAHN: I'm assuming you would like to have us recommend that this go forward to EQC, with the suggested changes that you have made and not necessarily -- you'll look at the changes we suggested, but some of them can't be done. So without the ones that would affect the def -- or discussions of other rules.

I think Brian had some moving, and you have some changes. So I'm assuming that's what you're looking from us is a motion that would move this forward with the changes as discussed to EQC.

MS. ZYGMUNT: That is correct.

BOARD MEMBER DEURLOO: Okay. I move that we approve this -- we approve Chapter 9 to be forwarded to the Environmental Quality Council with the suggested changes from this Board, as well as the additions to the chapter as they may become necessary through new legislation.

ACTING CHAIR CAHN: And I would just discuss our Board cannot approve, so I would just change

the language you used to recommend.

BOARD MEMBER DEURLOO: Fair enough.

BOARD MEMBER COCHRAN: I would second.

ACTING CHAIR CAHN: Any further discussion? I have a motion on the table. All in favor say aye.

BOARD MEMBER COCHRAN: Aye.

BOARD MEMBER DICKSON: Aye.

BOARD MEMBER DEURLOO: Aye.

ACTING CHAIR CAHN: Aye.

Motion carries. Thank you.

MS. ZYGMUNT: Madam Chairwoman, next on the agenda would be about a 20-minute presentation from Lindsay Patterson and David Waterstreet about Chapter 1. We can continue on. Lindsay and David are joining virtually. We can start that presentation now or we can take a break.

ACTING CHAIR CAHN: I would like a five-minute break, if we could. So we'll come back at 10:15.

(Meeting proceedings recessed 10:08 a.m. to 10:17 a.m.)

ACTING CHAIR CAHN: We're back on the record. And Lindsay Patterson will be giving us a presentation on Water Quality Rules Chapter 1. Thank you.

MS. ZYGMUNT: Go ahead and take it away, Lindsay.

MS. PATTERSON: Thanks. Good morning, Madam Chairwoman, Member of the Board and everyone else in attendance. I'm Lindsay Patterson, as they mentioned. Hopefully you can hear me okay. Please let me know if you cannot hear me. Okay. Speak louder?

BOARD MEMBER DEURLOO: No. You're good.

MS. THOMPSON: You're good.

MS. PATTERSON: Okay. Sorry. Your thumbs are small.

Yes, it's good to see many of you, familiar faces, and I'm looking forward to talking to the Water Quality Standards with you today and a bit more as time goes on. We just wanted to give you very high-level overview of the Water Quality Standards. None of the specifics yet. We're still in the process of developing proposed revisions, so hopefully this will help set the stage for our later conversations.

So at their most basic, the Surface Water Quality Standards, they provide water quality protections for all Surface waters of the state. So those are from our smallest ephemeral streams, you know, up to our largest rivers and reservoirs. So the primary ways that we use the surface Water Quality Standards are to develop effluent limits for point source discharges. Those are captured, the rules in Chapter 2, for instance.

And then to develop best management practices for nonpoint sources of pollution. And we used standards to determine attainment, whether the standards are being met or not. And in cases where the standards are being met, we can use them for protecting our surface waters to make sure that they stay that way. And if the standards are not being met, we can use them to -- for restoration planning.

So that would identify do we need to revise the effluent limits that we have for the existing point sources? Do we need additional or new best management practices? So those are the primary ways that we are using the standards. So like many of the other rules that you guys are talking about that implement both federal and state regulations, so the Environmental Quality Act, you guys are well aware, lays out the Administrator will make recommendations to the Director, specifically related to Water Quality Standards, the federal Clean Water Act and implementing regulations for the Clean Water Act, those provide a lot of the framework for the Water Quality Standards, sort of the essential elements. So when we develop the standards, we're going to keep an eye towards both the Environmental Quality Act and federal Clean Water Act.

So the Clean Water Act lays out a couple of unique elements that are maybe a little different than the

other chapters that you see. So the Clean Water Act requires that we review our Water Quality Standards at least every three years. That's known as triennial review. So we'll hear that word constantly when we talk about revising Water Quality Standards, only to come to visit you guys fairly frequently as we adhere to the requirements in the Clean Water Act.

And the Clean Water Act also has an EPA approval process associated with it, which does make it a little bit different. The Clean Water Act lays out that states need to submit their Water Quality Standards for EPA review, and that the Clean -- the standards aren't effective for Clean Water Act purposes until they're approved by EPA. And then in circumstances is where the standards fail to meet the requirements of the Clean Water Act, EPA can promulgate standards for states.

So back to the framework provided by the Clean Water Act and the implementing regulations essentially lay out that the standard should include three main components. Those are designated uses, water quality criteria, and antidegradation provisions. And then implementing regulations you also talk about the standards can include implementation methods. So we'll walk through each of these different components.

So the designated uses in the Water Quality

Standards are essentially what uses we have for the waters, what goals we establish, and they may not be goals that the water body is currently achieving. And Clean Water Act use this terminology of attainment, so they make -- these goals may not currently be attained.

So in Wyoming, the way that our rules are structured, we have the designated uses laid out across the top of this table. Drinking water. We have a game fish use that includes cold water and warm water subcategories. We have a nongame fish use, a fish consumption use, aquatic -- other aquatic life. We have recreational uses to subcategories, primary contact and secondary contact, wildlife, agriculture, industry, and scenic value uses. So those are our designated uses in Wyoming.

And then we apply those designated uses to surface waters using a classification system. So you can see the classes down the left side of the table. So there's 13 different classes in our Water Quality Standards. And essentially you can identify which designated uses apply to particular water bodies if you know the classification. So if a water body is a 2AB, warm water, you know, it's designated for drinking water, warm water game fish, nongame fish, consumption, and so on. So it's a good way to, you know, sort of structure the standards so you don't have to list out all of these uses.

So the way that the standards lay out of how you will identify which designated uses, which classifications apply to particular water bodies is in the Wyoming Surface Water Classification list. So it's a large document that's outside of the Chapter 1 -- outside of the rule, that -- here's an example. You can see from the Belle Fourche drainage, you can see that the Belle Fourche River is designated as a 2AB warm water, so we know what uses are assigned to that particular water body based on its classification. And you can see some of the tributaries to the Belle Fourche River, Owl Creek, Crow Creek, they're 3B waters, so we know what designated uses apply to those designated water bodies.

So the Water Quality Standards also lay out the process for modifying designated uses and provide a process for the administrator to add or remove uses or to change a classification after taking public comment, and then also after completing a use attainability analysis, which is required under the Clean Water Act. Essentially, scientific assessment of the factors that affect attainment of uses. The Clean Water Act regulations lay out six different factors that you can use to modify uses. And so those are part of the UAA, use attainability analysis, process.

The regulations also lay out that at a minimum,

we have to protect existing uses on a water body. So if there is aquatic life in a water body, it has to be protected. That's just sort of as a minimum bar. And other requirements that we have to take into consideration, attainable uses.

And then just like the Water Quality Standards, many changes to designated uses are submitted to EPA as a revised Water Quality Standard. It's just that that process can happen outside of the rulemaking process, and you can make updates to that classification list outside of the rulemaking process.

So now that we've covered very briefly designated uses, we'll move on to water quality criteria. So water criteria also specified in Chapter 1 are the concentrations of pollutants or narrative statements that we have in the standards that are directly assigned with the designated uses. So we have these criteria that have to protect the designated uses. In some cases, it's not going to be appropriate for us to develop numeric criteria, like concentrations of pollutants. We're going to use a more general narrative for statements of things that might be more challenging to derive a specific numeric threshold to protect the use.

So similar to designated uses, water quality criteria can also be modified, and that's laid out in

Chapter 1. And that process, similarly the Administrator may make recommendations to the Council, but unlike designated use changes, which can occur outside of the rulemaking process, water quality criteria changes are made through the rulemaking process. But similar to designated use changes, they require the completion of a use attainability analysis because the water quality criteria and designated uses are so closely coupled they have to basically mirror one another. So if you're modifying the criteria you want to make sure that it's protective of an attainable use.

So that's criteria. And so moving on to antidegradation provisions. These are essentially the provisions in the Water Quality Standards that are intended to maintain and protect the water uses and water quality. They do provide for a lower net water quality, but only in certain circumstances. And these provisions are there to help meet, you know, the requirements of the Clean Water Act to restore and maintain water quality.

So there's three different tiers of antidegradation that are laid out in the federal regulations that are repeated in the Water Quality Standards. So Tier 1 are existing use protections. Tier 2 are high-quality water protections. And then Tier 3 are existing water quality protections. And I'll just explain

each of those in turn so, again, we have kind of that basic understanding.

So the existing use protection -- some of this can get a little confusing, existing uses, existing quality, but hopefully this will make it clear. So existing use protection, basically the Clean Water Act lays out if a use exists on a water body or has existed since November 28 of 1975, we need to maintain that use and the level of water quality that's necessary to protect that use.

And this is sometimes considered kind of the floor of water quality protections, meaning that we can't go below that. That's kind of the minimum bar. We always have to protect that. And it applies to all waters regardless of, you know, what designated uses there are or what water quality criteria are applicable.

So the second Tier, the Tier 2, are high-quality water protection. It's a little bit different. It is specific to situations where the water quality is better than the Water Quality Standards, and so the intention here is to maintain that higher water quality except in circumstances we've gone through, basically a process to determine that lowering the water quality is going to be beneficial, you know, for some economic or social development as occurring in the area. So in that, water

quality is really necessary.

So in Wyoming, we apply that to all waters that are designated for drinking water and for fisheries. So that's our Class 2 waters. States can do it differently. They can apply it on a water-body-by-water-body basis. They can do it on a parameter-by-parameter basis. But in Wyoming we apply it to Class 2 waters. And so those water bodies are going to require an additional level of review before allowing new or increased sources of pollution.

So Tier 3 are existing quality protections. So this, again, will layer on top of the existing use protection. So existing quality protections are specific to water quality that was present at the time the water body was designated. So in Wyoming we apply these to our Class 1 waters.

These are Class 1 waters, otherwise known as outstanding aquatic resources in our policies. These waters are specifically designated by the Environmental Quality Council because they're, you know, something special in the state. They want to have unique protections applied to them and there's a number of levels of protection that are applied in the Water Quality Standards to make sure that we're maintaining the quality. So not just the uses, we have to maintain the water quality at the time it was designated.

So examples of these are things, like in Wyoming, national park waters are all Class 1 waters. Wilderness waters, as of 1999, those are all Class 1 waters, as are a number of other water bodies in the state that were specifically designated. I think the most recent designation happened around 1990. So that's our Class 1 existing quality protections.

So now we've covered the three main components of Water Quality Standards laid out in the Clean Water Act and implementing regulations. The last component is implementation methods, which our water quality standards also include, but essentially these are the provisions that affect the enforcement application, you know, execution of surface Water Quality Standards.

So in our rules that includes things like how we are enforcing the standards. We have sections on mixing zones, testing procedures, how we determine, you know, flow, or developing effluent limits or looking at evaluating the standards, credible data requirements, something that comes over from the Environmental Quality Act, discharges of specific variances, something that's laid out until the federal regulations that we also provide a mechanism in our Water Quality Standards to do these time-limited modifications to the standards.

So that covers the main components of the Water

Quality Standards in the Clean Water Act and from the Environmental Quality Act. In terms of where we are in the rule revision process, we're currently determining kind of a scope, and we're working on a draft. I think Jennifer mentioned at the outset we're expecting the revisions to be substantive, as you guys have been seeing with your images. So we want to take our time, make sure, you know, we're proposing what we feel are appropriate revisions at this time to address comments that we've received through the scoping process from the Attorney General's Office.

Once we have a solid draft we'll do, you know, more internal review, make sure that the, you know, users of the Water Quality Standards are comfortable with the revisions that we're proposing, you know, make sure that we haven't overlooked any potential implications of what we're proposing. So we're looking forward to, you know, getting additional feedback from other staff.

We will have an EPA consultation. As I mentioned, EPA has a pretty critical role in the development, adoption, and approval of Water Quality Standards, so we'll involve them in the process as well.

Once we have a proposed draft, we'll come back to you guys at the advisory board for additional updates, probably, on more specifics with what we're proposing to change. And then at some point we will go through a formal

comment period and bring the proposed revisions before the Board.

So that is where we are with Chapter 1. I'm happy to answer any questions that you have.

MS. ZYGMUNT: Great. Thank you very much, Lindsay.

Let me first ask, if I may, David Waterstreet, whom you all know -- David, do you have any further comments you'd like to provide to the Board at this time?

MR. WATERSTREET: Not really particularly. The only thing I will comment on is the fact that you really have received just a very high level, a lot of generalities that is really the top level of our Water Quality Rules and Regulations. We will be bringing this back to you with much more detail, and we will make sure to provide the opportunity for you to get a good understanding of the rule before we start making decisions. So we'll be working with Jennifer on that.

But in the meantime, we wanted to just begin your thought process and just let you start to -- for those that have been familiar with our water quality rules, we do this on periodic basis. We wanted to give you a heads-up that we are in development right now. And that's all I have, Jennifer.

MS. ZYGMUNT: Thanks, David.

So great presentation, Lindsay. And, again, there is a lot packed into this rule. It is a very foundational rule for us. Decisions made in this rule affect other programs, primarily the point source discharge permitting program, WYPDES program. So, again, just an opportunity to get these terms out there. Again, start outlining the scope of what we'll be looking at before we bring the revisions to you.

Lindsay, David and others have done some very critical thinking and some very creative thinking on how do we best develop and revise Chapter 1 to make it more useful to ourselves and the public. So I'm excited to bring before you once we work through internal process and we'll continue with some 101, again, because there is so much of this rule that affects decisions for the state.

Any questions for Lindsay or David or thoughts on this chapter that we can answer for you now?

BOARD MEMBER COCHRAN: Madam Chair. I just have one question. Are there any new pollutants that you guys are considering standards for?

MS. PATTERSON: Yeah, that's a great question. We are -- because of the substantive nature of the changes, we're hoping to minimize the changes to the water quality criteria at this time, at least based on our initial discussions. So we want folks to be focused on

just, you know, the sort of content rather than the potential implications. We're trying to minimize the implications of the changes.

MR. WATERSTREET: And I'll just add, that's our beginning point. So for context, EPA provides guidance on values from time to time, and they have provided guidance on some criteria. However, we take that very seriously. We want to make sure we evaluate those very thoroughly. And then like Lindsay just mentioned, we do have some other substantive components of the rule that we're really wanting to focus on at this time. However, as we -- as we, Lindsay and myself, propose this up to Jennifer, we will have further conversation on the timing of the addressing any values that we have received as guidance from EPA.

ACTING CHAIR CAHN: So I have a question. If you find a stream that has been degraded since the last triennial review -- hard to say that -- would you then make changes to the designated uses, or would there be changes to the use attainability analysis? Because that was all fairly new three years ago, I think. The last time we did this, I think, is when I first saw that use attainability analysis, I think.

MS. ZYGMUNT: Sure. I'll take the first stab at answering that, and I think Lindsay can add more.

We've had use attainability analysis for years and years and years. It's kind of an evolving process in how we go about determining those. They can be challenging. In terms of if we monitor water body and decide that it's impaired or degraded and is not meeting standards, it goes on the 303(d) list, after which we then would pursue some kind of watershed planning effort, total maximum daily load, and then implement changes to point sources and nonpoint sources to address that, but in some cases we could consider site-specific criteria or looking at a UAA to make sure that they're appropriate designated uses. But Lindsay, help me out with the response there.

MS. PATTERSON: Sure. Yeah, are you talking, Lorie, about -- I'm sorry, Madam Chairwoman, apologies -- situations where water body may have changed since the uses were changed or --

ACTING CHAIR CAHN: Yeah, if -- you know, if you find a stream or a water body is becoming degraded by the uses that have been designated for it, what's the process for going about getting that changed if that -- is that going to be part of this triennial review or --

MS. PATTERSON: Yes. So we're required to review all the Water Quality Standards every three years. So when we solicit public comment, we open it up so that people can provide information. We wouldn't want to modify

the designated uses if a water body just had become degraded, you know, we would want to maintain the uses, whatever is attainable as part of the standards. So like Jennifer mentioned, if a water body is just degraded from a point source to nonpoint source, that's something we would want to address through our integrated report process, develop some kind of restoration plan for the water body. If through some other information you determine that the uses needed to be modified because of, you know, maybe it's hydrologically modified or, you know, something that prevents the water body from attaining the uses, that's where we would go in and modify the uses through the Water Quality Standards.

ACTING CHAIR CAHN: And how -- I'm not sure how to word this question. How much enforcement, like checking up on water bodies or enforcement, or is it more based on -- on -- let's see. Do you have a set number of streams or water bodies that you would go to to check, or do you rely on somebody providing information to you that there's a problem?

MS. ZYGMUNT: Yes, Madam Chairwoman. That's a great question. And that could probably be a whole separate presentation that David can have his staff put together in our surface water monitoring program. In summary, though, they do some random probabilistic surveys

to kind of get a high-level sense of what's going on in the basin, and then we also do targeted studies to assess water bodies and whether or not they're meeting their uses.

Those assessments are, you know, pretty in-depth studies, but then we also consider data collected by other entities around the state. Conservation districts may collect data. USGS, we look at their monitoring data. So that's a great question.

And we, as a part of the 101 that we provide you on Chapter 1, we can have Jeremy Zumberge speak. He's our surface water monitoring program manager and might be able to give you better review about how we look at the state and do these assessments.

David, feel free to add anything here if you'd like to.

MR. WATERSTREET: Just two minor points that I'll add. And in addition to what Jennifer mentioned, we do also have compliance and enforcement permitting program that also guides us in the condition of any particular stream. And then, yes, we do also take complaint calls. They're probably -- we probably get, I don't know, one or two a month during the warmer season. Sometimes they pick up, sometimes they slow down, but they also inform us how to proceed with monitoring streams. They don't directly correlate with our development of Water

Quality Standards. All of this information can help inform us as to the condition of our waters, which in -- adjacently, it also helps Lindsay, when she's preparing her water quality rules and regulation.

However, we do have a lot of waters that are being monitored on an annual basis through a number of programs and number of stakeholders.

ACTING CHAIR CAHN: So, for example, if you know, a place where people are going, a pond where people go in the summer to bathe, swim, play with the kids, or whatever, got overlooked as a place that was for contact, and, you know, is full of livestock or something, what would be the process for getting that re-looked at as a contact?

MS. ZYGMUNT: Yeah, I think if there's a water body where the public has concerns, particularly in that example, for public health from recreation exposure. You know, one step is contact us, and we can look to see if we have any data, and, you know, discuss the situation and see if we have monitoring staff that we can go out to collect some data, or that is where, for example, the conservation districts often fill that role within a local area. Conservation districts have very active and monitoring for recreation use within their boundaries, and it could be a situation where the conservation district

provides some help to better assess whether there is a public health risk.

ACTING CHAIR CAHN: Thank you.

BOARD MEMBER DEURLOO: Madam Chair, I've got a question.

Will there be -- Lindsay, this is Brian Deurloo. Will there be any -- as you go through this assessment, are we going to look at trash in streams, stuff like that? I mean, we look at -- we look at selenium and sediment and so forth, but oftentimes trash is overlooked. Crow Creek is a perfect example. Killpecker Creek down in Sweetwater County. Would we be looking at that or not?

MS. PATTERSON: Yeah, we currently have narrative water quality criteria that address solid waste in our surface waters. So, yeah, we'll be looking at all of the narrative and numeric criteria that apply as part of the revision.

BOARD MEMBER DEURLOO: Good. Thank you.

MS. ZYGMUNT: Any further questions? Otherwise, just know that we'll continue on with this 101 effort so that when we do provide a draft rule before you, it should facilitate the review and understanding of what we're trying to accomplish.

BOARD MEMBER DEURLOO: Thank you.

MS. ZYGMUNT: All right. Thanks, David and

Lindsay.

MR. WATERSTREET: Thank you, everybody.

BOARD MEMBER DEURLOO: Thank you.

MS. PATTERSON: Thank you.

MS. ZYGMUNT: Madam Chairwoman, are we good to continue on?

Okay. I will bring up additional staff, and we'll move on to the final business item of the day, which is Chapter 12.

ACTING CHAIR CAHN: While staff is coming up here, I believe I -- my question about whistleblower was probably misspoken. It was brought to my attention whistleblower, I wasn't using it in the right context. It's probably more for situation of some -- if somebody is doing something illegal and so it's -- I certainly don't mean at all to imply that anybody's doing anything illegal or there's a whistleblower. So I apologize. I don't think I understood the -- what a whistleblower really is. So my apologies. We can ignore --

MS. ZYGMUNT: Thank you for the clarification.

BOARD MEMBER DEURLOO: Squeaky wheel, maybe?

ACTING CHAIR CAHN: Yeah, more squeaky wheel than whistleblower.

MS. ZYGMUNT: Great. Thank you for the clarification.

ACTING CHAIR CAHN: I apologize for that misunderstanding on my part, so...

MS. ZYGMUNT: Thank you. And again, we're committed to having discussions with any of you guys, so please, please reach out if we can be of help.

Oh, Madam Chairwoman, we could use about a five-minute break, if folks need to use the bathroom and get some water, and that way we can switch screens to the different presentation.

ACTING CHAIR CAHN: Okay. We'll convene at five minutes to 11:00.

(Meeting proceedings recessed 10:48 a.m. to 10:58 a.m.)

MS. ZYGMUNT: Madam Chairwoman, are you ready to proceed?

ACTING CHAIR CAHN: Yeah.

MS. ZYGMUNT: Okay. So as the last business item of the day the Chapter 12, second presentation to you following our December meeting. Based on the recommendation of the Board in December, it was requested that we extend the public comment for this rule, which we did, extending the comment opportunity through February 14th.

So without me giving a further overview, I'm just going to turn it over to Keenan, who has put together a very good presentation, to walk us through the highlights. My recommendation is that we let Keenan get through the presentation and then circle back to specific questions, chiming in any public comment so that folks can get on with their day.

Keenan and his team, which, again, I want to introduce Anthony Rivers as part of that team. I think he's done a fantastic job of responding to all the public comments that we received, including during the initial outreach and then the extended comment period as well. So he'll walk you through the comments and responses and any further revisions made to the rule based on those discussions.

So take it away, Keenan.

MR. HENDON: All right. Thank you, Jennifer. I'm Keenan Hendon, Water/Wastewater Section Manager for DEQ.

We're here today to provide an overview of Chapter 12, how we got here, and a little overview with regards to this presentation. I want to provide an update on staff activities since the December WWAB meeting, provide a recap of the December WWAB meeting, more information on the 10 States Standards and the Great Lakes

Upper Mississippi River Board, also Chapter 12 development, what's taken place over the past roughly 10 years to get us to this place right now with our current document. And then provide a review of comments that we receive during this first December WWAB meeting, as well as public comments we received from the extended comment period there through February 15th.

After that, we're going to work our way through Chapter 12, the reason why we're here today. Go through Sections 1 through 9, which we did get through December WWAB meeting. And then we'll go through section by section with regards to Sections 10 through 19, which we didn't get through at the meeting.

So with that, we'll get started here.

Is there to -- oh, there we go.

All right. December meeting. We were able to get through Sections 1 through 9 during that meeting. There's two topics I think that were identified that we needed to provide a little more detail on. One of those was the Great Lakes Upper Mississippi River Board 10 State Standards or the 2018 Recommended Standards for Water Works, commonly known, I guess, probably in the industry with regards to the standards, or the 10 States Standard. We're referencing it within our document as the 2018 TSS.

And on the other item that we needed to review or

provide a little more clarity on was the timeline or how we get here today.

BOARD MEMBER DEURLOO: What's CH12D?

MR. HENDON: Chapter 12 development.

BOARD MEMBER DEURLOO: All right.

MR. HENDON: Thanks for the easy question. So GLUMRB, GLUMRB is the abbreviation for Great Lakes Upper Mississippi River Board. We did have a couple of questions from the WWAB board with regards to participating in the Great Lakes Upper Mississippi River Board, and understand there's a process. Unfortunately, it is only open to the Upper Mississippi River basin -- or Upper Miss -- or, yeah, basin states.

We can participate in rulemaking and rulemaking process. We can participate in that process as we see fit. When they conduct that rulemaking process, they do that approximately every five to seven years.

ACTING CHAIR CAHN: You can or you cannot.

MR. HENDON: We can.

ACTING CHAIR CAHN: Can.

MR. HENDON: Can, c-a-n. They do allow folks to participate in that rulemaking process.

BOARD MEMBER DEURLOO: Because we are part of the Upper Mississippi watershed anyway.

MR. HENDON: Yeah.

BOARD MEMBER DEURLOO: Go ahead. Carry on.

MR. HENDON: Sounds good. Sounds good.

There's close to 40 states that participate -- or utilize the Great Lakes Upper Mississippi Board Standards. Numerous towns, special districts, cities, surrounding states, Montana, Idaho, Dakotas. The 10 states that comprise GLUMRB, include New York, Illinois, Wisconsin, Minnesota, Iowa, Indiana, Michigan, Missouri, Ohio and Pennsylvania. It also includes the province of Ontario, Canada.

The existing Chapter 12 was based off the 1982 standards. And the Great Lakes Upper Mississippi River Board, they also develop wastewater facilities standards as well. So should we update Chapter 11, we'll likely see that document and identity again for incorporation by reference.

If you're looking for the document, this is essentially what you're going to see when you're reading the recommended standards for the Great Lakes upper Mississippi River Board. The document is housed at the state of Minnesota. I'm not sure if they drew the short straw or winning straw or how they got selected, but if you go to their website, this is what you're going to see with regards to how they refer to themselves as and calling them the 10 State Standards, GLUMRB.

If you want to purchase a copy of the Great Lakes Upper Mississippi River Board standards, it's available for 19.99 for a hard copy. Digital copy is 13.99. And also that same -- same digital copy is located on our website for free. So there's a PDF searchable version available on our website.

So going through the Chapter 12 timeline. Back in 2013, we decided it was time to start taking a look at our -- perhaps previous to that too, I'm not sure. But in working with Gina, who's got -- she's been through the process from start to finish with regards to 2013 through today, outreach was originally started back in 2013 to get comments from public with regards to Chapter 12. Later on in 2013, the governor, as well as Wyoming DEQ, decided to reduce Chapter 12 size through the incorporation by reference.

Work was started by staff. There was numerous -- in 2016 we started having working sessions. District engineers would have working sessions either in Lander, Casper, Cheyenne. Staff would travel -- in pre-COVID days where staff could travel and meet in-person and have a good working session.

In 2017, rules were paused due to a number of staffing issues with the water and wastewater section. But a little bit later on in 2017, district

engineer started more working sessions. In total, they started in February of 2016, wrapped up in 2019. So, again, this included all the district engineers as well as staff from the water/wastewater section, as well as Gina and perhaps others.

So there were a total of 19 working sessions with staff in order to take their comments, experiences and put it into the chapter that's before you today.

Excuse me. Taking a drink.

In 2019, the WWAB reviewed the acidization rules for wells with regards to Chapter 12 and recommended that portion of the rules proceed to the EQC. In 2019 -- or 2020, February of 2020, the AG had the opportunity to review Chapter 12 and provide significant edits to Chapter 12.

Subsequently with the public comment and outreach period heading into the EQC meeting in May, the chapter was pulled due to the number of public comments that we received at that time.

So what did we do? We decided to have some public comment outreach with those folks.

ACTING CHAIR CAHN: Can you go back to that last slide?

MR. HENDON: Sure.

ACTING CHAIR CAHN: Thanks.

MR. HENDON: So after Chapter 12 being pulled in May and October, there was some public comment and outreach period. Meetings were held with Weston Engineering, Wyoming Association of Rural Water Systems.

Heading into September and October of 2021, the Attorney General and district engineer had the opportunity to conduct final reviews on chapter.

Heading into the December WWAB meeting, the public comment period was opened in November -- November 5th, I believe, of 2021. We then held our December WWAB meeting on December 15th. Determined to extend the comment period -- comment period was extended to February 15th. Essentially the comment period's been open for 101 days with regards to Chapter 12, about three times your normal comment period for heading into a WWAB meeting.

I just wanted to provide a general timeline, summary of staff activities with regards to the rulemaking, district engineering involvement, staff involvement, outreach to the public. We'll cover more outreach to commenters going forward with regards to commenters for the December meeting as well as the February meeting -- or this March meeting. My apologies.

So, again, there were some kind of questions, comments, direction given at the December WWAB meeting. One of those was, again, can we participate. The answer

that we got back to us was no, based on that reason. However, we can participate in the rulemaking process, participate in the committees, so forth.

We do have the 2018 Recommended Standards for Water Works located on our website for free. It's the same digital version that's available for purchase. So we were able to work with Great Lakes Upper Mississippi River Board folks on getting that to our website.

There was kind of numerous comments with regard to can we introduce the incorporation by reference much earlier on in the document. So Section 4 has been revised and introduces the incorporation by reference and subsequent documents.

There was a question with regards to total elevation that is unclear on the engineering design report in Section 8 (e), (ix). So that passage has been revised to provide a total depth of the drilled borehole. We work with our groundwater folks, as well as district engineer folks to make sure that we have proper terminology with regard to calling out industry terms.

And then in December, we're thankful for Board Member Cahn and Gina Thompson. They had a couple working sessions to go through editorial comments with regards to the chapter. Hopefully that can aid us all today as we go through Chapter 12.

As we move forward, following the WWAB meeting we kind of regrouped internally, wanted to reach out to each of the commenters that provided us comments. Kind of have a working session more or less with these commenters, make sure we understood the intent of questions and their comments that they were providing and make sure that essentially we were on the same page and understood one another.

So this was done, again for both sets of comments for the December meeting, as well as folks from the -- submitting for the March meeting here today.

ACTING CHAIR CAHN: To all commenters or just some of them?

MR. HENDON: We reached out to all of them.

There we go. Dang technology.

So, again, we re-reviewed the comments. We did reach out to the commenters. Commenters were contacted initially via email, provided them with a copy of their comments as well as response to comments.

We also had a request in there to coordinate a meeting or phone call with us to go over their comments and get those reviewed. We reached out to Darwin Dick with Tetra Tech, Jason Palmer, Andy Hooten, Brian Sepe with the City of Green River, Dayton Alsaker and Jeff Rosenlund with DOWL Engineering.

THE REPORTER: You're going to have to slow down.

MR. HENDON: I got to slow down?

THE REPORTER: Yes.

ACTING CHAIR CAHN: Can you go over that list again?

MR. HENDON: Sure. We'll start at the beginning. Darwin Dick, Tetra Tech; Jason Palmer, Andy Hooten, Brian Sepe with the City of Green River; Dayton Alsaker and Jeff Rosenlund, DOWL Engineering; Dave Engels, American Council of Engineering Companies of Wyoming; Cheyenne Board of Public Utilities; EPA Region 8; Wyoming Association of Rural Water Supplies.

Two commenters responded back to us either in email or over a phone call that basically said they understood our responses, had no further comments.

Four commenters took us up on our offer to have a meeting and a review session. This included EPA, BOPU, Andy Hooten with the City of Green River, and Wyoming Association of Rural Water Supply.

Not wanting to get less than a hundred percent, we conducted further outreach with calls and emails to track down the outstanding four commenters, and so we were able to get meetings coordinated with Jason Palmer and Brian Sepe, with the City of Green River. And then we were

able to have phone call conversations with Dayton Alsaker and Jeff Rosenlund.

And just as a matter of course, these meetings were more than one session, just to make sure that we were getting their feedback with understanding them and them understanding us, and then kind of going back to the drawing board and meeting again to further vet out their concerns and our responses.

Through a phone call with Dave Engels, it was recommended that we schedule a kind of a Zoom meeting or info session to the Wyoming Engineering Society's annual meeting in February. So we reached out to the Wyoming Engineering Society to see if we can do this. Unfortunately their schedule -- their dance card was full. However, we were able to schedule a meeting on January 27th. We reached out to the Engineering Society. They sent out information on our meeting to their members. Reached out to the Wyoming Association of Municipalities to provide the meeting information to their members. Reached out to WARWS, provide the information to their members. And we also sent it out through our listserv available to us through the state government. And that listserv would likely contain all the operators, cities, towns, and engineers that opt into that listserv notification system.

Based on that Chapter 12 outreach, we then held a

follow-up Q&A session on February 1st with the folks that wanted to participate. It was a good session. It allowed people to -- we wanted it to be a week later to allow people to read, review the documents if they didn't have them, and then formulate their comments and responses heading into the February 15th comment deadline.

ACTING CHAIR CAHN: How many people participated in that?

MR. HENDON: I want to say we had six entities show up. A number of folks from WARWS and a handful of cities and towns.

So after the December WWAB meeting, the comment period was extended through February 15th. We received comments or submissions from five -- we received five submissions. Four were comments with regard to Chapter 12. One was an errant comment with concerns on their water quality that they were receiving out of the tap. We provided that individual with direction on where they needed to go to get that addressed. But the remaining four commenters provided us with a list of comments or pages of comments to look through and address, provide responses to.

Craig Barsness with Shoshone Municipal Pipeline had one comment. His comment was concerns with 24 mesh elevated tanks. And then, again, the remaining three commenters provided us with a variety of comments on

different sections.

Meetings were held in person or via Zoom. We had a good discussion. We had a good review. We had a good understanding of one another. Overall, it went well.

So as we go forward, it might be helpful to pull out your green version Chapter 12. I believe at the beginning of the meeting Gina kind of handed out this addendum to comments as well. There's a number of comments that, unfortunately, the February outreach we didn't get all the comments addressed prior to getting your board packets and materials prepared for you today. So the addendum kind of covers those outstanding comments that we were unable to get addressed.

And if you want to follow along with regards to DEQ's response or analysis to comments, that might be helpful or handy as well. Up to you.

MS. ZYGMUNT: But -- just to add to that. So we do recommend that -- so that we're all working off the same version, that we have focus on Chapter 12 changes since 11/5/21. We're also referring to that as the green strike and underline version. So I think it would helpful if we all speak from that version, as we have specifics.

MS. THOMPSON: You're going to call up that version?

MR. HENDON: No.

MS. THOMPSON: No?

MR. HENDON: I think we can pull that up later on, when we -- should we have discussion afterwards.

MS. THOMPSON: I would note --

MR. HENDON: Because in this presentation slides, I do have the information available to read off the slides, which should you want additional context or clarity, is the reason why I referenced the Chapter 12 as well as the addendum to comments.

MS. THOMPSON: Okay. So I'm getting some chats that there a lag. Somehow the slides are not moving along when you're changing.

MR. HENDON: So give a pause?

MS. THOMPSON: I'm not sure why they're not moving. Like I can see them move, but I can't see them move on -- from the Zoom. So just be aware, folks, that Keenan's reading from the slides, and we'll have them available at the end, and we will continue to trouble shoot, but we do have that information. We will have that information available.

ACTING CHAIR CAHN: Is it possible to email those slides to the people if they indicate in the chat that they want to see the slides, so that they can go along? I've had this problem with Zoom before, where it doesn't -- it goes back to the head -- to the header slide

and doesn't move forward for everybody else, even though it moves forward in the room.

MS. THOMPSON: Keenan, if I send that can I link so they can look, is that possible?

MR. HENDON: Uh-huh.

MS. THOMPSON: Okay.

MR. HENDON: That's probably the best way to do it.

MS. THOMPSON: Thank you.

MR. HENDON: So pause for a moment or two for technology. We'll post a to link the comment section.

BOARD MEMBER DEURLOO: Whoa.

MR. HENDON: We'll extend it for camera troubleshooting.

(Off-the-record discussion.)

ACTING CHAIR CAHN: Let's go ahead.

MR. HENDON: Go ahead.

ACTING CHAIR CAHN: Yeah.

MR. HENDON: Okay. As we move forward, I just want to bring your attention to the slide layout in regards to our chapters -- Chapter 12, our sections that we're going to be looking at.

At the top of each slide we're going to cover the original information that was presented with the change to each section as presented to the board in December.

The bottom portion of the slides are going to cover any changes that occurred after the December meeting. Looking to only cover and provide information with regards to changes -- significant changes in wording or technical content.

Hopefully this can aid in the presentation of information, maximize the use of everyone's time here today.

So, again, these were the Sections 1 through 9 that we were able to get through at the WWAB meeting in December. I'm sure there's questions did you guys make any changes post that December WWAB meeting? The answer to that question is yes.

And so Sections 1 through 3, there were no changes.

Section 4, we updated to outline incorporation by reference earlier on in the document.

Section 5, there was a comment from a commenter as well as Madam Chair with regard to mechanically driven drives, changing to mechanical drives.

Comment 5(z), this has an asterisk on it, which is a good time to outline that any time you see an asterisk, that's a comment we were unable to address in your materials that were submitted to you by the March 2nd deadline for your board materials, and so that asterisk is

just bringing your attention to a passage that we're going to call out and explain to you a little further today.

Essentially this section the commenter wanted to provide definitions for each service section type. Section 16 of the -- of Chapter 12 provides information with regards to connection types that we will refer the commenter to.

Section 6, 6(b), this one has an asterisk with it as well. It was reorganized due to a formatting issue and punctuation.

Section 7, based on some comments, we revised it to more clearly describe the two permit process.

Section 8, couple of wordsmithing changes with regard to 8(c)(i) as well as 8(e). On 8(e), the question was with regards to the design report with regards to well drawings. Typically you're going to see plans in well drawings, not a profile for a well.

Section 9, 9(a), we reorganized for formatting, corrected a couple of references.

9(g)(ii), we cleared up that passage that was concerned with regards to having -- having the requirement of audio narration with the video log. That portion has been taken out. So it's just a video log of the well inspection accompanied by a written description.

The next one -- ah, the next one, there was

concern should the system in the engineer -- or in the hydraulic model not have fire flow data or fire flow protection, so we modified that section to provide an off-ramp so that it's calibrated based on existing fire hydrant test flow data, when available, or it can be based on modeling.

Sections 10 through 19. 10 sections left to go. We've overall organized these sections for continuity, consolidating similar passages in conformity. Sections have been corrected to address grammar, spelling issues, remove requirements not within the statutory authority. And, again, we're looking to provide you information with regards to significant changes to passage or changes in technical content.

We did receive a number of comments with regards to does my facility need to come into compliance with this new chapter? The answer to that question is no. They remain permitted under their original permit.

ACTING CHAIR CAHN: Unless they make modifications.

MR. HENDON: Unless they make a modification, then they will need to come into compliance with new regulations.

So, again, this is Section 10, the top of the slide has the information with regards to Section 10 that

was modified and changed at the December meeting. We received several comments on this section, four comments resulted in the change. One of those comments was with regards to adopting NSF/ANSI 61 for coatings. This is an adoption that's referenced going to be commonly seen going forward within the chapter. NSF stands for the National Science Foundation, provides regulatory standards on products or systems. 61 is specifically for drinking water system components.

The remaining three comments were through conversations with EPA, and essentially ensuring that new systems are designed and built to requirements of the primacy agency conducting enforcement.

Several commenters provided us with comments to ensure that DEQ and EPA are on the same page with regards to design and enforcement requirements.

As we go forward in Section 11, 12, 15 and 16, those are the sections where we probably have the most content to cover, or the most comments from commenters. Section 11 we had 29 comments that --

ACTING CHAIR CAHN: I'd like to mention, I think NSF is National Sanitation Foundation and not National Science Foundation.

MR. HENDON: Okay.

MS. ZYGMUNT: We'll double-check that.

MR. HENDON: Okay. 16 of the 29 comments we received resulted in a change. Number of the changes on the slide provide for better clarify after discussions with EPA as well as Weston Engineering. The section we're covering is source development. We received two comments that were not addressed prior to sending up to DEQ analysis of comments, back in the comment on our addendum with you here today.

One of those comments was with regard to pump tests and providing a definition of a stabilized drawdown. That definition's now been provided as item in Section 5(aa).

We received another comment with regard to 10 feet of either surface casing or a well with no surface casing, wanted to know where that kind of came from and that requirement. It's an existing requirement in their existing Chapter 12. In looking at surrounding states, consulting with their groundwater folks as well as district engineers, it's a standard of practice that takes place many other states with regards to how they construct wells. 10 feet provides for some bore and well stability, as well as frost and freezing protection in the various areas across our state.

Comments on this slide through discussions with EPA, Nelson Engineering, Weston Engineering. Again, you're

going to see a comment with regards to the NSF61 material addressing concrete aprons. Concrete aprons at one time were required by EPA, no longer required by EPA. So up to the designer on how they want to finish off the top of that wellhead. Should they use concrete, we'll now reference that as concrete surface or concrete wall. And we also provide an identified minimum requirements for spring setback distances, as well as spring wall thicknesses.

Two comments that were not addressed prior to sending our analysis of comments happened to be with the providing -- or setting the casing 10 feet minimum into the target aquifer.

Upon review and working with the commenter, we modified the section to align with SEO so that we're on the same page with regards to well design standards between our two agencies.

The additional comment that we worked on was with regards to Section 11(f)(i)(A). There was a question with regards to can various springs be developed? The answer to that question is yes, those springs can be developed, and upon further review the 3-foot requirement was deemed not to be required, so that section was removed.

Frost and freezing requirements are covered in the spring development section later on.

Section 12, which is Treatment. We're on the

first slide for those following along. We received 36 comments for this section. 14 comments resulted in a change. A number of the changes on the slide provide for better clarity after discussions with EPA, Weston Engineering, Tetra Tech, City of Green River, or BOPU.

Just want to bring your attention, a number of those entities all have either large treatment systems or they do engineering work on treatment systems.

Section 12 added a number of different treatment options for ozone, ultraviolet, membranes, and media. And we leveraged the expertise and guidance from EPA in regards to our UV recommendations. Again, wanted to be on the same page with regards to design requirements and enforcement requirements.

Moving on to the second slide for Section 12. These changes were made after discussions with EPA, Weston Engineering, City of Green River, and BOPU. Again, a number of these items presented are to ensure that the -- we're meeting -- we're providing design standards that are in alignment with enforcement requirements.

BOARD MEMBER DEURLOO: What's red water waste? Is that just iron?

MR. HENDON: That's just iron and manganese waste. We had a good conversation with Brian Sepe, the City of Green River, with regards to iron and manganese

waste after treatment and how to get that resolved. We've incorporated some sections of the 2018 TSS, as well as re-aligned and formatted Chapter 12 with regards to that portion, as well as -- we kind of reorganized that section with lime as well as alum and then red waste.

BOARD MEMBER DEURLOO: Thank you.

MR. HENDON: All right. Section 13 is a toughy. I think we're all thankful for the break, perhaps. But no questions or comments were provided for Section 13 on Chemical Application.

Section 14 is Pumping Facilities. We received six comments. Three comments resulted in a change, and essentially we're now requiring a surge analysis to identify if any surge protection devices are necessary.

14(i)(i) is, again, to ensure that the design is meeting EPA requirements should they get inspected.

And then 14(i)(ii) was a clarification to ensure that the suction lines have similar operating conditions.

Section 15 is finished water storage. The first two comments essentially addressed tank turnover, as well as water age issues. We've kind of revised and provided an off-ramp with regard to 15(c)(ii), which is now 15(e). The original language just stated a minimum inlet velocity of 10 feet per second. We revised that to include unless demonstration of employed mixing or lower inlet velocity

addresses water age issues.

15(c)(iii), again, is another tank turnover water age issue, specifically with smaller systems that have a large supply.

15(f)(i)(ii)(b), we've reorganized those passages with regard to overflows and vent mesh requirements. Number of comments we received did cover vents and concerns with regard to 24 mesh. So we wanted to cover that a little bit more with you today.

BOARD MEMBER DEURLOO: Keenan, does that seem to be a pretty big issue at this time?

MR. HENDON: Yeah.

BOARD MEMBER DEURLOO: As small as the size of a mouse or something, right?

MR. HENDON: Yeah.

BOARD MEMBER DEURLOO: As small --

MR. HENDON: That concern -- yes, the -- it's a very small fly EPA is concerned getting into the supply of the system.

BOARD MEMBER DEURLOO: I see.

ACTING CHAIR CAHN: That's a tropical fly. Doesn't live in Wyoming. Hasn't been seen here yet.

MR. HENDON: And we do have the information here. We'll cover that here in just a second, thank you, with regards to EPA guidance on screen mesh.

BOARD MEMBER DEURLOO: Got it.

MR. HENDON: And it started --

ACTING CHAIR CAHN: I'm having a hard time finding the slides for those sections. Maybe they got renumbered. The slide before.

MR. HENDON: Okay.

ACTING CHAIR CAHN: So 15(c)(ii). So it was --

MR. HENDON: Is now 15(e). Or do I got it wrong?

MS. THOMPSON: No. I think 15(c)(ii) starts at line 2263.

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: Then it goes into 15(e), 15(f). Those are down along line 2276 and 2280.

ACTING CHAIR CAHN: Okay. Okay. Thank you.

MS. THOMPSON: Uh-huh.

MR. HENDON: So what are we requiring in our existing -- or our proposed Chapter 12? On overflows, we're recommending mechanical device, such as a flapper or duckbill valve on the overflow, and number 4 mesh to keep those mice or birds or bats out of that overflow. Or they can put 24 mesh on the end of that overflow as well.

For vents, openings need to be protected with

24 mesh. An existing Chapter 12 requirement for buried in-ground tanks is that the vent must be covered in 24 mesh.

The existing Chapter 12 also states that 24 mesh may be used on elevated tanks.

ACTING CHAIR CAHN: "May be" or "must be"?

MR. HENDON: On the existing Chapter 12, it says "may."

ACTING CHAIR CAHN: And the new ones?

MR. HENDON: It will be 24 mesh.

ACTING CHAIR CAHN: Okay. So for vents, it's going to say "must," not "may."

MR. HENDON: So -- so I'm just covering the existing Chapter 12 requirements for ground and buried tanks. An existing requirement for the vents on a ground and buried tank is 24 mesh. We just wanted to let everyone know that the proposed and existing are the same.

ACTING CHAIR CAHN: Okay.

MR. HENDON: However, the existing Chapter 12, on an elevated tank, it had the word "may" for 24 mesh. We are proposing 24 mesh to be protective vents for all tanks.

ACTING CHAIR CAHN: So elevated tank will be 24 mesh required.

MR. HENDON: Correct. Correct.

And so let's -- so we had a number of comments and concerns and outreach to us with regards to 24 mesh. So we followed up with the EPA. We'll cover that here in a little bit further as well.

But in talking with EPA, EPA's been requiring 24 mesh on tank vents for all tanks that they inspect since 2014. They inspect tanks in Wyoming, as well as tribal systems, so they require the implementation of 24 mesh either on the overflows as well as the tank vents, whether it's elevated, buried, or ground level.

We also had discussions with a commenter with regards to a new 2018 newly built tank, Cowley tank was getting built. EPA happened to be in the area, stopped by to see the construction, learned that the new tank and the tank vent was going to have 16 mesh installed. The mayor happened to be on-site at the time. EPA informed the mayor that, well, when we come by to inspect your new tank, it's going to have a significant deficiency. Your tank vent on your elevated brand-new tank is going to have to get in compliance.

So the engineer and the town scrambled to get that fixed during construction, rather than post construction. So I think that's an important example of where we need to ensure that we're requiring design standards that align with enforcement standards and

requirements.

So some examples of tank vents that can be utilized on an elevated tank that provides frost freezing protection, here's some examples. Almost locally manufactured, but these are manufactured down in Longmont, Colorado -- or Wellington, Colorado.

Another option. This option here is on an overflow. This is the city of Riverton. City of Riverton kind of did a modification on their overflow. When it's not overflowing, it's sealed with 24 mesh. During an overflow event, or should they have debris or anything up in there.

BOARD MEMBER DEURLOO: I like that.

MR. HENDON: It's a pretty slick and easy idea such that if it is plugged, it can extend, debris can wash away and perform during an overflow event. And it's -- it keeps staff busy, pretty easy.

BOARD MEMBER DEURLOO: Is that allowed by EPA?

MR. HENDON: Uh-huh.

BOARD MEMBER DEURLOO: Very good. Thanks.

ACTING CHAIR CAHN: What are the issues with that freezing in the winter?

MR. HENDON: So perhaps in the winter, during an overflow event, most tanks -- I mean, most tanks

operate at a lower level in the wintertime. So you wouldn't see the fluctuation and volumes that you would see in the summertime. So they up -- so instead of having a tank full of water, they're going to operate at a lower spectrum within their water system. Should they be up during an overflow event, that water -- if it's a slow trickle, perhaps there's a freezing concern. And perhaps they do have issues, then they should perhaps look into a flapper valve or duckbill valve.

BOARD MEMBER DEURLOO: That's a duckbill on the right, correct?

MR. HENDON: And on the right, that's a duckbill valve.

BOARD MEMBER DEURLOO: And that's allowed.

MR. HENDON: And that's allowed. So there's several options --

BOARD MEMBER DEURLOO: Those are bomb proof too.

MR. HENDON: Yeah.

BOARD MEMBER DEURLOO: Yeah, they just -- it just opens up.

MR. HENDON: Yeah, under slight -- and that would open under air pressure. So if there's a concern in our colder environments, if you're up in Teton County, perhaps you don't want to use the Riverton solution, and

you want to put in a -- you want to put in that duckbill valve to avoid any frost or freezing concerns.

And, again, here's flapper valve options. Here's the screen mesh.

BOARD MEMBER DEURLOO: That's 24?

MR. HENDON: That's 24.

BOARD MEMBER DEURLOO: That means 24 holes per inch?

MR. HENDON: Yeah.

So this is a EPA Tech Tip Guidance document with regards to vents, overflows, drain lines, requirement of 24 mesh. And this started -- this document, if we scroll in, is from April 3rd of 2012.

ACTING CHAIR CAHN: And the expense of flapper valves or duckbills, what kind of expense are we looking at?

MR. HENDON: With most things, they're going to go up depending on the size of your pipe. But we thought if you've got a smaller pipe, you're looking at $20, $30. Smaller size, depending on your system, is going to be in your thousands. But, again, if you're talking a million-, 2-million-gallon tank, 1500 bucks for a duckbill valve is a pretty reasonable and economical piece of equipment.

BOARD MEMBER DEURLOO: Thank you for the

slide.

ACTING CHAIR CAHN: Yeah.

BOARD MEMBER DEURLOO: It's very helpful.

MR. HENDON: So, again, we had folks send in numerous questions, concerns. So what did we do? Went back to EPA, said, Hey, EPA, we want to work with you on this 24 mesh. What kind of issues are you seeing with it? Is there a pressure vacuum issue of these tanks imploding, exploding, freezing, these types of concerns?

Again, they've -- in Wyoming and tribal lands, they've been requiring it since 2014. Initially they needed to -- initially there was pushback with regards to getting 24 mesh installed on the tank vents and the overflows. Now they say when they go out and do inspections, they hardly ever see anything but 24 mesh. They're not aware of any event, frost, freezing issues.

ACTING CHAIR CAHN: Have you made them aware of the issues that we've had in Wyoming?

MR. HENDON: We've discussed a couple of the items that at least I'm aware of. If there are other issues that haven't been brought to our attention, then they need to be shared with us. But from our understanding, there were some small, I believe, pipe separation issues with regard to a spring. But with regards to -- again, with the enforcement agency conducting

the inspections, they're unaware of any frost, freezing, vacuum pressure.

ACTING CHAIR CAHN: So they don't know about Pine Bluffs?

MS. ZYGMUNT: They are very aware of the town of Pine Bluffs, as are we. And Keenan --

MR. HENDON: Oh, so if we're talking about Pine Bluffs, they're very well aware of Pine Bluffs.

MS. THOMPSON: They did a study.

MR. HENDON: And they've done a study on Pine Bluffs. If we want to talk about Pine Bluffs, I think there's a number of issues that we could review on Pine Bluffs. We can start with the -- there was a new -- so they have an existing tank, and they were constructing a new tank. The contractor on-site crossed the wires on the pumps. So they continued to fill the old tank instead of filling their new tank.

So what happened? The old tank continued to fill and fill and fill until it overflowed. Apparently the overflow had -- it got clogged. So on the end of their outlet line, it was clogged. Their overflow line had 24 mesh, which was interesting, because they had a flapper valve installed. So there's an issue, number one. They had a flapper valve. All they needed was to have a flapper valve and number 4 mesh installed, likely wouldn't have had

a problem.

If we go back to the contractor, the issue is the contractor constructing this system that continued to fill and fill this tank until it essentially ruptured. There's probably additional concerns with regard to that design as why those pumps did not shut off with the significant backpressure it was likely receiving from overfilling this tank.

So I don't think we can blame Pine Bluffs solely with regards to installing 24 mesh on the end of that overflow line. I think there's a number of issues that likely led to that scenario and that situation. I think the Town of Pine Bluffs at the time probably should have hired a forensic engineer to go in and evaluate exactly what took place and what happened. I know WARWS was on-site and did an inspection, and that seems to be the document that's widely circulated. But, again, the contractor and the Town should likely have had a legal proceeding to find a solution and the true problem with regards to what happened in Pine Bluffs.

ACTING CHAIR CAHN: What about Star Valley?

MR. HENDON: Star Valley? And what is the issue in Star Valley?

ACTING CHAIR CAHN: My understanding is there was a pump, had waste line number 24. And I think

there's somebody from Star Valley actually here, but that was below grade and it was pressurized and broke.

MR. HENDON: And was this a pipe separation? This is a pipe separation concern? And I think we're -- at the end of the day, regardless of --

ACTING CHAIR CAHN: Waste.

MR. HENDON: -- regardless of any system, we are committed to working with an entity. And I think this is part of where we're headed with regards to this slide. DEQ -- or not DEQ. EPA, whenever they issue a significant deficiency and a correction needed, for an entity, city, town, et cetera, they recommend hiring an engineer and getting in coordination with DEQ.

So with regards to that, should there ever be an issue with a city/town having to do retrofit, we're committed to working with that entity to find a workable solution. And having extended conversation with the entity and EPA with regards to if it's vent, drain line, overflow, or any other matter, truly, we're happy to have those discussions and find a workable solution for those entities.

MS. ZYGMUNT: Let me just add to that. We are very aware of the concerns with 24 mesh. And this has been a landing discussion with stakeholders and EPA. We have put a lot of careful conversation into this before

making the decisions that we had with this chapter, but as Keenan has outlined, we have to make sure we're not putting our communities out of compliance with another regulatory agency. It's just not giving them workable solutions and causing additional expense.

But that said, we are committed that if a community runs into a situation that they don't think they can solve with one of the engineering solutions that Keenan walked you through, we are committed to working with them and brokering that conversation with EPA to make sure that we're not leading to situations that go bad for that community.

So, again, we get the issues. We have to put our communities into compliance, and I think we've found the right balance of doing that, partnering with EPA, but advocating for communities.

BOARD MEMBER DEURLOO: Madam Chair. Correct me if I'm wrong, we've got -- we have a lot of the EPA requirements on it to maintain primacy, I guess.

MS. ZYGMUNT: Yeah, we -- EPA retains primacy or public water supervision system.

BOARD MEMBER DEURLOO: Oh.

MS. ZYGMUNT: Wyoming has never assumed primacy. So that's why there's this coordination. Other states -- all other states do the construction, permitting

and public water system supervision. In Wyoming EPA does the public water supervision. We do the construction, permitting. So it's more and more important that we're working together and I think we've had some productive discussions along these lines.

You know, regardless of how we feel about 24 mesh and whether it's necessary, this is EPA's decision. And I -- you know, further feedback on 24 mesh and that requirement should be directed to them, but, again, we think that between engineering solutions and then working through case-by-case situations we can make sure our communities have good solutions and avoid structural damage like the examples we talked about before.

ACTING CHAIR CAHN: What would it take for -- I can save my comments until later so that we can get to public comments.

MR. HENDON: Okay. Yeah. So along those lines with regards to the outreach to EPA, which should DEQ be doing going forward? Again, looking to strengthen community outreach, provide education, training.

We do -- thankfully the legislature approved the use of set-aside funds through the SRF program, so we can provide either through third-party outreach --

ACTING CHAIR CAHN: SRF?

MR. HENDON: State revolving fund.

So the state revolving fund set-asides, we can now use some of that funding either to utilize third parties. I understand WARWS and MAP, they're currently working in our communities providing outreach and education. Perhaps there's more that we can do.

And, again, DEQ's committed to working with our communities, whether it's a tank vent, an overflow, or any other matter with EPA, so...

Section 16. Whew. Section 16. We're in the Distribution Systems, talking about distribution piping. We have 31 comments on this section. Eight of those comments resulted in a change. These -- we worked with the folks from American Council of Engineering of Wyoming, DOWL Engineering, BOPU, City of Green River, and Nelson Engineering with our review.

Some sections were updated with regards to water services and plumbing information for either local or state plumbing codes to provide better direction and clarity.

Sections were updated to include direction on air relief valves, as well as hydrants and flushing hydrants.

And sections were updated to include -- include flow fill options from DEQ policy as well as separation distances.

We did receive a comment with regards to dewatered work, wanting to allow work in a watered -- or a

trench that may be partially full of water. We opted to remain and require dewatering in the trench. We think that's important to have a sanitary, safe trench when installing pipes, valves or hydrants.

BOARD MEMBER DEURLOO: Question, please. Where can you take that water? So if they have to -- they're working on that -- this is point of interest, and they have -- they're working on a hydrant downtown, 1st and Main, or something like that, and they have a trench full of water, where can they take it? What do they do with that water?

MR. HENDON: Sure. So the City of Cheyenne currently has a large project going on in front of the Capitol. They're doing waterlines, as well as storm sewer lines, big trench, big pipe, high groundwater in that area. So they brought in their own -- either bring in your over water buffalo -- that's basically what they did. Bring in your own water storage tank, put that on-site. So they just pumped into one of those mobile water storage units.

BOARD MEMBER DEURLOO: And then they take it to --

MR. HENDON: And then they haul it offsite.

BOARD MEMBER DEURLOO: Thanks.

MR. HENDON: Sure.

BOARD MEMBER DEURLOO: Assume that because

the TSS is too high to pump down a storm sewer; is that correct? Or --

MR. HENDON: It depends on probably the city's storm sewer system.

BOARD MEMBER DEURLOO: Uh-huh.

MR. HENDON: And they could have done that as well, which they did on part of the sections. So they -- I'm going to guess it depends on your local entity with regards to where you're pumping that water. Part of that water within the city of Cheyenne was in a plume with, what is it, hydrochloric -- chemical for --

BOARD MEMBER COCHRAN: TCE?

MR. HENDON: TCE. It was in a plume for TCE. So some of that water did have to get cleaned before they could put it back into the storm sewer or dispose of it elsewhere.

BOARD MEMBER DEURLOO: I see. Interesting. Thank you.

MR. HENDON: It all depends, again, various metrics.

BOARD MEMBER DEURLOO: Location.

MR. HENDON: Section 17 is Laboratory Requirements. We didn't have any comments resulting in a change. However, the one comment we did receive resulted in a publication year being noted in Section 19 for

clarity.

Section 18, we received one comment, but no change was implemented based on that comment.

Section 19, Incorporation by Reference. If you want to be put to sleep, good section to read.

But we did receive two comments from City of Green River and Nelson Engineering with regards to including a C906 pipe alternative for 4-inch and up HDPE, which we included in a previous section, so we updated it here as well.

The other comment was with regards to a reference on AWWA C901, and wanted to make sure we incorporated reference -- or number 2020 -- Version 2020 for that -- for that component.

So with that, I guess we've reviewed sections 1 through 9, re-reviewed it here today. It was originally reviewed at the December WWAB meeting. Presented Sections 10 through 19 with the significant changes within that document.

Again, Chapter 12 is incorporating by reference the Great Lakes Upper Mississippi River Board 2018 Recommended Standards for Water Works. Within our document it's referenced as the 2018 TSS.

And with that, I can turn it back to Jennifer. And I know we also have some public comments that we need

to address here as well.

MS. ZYGMUNT: Thank you, Keenan.

I don't have further comments at this time, so Madam Chairwoman, it sounds like your preference would be to go to public comments so people can go on with their day.

ACTING CHAIR CAHN: So I'd like to open it up now for public comments and please come -- when you -- speak into microphone or come up to the table, give your name and who you're affiliated with. It's appreciated. Maybe spelling of it for Kathy. So thank you.

Mark, would you like to start?

BOARD MEMBER DEURLOO: While we're waiting for Mark to come up, Madam Chair, I'd like to extend my appreciation to that thorough review. Thank you. That was very helpful. And I'm glad that we went through another public comment period. It's such an important rule. It sounds like we had some very thorough review of some excellent Wyoming institutions and people. So I think we're on the right course here. Appreciate it.

MR. HENDON: Thank you.

MR. PEPPER: Thank you, Madam Chair. I'm Mark Pepper. I'm the executive director of the Wyoming Association of Rural Water Systems. We've been around since 1989. We work -- for those of you who may not be

that familiar with us. We work with all the public water systems in the state of Wyoming, enabling them to remain in compliance or come into compliance with the Safe Drinking Water Act, Clean Water Act, and increasingly the Resource Conservation Recovery Act, as it relates to solid waste leaching into groundwater or surface water.

Our membership consists of all 99 incorporated communities and about 150 special districts that own and operate water or wastewater facilities.

First, a kudo to the staff for taking on a rewrite. A lot of the infrastructure that we're starting to deal with is about 40 years old, 40, 50 years old. So nice to have new design standards that are going to be modern, up to date, versus what we have in the ground now as they start to replace all that.

And I think a general comment I'll make before I get started too much on just a couple of little bitty things, is I think we finally have 24 mesh solved. And I will agree that as it relates to the one tank failure, it was probably more, in retrospect, as we've gotten further away from it, it was probably more the overflow sensors and the pumping -- the pump sensors not turning off that created more of the problem as opposed to the 24 mesh. The 24 mesh probably didn't help any, but it probably wouldn't have made much difference.

But I think we're all on the same page that if it's an existing tank permitted, and it's 16 mesh or greater, we're fine. It's when they make modifications, and they'll have to come up to 24. Or if they're putting in a new tank, again, it's nice to have the design standards.

Where I think we ran into a lot of issues was when retrofits were attempted without the use of a lot of engineering, and they just put 24 mesh on and the airflow was pretty well screwed up and it made a lot of different issues. That's pretty much been solved with the existing tank permit versus changes or new permits.

But a couple of the things that we would like to see a little bit more -- and I apologize for the lateness. I've been spending since about September with two of your other favorite topics, ARPA and the infrastructure bill. And if we ever get the infrastructure portions of the Build Back Better, that's even more fun.

But we're -- like to look at high water loss. And we've discussed in the current revision utilizing a high water loss being greater than 20 percent. We'd like to -- to entertain dropping that down. In Wyoming, we're an arid state. Some of the systems are facing a lot of shortages. 20 percent water loss seems a little high. We actually advocate in our work that we do that 10 percent is

about what we like to look at. We go in and do water loss calculations, and a lot of places we'll run into 30, 40, 50, 60 percent water loss. Some of that is because the difference between produced water and the sold water. They don't sell the water to themselves, so they don't take into account the swimming pools in the parks or the parks and some of that kind of stuff. And so we try to go back, get them to meter all that. Once we get that done, then we look at the water loss. And if it's 10 percent or less, we're really happy.

If it's 10 percent or more and they've got a sector of town that's had a lot of water breaks, that's when we'd like them to kind of do some investigation and possibly looking at replacements of those sectors as it relates to -- and we've had a couple of pretty high profile breaks in the last little bit that require more notices and all sorts of good stuff. But they've had tons and tons of breaks, it seems like, in their system. Now with more money than we'll ever be able to spend probably timely, they should be able to replace every line in their town.

So we would look at 1.1.5(f), and possibly look at maybe shoot for greater than 15 percent. And -- because that's just a great indicator of --

ACTING CHAIR CAHN: Can you go -- 1.1.5(f), is that what you said?

MR. PEPPER: That's correct.

ACTING CHAIR CAHN: In the 10 States Standards.

MR. HENDON: Yes, that is reference to the 10 States Standards.

MR. PEPPER: Yes.

MR. HENDON: And it's in reference for systems with -- I'll just read the language of (f). And it's essentially for systems with a high percentage of unaccounted for water (generally greater than 20 percent of water production) a water audit may be required by the reviewing authority.

MR. PEPPER: And we'd be good with less.

ACTING CHAIR CAHN: Okay.

MR. PEPPER: Just in our daily work we do.

ACTING CHAIR CAHN: So you would propose we would take out -- (f) is in there right now, and we would take it out.

MR. PEPPER: No, (f) is fine. Just drop it from 20 to 15.

MR. HENDON: And I think in order for us to facilitate that, we'd have to drop (f) and then reinsert language from F in the document.

ACTING CHAIR CAHN: With less than 10 percent.

MR. PEPPER: Ah.

MR. HENDON: Yeah.

MR. PEPPER: Or -- well, okay. Okay. Like I said, sorry, it was late last night.

ACTING CHAIR CAHN: So these are included?

BOARD MEMBER DEURLOO: Okay. Thank you.

MR. PEPPER: And then 1.1.7.1(f) was included for surface water source protection measures. We'd kind of like to see 1.1.7.2 (h), considering that 88 percent of the systems in Wyoming use groundwater. And while it's a voluntary source water protection planning, we'd kind of like to see a --

ACTING CHAIR CAHN: Can you go over those numbers slowly again?

MR. PEPPER: Okay. 1.1.7.2(h) addresses groundwater source water protection measures. And we'd like to see that added. And I'll give a quick -- as quick as I can, story. So years ago, we were working with a system doing the source water protection plan. And they were -- they had existing wells that were in a railroad right-of-way. And part of the project was they would cap and plug those -- those existing wells once the new wells were drilled. Of course, unfortunately, there was just all sorts of things. But the engineers ended up utilizing all the money for existing wells and didn't have

the money to cap it and abandon the existing wells. So we were able to work with the railroad, ultimately, and they ponied up the money to -- to cap those so they -- they didn't want the liability of open wells in their right-of-way.

In addition to that aspect of it, we filed the delineations of our source water protection plan for that particular community and those new wells with BLM. And as it worked out, one of the oil and gas companies was in the process of finalizing a permit to drill a new gas well and frack job. As it worked out, the frack job would have occurred directly underneath the new water wells. I mean, absolute positively directly underneath them. There was 10,000 foot of strata, but still -- I know it was when Pavillion was kind of hot and heavy.

So they pulled their permit, reworked their drilling program, moved about a half mile away and drilled there as a down-gradient from the town's wells, and hit one of the largest gas producers in the United States. So they were happy when it was all said and done. But we just think source water protection in both groundwater and surface water should be addressed.

7.0.6, water storage age, has been omitted, and we know that many of the upcoming regulations, lead and copper revisions, disinfection byproducts review and in a

way, water age is going to become paramount. And TSS 2018 recommends no longer than five days on water age. And we believe this is in agreement with AWWA recommendations. So we would advocate to add 7.0.6 on the water age.

Another area where we spend seems like an inordinate amount of time in our work, 8.7.2, Bedding, was omitted. It's important to protect the investments of the state systems by ensuring a quality bedding material is used. This isn't always the case. And so I think rather than giving too much leeway, we dial it in and put 8.7.2 in.

And kind of dovetailing on that one is 8.7.9, which is Separation From Other Utilities, was omitted. And we find a lot of times where the water, wastewater, and then other lines are in a trench, tough to dig around them when you're making repairs, and ends up being more costly when it's all said and done than doing it -- allowing for the room to do those repairs to begin with. So we would ask for 8.7.9 to be added back in for separation from other utilities.

And that's all we really have right now. But -- and, truly, the staff has done a remarkable job in fielding all of the concerns, as well as updating this thing. It's massive. We're going to probably be doing corrections and guidance forever, but -- but -- as things change. But

there's just those last few things we thought wouldn't be too bad.

But any questions or -- I'll get out of here -- get out of your hair.

MR. HENDON: So we do have -- we do have -- where to start?

For bedding, we do have it referenced. It's just the reference that's a requirement in Section 16 (c)(i), we recommend ASTM C12 classes for bedding, for distribution and transmission pipe.

ACTING CHAIR CAHN: Okay. Which line number are you on?

MR. PEPPER: Thanks.

MR. HENDON: So good news. Thank you. Good news, we do have that one in there.

I'd be happy to go back and take a look at the question on the water age. We do have a couple of sections that do address water age as to the tank mixing requirements in Section 15(c), as well as 15(e). But -- but perhaps the best course would be for us to take your comments and provide a formal response.

MR. PEPPER: Like I say, you might want to revisit, just because of what's in the proposed revisions.

MR. HENDON: I'll take a better look at what you said with respect to that five days, and with

regards to utilities and options we can definitely take a closer look at that as well.

But looks like some of it we do have an answer to, some of it we need to take a closer look.

MR. PEPPER: I do think we do have 24 mesh solved.

MS. ZYGMUNT: Yeah, thank you for your comment. We'll take a closer look.

ACTING CHAIR CAHN: Thank you very much, Mr. Pepper.

MR. PEPPER: Anything else as it comes up, let me know, but...

MR. HENDON: If you get ARPA figured out too, let us know.

MR. PEPPER: I'm on mic.

MR. HENDON: That's a longer conversation.

BOARD MEMBER DEURLOO: We were just talking about this. American Recovery Act or something like that.

MR. PEPPER: ARPA, American Recovery -- is it Recovery?

BOARD MEMBER DEURLOO: American Recovery Protection Act.

MR. PEPPER: Protection Act.

ACTING CHAIR CAHN: Protection Act.

BOARD MEMBER DEURLOO: Protection Act,

yeah.

MR. PEPPER: And infrastructure bill.

ACTING CHAIR CAHN: I worked in munitions, ARPA is a -- is a munitions thing.

MR. PEPPER: Well, and that was part of the governor's veto the other day, because EPA just issued new ARPA guidance last week. So we're trying to wade through all of that.

MR. HENDON: It was short guidance. It was only 56 pages of the guidance.

MR. PEPPER: Small present.

MR. HENDON: Small present.

MR. PEPPER: Thank you.

ACTING CHAIR CAHN: Thank you very much.

Is there anybody on Zoom that would like to make public comments, or maybe you're not on Zoom. Maybe it's something else. It is Zoom. Is there anybody else on Zoom that would like to make public comments, and -- maybe one -- raise your hand. Gina says raise your hand.

MS. THOMPSON: Not seeing any hands raised.

ACTING CHAIR CAHN: No hands raised. I think this is probably a good time to take a lunch break. And it's 12:30. We'll come back at 1:30, if that's okay with everybody.

(Meeting proceedings recessed

12:35 p.m. to 1:43 p.m.)

ACTING CHAIR CAHN: We're going to reconvene the Water and Waste Advisory Board. And at this point, I think -- are we ready, Keenan, to open it up for Board discussion? Do I need to repeat that or -- all right.

So I'm going to open it up for Board discussion. I don't know if we want to go through chapter by chapter or whether we want to --

MS. ZYGMUNT: If I may make a suggestion. So it sounds like there were maybe some more discussion points around the 24 mesh, and maybe we could start there.

ACTING CHAIR CAHN: Sure. That's a good idea.

MS. ZYGMUNT: Does that sound good?

ACTING CHAIR CAHN: Yeah.

MS. ZYGMUNT: Okay. So, Keenan, can you remind us which section that would be?

BOARD MEMBER DEURLOO: I didn't have any more comments on 24 mesh. Did you?

ACTING CHAIR CAHN: I would like a little bit of a discussion about primacy and how -- what Wyoming would need to do to get primacy. And maybe -- that would be helpful, I think, for me.

MS. ZYGMUNT: Sure. That is a good

question, Madam Chairwoman. Based on previous conversations I've had with past staff, at this time we were not considering requesting primacy for the public water supervision system. My understanding is that past cost feasibility analyses just indicate that it would be a significant expansion of the state, the agency's budget, and of our personnel to pursue that program. And recognizing that EPA would provide some funds to help implement that program, it would still be a pretty large financial burden on the state to pursue primacy. So at this time, we do not have any intention to pursue that primacy. Of course, that could be revisited at some point in the future, but not on the radar right now.

ACTING CHAIR CAHN: And I guess I appreciate that you guys are in a position because EPA has primacy that would pretty much -- we pretty much have to do what EPA wants us to do on this one. So it doesn't sound like there's a whole lot of wiggle room. I mean, I appreciate that, you know, we do have some -- and I'm going to get mixed up which -- for discharge or overflow that we do have some -- or is it air vents? Which one is the one where we have --

MR. HENDON: There are options on tank vents on the overflows. I guess not tank vents. I apologize. There's options on the overflows for tanks.

ACTING CHAIR CAHN: Okay.

MR. HENDON: So we can do the mechanical device --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- or 24 mesh.

And then tank vents do require the 24 mesh for an elevated, ground, or buried storage tanks.

ACTING CHAIR CAHN: Okay. And, you know, I think about, you know, hundred foot high elevated water storage tank and just wonder, you know --

MR. HENDON: I think we're on the same page. I think we --

ACTING CHAIR CAHN: -- how do you get up there inexpensively? I mean, you need a crane that's able to go a hundred feet?

MR. HENDON: That is -- that is true --

ACTING CHAIR CAHN: An expensive --

MR. HENDON: -- on a retrofit, which would also be a good reason to ensure that new designs going forward on tanks are in compliance with the EPA requirements so that we're not continuing to create a burden for our communities, especially with these -- perhaps a tank and these overflows.

So there are various options with regard to pressure or vacuum release vents on tanks that entities

could pursue as well. There's also bypass vents that could be used on those drain lines in the smaller -- these smaller pipe diameter type systems. So there are numerous options that folks can pursue. And I think going forward, as I mentioned, there's the SRF set-aside funds that are going to be available, where we can provide better outreach, education, and training to our community, to our operators, to our public water systems, as well as our private water systems too, so that we can get these folks in compliance, have safe drinking water, and ensure that the design also meets the enforcement criteria.

ACTING CHAIR CAHN: And what kind of -- can you just go over the kinds of modifications that people would be doing that would require the upgrade and kinds of modifications that wouldn't require upgrading, that, you know --

MR. HENDON: Sure.

ACTING CHAIR CAHN: -- grandfathered in clause. Because I looked at the definition in the regulations, and it's not real clear to me.

MR. HENDON: Absolutely.

ACTING CHAIR CAHN: Maybe it's clear to everyone else, but to me it's clear as mud.

MR. HENDON: And you bring up a good point, that was a number of commenters kind of had similar

questions with regards to when does the permit start, when does the permit stop. Essentially if you're replacing a pump -- anything in-kind -- an in-kind replacement would not need a permit. So if you're needing -- if you had a pipe rupture and you need to go get that pipe fixed, replace a valve, address a hydrant, by all means, yes, get those things fixed, rather than waiting and coming to DEQ to get a permit.

However, if you're -- if you're doing that fix and you realize, Hey, this pipe is old, aged, and you start ripping up a number of blocks within -- number of city blocks to address this fix, then you need to come and get a permit. So generally anything over a block, half a block, we're looking -- as far as pipe distance goes, we would expect to see a permit. You're going to have a number of perhaps service connections, pressure differential, other things for us to look at and evaluate.

ACTING CHAIR CAHN: So one of the comments that I would have on your response to comments, a lot of times it just says, you know, look here for modifications.

MR. HENDON: Yeah.

ACTING CHAIR CAHN: And I guess my thought would be just put in a sentence like you said, you know --

MR. HENDON: Absolutely. And we are looking -- so internally we've discussed along with 24

mesh, along with what requires a permit, generating an FAQ page or section, so that folks know and they can get that information quickly on our website. And we can also address it within our comments -- response to comments as well. Because we think that would be a beneficial use for folks and provide them with clear -- better direction.

ACTING CHAIR CAHN: Okay. And I should have started off by saying, you know, I really appreciate all that you guys have done. I know that I asked, you know, at the last meeting that you go back to commenters and staff, and you've done that. And I really appreciate what you've done. It's really helpful. And I think it's improved. You know, I think -- and I also am glad that we extended the public comment period, because I think we got some good comments. It's a pretty --

MR. HENDON: We would agree with you.

ACTING CHAIR CAHN: This is my doctor's appointment tomorrow, so I have to get it. I'm sorry. I'll be right back.

MR. HENDON: Sure.

(Off-the-record discussion.)

ACTING CHAIR CAHN: Where was I?

MS. ZYGMUNT: I think we agree.

MR. HENDON: 24 mesh.

MS. ZYGMUNT: Yeah. And we appreciate the

feedback from the December meeting.

And, again, Keenan has done a really good job about how to do effective outreach, and we've learned some things that we'll take to new rulemaking projects. So I think we have a better product because of comment. At this point in time I think we have good responses and have had good productive discussion with commenters. Again, we'll consider the comments that Mark Pepper gave to us this morning, and come up with written responses to those comments.

But I'll turn it back over to you in terms of where you'd like to take the conversation today.

ACTING CHAIR CAHN: Okay. I guess just another sort of big picture comment that I have is, you know, there's lots and lots of very small water systems in use in the state, campgrounds, rest stops, little parks.

MR. HENDON: Absolutely.

ACTING CHAIR CAHN: And, you know, I'm concerned about -- you know, I guess my question is, is there a way of having some kind of de minimis that says if you, you know, serve less than a certain number of households, people, or size system, that we can say you don't have to follow all of these regulations? So, for instance, I'm concerned about the storage. So if -- if people have to have, you know, small -- small systems,

campground, whatever, has to have a second well or storage tank that can store -- you know, so you have to have twice as much as your daily demand, whatever the term is, and you're only being used seasonally, you know, then you can have water aging problems in the tank, because you have too much water, and then you have to dump that water out.

And so it seems like one-size-fits-all doesn't seem to work. I think a lot of the problems in Wyoming where there's lots of small water systems, a small subdivision, a small, you know, restaurant. I mean, you can think of a million situations.

MR. HENDON: Scenarios, right.

ACTING CHAIR CAHN: Yeah, scenarios. Yeah, thank you.

So I'm just wondering if there's a way of saying, okay, if you're less than this, this doesn't apply, because, you know, these aren't year-round -- I don't know if it has to be year-round. Anyways, you probably thought of this, I'm sure, so I'll let you answer, but that's my concern.

MR. HENDON: We -- so absolutely we have thought of that with regards to your transient noncommunity water systems, your RV parks, campgrounds, things of that nature. You know, there is the two-well requirement or the storage requirement, as you mentioned. It is something

that we have looked into and addressed. Internally we've discussed it. I want to say based on our internal discussions, we left the criteria as-is, as it was existing with regards to these systems. I'm not sure if Jennifer has additional ideas or thoughts with regards to these systems, on these types.

MS. ZYGMUNT: It's a good question, and it's one that's on our radar, and one that we've been talking with Mark, with Wyoming Association --

ACTING CHAIR CAHN: Mark Pepper.

MS. ZYGMUNT: Mark Pepper.

MR. HENDON: Mark Pepper.

MS. ZYGMUNT: -- about extensively and it is a big need in the state to figure out how to help these transient systems, and particularly, as we see more tourism within the state, you know, some of these seasonal facilities are seeing increased visitation. You know, they may be overloaded. They may not have originally developed the site to have their well and their septic system appropriately sited, and they grow and become a public water system well, and then they need to make some choices about how to manage water/wastewater on the property. So we're seeing a lot of challenges, and I think probably the first thing that needs to happen is we need to find resources for more technical assistance for those

facilities. And Keenan mentioned earlier that there was some legislation that opened up some state revolving fund set-aside money for the State to potentially pursue that could be used for technical assistance for these transient communities.

So we plan to continue having these discussions with WARWS and other groups, and I think the place to start would be better technical assistance to make sure they have appropriate resources and can be in compliance. I think in terms of the one-size-fits-all approach, I can absolutely understand that may be the case. I don't know that I'm able today to talk about specifics where we could make adjustments, but I think that's something that we can keep in mind as we continue to look at this rule and those systems while also making sure keeping those facilities in compliance with EPA PWSS system.

So I hear your concern. I can't give you specific commitments right now, but we will keep that in mind as we work with these transient systems.

ACTING CHAIR CAHN: Okay. I think that -- to me, that's a real showstopper. That's a really important issue. So, yeah, if you can add it, you know, next time we look at this, if -- if we don't -- I mean, I'm only one person on the Board, but if the Board chooses to pass this on to EQC, then you'll be looking at it years

down the road. But if the Board chooses not to recommend going to EQC, then I would like to see you looking at that some more.

MR. HENDON: Sure.

ACTING CHAIR CAHN: I think it's really important.

MR. HENDON: Right.

ACTING CHAIR CAHN: You know, and I think about campgrounds where -- you know, state parks, whatever, where -- so the well runs dry, you just say there's -- you shut down that campground, and say, okay, we're done for the season a little earlier, this marina, this whatever --

MR. HENDON: Yeah.

ACTING CHAIR CAHN: -- you know, we're done a little early.

MR. HENDON: Yep. There's definitely likely some options that --

ACTING CHAIR CAHN: And I'm really concerned about -- not just -- I mean, it's one thing if they're going from seasonal to permit, or they've got way more people, what you're addressing on the opposite end of the scale where they -- I'm looking at the opposite from what Jennifer's looking at --

MS. ZYGMUNT: I see.

ACTING CHAIR CAHN: -- where are we

oversizing and making it too extensive for them, because, you know, they're seasonal and transient, whatever, so...

Thanks. Okay. That's kind of a big-picture one from me.

Okay. So I'm wondering if we want to start with Chapter 10, because we didn't get to 10 on --

BOARD MEMBER DEURLOO: Section 10?

ACTING CHAIR CAHN: Section. Thank you. Sorry. Excuse me.

MS. ZYGMUNT: Madam Chairwoman, if I could make a suggestion, and it might be beneficial, if we could ask if Mr. Dickson has any big-picture comments he'd like to share.

ACTING CHAIR CAHN: Sure. Brian, do you have any big-picture comments? You'll have to go off mute.

BOARD MEMBER DICKSON: No. I'm fine the way it is.

ACTING CHAIR CAHN: Other board members have some big picture -- other comments, big picture?

BOARD MEMBER DEURLOO: No, thank you.

BOARD MEMBER COCHRAN: No.

ACTING CHAIR CAHN: So I guess my question is do we want to go through chapter -- chapter, thank you -- Section 10 on, or do we want to start back at the beginning again with my questions?

So I don't know. Keenan, whatever works best for you.

MS. ZYGMUNT: Madam Chairwoman, I think we'll leave it to the Board's preference. You know, we are happy to answer any questions and thoughts that we would like to discuss. We are not planning on kind of going through a page-by-page, line-by-line review. I think given the presentation we heard this morning, I think we can go section by section, just open it up to questions or comments in that section. We can move forward that way.

ACTING CHAIR CAHN: What do you guys prefer, starting with 1 or starting with 10?

BOARD MEMBER DEURLOO: I like to plow new ground.

ACTING CHAIR CAHN: Plow new ground? Okay. We'll start with 10.

BOARD MEMBER DEURLOO: Plow new ground, sometimes plant the seed and -- so answer to your question, start at Section 10?

ACTING CHAIR CAHN: Start at Section 10. So on page 12-16 of the green copy.

BOARD MEMBER DEURLOO: 12-16.

ACTING CHAIR CAHN: All right. So I -- my first question is on page 12-18. It's line 818. And I understand the change made was because EPA required that.

It deleted "for plants for the maximum daily flow of 50,000 gallons per day or more..." And that is a little bit of my one-size-fits-all. We had something that allowed us to rethink that. So maybe you can talk about the discussions with EPA on that.

MR. HENDON: Sure.

ACTING CHAIR CAHN: And whether there's any wiggle room.

MR. HENDON: Sure. And with regards to the meters, we did a search for meters and meter cost. We didn't see a significant cost or rise with regards to a meter requiring instantaneous flow rate. They're going to be -- the meter would not provide additional burden to the entity or the user to provide an instantaneous flow rate. With it being a requirement with EPA from their guidance, we went ahead and incorporated that change.

ACTING CHAIR CAHN: Okay. And then I just have -- and I'll go over -- and I'll get with you on a few other editorials later. Okay. Let me just look -- I've got to look in all the places for Section 10 to see what I have. So in the response to comment from Ty Ross, on 10(b)(i), on page 16 of the comments. I think the reference to 10(b)(lv) is wrong. I think it should be 10(b)(ii).

That's the same doctor's office. I'm sorry.

BOARD MEMBER DEURLOO: Yeah, take it. You do what you got to do.

(Off-the-record discussion.)

ACTING CHAIR CAHN: Really sorry.

MS. ZYGMUNT: Madam Chairwoman, we're in agreement with that correction, and we'll modify that --

THE REPORTER: Excuse me.

MS. ZYGMUNT: We're in agreement with that correction, and we will modify that response to comments.

ACTING CHAIR CAHN: Okay. And then I guess it's the same -- let's see, page -- it's the same question about EPA comment on page 17, where the greater than .5 million gallons per day or population greater than 3300, that also disappeared, got deleted. And I'm wondering -- I'm wondering if that's something with wiggle room.

So there was language, maybe it's in the -- maybe it's in the 10 States Standards.

MR. HENDON: Gotcha. In the -- so on that one, this was a comment where we were requiring -- essentially EPA's giving us an off-ramp to allow either/or.

ACTING CHAIR CAHN: Okay.

MR. HENDON: So we viewed that as a win --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- versus the language that we had. And so they were saying you keep the language you

have, you're going to be doubling up your meters and providing an additional burden to your communities. But if you go with what we're proposing, you can get away with just a meter, or you can continue to have two of these meters.

ACTING CHAIR CAHN: Okay. So they required getting rid of that language --

MR. HENDON: They said, Hey, you know --

ACTING CHAIR CAHN: Give and take.

MR. HENDON: Yeah, it was a little give and take. They said, Hey, we can give you a bit of an off-ramp here with regard to benefits to your users.

ACTING CHAIR CAHN: That's all I have on Section 10.

MR. HENDON: Okay.

ACTING CHAIR CAHN: So...

Okay. Section 11, Source Development. And I'll ask the Board, please interrupt me or just raise your hand or -- if you have something on Section 10.

BOARD MEMBER DEURLOO: Sure. I'm good.

BOARD MEMBER COCHRAN: I have a comment on Section 11, if you're moving there.

ACTING CHAIR CAHN: Okay. Great.

BOARD MEMBER COCHRAN: Page 12-22, line 978, it talks about a 10-foot setback for property lines.

It seems to me you need to be more consistent with your other setbacks, because you're either putting the burden on another landowner not to install things you're setting back from, or you're putting it outside the operator's capacity to stop those things from occurring. So I think they either need to have agreement from the other landowner that those things won't occur or your setbacks need to be consistent with your other setbacks.

MR. HENDON: Okay. And so in looking at page 12-22, you would recommend perhaps it follows the setbacks kind of at the top of the page, perhaps, with the --

BOARD MEMBER COCHRAN: Yeah.

MR. HENDON: -- 50-foot.

BOARD MEMBER COCHRAN: Or the -- you know, you've got 500 feet from absorption field.

MR. HENDON: Yeah. And I think that -- yeah. That is -- that is definitely something for us to look at and consider, and I think we're probably looking at from a construction standpoint with regards --

BOARD MEMBER COCHRAN: At least design standards. If they can get agreement from the other landowner, I'm not going to put any of those things in there, that works for me too, you know.

MR. HENDON: Right.

BOARD MEMBER COCHRAN: Thank you, Madam Chair.

ACTING CHAIR CAHN: Anyone else from the Board have comments on Section 11?

Okay. So I have questions in terms of the 10 States Standards. Why was 3.2.1.1, the source capacity, why was that removed? So that is under Quantity, Source Capacity, "The total developed groundwater source capacity, unless otherwise specified by the reviewing authority, shall equal or exceed the design maximum day demand with the largest producing well out of service."

MS. THOMPSON: That was in response to a comment from Mr. Ben Jordan --

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: -- who noted that 3.2.1.1 is not agreed -- there was a conflict with I believe it was Section 11(e)(i). And so we looked at the concern and took out the reference --

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: -- because of a conflict later in the section.

ACTING CHAIR CAHN: Okay.

MR. HENDON: Yes, I think we took out the reference to the 10 States Standards, but we already -- we essentially have that language within Chapter 12 under

(e)(i) on page 12-21.

ACTING CHAIR CAHN: All right. Then the -- so let's see. I think -- I have a note that 3.2.6.5 in the 10 States Standards conflicts with line 1067. And I -- Gina, thank you for sending me a copy of this. It was really helpful for the review to have the 10 States Standards.

So 3.2.6.5 is limestone or sandstone wells. Actually, maybe that's now -- that's been changed. 1067 has been changed. Right or not?

MR. HENDON: I think it may get changed with that proposed language change.

ACTING CHAIR CAHN: Do you remember what it was?

MR. HENDON: I'm going to guess it got moved down within the document.

ACTING CHAIR CAHN: Oh, is this the one where -- I'll have to see the new wording.

So this is for wells without permanent casing. And is this where the -- we going to be grouted into the next -- to the formation, right?

MR. HENDON: Yeah, this is in order to comply with SEO.

ACTING CHAIR CAHN: Okay.

MR. HENDON: So essentially the casing's

going to extend through that layer, and will be grouted in that layer.

ACTING CHAIR CAHN: Okay.

MR. HENDON: And then extend 10 feet minimum --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- into that target aquifer to comply.

ACTING CHAIR CAHN: So this 10 feet -- in the top 10 feet, that's gone now, that's on my --

MR. HENDON: Yeah.

ACTING CHAIR CAHN: Okay. Good. Thank you.

MR. HENDON: That should be gone.

ACTING CHAIR CAHN: Okay. Good. Thank you.

But so then is it necessary to have 3.2.6.5 for limestone or sandstone wells to have the 50 feet, "Where the depth of the unconsolidated is more than 50 feet, the permanent casing shall be firmly seated in uncreviced unbroken rock." And "Grouting requirements determined by the reviewing authority."

And if it's "...less than 50 feet, the depth of casing and grout shall be at least 50 feet or as determined by the reviewing authority." So I guess that gives us some

flexibility.

MR. HENDON: I think it provides flexibility.

ACTING CHAIR CAHN: Okay.

MR. HENDON: And the design engineers to work with our district engineers to make their case, either -- one way or the other.

ACTING CHAIR CAHN: Okay. And then the next thing is in citing 3.2.7 on line 838. It's a little bit confusing for me, with -- if you cite 3.2.7, but then say -- in my mind that implies all of 3.2.7, but I think you're not implying, because then it is broken down to 3.2.7.3 and .4 and .6 and .7 and .8. So I'm wondering if -- and all that 3.2.7 says is a title, Well Pumps, Discharge Piping and Appurtenances. So I'm thinking you would delete the line that says 3.2.7, Well Pumps, Discharge Piping and Appurtenances.

MS. THOMPSON: Yeah. We can remove that from the paragraph.

ACTING CHAIR CAHN: Okay. Good.

And I guess that, in my mind, kind of brings up an issue of checking all of the citations in each section of the TSS to make sure that there isn't an overlying -- you know, a bigger --

MR. HENDON: A bigger -- yeah, we're

covering something more than we need to.

ACTING CHAIR CAHN: It implies that somebody's confused, so just to check.

Okay. All right. So then on line 845, it's Section 11(c). So first -- okay. It just -- I'm thinking how this flows. The first thing we're talking about is source development, surface water intake structures, and then we go to service connections and groundwater source development, isolation distances, but between those we have transmission lines interconnecting process piping. And all that stuff seems kind of out of place. So it seems like transmission and piping should come after source development. So it just doesn't flow to me.

MR. HENDON: Okay.

ACTING CHAIR CAHN: So I would suggest moving that section.

MR. HENDON: Kind of a layout?

ACTING CHAIR CAHN: Yeah.

MR. HENDON: Okay.

ACTING CHAIR CAHN: So it's kind of organizational, as you're going through and thinking about this stuff --

MR. HENDON: Sure.

ACTING CHAIR CAHN: -- going from the source out to --

MR. HENDON: So you go from the --

ACTING CHAIR CAHN: -- the transmission -- you know, you're going from the --

MR. HENDON: To the transmission --

ACTING CHAIR CAHN: The source to --

THE REPORTER: One at a time, please.

ACTING CHAIR CAHN: Okay. Sorry.

MR. HENDON: Sorry, Kathy.

ACTING CHAIR CAHN: Okay. I'll let you guys figure out where it belongs, but...

Okay. Then I think there was a comment made -- I don't remember who made it -- on line 938, which is Section 11(b)(i). That the language -- so the language reads "Proposed designs shall include a minimum of two wells supplying twice the daily demand, or one well and finished water storage that together equal twice the maximum daily demand."

And I think the question really is -- I know the answer, but the way it's written, it could -- you could argue each well would supply two times the daily demand. And I think what we mean is combined wells supply two times the daily demand. So I think the problem is with the wording "two wells supplying twice the maximum daily..." So I think we can either say two wells together supplying twice the daily demand, or two wells combined, or something

in there to indicate that it isn't each well supplying it two times, so...

And then --

BOARD MEMBER COCHRAN: But it is each well supplying once.

ACTING CHAIR CAHN: Yeah.

BOARD MEMBER COCHRAN: You can't have one well supplying one and three-quarter and one well supplying a quarter.

ACTING CHAIR CAHN: Yeah, you can. Because it's the --

BOARD MEMBER COCHRAN: Not if your big one shuts down.

ACTING CHAIR CAHN: Well, so you have twice the daily demand you have together with two wells. So if one -- oh, so you're saying if one -- oh, if one's only half of the daily demand, that --

MR. HENDON: Yeah, I think they both need to supply twice the maximum daily demand so that should one go down, the other is capable of providing the same supply.

ACTING CHAIR CAHN: So they each have to supply the daily demand.

MR. HENDON: Yes.

ACTING CHAIR CAHN: So then it would be -- so if you had one smaller well, now you're going to drill a

new well to increase your capacity, you can't have one supplying a quarter of the daily, the new one supplying --

MR. HENDON: The combination --

ACTING CHAIR CAHN: -- 1.75.

MR. HENDON: -- gets you -- gets you all the way there? No. Short answer is no. It would need to be two wells providing twice the maximum.

ACTING CHAIR CAHN: Each well.

MR. HENDON: Each.

ACTING CHAIR CAHN: Each well provides twice the daily demand.

MR. HENDON: Each one.

ACTING CHAIR CAHN: So now you have four times the daily demand.

MR. HENDON: So I think that goes back to your original concern with regards to smaller systems.

ACTING CHAIR CAHN: Yeah. Definitely.

MR. HENDON: And an off-ramp for smaller systems.

ACTING CHAIR CAHN: Especially now I understand it to mean --

MR. HENDON: Yeah, for your smaller systems.

ACTING CHAIR CAHN: But if you have one well in the finished water storage, you only have twice the

maximum daily demand. So that doesn't make sense to me that the wells -- two wells would have to provide twice as much as a well and storage -- finished storage water tank. That doesn't make sense.

MR. HENDON: Noted. We can take a look at it.

MS. ZYGMUNT: We understand the concern.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: But, again, there's some good reasons for requirements, we'll take a look at the wording and make sure first that it's clear what we mean, and then recognize that ties into your one-size-fits-all comment.

ACTING CHAIR CAHN: The next comment I have is on Table 1, at the bottom of page 12-21. So if you go and reference to Chapter 15, the septic tank minimum distance to well for septic tanks for water supply wells is a hundred feet from a public water supply to a septic. So I'm wondering why we have 50 feet. And I'm going to pull up Chapter 15.

MS. THOMPSON: Did you mean Chapter 25, the small wastewater chapter?

ACTING CHAIR CAHN: Yeah, 25.

MS. THOMPSON: Okay.

ACTING CHAIR CAHN: Sorry.

MS. THOMPSON: That's okay. I wanted to

make sure --

ACTING CHAIR CAHN: I can't read my own handwriting.

MS. THOMPSON: I wanted to make sure, because I was thinking we had rescinded 15.

ACTING CHAIR CAHN: Sorry.

MS. THOMPSON: But it's --

ACTING CHAIR CAHN: It's so hard to keep track of what's in -- there's so many rules we've looked at over the years, it's hard to keep track of the chapter names. So, yes, I meant Chapter 25. I apologize. I was just going to pull it up, so I have it.

Okay. So Chapter 25 is septic tanks, soil absorption systems, and other small wastewater systems. And it's requiring a hundred feet so -- and I can -- I can search for that, if you want.

MR. HENDON: If you look at page 25-8, the top line for wells, the offset distance for the well to a septic tank is 50 feet. To the absorption system in Chapter 25 shows 100 feet. And the proposed Chapter 12, we have 200 feet.

ACTING CHAIR CAHN: Okay. I'm looking at septic tank, not the absorption. So looking at Table 4 in Chapter 25, Public Water Supply Wells, minimum horizontal setbacks for domestic wastewater in feet from public water

supply well to a septic tank or equivalent is a hundred, and here it's 50. So I'm on -- I don't have line numbers, but it's in -- it's the second row in Table 4.

MR. HENDON: Yep. I agree with you.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: We will review both tables and make any corrections to Chapter 12.

ACTING CHAIR CAHN: Okay.

MR. HENDON: Thank you, Lorie.

ACTING CHAIR CAHN: And how do you know -- I'm not sure where I -- can't always follow my thinking.

So small wastewater systems defined -- oh, okay. In 35-11-103(c)(ix), a single residential unit serving no more than four families or 2,000 gallons per day -- gallons sewage per day is for a small wastewater system, and I'm wondering if that might be a place to help us with small public water supplies. You know, I don't know.

MR. HENDON: That 2,000 --

ACTING CHAIR CAHN: I don't know what the answer is for how to define a de minimis that could be more flexible. So that's a place to look.

MS. ZYGMUNT: Yeah. I 'm understanding your comment. We can consider that, but that might be a long-term project, particularly if we're going to propose statute changes, that's going to require legislative

authority to do that. But we'll think about that. We understand what you're asking us to consider.

ACTING CHAIR CAHN: Okay. And then in Table 12, septic tank distance -- isolation distance for domestic sewage flows greater than 2,000 gallons per day, septic tank you have 50 feet. And then Table 7 of Chapter 25, which I have to find. I believe it's a hundred -- hundred feet again. So there's a disconnect.

MS. ZYGMUNT: Yeah. We will do the same corrections there.

ACTING CHAIR CAHN: Next comment -- question I have is on line 6961, says --

THE REPORTER: Lorie, can you keep your voice up when you read.

ACTING CHAIR CAHN: Sorry. Okay.

So line 60 talks about -- well, starting at line 57. So it's 11(e) -- so hard to do this -- (ii)(C). "If domestic wastewater is the only wastewater present and the design domestic sewage flow is greater than 10,000 gallons per day, or non-domestic wastewater is present the required isolation shall be determined by a subsurface study in accordance with the requirements with Water Quality Rules Chapter 3, Section 17(b), but shall not be less than those required in Tables 1 and 2 of this Section."

So I wrote I'm confused because when I went to

Chapter 3, Section 17(b), public water supplies are exempt from 3-17(b) in the opening paragraph Section 17, unless I misunderstood it. Maybe you can --

MR. HENDON: I have this is the --

ACTING CHAIR CAHN: I don't have it pulled up. Maybe you can pull it up, Gina, and look at it.

MS. THOMPSON: This particular one I know we discussed it with our attorney. I'm just trying to find the response, because she explained -- and I don't want to word it improperly and confuse the record, so...

ACTING CHAIR CAHN: Do you want to get back on that one?

MS. ZYGMUNT: We will note it. Again, I'm recalling that conversation with our attorney as well. I'm feeling confident that that is the appropriate language, but we will double-check that --

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: -- and run it by Nicole as well.

ACTING CHAIR CAHN: Get back with us on that.

MS. ZYGMUNT: We can respond back to the Board at some point, yeah.

ACTING CHAIR CAHN: Okay. Great. And again I'm going to bring up the acidizing section. Where

does that start? Oh, it starts on line 993. And last meeting we talked a little about -- little bit about acidizing, and that there was a situation, was it in Gillette, where DEQ thought the problem was from acidization procedures, but then it turned out not to be. And that that had brought up issues that hadn't maybe addressed.

And someplace else in here, in this chapter, there's actually -- no, it's in response to comments, where you say, well, we're not going to address that because it doesn't happen very often in Wyoming, or wherever. So I just want to point out that if this acidizing -- you know, we're talking about a page on acidizing, if it hasn't happened yet. So it is kind of regulating for the unhappened [sic] or the anticipated issue, whereas in the other place, you know, you bring up we don't have to worry about it, it doesn't happen much in Wyoming. So in my mind that's a little bit of a --

MR. HENDON: A disconnect?

ACTING CHAIR CAHN: -- disconnect. And I would suggest removing this acidizing stuff, and maybe it belongs in the policy that you're, you know -- because --

MS. ZYGMUNT: The concern's noted. And we can look in the response to comments and see a further one that you're thinking of, if we need to provide some more

rationale. It is my intent to keep the well acidization language in the rule at this time. I feel, again, the Gillette-Madison, while it ultimately did not prove to be the acidizing activities, it does raise some concerns that we could tighten up our regulations to make sure that we are protecting public water supplies, individual homeowners' wells, during those activities, even if it's not occurring very often or we think it's unlikely to occur. And I'm speaking partly on behalf of my predecessor who felt that it was important to keep this language in the rule.

ACTING CHAIR CAHN: And I guess I just feel like it's new -- a new day, you know.

MS. ZYGMUNT: I will note that the Board approved this language in 2019.

ACTING CHAIR CAHN: Yeah. I know that.

MS. ZYGMUNT: So we have had these discussions before. So at this time I'm not willing to take that language out of the rule. But I understand your concerns, and we can be consistent in our rationale.

ACTING CHAIR CAHN: And especially with trying to keep the rules concise --

MS. ZYGMUNT: Sure.

ACTING CHAIR CAHN: -- and shorten the rules, so -- and if it -- if you had any policy and then it

were to become an issue down the road -- you know, if you have it in policy, then it's in there for people as a guidance.

MS. ZYGMUNT: The key there is if it's a policy, it is not regulatorily enforceable. And so if we had concerns where we needed to take actions on these rules, it needs to be in the rule and not a policy.

ACTING CHAIR CAHN: Okay. I'm trying to remember I just have a note that on 1062 -- 1061, I think Ben Jordan had brought up that gravel pack wells. It's not really appropriate to have them gravel packed. You know, so I think -- I'm not -- I can't remember what your response was, but I think the response was you aren't going to change it.

MR. HENDON: We're planning not to change it. But if you also notice, we did change the language to include filter pack. Depending on the documents that you utilize or you read, gravel pack is a common term when doing wells. So filter pack is another terms that's used with regards to wells and providing that packing material. So we've provided both options, I guess both conventions with regards to the section. Going through the 10 States Standards, everything they reference is gravel pack.

ACTING CHAIR CAHN: So do they have a definition of gravel pack? We're not talking about big

pieces of gravel, as -- which would not be appropriate, so...

MR. HENDON: Yep. And also note we did talk this comment over with Ben, and he was -- he thought our solution was a good one.

ACTING CHAIR CAHN: Okay. All right. That's fine with me, then.

MR. HENDON: And I would say that when we met them, with their commenters, we did come to a mutual understanding.

ACTING CHAIR CAHN: Okay. Great. That sounds good.

MR. HENDON: So what we were intending to move forward with.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: And, Madam Chairwoman, if I could interject. We're at 2:30, just a little bit past. I think we have about an hour or less for Mr. Deurloo to get to his commitment. I would like to make sure we review the rest of the rule to make sure we get the Board's advice on all the sections. So while I don't want to rush the conversation, this is productive, I would just like to keep an eye on the time to make sure we can accommodate the board member.

BOARD MEMBER DEURLOO: Let me see if I can

push it back a little bit too.

ACTING CHAIR CAHN: We have the room until 4:00; is that correct?

MS. THOMPSON: Uh-huh.

MS. ZYGMUNT: Yes.

BOARD MEMBER DEURLOO: I have until 4:00 too. So thanks.

ACTING CHAIR CAHN: And then -- okay. On line 1089, on page 12-25, with regards to flowing wells. It says "Overflows shall discharge a minimum of 18 inches above grade..." and those wells, it's going to be hard to protect from freezing, so how do you -- you know, if the water's not flowing back into the well, why -- why couldn't you also, you know, allow a below-ground vault or be in the side of a hill or being partially buried or something that can allow additional ways to keep the wells from freezing, because if you have -- if you're not, you know, you get a cold snap and got water in that part of the well.

MR. HENDON: We can look at that comment and see if we do not have it addressed somewhere else in the section.

ACTING CHAIR CAHN: And then on line 1095, in the mineralized water, the -- one of the commenters wanted it to be put up to a thousand, and we have it defined back in the front as 500. So I guess one of the

things -- and this might not be the place for it, but the total dissolved solids is a secondary standard from EPA, and not at 500 and not a primary drinking water standard, so I'm just thinking -- and they consider anything over a thousand to be un -- unfit for human consumption. So there are mineralized water sources that people are using in Wyoming. So when we get back to the definition, if we could allow up to the thousand, you know -- so are we -- because it's being used in the state -- it's being used successfully, so --

MR. HENDON: Yeah, I think it was -- so the -- we did discuss this with the commenter as well. We did leave it at the 500, as existing in our current Chapter 12. Of the 16, 17 or so commenters, we only did receive the one comment with regards to mineralized water. We did leave it at the 500 secondary requirement.

MS. THOMPSON: Additionally, in the comment response we are requiring treatment. We're just saying if you are encountering that mineralized water with the TDS, we just want to protect that new well from that. So we aren't requiring treatments down to -- we aren't requiring treatment of that mineralized water.

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: It's that we don't want it mixing with other nonmineralized water.

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: Because obviously you if hadn't planned on treating it and you had an incident, now you get to treat, right?

ACTING CHAIR CAHN: Okay. But then we go down to line 1103, applications that propose to use mineralized water as a public water supply shall demonstrate the treatment will comply with the Drinking Water Quality Standards required by 40 CFR. Now, 40 CFR 141 has both the secondary and primary drinking water standards in it. So if you say you must comply with this, now you're taking a secondary standard and saying you must comply with a secondary standard. And I'm -- it seems like -- in the -- it seems like that needs to be reworded. So maybe you say shall demonstrate the treatment will comply with the Primary Drinking Water Quality Standards required by 40 CFR 141. So you're not implying they're going to have to treat to a secondary standard, so...

MS. ZYGMUNT: We'll look into clarifying that.

ACTING CHAIR CAHN: On line 11 -- 1112, so 1-1-1-2, (viii), the casing shall be a required size to convey liquid. I think the word "size" is kind of indeterminate. Are we talking about length? Are talking about, you know, interior -- inside diameter, whatever? So

perhaps I think you're meaning diameter. So maybe just change it. I don't know if you mean -- I'm okay with either -- just leave it at diameter. Not inside or outside, but just diameter.

MR. HENDON: Okay.

ACTING CHAIR CAHN: And then I would -- after pressure -- so "Casing shall be of required diameter to convey liquid at a specified injection/recovery rate and pressure," then you had ", shall be a required size..." So I think you can just go "comma and" to allow for sampling.

So -- and then I think then Jordan had mentioned in one of his comments that all of (viii) could be -- and (ix) could be deleted if you incorporated the 10 States Standards 3.2.4. And so I had -- I didn't understand why you wouldn't just incorporate by reference 3.2.4.

BOARD MEMBER DEURLOO: You want this here? Anthony, you want this?

MR. RIVERS: Are you done with it?

BOARD MEMBER DEURLOO: Yeah. Go ahead.

MR. RIVERS: Thank you.

BOARD MEMBER DEURLOO: Thank you.

ACTING CHAIR CAHN: I mean, I guess that's something just to take away and not necessarily answer today. But I thought, you know, if all of that -- all Section 3.2.4 looked good, since you're already

incorporating by standard -- by reference --

MS. ZYGMUNT: We'll look at that one, Madam Chairwoman.

ACTING CHAIR CAHN: Okay. On line 1179, in your response to comments you said you would change this to say the finished grade should slope at 1 inch per foot, and it didn't get changed in my copy, so just -- I'm sorry. I said see my note, now I don't know where my note is. Sorry.

Okay. Okay. I have a question on line 1198, where it says "Each well shall have a device capable of measuring the total well discharge and shall have a device capable of measuring the total discharge from the field if there's more than one pump in operation. And I just -- I don't understand why the total well filled -- like if each well meant -- it's just a question. I don't understand it. If each well measures its flow, why need each well to measure total discharge from the whole field? Why wouldn't you just add them up? So I'm missing something.

MR. HENDON: Yeah, I thought we changed this.

MS. THOMPSON: If that's easier, we had a discussion with the commenter where -- because it was one of Mr. Jordan's comments.

MR. HENDON: Yeah, I thought we changed

this to just a meter at each well.

MS. THOMPSON: I thought so too.

ACTING CHAIR CAHN: Okay. Great. Good.

MR. HENDON: So to do just what you said.

ACTING CHAIR CAHN: Okay. Great. I missed that.

MR. HENDON: I thought we changed that, but --

ACTING CHAIR CAHN: Okay. Good. Thank you. It's a little hard when I think those changes came in last night or something. Okay.

BOARD MEMBER COCHRAN: Madam Chair.

ACTING CHAIR CAHN: Yes.

BOARD MEMBER COCHRAN: You guys already have a requirement to meter at each well. I wonder if this one is more towards you need to measure the total -- or, you know, some way to calculate the total field.

MR. HENDON: We can look at that and see if that -- if it's just capable under meter at each well, or -- because most systems should already have -- theoretically should have this data and the information and technology available to capture that well field data and provide that information.

BOARD MEMBER COCHRAN: That's why I thought this one was more leaning towards the total aquifer --

MR. HENDON: Gotcha. Gotcha.

BOARD MEMBER COCHRAN: -- production.

MR. HENDON: We'll look at it, clarify it.

ACTING CHAIR CAHN: I have one more on Section 11, and it's page 12-28, line 1240 to 1242 and I believe in the response to comments you have said you'd make a change, but I don't see the change in my copy, so...

MR. HENDON: Thank you.

ACTING CHAIR CAHN: Okay. That's all I have. Oh, wait a minute. One more.

For line [sic] 12-84, (vii), very last part of the chapter, it says "Spring boxes shall comply with the finished water storage requirement of Section 14 of this Chapter," And I believe they're in Section 15.

MR. HENDON: You are correct.

ACTING CHAIR CAHN: Okay.

MR. HENDON: Yep.

ACTING CHAIR CAHN: And let's see, this brings up my concern about small systems. So if springs don't supply fire water, do they need these requirements, so no air vents and all these associated problems with that 24 mesh screen and water levels in the spring aren't going to fluctuate very much, half a foot or something. So it seems like here's another example of where maybe we don't have to --

MR. HENDON: Again, I think we have to ensure we're providing design standards that comply with the enforcement agency.

ACTING CHAIR CAHN: Okay. Enough said, huh?

MR. HENDON: So we can --

ACTING CHAIR CAHN: See if there's wiggle room.

MR. HENDON: We can pursue those options, but, again, I would hate to put an entity behind the 8-ball and have to pursue additional costs to upgrade their system.

ACTING CHAIR CAHN: Okay. All right. Section 12.

So I hope I'm going to get through these. I'm afraid by 3:30 I'm not, but I'm trying. I don't want to speak too fast for Kathy.

Okay. Section 12, the list of TSS things we're citing are out of order, so it jumps from 3.4. -- 4.3.4.9 to 4.3.1. And 4.3.4.2 out of place. And 4.36, those are out of place.

MS. ZYGMUNT: We'll double-check the order.

ACTING CHAIR CAHN: Then, yeah, 4.4.3 is out of place. (A), (b) and (d) are out of place.

MS. THOMPSON: We can go through and make

sure that is in the correct order.

ACTING CHAIR CAHN: Then when you list 4.6 on line 1302, when you list 4.6 through 4.6.14, that is all of 4.6. So I think you should just state 4.6.

Then on line 1300, it says 4.4.5 --

THE REPORTER: Can you repeat those? I'm sorry.

ACTING CHAIR CAHN: Sorry.

THE REPORTER: They just run together.

ACTING CHAIR CAHN: Okay. Line 1300, it says 4.4.5 through 4.4.5, so it's the same thing.

MS. THOMPSON: So that's going to appear several times in the remainder of that paragraph. So we can go through and make those shorter as appropriate, if there's -- if it's not including the whole section, we would leave it in, but if it is including that whole section, we'll take out that "through" for consistency with how we're citing it in the rest of the chapter.

ACTING CHAIR CAHN: And then I note that when it's 4. -- no, you fixed that. Okay.

And then same thing with 9.3. It implies all of it. So it should probably say through whatever. Okay. I'll let you guys. I'll move on.

MS. ZYGMUNT: We'll do a thorough review of all the TSS citations and make sure they're clear, so I

don't think we need to spend our time going through each of those, recognizing that those are really good catches. We will ensure we do a thorough review of those.

ACTING CHAIR CAHN: Okay. On line -- let's see. Page 12-36, I have a note -- oh, it just says -- I think it could be changed to the maximum feed point backpressure shall not exceed 110 psi unless a chlorine solution pump is used, because then you go on "Where the backpressure exceeds 110 psi, a chlorine solution pump shall be used." I think that can just be shortened. Would mean the same thing.

MS. ZYGMUNT: To the back -- I'm sorry. Could you read --

ACTING CHAIR CAHN: Okay. So after not -- line 1581, after 110 psi, it would just state "unless a chlorine feed solution pump gets used," and then get rid of the next sentence.

MS. ZYGMUNT: Yep. Thank you. Understood.

ACTING CHAIR CAHN: I can go over this other stuff with Gina. Go over this with Gina. Okay. That's another one for Gina.

Okay. Line -- page 12-39, line 1748. This -- I found reading this thing about -- about pipe diameters really confusing to read, and so is it additional pipe length above the minimum may be required in accordance with

the manufacturer's guidelines rather than additional pipe diameters above the minimum? So -- the whole thing of consisting of a minimum of 10 pipe diameters use straight pipe upstream, are we talking about --

BOARD MEMBER DEURLOO: Taking a 10-inch -- you have a 10-inch pipe, turn it on the side, it's going to be 10-inch -- how many?

BOARD MEMBER COCHRAN: Needs to be a hundred inches above.

BOARD MEMBER DEURLOO: Needs to be hundred inches above.

ACTING CHAIR CAHN: So could we say the piping configuration shall consist of a minimum length equivalent to 10 pipe diameters?

MS. THOMPSON: I believe that language is consistent with the EPA guidance manual. I believe that they use the -- that's how they are gauging it --

ACTING CHAIR CAHN: Okay. All right.

MS. THOMPSON: -- is in pipe diameters.

BOARD MEMBER DEURLOO: Pretty typical engineering speak.

ACTING CHAIR CAHN: Okay. Good.

All right. Page 12-41, line 1823. I don't think there is hydrofluosilic acid. I think it's hydrofluorosilicic acid. So I would spell it

h-y-d-r-o-f-l-u-o-r-o-s-i-l-i-c-i-c. And same on line 1831. I Googled that and couldn't find it.

BOARD MEMBER DEURLOO: You're amazing.

ACTING CHAIR CAHN: I'm a nerd.

BOARD MEMBER DEURLOO: Yeah.

ACTING CHAIR CAHN: I'm a grammar nerd. I'm the person who corrects books that I buy. It's a curse, believe me.

Okay. I can go over these ones with Gina.

On line -- on page 12-43, line 1894, the word -- and the next line, the word "absorption" with a B, and absorb is used. But granulated activating carbon adsorbs, not absorbs. So those should be adsorption and adsorb.

On page 12-44, line 1950, where you mention the membrane filtration guidance manual, which I know is in the back, but in order to find it in the back, could we add that it's U.S. EPA Membrane Filtration Guides so that somebody could go to the back under U. S. EPA?

MS. ZYGMUNT: We can do that.

MR. HENDON: Yeah.

ACTING CHAIR CAHN: Okay. All right. Then on line 1964, we talk about "Bag and cartridge filters shall comply with following requirements:" and then we say "Facilities that proposed bag or cartridge filters shall comply with the procedures..." So it seems like there's

some redundancy there. So maybe Gina and I can work on how to shorten that up. Maybe bag and cartridge filters shall comply with the following requirements, and then (i) would be "...procedures identified in Section 6 of this Chapter."

MS. ZYGMUNT: Uh-huh.

ACTING CHAIR CAHN: So I thank you for fixing the -- the reference was for membrane filters, should have been for bag and cartridges,, so good catch there.

On line 2006 on the next page, you were going to add "or shall demonstrate that combined filtration and disinfection shall provide 3-log removal" and that didn't get added on my copy.

MS. ZYGMUNT: Uh-huh.

ACTING CHAIR CAHN: Okay. The next question I have is on page 12-46, line 2030. And we talk about simple well systems. And so it says "The sanitary and laboratory waste from water treatment plants, pumping stations or simple well systems shall not be recycled to any part of the water plant." So my question is what's a well system -- simple well system and where's it defined, and what have you done differently for a not simple system? So is there -- is there -- if it's not simple, what is it?

MR. HENDON: We'll look into that and get back to you.

ACTING CHAIR CAHN: Okay. All right. Chapter 13. Section -- Chapter -- ah, Section 13.

BOARD MEMBER DEURLOO: I have just a couple on 12.

ACTING CHAIR CAHN: Okay.

BOARD MEMBER DEURLOO: Minor. Madam Chair. So on page 12-33, line 1465, it states that "...two identical pumps shall be provided." I might recommend that say "...two pumps with similar specifications," rather than being identical. Sometimes they go out of stock, you know.

MR. HENDON: You can only get what they got.

BOARD MEMBER DEURLOO: Yeah. Then just kind of a note for punctuation on 12-37 -- on page 12-37, I recommend consistency. I see you have (ii), and then you go down (a) ends with semicolon, (b) ends in semicolon, and the (d) you stop with the semicolons. It should be semicolon, semicolon all the way down, and then the period isn't until the very end of the listing.

MS. THOMPSON: We'll check that to make sure that there aren't any weird sentences in there, and we'll correct the construction of the grammar at the end as well.

BOARD MEMBER DEURLOO: It's all over the

place, I've noticed it. I'm only pointing it out on this page, but there's missing semicolons and colons.

MS. ZYGMUNT: Mr. Deurloo, what page is that?

BOARD MEMBER DEURLOO: This one's 12-37.

MS. ZYGMUNT: Thank you.

BOARD MEMBER DEURLOO: If I can just set somebody down for an hour and I go through every one of them.

MR. HENDON: Yeah. Thanks.

BOARD MEMBER DEURLOO: I had something else, but it was minor. No big deal.

ACTING CHAIR CAHN: Go ahead.

BOARD MEMBER DEURLOO: I don't remember where it was.

ACTING CHAIR CAHN: Well, interrupt us if you think of it.

Any other Board comments on Section 12?

BOARD MEMBER DEURLOO: No, ma'am.

ACTING CHAIR CAHN: Okay. Hearing none, Section 13, so...

BOARD MEMBER DEURLOO: 14 -- oh, 13.

ACTING CHAIR CAHN: 13. In line 2094, 5.1.11, it says "...herein incorporated by reference for day tanks," but 5.1.11 is day tanks. So I think we can

delete "...is herein incorporated."

MS. THOMPSON: I see that happening in that section. We will take that out.

ACTING CHAIR CAHN: Okay. I'm on Section 14. We might actually get through Section 16 today. Okay. Pumping Facilities. So line 12 -- on page 12-49, the very top of the page, line 2165 through 2167, (iv). And we're talking here about "Pump design shall comply with the following requirements:" It seems like to me -- and I'm not an engineer, but "The calculated total dynamic head for pumping units shall be based on pipe friction, pressure losses from pipe entrances, exits, appurtenances such as valves and bends, static head of the design flow." To me that seems like really unnecessarily prescriptive. That an engineer doing the design is going to know that. It's kind of like -- I don't know.

BOARD MEMBER DEURLOO: If you're building a house, make sure you have a roof and walls and floor?

ACTING CHAIR CAHN: Yeah. Yeah. Exactly. That's a good analogy.

MR. HENDON: It kind of goes along those lines of what Board Member Deurloo had to say.

ACTING CHAIR CAHN: I would think if they're designing it, if they have to take that into account, just didn't seem like we need to mention it.

So...

Okay. My last comment on Section -- oh, I have editorials, so...

I don't understand what 2209 through 2211 means. Each pump shall either have an individual suction line or the lines shall have multiple suction lines that demonstrates similar hydraulic and operating conditions. Oh, it's an "or."

MS. THOMPSON: So this was -- this was an edit that we did to address a comment on the term manifolded. So the line previously read that each pump shall either -- each pump shall have an individual suction line or the line shall be manifolded such that they will ensure similar hydraulic and operating conditions. And I believe the manifolded was being used in an unusual and unclear way. So the -- in order to keep the intent of the passage, we reworked it so that each pump shall either have an individual suction line or shall have multiple suction lines that demonstrate similar hydraulic and operating conditions.

ACTING CHAIR CAHN: I don't understand that they demonstrate similar hydraulic and operating conditions. So similar between --

BOARD MEMBER COCHRAN: Each other.

ACTING CHAIR CAHN: -- each of the multiple

lines?

MS. THOMPSON: Yes.

ACTING CHAIR CAHN: And what about the individual --

BOARD MEMBER DEURLOO: Basically what it's saying is you can have a pump with, say, one 4-inch inlet or three 2-inch inlets coming into it, and it would have similar flow characteristics on the inflow of the pump.

ACTING CHAIR CAHN: So the demonstrating similar hydraulic operating conditions is not between the multiple suction lines, it's between each of the multiple suction lines. It's between --

BOARD MEMBER COCHRAN: It's the pumps.

BOARD MEMBER DEURLOO: It's the pumps.

BOARD MEMBER COCHRAN: So you want your pumps to have the same pressure and flow so they're pulling the same amount from the suction lines. If not, one's pulling more than the other.

ACTING CHAIR CAHN: Okay. So they'll have multiple suction lines that demonstrate similar hydraulic and operating conditions to the individual suction line.

BOARD MEMBER COCHRAN: Individual pumps.

ACTING CHAIR CAHN: Can you maybe reword it so somebody like me understands it? Maybe I'm the only one that doesn't understand it.

MR. HENDON: Perhaps we can break up that sentence so that it's clear it's just for hydraulic operating conditions for one pump, period. Multiple pumps need to operate under similar hydraulic conditions. So we can address that.

BOARD MEMBER DEURLOO: No, it doesn't tell you about one pump.

ACTING CHAIR CAHN: It's one pump. It's still one pump. That's why it's confusing.

THE REPORTER: One at a time.

MR. HENDON: Got ya. Yes. I'm with you. We'll address it so we address the suction lines versus singular or multiple.

ACTING CHAIR CAHN: Okay.

BOARD MEMBER DEURLOO: Sorry. I'm good.

ACTING CHAIR CAHN: Anybody on the Board have anything on Section 14 or Section 15?

BOARD MEMBER DEURLOO: I don't.

BOARD MEMBER COCHRAN: I don't have any comments.

ACTING CHAIR CAHN: No?

BOARD MEMBER COCHRAN: I'm good.

ACTING CHAIR CAHN: Section 15. I think it's in response to comments here where BDOR said their existing tanks don't meet this 7.0.2 finished water storage

structures, and that is an example where the response to the comments is.

MR. HENDON: Yeah. And that's Board of Public Utilities. They had several existing tanks that I believe do not meet the partially buried or buried tank requirements. But, again, their tanks would still comply with the operating as a storage tank under their original permit.

ACTING CHAIR CAHN: So this is where you mentioned the requirements for modifications that I talked about in kind of a general comment in the response. So you're going to issue a permit to modify the facility and it's not really answering the question. I think their question is what are we going to do because our existing tanks don't meet this design criteria. And I think the answer is going to be as long as you don't modify them you're okay. So...

MR. HENDON: Excuse me. We did sit down with the Board of Public Utilities. We met with Bryce Dorr, Frank Strong, and we walked them through our comments and our response to comments. And we listened to their concerns and they understood that their tank would remain in compliance. When they came back to us and they needed to do a vent or should they need to address some other issue, we would definitely work with them on their tank and

their existing tank that was originally permitted.

ACTING CHAIR CAHN: Okay. And again, I always come up with the same thought in my head when we hear that existing things that are working and operating fine, are we imposing some kind of overkill for it --

MR. HENDON: Yeah. And --

ACTING CHAIR CAHN: -- or do we have to.

MR. HENDON: And again, we're more than happy to work with systems and entities should there be a concern from EPA on having to address the significant deficiency that was extremely burdensome or unrealistic for their facility. We're happy to further that discussion and work with those communities.

BOARD MEMBER DEURLOO: Madam Chair, I do have one question. I've got one. Page 12-51, line 2290. It says installation of a number 4 mesh noncorrodible screen. Is that supposed to be number 4 or is it supposed to be number 24?

MR. HENDON: That is number 4.

BOARD MEMBER DEURLOO: Number 4. Okay. Just making sure.

MR. HENDON: On that one they do get the number 4 option so long as they have a mechanical device.

BOARD MEMBER DEURLOO: Got it. Okay.

ACTING CHAIR CAHN: That's all I have on

15.

I haven't gone through my responses to comments as I'm going through. So I might have to cross-reference if we have time, come back to that.

Section 16, anybody on the Board have comments?

BOARD MEMBER DEURLOO: Not at this time.

BOARD MEMBER COCHRAN: I'm good.

ACTING CHAIR CAHN: You're good? Okay.

I've got questions on page 12-54 on line 2408 about manholes. And this was a comment that I believe -- page -- page 46 of comments. So this was brought up by actually several people. This is 16(g), so Dayton Alsaker, Jeffrey Rosenlund. And so one -- okay. One general comment in response to comments by saying we considered this comment, the requirement is an existing one that was previously located. To me if we're updating the regulations because they're 40 years old, we should be looking at existing ones, if we don't need to be doing them, we should be changing them. I don't think it's just good enough to say, well, it was already existing, so therefore we're good. I think we need to look into whether it makes sense.

So the old rules should be updated in another way besides adding more requirements, maybe removing some if they're unnecessary. And so I think that having -- you

know, manholes are really hard to keep water out of. And to say -- you just make a manhole that keeps the water out, I don't think that is really very good. So let's say you try to coat it. Concrete -- if it's concrete manhole, they're going to leak, even if you coat the surface. If you -- you know, if you -- if it's fiberglass, it can float. If it does flood, which a lot of manholes do flood, you're going to get a lot of really rusty piping and valves and stuff down in there, really hard to manipulate when they're rusty. And also to get down in there is a whole safety issue. There's a whole entry into confined spaces issue. So I want -- I think it was Jeffrey Rosenlund said let's look at valve boxes. Well, to me that's a really good idea.

MR. HENDON: Yeah, and they do have that under chambers.

ACTING CHAIR CAHN: Excuse me?

MR. HENDON: The section in question, manholes or chambers for automatic air relief valves shall be designed to prevent submerging the valve with groundwater or with surface water.

BOARD MEMBER DEURLOO: So chambers is --

MR. HENDON: I think they can --

ACTING CHAIR CAHN: Is a valve box.

MR. HENDON: I think they can have that

option.

ACTING CHAIR CAHN: I guess I didn't understand what chambers was.

MR. HENDON: It can also be a concrete box. It could be --

ACTING CHAIR CAHN: Okay.

MR. HENDON: But we can go back and we can provide a better option or clarification on it.

ACTING CHAIR CAHN: Okay. And then -- and then what about having like let's say a valve box or chamber, which I don't understand that term. But on either side of the creek, rather than directly under the creek.

MR. HENDON: We're not recommending a box in the creek. We're recommending it on either side of the creek.

ACTING CHAIR CAHN: Okay.

MR. HENDON: That's our recommendation.

ACTING CHAIR CAHN: Okay.

MR. HENDON: And to ensure that it's far enough away from the creek you're not going to have groundwater issues. We're not recommending putting in a manhole, chamber, meter pit, meter box.

ACTING CHAIR CAHN: So you have to be above the flood line?

MR. HENDON: It doesn't have to be above

the flood line.

ACTING CHAIR CAHN: Because you might have to go very far.

MR. HENDON: But you might have to go very far. But we're recommending it on either side of that crossing, whatever that crossing might be, and to ensure -- to the best -- again, understanding your site conditions to the best of their ability to put it in a safer, less moist environment.

ACTING CHAIR CAHN: Okay. So maybe just look at the wording on chambers, because that was not --

MR. HENDON: Sure, we can address that.

ACTING CHAIR CAHN: -- obvious to me.

Okay. That's all I have on Section 16.

Anybody have anything on Section 17 or 18 or 19 from the Board?

BOARD MEMBER DEURLOO: I do not. Not at this time.

ACTING CHAIR CAHN: I have nothing on 17. Nothing on 18. And I just had a question, when we were talking about you added in NSF61. Can you tell me -- show me where that is on here? I didn't see it added in.

MS. THOMPSON: It's Section 19(a)(iii), line 2791. It's American National Standards Institute.

ACTING CHAIR CAHN: Okay. Okay. So I

guess I was looking for green, because it -- I think the comments said you added that in. So thank you. That answers that.

Okay. That does my comments on -- it's 3:15. Do you need to leave at 3:30, you don't.

BOARD MEMBER DEURLOO: I need by 3:45.

MS. ZYGMUNT: Madam Chairwoman, if I can back up to a previous comment you asked for response on, on page 1222.

ACTING CHAIR CAHN: I'm sorry, Jennifer. Can you repeat that.

MS. ZYGMUNT: Yeah. Page 1222.

ACTING CHAIR CAHN: 1222.

MS. ZYGMUNT: And recognizing we will check the distances, Table 1, Table 2, there was a comment regarding (c) on that page, starting on line 957. Gina did find summary of our Attorney General's --

ACTING CHAIR CAHN: Oh, great.

MS. ZYGMUNT: -- analysis of that. And her interpretation is that is referring to specifically Section -- or, I'm sorry, Chapter 3, Section 17(b). It does not apply to all of Section 17 in the rule, which you are correct is not applied public water systems. But this cross-reference does make that 17(b) subsection applicable in this scenario. It just means that the whole Section 17

does not apply to public water systems.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: So we would propose leaving that language as is based on her --

ACTING CHAIR CAHN: Okay. Thank you. Because I missed that, so...

MS. ZYGMUNT: Yeah. It's a good question. Thank you.

ACTING CHAIR CAHN: All right. I'll try to hold it to break.

BOARD MEMBER DEURLOO: Keep going, man.

MS. ZYGMUNT: You're doing great.

BOARD MEMBER DEURLOO: Keep going.

ACTING CHAIR CAHN: So Section 3, somebody had a question -- it's titled Timing of Compliance with These Regulations, and I think somebody said there isn't any timing. Well, can we just rename it like Applicability of These Regulations or something that would --

MR. HENDON: Coverage of these regulations?

ACTING CHAIR CAHN: Yeah. Yeah.

MS. THOMPSON: Similarly worded -- titled to other --

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: -- things in other chapters, which is why we thought to put it in here, it seemed

appropriate. And while it doesn't use the word "timing" conceptually --

ACTING CHAIR CAHN: Right.

MS. THOMPSON: -- it refers to --

ACTING CHAIR CAHN: It does refer to time.

MS. THOMPSON: Yeah.

MS. ZYGMUNT: But we will consider that as a broader global change. We'll talk about that with our attorney.

ACTING CHAIR CAHN: So, let's see, the mineralized water on page 12-4, you were going to talk about. So here it is more than continual 500, so we'll leave that.

Okay. Section 6 -- and you guys on the Board, please interrupt me if you have something.

BOARD MEMBER DEURLOO: We will.

ACTING CHAIR CAHN: Okay. Section 6. Okay. I'm conceptually really confused with the title of the section and -- and (a) of that section. So it's Facilities and Systems Not Specifically Covered by these Standards is the title of Section 6. But then it goes on "Each application for a permit to construct a facility under this section shall be evaluated on a case-by-case basis..." So I just get -- do you see where I'm confused? Facilities are not covered, but then everything covered is

evaluated on case-by-case, so...

MS. ZYGMUNT: So Madam Chairwoman, this section gives the administrator some discretion to look at systems that may not have been envisioned at the time you wrote these rules, or new innovative technologies that still meet the intent of this rule, and gives me the authority to work with my staff on a case-by-case basis to permit that accordingly, if it does not specifically fall within, you know, the specifications that we've outlined. We would look at those kind of pilot projects very closely, but that is the intent of this section, if that helps answer your question.

ACTING CHAIR CAHN: All right. On line 2 -- that's editorial. I'll go over that with Gina.

All right. So page 12-6, line 264, when we're talking about these two individual permits, and we originally had initially issued permits, so it seems to me there's two permits in order. There's a first one and then there's the next one. So by taking out the word "initially" on line 266, I'm wondering if we're still confusing things because it still says the issue permit and there's two of them. So can we say something like the first issued permit?

MR. HENDON: So Gina and I had discussions on this one as well, with regards to when a permit is

issued there's only one permit number issued for that facility. And so the language that we came up with was to follow that one permit number issuance. Perhaps there's still a better way to revise this.

ACTING CHAIR CAHN: So there aren't two individual permits. There's only one. So on line 264, am I understanding you to say there's only one permit?

MS. THOMPSON: There's one permit number. There are two authorizations.

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: Which is bureaucratic, right?

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: But it's potato, potato. But essentially they apply, we give them one number. And then when they follow those additional steps in that section, they submit additional information and we give them an additional written authorization.

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: So it's --

BOARD MEMBER DEURLOO: Who are you authorizing? Are you authorizing the applicant or are you authorizing the well?

MR. THOMPSON: I believe that we're authorizing the applicant to construct the well, and then

we are authorizing connection of the well to their distribution system.

BOARD MEMBER DEURLOO: Okay. Madam Chair, I might recommend that we restate that sentence. Say of the administrative -- administrator, whoever it is, will authorize the applicant to construct, develop, and test the well for the applicable issued permit.

ACTING CHAIR CAHN: How about the first line, 264, we say for applications that include wells, the individual permit will be issued in two phases. Or there are two phases, something like that. That -- in two -- in two steps. So there's really not -- now you're telling me there's not two individual permits, there's really only one.

MS. THOMPSON: They get an initial authorization, and they get a second authorization to connect.

ACTING CHAIR CAHN: Okay. For applications that include wells, the individual permits will be issued as follows:

MS. THOMPSON: I think potentially --

ACTING CHAIR CAHN: Initially -- the applicant will be authorized to --

MR. HENDON: It's two authorizations.

ACTING CHAIR CAHN: -- contest the well,

and, second, the applicant will be required to submit --

MR. HENDON: Right. So I think we can re-word it for authorizations and for their permit, step one --

ACTING CHAIR CAHN: Yeah.

MR. HENDON: -- step two.

ACTING CHAIR CAHN: Yeah.

BOARD MEMBER DEURLOO: And you're not -- you're authorizing the applicant to construct the well, then you're authorizing the applicant to develop and test the well, right? Was that your phases?

MR. HENDON: All of that would be one phase. Connecting it --

BOARD MEMBER DEURLOO: Got it.

MR. HENDON: -- would be the second phase.

ACTING CHAIR CAHN: Okay. On line -- oh, that's editorial. Okay.

Then on the next page, (iii), there's the word "initial appearance" on line 280, and then it's been struck from 283. So just continue with whatever you come up with for that.

I'm on to Section 8. We might even finish.

BOARD MEMBER DEURLOO: Heck yeah.

ACTING CHAIR CAHN: Heck yeah.

MR. HENDON: Heck yeah.

BOARD MEMBER DEURLOO: Did you get that, Kathy?

ACTING CHAIR CAHN: Okay. I have a note that line 302 -- I'm not sure I understand my note right now. Parts -- so TSS parts 1.2 through 1.6, my note says has better info than Section 8(e), so maybe I'm thinking it's good to follow that and maybe delete some of 8(e) if it's already in 1.3 through 1.6, but I don't have the specifics right now.

MS. ZYGMUNT: So my understanding, just to make sure, that the TSS references aren't duplicative with what we have in --

ACTING CHAIR CAHN: Yeah, if it's duplicative, take it out.

MS. ZYGMUNT: Okay.

ACTING CHAIR CAHN: On line 338, the old wording was "or" before. So the bottom line is within 10 feet of streams and lakes or the waterline across streams or lakes. So I'm questioning whether "and" or "or" is correct there on line 338. So just to --

MS. ZYGMUNT: We'll check that.

ACTING CHAIR CAHN: Yeah. Okay.

The next -- the next comment I have -- actually this one came from Ben Jordan. On page 12-9, on his -- his response for (e), all of (e), was that basically including

this here -- he used the word "bizarre," that this was bizarre. And I would agree, because we're talking about plans, and -- okay, well, first of all, TSS 1.1.2(f) has (i) and (ii). But to go over the assembled order, size, and length of casing and liners, casing wall thickness, grouting depths -- grouting depths was in the TSS.

MR. HENDON: Madam Chair.

ACTING CHAIR CAHN: Yeah.

MR. HENDON: So in talking with Ben about this comment, his "bizarre" reference was to require all of this information on a plan and profile drawing.

ACTING CHAIR CAHN: In the plan as well as in the profile drawing.

MS. THOMPSON: No, it was on the drawing.

MR. HENDON: So his comment was requiring this on a profile drawing does not make sense for well construction.

ACTING CHAIR CAHN: Okay.

MR. HENDON: I would agree. So we changed the verbiage so that plans for well construction shall include. The very first statement here at 380, originally it said "plans and profile drawings for well construction shall include," to which Ben said, This is bizarre. Why would I include this on a profile? Because a profile doesn't provide --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- the information.

ACTING CHAIR CAHN: Okay.

MR. HENDON: It's just going to provide you a point on the map where that well is going to be located. Your plans and drawings are going to have the rest of this information requested below item (e) here.

ACTING CHAIR CAHN: Okay. But as we move along, further down, we start to get into (xii), well test data including, and then all these things, static water level, depth of test pumping -- pump setting, time of starting and ending each test cycle, drawdown, you're not going to know that when you've got plans. That's all later. So I look at everything -- well, test data is stuff that, you know, you're not going to be able to get. So at this point, you need that information after they've developed the well and tested it, and so --

MR. HENDON: And perhaps we could right there at (xii), well test data concluding, if available. I know a number of times Water Development Commission will pay for a well to be built, constructed, things of that nature, prior to coming in to getting permitted --

ACTING CHAIR CAHN: Okay. Great.

MR. HENDON: -- for a public water system.

ACTING CHAIR CAHN: If available.

MR. HENDON: And so that information may already be readily available.

ACTING CHAIR CAHN: Good.

MR. HENDON: Based on those activities by water development.

ACTING CHAIR CAHN: Okay. And that's the same for location of any blast charges.

MR. HENDON: Correct.

ACTING CHAIR CAHN: That's also -- yeah. So just look through that list, and -- so -- and then on line -- go back up to 406, the page before. From the ground surface to the total depth of the drill, something's missing there. I don't know what's supposed to --

BOARD MEMBER DEURLOO: Drilled well?

ACTING CHAIR CAHN: Yeah. Drilled wells? well? I don't know.

MR. HENDON: Which one?

ACTING CHAIR CAHN: But then --

BOARD MEMBER DEURLOO: Line 406.

ACTING CHAIR CAHN: Yeah. And then --

MS. ZYGMUNT: We'll make that correction.

ACTING CHAIR CAHN: And then the other details to describe the proposed well completely. That's in the TSS. Water levels in the TSS. And, again, formations penetrated, you might not know that on an

exploration well, but you're not -- so, again, that's the if available category. So --

And then Section 9, and then we're done. So I'll try to get this done in 15 minutes.

On line 572, on page 12-13, one of the commenters was looking for a definition of aquifer. Is it okay to say "as defined in Wyoming Statute 41-3-901"? Are we allowed to do that just to help them? Instead of in response to comments, that's where you put it, so just --

MS. THOMPSON: Not unless we're tying it to an action.

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: So if we wanted them to demonstrate something based on that statutory citation, then it's appropriate to include it. But if we're -- if we're just saying like as a redirect, we're being advised against doing that, because it's not -- it's not an enforceable line. So we have to -- we have to structure it --

ACTING CHAIR CAHN: So even though they have to provide the description of the geology of the aquifer, you can't refer to --

MS. THOMPSON: No. I'm saying that if you want -- if you tie it to a statute, it has to be very clear what you're bringing in from the statute. So, for

instance -- and I'm not committing to doing this, I'm just kind of giving an illustration -- we would say something to the effect of a description of the geology of the aquifer that demonstrates compliance with statute whatever, or a description of the geology, you know, and overlying strata that meets, you know, the description of -- you have to -- in order to bring in cross-references, whether it be to other rules or statute, it has to have an action or a timing.

So like let's say we had something in the statute that says when you, you know, apply for a well under this aquifer category, you know, thou shalt do this in addition to the items at statute whatever. So we have to tie it to an action --

ACTING CHAIR CAHN: Okay.

MS. THOMPSON: -- or a timing.

BOARD MEMBER DEURLOO: Madam Chair, can we put the definition of aquifer at the front in definitions? Would that help?

MS. ZYGMUNT: I believe we discussed a definition of aquifer, and if I recall correctly, the -- or the input from our Attorney General is that that's a broad enough term it does not require a definition in this rule.

BOARD MEMBER DEURLOO: Okay.

ACTING CHAIR CAHN: That's interesting,

because --

MS. THOMPSON: We're working with the SEO's definition as well. And we have definitions of aquifer, which may not be identical. But we're not governing the aquifer here. The SEO is. So we were running into some trickiness because we have overlapped with a sister agency who has authority over that well construction. And we're not determining the aquifer. We just want some construction to happen, right?

MS. ZYGMUNT: I will revisit that question with Nicole, our Attorney General, to see -- get her thoughts on adding the definition. At this time I'm not really inclined to. I think it's, for the purposes of this rule --

ACTING CHAIR CAHN: Yeah, because it's defined differently in different places.

MS. ZYGMUNT: It is.

ACTING CHAIR CAHN: It's sticky, but that's kind of why it's important maybe to provide a definition. I don't know. Maybe it's okay not to do it, and then we have some wiggle room, I mean is it perched water? You know, it gets complicated.

MS. ZYGMUNT: We'll look into that. We'll provide a response either way. Again, we'll look at it in the perspective of the context of this rule, though.

ACTING CHAIR CAHN: Okay. 12-13, line 579, that (i) paragraph. Talking about some likely drilling and completion challenges, and I feel like that will be faced, including a description of drilling and completion practice, blah, blah. It seems premature. This won't be known beforehand. So, again, it would be back on to if known from exploration wells or --

MR. HENDON: And I think within that engineering design report provided to our district engineers, we're looking to see if they're aware of any difficult drilling areas, providing difficult information or concerns that they may have to overcome --

ACTING CHAIR CAHN: Yes.

MR. HENDON: -- in regards to the implementation of the project.

ACTING CHAIR CAHN: If known.

MR. HENDON: Basically if known.

ACTING CHAIR CAHN: The fact.

MR. HENDON: Back to the if available, perhaps.

ACTING CHAIR CAHN: Yeah, is it important, if known.

BOARD MEMBER DEURLOO: Madam Chair, so I just noticed this. On that same line, line 579, we have a repeat of (ii).

MS. THOMPSON: Yes, we do.

MS. ZYGMUNT: Okay.

ACTING CHAIR CAHN: Good catch.

And then line 596, the information required in (e) of this section, I think it should be (f).

BOARD MEMBER DEURLOO: Where?

ACTING CHAIR CAHN: On the next page, line 596.

MS. THOMPSON: Okay.

ACTING CHAIR CAHN: And then on 605 through line 611, again, well bond logging in statement of completion and description of well from the SEO. Again, that's not necessarily known ahead of time, so --

MS. THOMPSON: That is actually under the conversion of an existing well into a public water supply well.

MR. HENDON: Yeah.

ACTING CHAIR CAHN: Oh, okay. It's from --

MR. HENDON: So under item (g), engineering design reports for conversion of existing well --

ACTING CHAIR CAHN: Oh, okay. Thank you.

MR. HENDON: -- into a public water supply shall include -- and hopefully they do have that information as it helps that process.

ACTING CHAIR CAHN: Okay. Great. On page

12-15 -- hey, we're almost done with Section 9. One page to go.

This is under the hydraulic analysis that I -- demonstrates how a peak hour, average day, maximum day, and maximum day plus fire flows..." I was going to say do we need -- do we say if required or provided, will be improved by upsizing, if appropriate, or something. It seemed a little -- maybe this was inconsistent of Ben Jordan's. I'm not sure.

MR. HENDON: Ben's was a little bit --

ACTING CHAIR CAHN: Different.

MR. HENDON: Was a little bit different. His comment was with regard to item I think (lii), "The hydraulic model shall:" --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- be calibrated based on existing fire hydrant test flow data when available --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- or based on modeling.

ACTING CHAIR CAHN: So then my question is, again, they won't always have fire flow. So if required or provided or will be improved by upsizing if appropriate. So just some wiggle room there.

MR. HENDON: Yeah. And I think the question -- are you looking at (li) of the modeling

result --

ACTING CHAIR CAHN: No. I'm looking above that at lines -- I'm looking at (j)(A), (B) on the top of the page, 12-15. Hydraulic analysis that demonstrates how a peak hour, average day, maximum day --

MR. HENDON: Uh-huh.

ACTING CHAIR CAHN: -- fire flows will be improved by upsizing.

MR. HENDON: Gotcha, yeah.

ACTING CHAIR CAHN: So wiggle room --

MR. HENDON: And providing an off-ramp if required or if they --

ACTING CHAIR CAHN: Yeah.

MR. HENDON: I see what you're saying.

ACTING CHAIR CAHN: Okay. And then -- then we have -- I think Ben's comments were on line -- on (l), on 662, for new water mains, how can we have a hydraulic model -- I think -- did you fix that?

MR. HENDON: We did.

ACTING CHAIR CAHN: Okay. Great.

MR. HENDON: Yeah.

ACTING CHAIR CAHN: Okay. Okay. Yep. Okay. That addresses my comments. Not the comment responses, but my comments on the changes that were made, things we saw. So I still might have a few comments on

comment responses, but we don't have time, so...

All right. So I think at this point, Jennifer, why don't you tell us what you're looking at for us -- from us.

MS. ZYGMUNT: Yes. Thank you, Madam Chairwoman. So this has been incredibly valuable feedback, a really good discussion, both at the December meeting and this meeting. Really appreciate all the things that were caught and the suggestions to places where we can be clear and add some more flexibility when appropriate. So very useful discussion.

What I am looking to do at this point is I feel that we are ready to move forward to the EQC. I think we have a good product. I think we can address your comments. And any of your feedback today where we need to provide you with a response, those would be documented and the feedback goes to the EQC that summarizes our interactions with the board and what your advice on this rule was.

So at this time I am looking forward to going to the EQC. I would like to get your advice -- any further advice on the rule. You are always welcome to not advise us to move forward. If that is your decision, I would ask for some very clear feedback as to why, so we can communicate that -- communicate to the Environmental Quality Council. Or if your motion is that you advise us

to move forward, to document any further feedback in addition to the revisions that we noted have gone on in the discussion today.

So that's my inclination at this time with this rule.

ACTING CHAIR CAHN: I feel like we're not quite there yet. I feel like we're much closer than we were. But I think there was some comments that came in, public comment today, that we haven't gotten back -- we need to get back. And I think there's a few areas where we say we're going to look at that, and I think there's enough of them. So my personal feeling -- but I'm only one of the board members. My personal feeling is we're not quite ready, but we're close.

MS. ZYGMUNT: Understood.

ACTING CHAIR CAHN: But I'm not comfortable that we're close enough. Typically when our Board advises we go to EQC, there's really editorial here, editorial there. I don't think we're quite there yet.

And I also would maybe like to work with Keenan, if I could, or with you, Jennifer, on the responses that -- you know, if -- I don't know if it's okay for me to work directly with you guys on my comments on responses to comments that don't affect making a change in rule, but just in the -- but just in the responses to comments, maybe

we could work on those. I can give you my feedback. And that wouldn't hold this up, but if that's okay. I don't know if I have to do that at a board meeting or -- because that's not saying this is a change I'd like to see in the rules. This is how you address comments, so...

MS. ZYGMUNT: Yes, Madam Chairwoman, thank you for your input. And with all due respect, I understand your concerns. I understand that your preference would be that we bring the rule back, and I'd like to understand recommendations from the other board members as well, and for you guys to make a motion that you feel is appropriate.

I will repeat, you know, we have had this rule in two public notices -- or extended public notice for over 100 days. I think we've done our due diligence in getting comments. I do think we have successfully gotten through the whole rule between Keenan's presentation and the discussion today. And, again, I think we have very good feedback.

If you feel there's a better way that we can document our feedback to the EQC -- document to the advisory board's feedback to the EQC, I think we would be happy to entertain a specific memo in this case. If I do decide to move forward despite the Board's advice, we would be happy to make sure that is documented thoroughly to make sure that your feedback is heard by the Environmental

Quality Council. But it always is. That's nothing new. We always communicate with boards in packets.

So, again, it is my inclination to keep moving forward with this rule. I don't feel like another advisory board meeting is necessary. Again, I think this discussion has been very effective and has given us the advice we need to do one more review of this rule. It sounds like you would like to work with Gina on some editorial comments.

ACTING CHAIR CAHN: Yeah. I still feel like the issue of small water systems, it's really a big deal, and it's really important, especially transients. So I'm not comfortable with you saying, well, we'll just work it and we'll go forward to EQC and we'll tell EQC about your concerns. I want to see how that's worked.

MS. ZYGMUNT: Madam Chairwoman, let me make sure I'm clear. That exercise is a long-term exercise. In terms of the evaluating these small transient communities compared to the specifications and specifications we've had on the books since 1984, 1985, that's going to require some significant thinking, and, in my opinion, some discussions with our Attorney General. I feel that is better long-term project. Again, as we start working with board on technical assistance to these communities, that is where we can get some short-term gains.

The question about small transient communities is

absolutely understood, but that is a longer-term effort that we would need to dig into, and I would say do further outreach on, but I don't see we need to hold up what we have accomplished with Chapter 12 at this time.

ACTING CHAIR CAHN: So what you're saying at this point is that there's going to be no relief for small transient systems as this goes forward. That there's no opportunity for that at all in updating the rules?

MS. ZYGMUNT: We will continue working with the small transient systems as we always have. But we do need to make sure that they are in compliance. And a lot of these specifications and compliance with this rule also helps assure that they would be in compliance with EPA's PWSS system.

So, again, we have always worked with them, and we will continue working with them to make sure they are in compliance. If there are areas where it is not feasible for them, they don't feel that it is feasible for them to come into compliance with the rule, again, we'll work with them on a case-by-case basis. And I will note, as we've seen, there is some administrator flexibility to make sure somebody is obeying the intent of the rule. That is some broad flexibility, and it comes down to very thorough case by case analysis. So I can't speak to specifics, but we would deal with those situations as they arise.

ACTING CHAIR CAHN: Is there any requirement from the legislature or anything that as new rules are implemented, that you have to look at the cost to the state of Wyoming, to the regulated community? Do you have to look at the increase in cost that the --

MS. THOMPSON: Yes. It's specifically required in the authorizing statute when we bring rules to you. It's under the 302 paragraphs. We have several things that we consider, and economic reasonableness is one of them.

ACTING CHAIR CAHN: And so that analysis has been done for this?

MS. ZYGMUNT: It would have been done during the original rulemaking.

ACTING CHAIR CAHN: But this update. So if this goes forward to EQC, do you -- have you done that analysis? I mean, that --

MS. ZYGMUNT: I don't believe we do that for rules revisions.

ACTING CHAIR CAHN: Only for the first time the rule is permitted?

MS. THOMPSON: I believe that we -- we don't do a formal separate document that illustrates a line-by-line analysis of the economical -- economic reasonableness of each line. It's the overall rule. And

especially new items that we're considering, or removal of an old item, when we are making those changes, are we being economically reasonable? And by offering training or offering assistance from our training partners and offering funding possibilities for these small systems as well, we can balance out that economic reasonableness. We're not demanding that everyone come into compliance, and we're not -- you know, your funding is on your own.

When we look at this in light of the funding opportunities we have and the training opportunities we have, and, you know, other partner agencies, these are economically reasonable.

ACTING CHAIR CAHN: So there's not an analysis of increasing costs that updating these rules would impose?

MS. THOMPSON: No, we do not have a separate formal document.

ACTING CHAIR CAHN: Okay. And -- I lost my train of thought. I'm sorry.

MS. ZYGMUNT: That's all right.

BOARD MEMBER DEURLOO: Can I ask a question while you're trying to grab that train, Madam Chair?

So two questions for you. First one is, is there a timing -- internal timeline that you're trying to meet with Section 12 that you would push it forward without

another review? That's number one.

MS. ZYGMUNT: Understood. And if I may, I'll go ahead and answer that question.

BOARD MEMBER DEURLOO: Please do.

MS. ZYGMUNT: There's no timeline on this rule, meaning there's no specific reasons that I need to get this to the EQC. However, I need to look at my staff's time efficiently, what resources we have. We have many other rules we need to be working on this year. For many different reasons. I feel that the two advisory board meetings that we have had have accomplished the -- the mission of the advisory board, as it's outlined in the Environmental Quality Act.

So in the interest of keeping all of our projects moving along, balancing resources with other projects, again, it is my determination the most efficient way is to keep this moving forward to the EQC.

BOARD MEMBER DEURLOO: I see. As a follow-up question. So depending on how many more rules you want to look at, chapters you want to look at this year -- maybe you could touch on that quickly -- would it benefit you that we move our Q2 meeting to April, like within 30 to 45 days or something like that, so we could look again at section -- or Chapter 29 and Chapter 12, get those off the book? Maybe do a quick introduction to the

next big chapter you want to look at, that we move our Q2 meeting up.

MS. ZYGMUNT: Yeah. Thank you for the question and the suggestion. Again, at this time it's more that I don't feel another meeting is necessary, not -- not the timing of that meeting per se. Preparing for these meetings, every meeting is preceded by public notice comment. Again this has been --

BOARD MEMBER DEURLOO: Every one?

MS. ZYGMUNT: Yes. We have to have the rule out for 30-day public comment, my understanding.

ACTING CHAIR CAHN: Now, we've had meeting where we haven't included new public comment, when it was just Board comment. We can say there's been enough -- that was in the past. We can say there's been enough public comment, we're just going to address Board comments at this point. So we've had that in the past.

MS. ZYGMUNT: Okay.

ACTING CHAIR CAHN: I don't know if that's still allowed, but we've certainly done it in the past.

MS. ZYGMUNT: That was not my understanding, but I appreciate you mentioning that. I can look into that.

ACTING CHAIR CAHN: We have had meetings where we have not opened it up to public comment for sure

in the past, so...

MS. ZYGMUNT: Okay.

ACTING CHAIR CAHN: And I would be okay, because I think, you know, with that, just addressing the -- already the comment that we got today and public comment plus the Board comments, I would be okay with that, and not opening it up for additional public comment if we're allowed to do that. We used to be.

MS. ZYGMUNT: Understood. Understood.

ACTING CHAIR CAHN: And I would be okay with moving up the quarter -- second quarter meeting to what's convenient for you guys. We can move it up.

MS. ZYGMUNT: Before we adjust the timing of that meeting, I would need to consult with Administrator Engels, Solid and Hazardous Waste Division. Her staff may not be able to bring rules packages before you by that date. And also our plan to bring Chapter 1 with further 101 back to you.

Again, I know -- I'm departing from past practices. And so I appreciate your feedback. Again, I need to balance the role of this Board, which is very important in the rulemaking process. Again, I'm just so pleased with the feedback we got today, because this is extremely helpful. I think we have accomplished the purpose of this step of the rulemaking process, and there's

still more to come as you know. Before the EQC, there will be another 45-day public comment as well, but I have not heard any feedback today that I don't think that we can address through further revisions to the rule, and documenting the Board's feedback and our responses to some final comments from Mr. Pepper today and from the Board in documentation that we provide to the EQC.

And, again, you guys are free to make a motion that you feel is appropriate. And if you want to make a motion that does not advise me to move forward, you're free to do that. I would ask for specific feedback. If I do choose to move forward after that, that feedback will be very clearly presented to the EQC.

So I still encourage you make the motion you think is appropriate as a Board, but I want to be clear about where I'm at and what my thoughts are on what we've accomplished in this rule, and I feel we've accomplished the Board providing the advice that we need to move forward with formal rulemaking.

ACTING CHAIR CAHN: I don't know if it's appropriate for me to make a motion or if the board members should make the motion. If it's okay for a chair to make -- acting chair to make a motion, I don't know. I think it's typically not done.

BOARD MEMBER COCHRAN: Madam Chair, I would

propose that the Water Quality Division consider the proposed revisions and advice given today and to proceed to the proposed revision -- proceed with the proposed revisions to the Environmental Quality Council.

ACTING CHAIR CAHN: Okay. Discussion?

BOARD MEMBER DEURLOO: My discussion is this is going to be a tough vote, but the -- I have lived by the mantra several times and got myself out of hot water with bosses by saying, Do you want it done right, or do you want it done right now? And there's two distinct differences between having it done right and having it done right now.

And we only see those rules every -- I think the first or second time I've seen Chapter 12 in like three or four years, and I get -- I understand with -- especially at post-COVID, the strain that you must have with your staff and so forth, getting them focused in all the work you want to do. So I'm just kind of expounding here right now. I still don't know which way I'm going to vote, but I would always caution, as little as we see these things, it's better to get them done right rather than expeditiously. So...

ACTING CHAIR CAHN: So do I have -- I have a motion on the floor. Do I have more discussion?

BOARD MEMBER DEURLOO: We don't have a

second yet? We haven't heard from Brian.

ACTING CHAIR CAHN: We don't have a second. So I don't hear a second. So I think there's no vote at this point, so...

BOARD MEMBER DEURLOO: Correct. So we can't vote on it.

So do we need another motion?

ACTING CHAIR CAHN: We can -- if we want to do a different motion. I mean, I would like to --

MS. ZYGMUNT: I think Mr. Cochran would need to withdraw the motion if there's not a second.

BOARD MEMBER COCHRAN: No, it would die for lack of a second.

MS. ZYGMUNT: Right.

ACTING CHAIR CAHN: Okay. Then further discussion or do we want to adjourn?

BOARD MEMBER DEURLOO: Let's see what this motion brings. Let's see what happens here.

ACTING CHAIR CAHN: Okay.

BOARD MEMBER DEURLOO: I move that the advisory board not recommend this for the review of the Environmental Quality Council at this point until we can review it again at our second quarter meeting.

ACTING CHAIR CAHN: We have a motion on the table. Do I hear a second?

BOARD MEMBER DICKSON: This is Brian Dickson. I'll second that.

ACTING CHAIR CAHN: Discussion?

BOARD MEMBER COCHRAN: Just a point of order. My motion was the same thing. By dying, does the same thing you're asking for now, except you're -- you're trying to make a negative motion.

BOARD MEMBER DEURLOO: You moved --

BOARD MEMBER COCHRAN: So it's a nonaction.

BOARD MEMBER DEURLOO: You moved to recommend it to the EQC.

BOARD MEMBER COCHRAN: Right.

BOARD MEMBER DEURLOO: I am moving to review it again.

BOARD MEMBER COCHRAN: It's still --

BOARD MEMBER DEURLOO: Do you think we should amend my motion, Jim?

BOARD MEMBER COCHRAN: I'm just saying if we leave it the way it is --

ACTING CHAIR CAHN: It's the same thing.

BOARD MEMBER COCHRAN: -- it is the same thing.

ACTING CHAIR CAHN: Without a motion. So do you want to withdraw your motion?

BOARD MEMBER DEURLOO: I'm confused.

BOARD MEMBER COCHRAN: We can go ahead and vote on it. It's just a point of order.

MS. THOMPSON: Additionally, your attorney is still online. If you want to ask a clarifying question, Jim may be able to provide it to you.

ACTING CHAIR CAHN: Okay. Do we need to make a motion to continue this to the next meeting?

MR. PETERS: I think it's always beneficial if there is firm direction. What we had originally was a motion that failed for lack of a second. While we might be able to imply what that means, I think it would be better for the record, more clear for the record. We have a motion, a second currently before us that the board perhaps consider taking some sort of action on that motion to give clear direction.

ACTING CHAIR CAHN: Thank you for that clarification.

Any further Board discussion on the motion on the floor?

BOARD MEMBER DEURLOO: I see what you're saying, Jim. I see what you're saying now.

No, I don't believe I have any more discussion.

ACTING CHAIR CAHN: Hearing none, then all in favor of the motion on the floor say aye.

BOARD MEMBER COCHRAN: Aye.

ACTING CHAIR CAHN: Aye.

BOARD MEMBER DEURLOO: Aye.

BOARD MEMBER DICKSON: Aye.

ACTING CHAIR CAHN: Motion carries. Thank you.

MS. ZYGMUNT: All right. Thank you very much. I will take all that into consideration, and we'll get back to you with next steps.

BOARD MEMBER DEURLOO: Okay.

MS. ZYGMUNT: Thank you very much for all your help today. Again the feedback today was incredibly valuable. We do greatly appreciate your time.

ACTING CHAIR CAHN: Gina, do you want -- I don't know on the record or off the record. Do we need to talk about dates we are or aren't available? Or do you want to do that by email?

BOARD MEMBER DEURLOO: Let's close the meeting.

MS. THOMPSON: Yeah, let's let Kathy off the hook.

ACTING CHAIR CAHN: Okay. The meeting is adjourned. Meeting is adjourned.

(Meeting proceedings concluded 4:01 p.m., March 15, 2022.)

C E R T I F I C A T E

I, KATHY J. KENDRICK, a Registered Professional Reporter, do hereby certify that I reported by machine shorthand the foregoing proceedings contained herein, constituting a full, true and correct transcript.

Dated this 5th day of April, 2022.

_____
KATHY J. KENDRICK
Registered Professional Reporter

Proposed Revisions to Water Quality Rules, Chapter 12, Design and Construction Standards for Public Water Systems

Analysis of Comments Received at the March 15, 2022 Water and Waste Advisory Board Meeting

April 20, 2022

Prepared by:
Wyoming Department of Environmental Quality
Water Quality Division
Water and Wastewater Section

Commenters:

Mark Pepper, Wyoming Association of Rural Water Systems (WARWS)

Chapter 12 Comments and Responses

Mark Pepper: Mr. Pepper noted that 2018 TSS Part "1.1.5 f discusses high water loss being greater than 20%. In an arid state such as Wyoming, where some of systems are facing water shortages, 20% water loss seems too high." Mr. Pepper recommended revising to " >15% for starters..." as WARWS advises that "water loss above 10% should be investigated and leaks may be occurring or lost revenue from uncalibrated meters."

Department Response: WDEQ/WQD considered the comment. The recommended change would modify 2018 TSS Part "1.1.5 f" to reduce 20% water loss down to 15% or 10%. The WDEQ/WQD notes that this 2018 TSS passage is discretionary—it provides an example of high percentage of water loss being greater than 20% but does not limit an agency from considering less than 20% as being a high percentage of water loss. At the Administrator's discretion, the WDEQ/WQD can require a water audit of a system due a high percentage of water loss and can evaluate on a case-by-case basis what constitutes a high percentage of water loss. WDEQ/WQD plans to explore options to provide additional training and outreach to address system awareness of high water loss in our communities and is committed to working with WARWS and other partners on this initiative.

Mark Pepper: Mr. Pepper noted that 2018 TSS Part "1.1.7.1 f was included for surface water source protection measures, but 1.1.7.2 h, groundwater source protection measures was omitted. Mr. Pepper notes that "with 88% of the systems utilizing groundwater for their drinking water source, we should place some value on protecting the groundwater. As an example, in our source water protection planning, we often utilize this concept so that principally county installed septics or other potential harmful activities are not approved by county boards upgradient from municipal water wells or at least some mitigation measures are taken to lessen potential contamination."

Department Response: WDEQ/WQD considered the comment. WDEQ/WQD has intentionally omitted 1.1.7.2.h as it includes Part 3.2.3.3, wellhead protection plans. Since WDEQ/WQD intends to continue addressing wellhead protection planning and other source water protection planning on a voluntary basis, 1.1.7.2.h will not be incorporated by reference at this time as doing so would require wellhead protection plans. However, 1.1.7.2.h also includes Part 3.2.3.2, continued sanitary protection, which WDEQ/WQD will add to Section 11(a).

WDEQ/WQD recognizes the importance of groundwater as a source of drinking water in Wyoming and has many programs, both regulatory and voluntary, in place to protect

groundwater quality. WDEQ/WQD will continue to encourage communities that use groundwater for drinking water to develop wellhead protection plans and looks forward to working with WARWS to strengthen our voluntary source water protection program, including continuing our work with WARWS to provide training and outreach that will benefit communities.

Mark Pepper: Mr. Pepper noted that 2018 TSS Part "7.0.6 Water storage age was omitted. We know that with many upcoming regulations (Lead and Copper revisions, Disinfection Byproducts review), water age is paramount. TSS 2018 recommends no longer than 5 days on water age. We believe this is in agreement with AWWA recommendations."

Department Response: WDEQ/WQD considered the comment. Water storage age is included in Chapter 12 in Section 15(c) and 15(e). The draft Chapter currently does not address a maximum day exceedance for water age. Based on further review and research, WDEQ/WQD will include 2018 TSS Part 7.0.6 in Section 15(a) so that Chapter 12 includes a 5-day maximum for water age and aligns with AWWA.

Mark Pepper: Mr. Pepper noted that 2018 TSS Part "8.7.2 Bedding was omitted. It is important to protect the investments of the state and the systems by ensuring quality bedding material is used. This isn't the case on some projects."

Department Response: WDEQ/WQD considered the comment and notes that pipe bedding requirements are provided in Chapter 12, Section 16(i), which requires that "Distribution system bedding shall be in accordance with ASTM C12 Classes A, B, or C for rigid pipe. Flexible pipe bedding shall be designed in accordance with ASTM D2321 Class I, II, or III."

Mark Pepper: Mr. Pepper noted that 2018 TSS Part "8.7.9 Separation from other utilities was omitted. Again, while you would assume that design engineers would consider maintenance of distribution pipes and ability to dig around them important, alas, that is often not the case."

Department Response: WDEQ/WQD considered the comment. WDEQ/WQD will revise Section 16(a) to include 2018 TSS 8.7.8 and 8.7.9 for clarity on aggressive soil provisions and ideal utility separation distances.

Water and Waste Advisory Board Comments
March 15, 2022 Meeting
Chapter 12

(line numbers based on April 20, 2022 green copy)

General Comments

Lorie Cahn: Ms. Cahn recommended including a description of what would require a permit modification in the response to comments document as the current response is unclear.

> **Department Response:** WDEQ/WQD plans to provide permittee guidance that identifies frequently asked questions and WDEQ/WQD's responses to further clarify what activities require permit modifications. Additionally, WDEQ/WQD encourages applicants to contact our district engineers or the Water and Wastewater Section Manager with questions concerning modifications. WDEQ/WQD also plans to provide training, education opportunities, and outreach to stakeholders about the revised Chapter 12 once it is promulgated; these events will include information and guidance about applying for and modifying permits.

Lorie Cahn: Ms. Cahn recommended verifying the passages in each section that references the TSS and recommends removing redundant language and references that are only titles and that do not contain requirements.

> **Department Response:** WDEQ/WQD reviewed each section that references the TSS 2018 for typographic errors and made additional edits to remove redundant wording throughout the document. WDEQ/WQD is developing a TSS 2018 crosswalk and additional guidance documents to aid users in the implementation of Chapter 12.

Lorie Cahn: Ms. Cahn recommended WDEQ/WQD correct the response to commenter Ty Ross for reference 10(b)(i), as the current answer is incorrect and should be 10(b)(ii),

> **Department Response:** WDEQ/WQD will not revise the response to comments document but notes Ms. Cahn's comment for the record.

Brian Deurloo: Mr. Deurloo recommended that WDEQ/WQD review the punctuation in the chapter and ensure that semi-colons and periods are used consistently.

Department Response: WDEQ/WQD reviewed the chapter as requested and adjusted the punctuation as appropriate.

Section 3

Lorie Cahn: Ms. Cahn requested that WDEQ/WQD rename the section to "applicability of these regulations" instead of "timing" since this term is not used in the section.

Department Response: WDEQ/WQD notes that Section 3 is consistent with other Water Quality Rules because the timing of compliance with a chapter, or grandfathering, is an important topic to permittees. WDEQ/WQD also notes the chapter already contains an applicability section, which describes the facilities that are required to comply with the chapter. WDEQ/WQD has structured both the "timing of compliance" section and the "applicability" section in a manner that is consistent with other Water Quality Rules. As the section clearly describes timing in relation to permit coverage, WDEQ/WQD will leave the title as written.

Section 6

Lorie Cahn: Ms. Cahn noted the title and contents of the section are confusing.

Department Response: As discussed at the meeting, WDEQ/WQD uses the section as written to give the Administrator flexibility in permitting new technologies that are not specifically described in the rule, but which meet the intent of the rule.

Section 7

7(g)(ii) and7(g)(iii)

Lorie Cahn and Brian Deurloo: Ms. Cahn and Mr. Deurloo advised WDEQ/WQD to clarify the passages further and to ensure active language is used to clarify what the Administrator is authorizing and what is being authorized.

Department Response: WDEQ/WQD has revised the section to the following:

(ii) For applications that include wells, the Department will issue one permit with the following phased authorizations:

(A) The issued permit will authorize the well to be constructed, developed, and tested;

(B) Applicants shall then submit well test data and water quality data for Administrator review; and

(C) Upon the Administrator's approval of the well test data and water quality data, the Director shall modify the issued permit to authorize connection of the distribution system to the well.

(iii) Applicants for water storage tanks may follow an alternative procedure when the final plans and specifications for the tank cannot be submitted with the initial permit application due to project bidding constraints. In these instances, the Department will issue a permit through the following phased authorizations:

(A) The issued permit will authorize the project to initiate the bidding process. Applicants shall ensure the project bidding documentation includes a requirement that the final water storage tank design complies with the requirements of this Chapter.

(B) Applicants shall then submit final documentation and specifications for the water storage tank that demonstrate the design is consistent with the requirements of this Chapter. Upon the Administrator's approval of the final tank documentation specifications, the Director shall modify the issued permit to authorize the construction of the water storage tank and foundation.

(iv) Applicants that use the phased authorization procedures in this paragraph (g) shall request a pre-application meeting with the applicable Division district engineer prior to submission of the permit application package to ensure efficient coordination of the submittals of all reports, plans, and specifications, and Division review timelines.

Section 8

8(a)

Lorie Cahn: Ms. Cahn recommends revising the order of the phrasing in the paragraph and removing part of 8(e) if duplicated in the TSS references.

Department Response: WDEQ/WQD has compared paragraph (e) to the incorporated material at paragraph (a) and has stricken the passages that overlap with the subparagraphs under (e).

8(c)(iv)(A)(I-II)

Lorie Cahn: Ms. Cahn recommended reviewing the passage and verifying whether "or" or "and" is correct at the end of (iv)(A)(I).

Department Response: WDEQ/WQD has reviewed the passage and has corrected the end of (iii)(A)(I) to "or". WDEQ/WQD has revised the paragraph as follows:

(A) The bottom of the stream, the elevation of the high- and low-water levels, and other topographical features at points where the water line:

(I) ~~The water line i~~Is located within 10 feet of streams or lakes; ~~and~~ or

(II) ~~The water line c~~Crosses streams or lakes.

8(e)(v)

Lorie Cahn: Ms. Cahn noted the paragraph is missing a word after "total depth of the drilled."

Department Response: WDEQ/WQD has corrected the passage to include the term "borehole".

8(e)(vii) and (viii)

Lorie Cahn: Ms. Cahn noted the well test data may not be available at the time of the application and is likely to be available later in the process.

Department Response: WDEQ/WQD revised the passages as follows:

(vii) The location of any blast charges, if available; and

(viii) Existing well test data, including:

Section 9

9(f)(v)

Lorie Cahn: Ms. Cahn recommended adding a reference to the statutory definition of "aquifer" that WDEQ/WQD referenced in the response to comments.

Department Response:

WDEQ/WQD has considered the recommendation. At this time, the WDEQ/WQD has determined that a reference to the statutory definition of "aquifer" that WDEQ/WQD referenced in the previous response to comments is not necessary to clarify this passage. The WDEQ/WQD will provide guidance on this topic in the training, education, and outreach it plans to conduct following promulgation of the revised Chapter 12. Applicants that are uncertain as to whether they will drill through multiple aquifers should contact the appropriate district engineer for further guidance.

9(f)(iv)

Lorie Cahn: Ms. Cahn recommended adding "if known" to the passage as the information may not be available at the time of application.

Department Response: WDEQ/WQD added "if known" to the passage.

9(g)(ii)

Lorie Cahn: Ms. Cahn noted that the cross-reference to paragraph (e) is incorrect and should be changed to paragraph (f).

Department Response: WDEQ/WQD corrected the cross-reference.

9(j)(ii)

Lorie Cahn: Ms. Cahn recommended adding "if required."

Department Response: WDEQ/WQD has revised the passage to "Hydraulic analysis that demonstrates how peak hour, average day, maximum day, and maximum day plus fire flows, if fire flows are available, will be improved by upsizing; and"

Section 11

Lorie Cahn: Ms. Cahn recommended revising Section 11 by beginning with the source and organizing the rest of the section out from the source.

Department Response: WDEQ/WQD has evaluated and researched the comment. During the drafting phase of the rule, the District Engineers laid out the content of Section 11 in the order of events they thought were the most logical from an engineering standpoint. Section 11 also follows the order of events of the TSS 2018. The order of items in Section 11 will remain unchanged.

11(a), Line 870

Lorie Cahn: Ms. Cahn recommended removing the reference to TSS 3.2.7 as all of 3.2.7 is not incorporated.

Department Response: WDEQ/WQD has removed 3.2.7 from 11(a).

Section 11, Table 1 and 2.

Lorie Cahn and Jim Cochran: - Ms. Cahn and Mr. Cochran noted the setbacks in the tables section are inconsistent with the setbacks in Water Quality Rules Chapter 25. Mr. Cochran recommended making the two chapters consistent or obtaining agreements from landowners related to permit applications to ensure siting conflicts do not occur.

Department Response: WDEQ/WQD has reviewed both the setback tables in Chapters 12 and 25 and has revised the setback distances from public water supply wells to septic tanks to 100 feet, for consistency with Chapter 25.

11(e)(i)

Lorie Cahn: Ms. Cahn notes that there are lots of very small water systems, campgrounds, rest stops, little parks. Ms. Cahn wondered if there is a way of having some kind of deminimus that allows facilities that serve less than a certain number of households, people, or size system to have an exemption from some of the regulations. For instance, if a small system such as campgrounds, rest stops, little parks, are required to have a second well, or a storage tank—they have to have twice as much as the daily demand. Since these are seasonal there can be water aging problems. Ms. Cahn is concerned that a one size fits all doesn't seem to work, and she is concerned about oversizing systems and making them too expensive.

Ms. Cahn wondered if using the definition for small wastewater systems would be a good starting point for assisting small public water systems.

Ms. Cahn noted the current passage seems to indicate that each well has to supply twice the maximum daily demand. The passage does not seem to make sense alongside the passage that follows that requires one well and storage.

> **Department Response:** After reviewing the comment and practices of other states, WDEQ/WQD has revised the paragraph and has added a new passage at (C) as follows:
>
> (i) Proposed designs shall include a minimum of:
>
> (A) Two wells that are each capable of supplying the ~~maximum~~ average daily demand with the largest producing well out of service; or
>
> (B) One well and finished water storage that together equal twice the maximum daily demand; or
>
> (C) For public water supplies that are not community water systems or noncommunity nontransient water systems, as determined by the Administrator, one well that is capable of supplying the maximum daily demand.

11(e)(ii)(C)

Lorie Cahn: Ms. Cahn notes the paragraph requires compliance with Water Quality Rules Chapter 3, Section 17(b), but Chapter 3, Section 17(a) seems to exclude public water supplies from the requirements in the section.

Department Response: As discussed during the meeting and as confirmed with our Attorney General's Office, the passages of Chapter 3, Section 17(b) are the steps that will be required for the subsurface study but the reference to this paragraph does not mean all of Chapter 3, Section 17 applies.

11(e)(iii)(C)

Jim Cochran: Mr. Cochran noted the 10-foot setback is inconsistent with other setbacks in the section and that it may be impractical for future landowners.

Department Response: WDEQ/WQD has reviewed the passage as discussed and has revised it as follows:

Wells shall be located at least ~~10~~ 50 feet from any property line.

11(e)(v)

Lorie Cahn: Ms. Cahn noted that the new requirements for acidizing seem to be regulating for an infrequent event or an event that has not happened yet. Ms. Cahn recalled that in a comment response WDEQ/WQD had declined to make a revision due to a situation not happening in Wyoming. Ms. Cahn recommended striking the acidization requirements and doing a policy instead for consistency with the comment response.

Department Response: WDEQ/WQD was unable to determine to which comment response Ms. Cahn is referring. The WWAB had previously approved the proposed acidization passages at the October 17, 2019 meeting. As the requirements allow WDEQ/WQD to collect information that is needed for the WDEQ/WQD to ensure the acidization activities do not negatively impact underground sources of drinking water, WDEQ/WQD will leave the acidization passages as part of the rule.

11(e)(vii)(C)(I)

Lorie Cahn: Ms. Cahn wondered if TSS 3.2.6.5 conflicts with line [1115] (11(e)(vii)(C)(I)).

Department Response: TSS 3.2.6.5 covers limestone or sandstone wells. However, the passage on line [1115], 11(e)(vii)(C)(I) falls under gravel-packed or artificial filter-packed wells. As noted in the March 15, 2022 Addendum to Analysis of Comments,

WDEQ/WQD will leave the casing requirements at 11(e)(vii)(C)(I) and (II) as written as the current requirements provide stability and frost protection. However, at 11(e)(vii)(D), WDEQ/WQD committed to revising the casing requirement for wells that encounter naturally flowing water for consistency with the State Engineer's Office casing requirements.

11(e)(vii)(D)(I)

Lorie Cahn: Ms. Cahn wondered if the water is not flowing back into the well, why couldn't WDEQ/WQD allow a below-ground vault or some additional way to keep the well from freezing.

Department Response: Buried well discharge lines or below-ground vaults with well discharge have demonstrated contamination when the below-grade discharge line becomes submerged by groundwater. Freezing considerations have been addressed previously in the section. This paragraph has been revised to the following:

"The well discharge or overflow line installations must connect to the well casing at least 12 inches above ground and be valved. The size of the air gap between the overflow line from the well to drainage structure shall be twice the diameter of the well overflow pipe. Overflow water must be drained and diverted to prevent ponding around the well casing."

11(e)(vii)(E) and 11(e)(vii)(E)(II)

Lorie Cahn: Ms. Cahn noted that for mineralized water, one of the commenters wanted 1000. Ms. Cahn explained the total dissolved solids is a secondary drinking water standard and that EPA considers anything over 1000 unfit for human consumption. Ms. Cahn recommended that WDEQ/WQD revise the language referring to 40 CFR 141, as this reference contains both secondary and primary standards. Ms. Cahn recommended rewording the reference to only refer to the primary drinking water standard and to remove the implication that applicants would be required to treat mineralized water.

Department Response: The intent behind the passage at Section 11(e)(vii)(E)(II) is to ensure that if the applicant proposes to use water that meets the definition of "mineralized," then the proposed design will produce water that complies with the applicable standards in Part 141. The mineralized water is a trigger that will require WDEQ/WQD to review any treatment design options that EPA will require to be

installed and operated so that the resulting water meets the drinking water standards that EPA will enforce. The passage does not require systems to comply with specific primary or secondary standards, which falls under the authority of EPA. WDEQ/WQD has clarified the passage as follows:

"(II) Applicants that propose to use mineralized water as a public water supply shall demonstrate ~~the~~ that any necessary treatment will comply with the drinking water quality standards required by 40 CFR Part 141.

11(e)(viii)

Lorie Cahn: Ms. Cahn recommended clarifying the passage to indicate "diameter" and recommends removing extra "shall." Ms. Cahn recommended incorporating all of 3.2.4 and removing all of (viii) and (ix) per Mr. Jordan's comment.

Department Response: WDEQ/WQD has reviewed 2018 TSS Part 3.2.4 against 11(e)(viii) and 11(e)(ix). Part 3.2.4 will be added to 11(a), with the subparts stricken from that paragraph, and 11(e)(viii) and 11(e)(ix) will be stricken, which makes the comments concerning "diameter" and redundant uses of "shall" obsolete.

WDEQ/WQD has reviewed all formal public comments received, including those from Mr. Jordan. We did not receive a specific request to incorporate 2018 TSS 3.2.4 prior to this recommendation being made at the March 15, 2022 meeting. As a reminder, in order for WDEQ/WQD to adhere to rulemaking procedures, all public comments must be received by the WDEQ/WQD according to the instructions provided in each public notice, or the public may read comments into the record during meetings when public comments are being accepted. Executive Order No. 1981-12 outlines actions to take should board members receive additional comments directly from interested parties.

11(e)(x)

Lorie Cahn: Ms. Cahn noted the response to comments document indicates WDEQ/WQD would revise the statement, but the revision is not incorporated into the draft chapter.

Department Response: WDEQ/WQD verified the passage included in Chapter 12 is the language proposed in the response to comments document.

11(e)(xvi)

Lorie Cahn and Jim Cochran: Ms. Cahn wondered why the passage requires each well to measure the total discharge from the whole field and why the applicant couldn't just add the individual well information together. Mr. Cochran noted the chapter already requires a meter.

> **Department Response:** WDEQ/WQD has revised the paragraph to the following: "An instantaneous and totalizing flow meter equipped with nonvolatile memory shall be installed on the discharge line of each well in accordance with the manufacturer's specifications. Meters installed on systems with variable frequency drives shall be capable of accurately reading the full range of flow rates."
>
> WDEQ/WQD has also revised 11(e)(xiv) to: "An accessible check valve, which is not located in the pump column, shall be installed in the discharge line of each well between the pump and the shut-off valve. Additional check valves shall be located in the pump column as necessary to prevent negative pressures on the discharge piping."

11(f)(v)(B)

Lorie Cahn: Ms. Cahn noted the response to comments document indicates WDEQ/WQD would revise the statement, but the revision is not incorporated into the draft chapter.

> **Department Response:** WDEQ/WQD reviewed the passage proposed in the response to comments document and revised the Chapter as follows:
>
> "Made of concrete ~~with a minimum width or wall thickness of six inches~~ or other material that meets the requirements of Section 15(b)(ii) of this Chapter;"

11(f)(xiii)

Lorie Cahn: Ms. Cahn noted the reference to Section 14 is incorrect and the correct reference is Section 15. Ms. Cahn also wondered if springs need to be subject to all of the requirements in Section 15 if they are not providing fire water.

Department Response: WDEQ/WQD corrected the cross-reference as requested and revised the passage as follows: "Spring box~~es~~ designs shall comply with ~~the finished water~~

~~storage requirements of~~ Section 15(a), (b), (f-j), and (l) of this Chapter~~,~~. Combined spring box and finished water storage designs shall comply with Section 15 of this Chapter."

Section 12

12(a)

Lorie Cahn: Ms. Cahn noted the incorporated material is listed out of order, and that "through" is inconsistently used, which leads to confusion as to what applies.

Department Response: WDEQ/WQD reviewed the incorporations of the TSS 2018 and corrected the passage as discussed.

12(k)(ii)(G)(II)

Brian Deurloo: Mr. Deurloo recommends revising the passage from "identical" to "equivalent."

Department Response: WDEQ/WQD revised the passage as requested.

12(j)(i)(C)

Lorie Cahn: Ms. Cahn recommended revising the passage to "the maximum feed point backpressure shall not exceed 100 psi unless a chlorine solution pump is used."

Department Response: WDEQ/WQD revised the passage as requested.

12(n)

Lorie Cahn: Ms. Cahn notes the term "hydrofluosilic" acid is misspelled and should be "hydrofluorosilicic."

Department Response: WDEQ/WQD corrected the term as recommended.

12(o)(i)

Lorie Cahn: Ms. Cahn notes the term “absorb” is used in the passage, but granulated activated carbon “adsorbs.”

Department Response: WDEQ/WQD corrected the passage as requested.

12(q)(i) and (ii)

Lorie Cahn: Ms. Cahn requested the incorporated manual include the phrase“US EPA.”

Department Response: WDEQ/WQD revised the references as requested.

12(r)

Lorie Cahn: Ms. Cahn recommended removing redundancy in paragraph (r) and (r)(i).

Department Response: WDEQ/WQD combined the passages and renumbered the section as needed.

12(r)(xii)

Lorie Cahn: Ms. Cahn noted the response to comments document indicates WDEQ/WQD would revise the statement, but the revision is not incorporated into the draft chapter.

Department Response: WDEQ/WQD corrected the passage to include the language proposed in the response to comments.

12(t)(i)

Lorie Cahn: Ms. Cahn notes the phrase “simple well system” is used in the passage and wonders where is the definition of this term and what the requirements would be for a non-simple well system.

Department Response: WDEQ/WQD removed “simple” from the passage.

Section 13

13(a)

Lorie Cahn: Ms. Cahn identified that "are herein incorporated by reference" was used repeatedly in the passage and recommended striking the unnecessary uses.

Department Response: WDEQ/WQD corrected the passage as requested.

Section 14

14(g)(iv)

Lorie Cahn: Ms. Cahn noted the passage seems unnecessarily prescriptive and does not seem necessary.

Department Response: WDEQ/WQD notes the passage has been in the rule since 1985 and is part of common engineering design practices to determine headloss. WDEQ/WQD has not received comments or feedback from applicants that indicate the passage is unnecessary or burdensome. WDEQ/WQD uses the submitted information to verify the proposed design will meet the requirements of paragraphs (g)(i)-(iii) to ensure the overall design will meet the intent of the Environmental Quality Act. The passage will remain as written.

14(i)(ii)

Lorie Cahn: Ms. Cahn noted the revision does not clarify the requirement.

Department Response: WDEQ/WQD has reviewed the section and determined the section will revert to include original proposed language, which included the term "manifolded". The original term and language is common in the industry, and the language is used by numerous EPA Region 8 and 9 states. WDEQ/WQD will restore the paragraph to :

"Each pump shall either have an individual suction line or the suction lines shall be manifolded such that they demonstrate similar hydraulic and operating conditions."

Section 16

16(g)

Lorie Cahn: Ms. Cahn noted that WDEQ/WQD's response to the public comment on the passage is insufficient. Ms. Cahn notes that manholes are difficult to keep water out—coatings leak, fiberglass can flood, flooding can cause rust/difficult use, safety issues. Ms. Cahn asked WDEQ/WQD to look at valve boxes and the wording on chambers to clarify that these are synonymous.

> **Department Response:** WDEQ/WQD has evaluated the passage and determined it is duplicative with the inclusion of TSS 2018 8.5- Air Relief Valves. WDEQ/WQD will remove Section 16(g).

WYOMING WATER AND WASTE ADVISORY BOARD

RE: WATER AND WASTE ADVISORY BOARD SPECIAL MEETING

TRANSCRIPT OF SPECIAL MEETING PROCEEDINGS

Pursuant to notice duly given to all parties in interest, this matter came on for special meeting on the 3rd day of May, 2022, at the hour of 9:07 a.m., before the Wyoming Water and Waste Advisory Board, Ms. Lorie Cahn, Acting Chairman, presiding, and Mr. Brian Deurloo and Mr. Brian Dickson in attendance virtually, with Mr. James Cochran in attendance. And Mr. James Peters and Carl Edelman, Attorneys for the Board, also in attendance virtually.

Ms. Nicole Budine, Attorney for the Division; Ms. Jennifer Zygmunt, Water Quality Administrator; Mr. Keenan Hendon, Water and Wastewater Section Manager; Mr. Anthony Rivers, Water/Wastewater Regulatory & Enforcement Engineer; and Ms. Gina Thompson, Water Quality Division; and Mr. Bryce Dorr, Cheyenne BOPU, in attendance; as well as various members of DEQ staff and the public in attendance virtually.

P R O C E E D I N G S

(Special meeting proceedings commenced 9:07 a.m., May 3, 2022.)

MS. ZYGMUNT: Good morning, Lori. Thanks for joining us today. Okay. With that, Chairwoman Cahn, I'll let you start the meeting for us this morning.

ACTING CHAIR CAHN: Okay. This is a special meeting of the Water and Waste Advisory Board to discuss Chapter 12. And I'll turn it over to DEQ. Actually, let's first introduce everybody who's here. From the Board, I'm Lorie Cahn. I'm the acting chair representing the public at large.

BOARD MEMBER DEURLOO: Hi. This is Brian Deurloo -- Brian Deurloo here, and I'm representing industry.

BOARD MEMBER DICKSON: I'm Brian Dickson, representing the public at large.

BOARD MEMBER COCHRAN: Jim Cochran, just member. The reason I say that is I attended training -- board training last week, and they talked about who you're representing, and they said that that's only for the purposes of appointing board members. Once you're appointed, you represent the whole state. So maybe we should just drop who we're representing and assume we're representing the whole state. So with that, I'll turn it

back to Lorie.

ACTING CHAIR CAHN: Okay. Thank you very much. I appreciate it.

And how about DEQ, introduce who you have there.

MS. ZYGMUNT: Great. Thank you, Lorie.

So my name is Jennifer Zygmunt. I am the Water Quality Division Administrator.

MR. HENDON: Keenan Hendon, Water and Wastewater Section Manager.

MS. THOMPSON: Gina Thompson, Policy and Planning Analyst for the Water Quality Division.

MR. RIVERS: Anthony Rivers. I'm here for Water and Wastewater Section.

MS. ZYGMUNT: And I'll turn it over to our Attorney General's Office. We've got a few people from the Attorney General's, so I'll let them introduce themselves, starting with Jim.

MR. PETERS: I'm Jim Peters at the Attorney General's Office representing the advisory board. Also joined with by Carl Edelman today, also at the Attorney General's Office. He'll be taking over representing the advisory board after today's meeting, so going forward. But I'll let him introduce himself.

MS. ZYGMUNT: Carl, if you're speaking, we can't hear you. You're still on mute. He may have had to

step away.

So, Nicole, do you want to introduce yourself?

MS. BUDINE: Yeah. Sure. Hi. This is Nicole Budine, and I'm at the Attorney General's Office, representing the Water Quality Division of DEQ.

MS. ZYGMUNT: Thanks, Nicole.

And, Madam Chairwoman, we do have somebody from the public here in the Cheyenne office, if you'd like them to introduce themselves. That's you.

MR. DORR: Bryce Dorr with Cheyenne Board of Public Utilities.

MS. ZYGMUNT: Great. Thank you.

ACTING CHAIR CAHN: I'm sorry. Could you repeat that? I couldn't hear you.

MR. DORR: Sure. Bryce Dorr, Cheyenne Board of Public Utilities.

ACTING CHAIR CAHN: Thank you.

Okay. Administrator Zygmunt, if you want to proceed.

MS. ZYGMUNT: Sure. Thank you.

So thank you everybody for your time today. As Chairwoman Cahn indicated, this is a special meeting that we have convened to review Chapter 12. I will just give a brief introduction, and then I will turn it over to Keenan to walk us through the revisions.

So just as a reminder, this is our Division's third presentation to the WWAB for Chapter 12, Design and Construction Standards for Public Water Systems. This special meeting follows the meeting that we had on March 15th. We have met previously with the Board in December. So two quarterly meetings with the Board. We have had an opportunity to review the entire rule and receive feedback.

The purpose, again, of this meeting today is to review the revisions that we made following the discussion and additional comments that we received from both the Board and the public at the March 15th meeting.

Again, at that meeting, it was the Board's recommendation that DEQ did not proceed forward with formal rulemaking. So we considered that advice and wanted to honor the Board's request to have another opportunity to review the revisions that we have made to this rule, again following the discussion that we had on March 15th.

So, again, thank you for your time today. We're looking forward to showing you the final revisions that we have made to the rule and the response to comments that we have put together, again, per the Board's comments at the March 15th meeting, the additional comments we received from the Wyoming Association of Rural Water Systems at that meeting as well.

As a reminder, we did not put the rule back out for public notice with this meeting. That was a decision made given the length of time that we have already had this rule out for public comment. We've had it out for approximately 100 days. Received good feedback during that public comment period and have responded to all comments with personal outreach to each commenter.

And before I turn it over to Keenan, I just want to say that we have received a lot of good feedback on this rule during this process. And that's both in the content of the rule as well as our processes. And we feel that we have a good product to present to you today, but I just want to, again, thank the Board for your feedback over the past few meetings, because it's not only informed the rule, but I think it's caused us to reconsider, again, some of our processes associated with rulemaking, how we best do outreach, how we best do scoping, how we respond to comments and how we best present information to you and work efficiently with the Board to get your feedback and recommendations on our rules.

I -- you know, both Keenan and I are new -- fairly new to the Division still. You know, we took over this chapter midstream and I think we have had some good discussions internally based on your feedback about how we can improve things moving forward.

So this is a discussion that I would like to continue with the Board, and one with Administrator Engels at one of our regularly scheduled meetings. Again, we're interested in finding the best way to present information to you, get your advice on these rules, and make the best use of your time, and I think we've had some good insight into how we do that, and how we reach out to the public to get feedback on our rules.

So I think it's been a good discussion over the past few meetings. Again, we're looking forward to presenting our revisions to you today. And, again, just know that we are committed to continued conversation on how we improve the process moving forward in the interest of your time as well as staff time here and making sure we get the best public input that we can.

So unless there are any questions for me, I will pause there and turn it over to Keenan to walk through the revisions.

MR. HENDON: So hearing no further comments, we'll go ahead and get started with reviewing Chapter 12 and the comments that we received from the March WWAB meeting from the board members, as well as the public commenter, Mark Peppers with the Wyoming Association of Rural Water Systems.

Just as a reminder, Sections 1 through 9 were

reviewed at the December WWAB meeting. They were re-reviewed at the March meeting. And Sections 10 through 19 were also reviewed at the March WWAB meeting as well.

As we work our way through the comments, for the board members, as well as Mark Peppers with WARWS, we've kind of streamlined those comments, and we'll take those in section order as we work our way through the response to comments document that has been distributed to everyone here today.

So with that, we'll just go ahead and get started with our general comments that we received on Chapter 12. And our first comment is from Ms. Cahn, who recommended including a description of what would require a permit modification in the response to comments document as the current response is unclear.

DEQ's response -- or the Department response, we plan to provide permittee guidance that identifies frequently asked questions and DEQ's responses to further clarify what activities require permit modifications. DEQ also plans to provide training, outreach, and educational opportunities to reach our stakeholders about revised Chapter 12 once it's promulgated. These events will include information and guidance about applying for and modifying permits.

Additionally, DEQ would recommend stakeholders to

conduct outreach with our district engineers, as well as reach out to headquarters with any questions or concerns.

Our next comment under General Comments from Ms. Cahn, recommended verifying the passages in each section that reference the 10 States Standards and recommends removing redundant language and references that are only titles that do not contain requirements.

The Department response, DEQ has reviewed each section that references the 10 States Standards for typographical errors and made additional edits to remove any redundant wording throughout the document. Additionally, DEQ is developing a 10 States Standards crosswalk and additional guidance documents to aid users in the implementation of Chapter 12.

ACTING CHAIR CAHN: Keenan, when will that be available?

MR. HENDON: Those documents will be available once the rule's promulgated.

Had a technical glitch here. Just a moment.

Moving on to our next comment, was from Ms. Cahn, who recommended DEQ correct the response to commenter Ty Ross for reference 10(b)(i), as the current answer is incorrect and should be 10(b)(ii).

The Department response, DEQ will not revise the response to comment documents, but does note Ms. Cahn's

comment for the record. We did discuss this with the commenter during our outreach session, and this comment was addressed to the satisfaction of both parties.

Next comment is from Brian Deurloo. Brian recommended that DEQ review the punctuation in the chapter and ensure semicolons and periods are used consistently.

DEQ has reviewed the chapter as requested and adjusted the punctuation as appropriate.

And that concludes our General Comments. Just in summary, with some of these changes to the document, the formatting of the document has been changed in order and presentation. And as an example, I'd like to draw your attention to page 4 or 5 of the proposed Chapter 12.

On page 4 you'll see a new definition for stabilized drawdown. And on the other side you'll see page 5, you can see some formatting changes that just will be -- that shows the section as presented just a bit differently, because there's been no content change.

So as we work our way through the chapter, you will see some of these highlights in green as we work our way through the document that we won't be covering, but it's just what we did to address some of the punctuation, formatting, and other requests that we have received.

MS. ZYGMUNT: Are there any questions from the Board on these General Comments? Otherwise, we'll

continue on. Okay. Thumbs up.

Go ahead, Keenan.

MR. HENDON: All right. So we are on to the next comment. It's located in Section 3, page 1, line 30.

The comment is from Ms. Cahn, requesting DEQ rename the section to "applicability of these regulations" instead of "timing," since this term is not used in the section.

DEQ notes that Section 3 is consistent with other Water Quality Rules, because the timing of compliance with the chapter or grandfathering is an important topic to permittees. DEQ also notes the chapter already contains an applicability section which describes the facilities that are required to comply with the chapter. DEQ has structured both the timing of compliance section and the applicability section in a manner that is consistent with other Water Quality Rules and section title aligns with other DEQ regulations.

The section describes timing in relation to permit coverage. DEQ intends to leave the title as written.

Our next comment is located in Section 6, on page 5, line 194. Comment is from Ms. Cahn. Notes that the title and contents of the section are confusing.

DEQ's response, as discussed at the March meeting, DEQ uses the section as written to give the Administrator flexibility in permitting new technologies that are not specifically described in the rule, but which meet the intent of the rule.

The title and language aligns with other DEQ regulations and will leave the title as written.

Excuse me. Our next comment is located in Section 7. We are looking at Section 7(g)(ii) and 7(g)(iii) located on page 6 starting at line 268. The comment is from Ms. Cahn and Mr. Deurloo, who advised DEQ clarify the passage further to ensure active language is used to clarify what the Administrator is authorizing and what is being authorized.

The passage in question -- the passage in question is with regards to the two-phase permitting process. And we've corrected the language and cleaned the passage to better identify it to be a two-part authorization process for permitting of wells and storage tanks.

Our next comment is located on Section 8. We are looking at Section 8(a), page 7, line 311. Ms. Cahn recommends revising the order of the phrasing in the paragraph and removing part 8(e), if duplicated in the 10 States Standards references.

DEQ has compared paragraph 8(a) to paragraph 8(e) and incorporated the material and removed the passages that overlap in part 8(e). If you're looking for the information that's located -- 8(a) is located on page 7, line 311. 8(e) starts on page 10, page 427 for the stricken components that overlapped.

Our next comments is Section 8. It's located on page 8, line 357. It is Section 8(c)(iv)(A)(I) to (II). Ms. Cahn recommended reviewing the passage and verifying whether "or" or "and" is the correct usage at the end of (A)(I).

We reviewed the passage and corrected it to "or" is the correct word usage.

Our next comment is located at Section 8(e)(v), line 446, page 10. And Ms. Cahn had noted the paragraph is missing a word after the "total depth of the drilled." DEQ has corrected the passage to "total depth of the drilled borehole."

ACTING CHAIR CAHN: Why that doesn't show up as green --

MS. THOMPSON: Because I missed a formatting mark.

MR. HENDON: Yeah. We probably missed a formatting mark when we were trying to get -- essentially with regards to our green version versus clean version

versus tracking all changes with regard to our rule change chapter. Apologize for the confusion.

Our next comment is with regards to Section 8(e)(vii) to (viii) located on page 10, on lines 452 and 454. Ms. Cahn had noted that the well test data may not be available at the time of application and is likely to be available later in the process.

We revised the passage as presented for (vii) to include "The location of any blast charges, if available; and," for (viii), "existing well test data, including:" as listed.

Moving on to our next section. We're in Section 9 now. We're going to discuss two comments we received from Mark Pepper with WARWS. These are located at Section 9(a), line 509 on page 12. Mr. Pepper's first comment he notes that the 2018 10 States Standards Part 1.1.5 f discusses high water loss being greater than 20 percent. In arid state such as Wyoming, where some of the systems are facing water shortages, 20 percent water loss seems too high. Mr. Pepper recommended revising it to greater than 15 percent for starters, as WARWS advises that water loss above 10 percent should be investigated and leaks may be occurring or lost revenue may be incurred from uncalibrated meters.

Part 1.1.5 f reads, For systems with high

percentage of unaccounted for water (generally greater than 20 percent of water production), a water audit may be required by the reviewing authority.

In reviewing the response DEQ has considered it and the recommended change would modify parts of the 2018 10 States Standards to reduce the 20 percent water loss down to 15 or 10 percent. DEQ notes that this 2018 TSS passage is discretionary. It provides an example of what high percentage of water loss might be and provides that at 20 percent, but does not limit the agency from considering values less than 20 percent as being a high percentage of water loss.

Additionally, the water audit is at the Administrator's discretion, and DEQ could require it upon review, and evaluate it on a case-by-case basis. DEQ plans to explore options to provide the additional training and outreach to address system awareness of high water loss and is looking forward to working with WARWS on continued efforts with our community.

Our next comment is from Mark Pepper as well. Section 9(a). Again, Mr. Pepper notes that the 2018 TSS Part 1.1.7.1 f was included for surface water protection measures, but 1.1.7.2 h, groundwater source protection measures was omitted. Mr. Pepper notes with 88 percent of systems utilizing groundwater for their drinking water

source, we should place value on protecting the groundwater. As an example, in our source water protection planning, we often utilize this concept so that principally county-installed septics or other potential harmful activities are not approved by county boards upgradient from municipal water wells or at least some mitigation measures are taken to lessen potential contamination.

DEQ has considered the comment, and has intentionally omitted 1.1.7.2 h, as it references and includes TSS Part 3.2.3.3, wellhead protection plans. Since DEQ intends to continue addressing wellhead protection planning and other source water protection planning on a voluntary basis, 1.1.7.2 h will not be incorporated by reference at this time.

However, 1.1.7.2 h also includes a reference to Part 3.2.3.2, for continued sanitary protection of the well site from potential contamination, which DEQ will include and add to Section 11(a).

DEQ fully recognizes the importance of groundwater as a source of drinking water in Wyoming, and has many programs, both regulatory and voluntary, in place to protect groundwater quality. We intend to continue and encourage our communities that use groundwater for drinking water to develop wellhead protection plans and look forward to working with WARWS to strengthen our voluntary source

water protection program, including our work with WARWS, to provide training and outreach and benefits to our communities.

Our next comment is located on Section 9(f)(ii). That was the original reference in the March meeting. It is now located at 9(f)(v), page 15, line 642. Ms. Cahn had recommended adding a reference to the statutory definition of aquifer that DEQ referenced in response to comments.

DEQ has considered the recommendation and at this time DEQ's determined that a reference to the statutory definition of aquifer that DEQ referenced in the previous responses to comments is not necessary to clarify this passage. DEQ will provide guidance on this topic, and, again, training, education, and outreach, and plans to conduct following promulgation of the revised Chapter 12. Applicants that are uncertain as to whether they will drill through multiple aquifers should contact the appropriate district engineer or reach out to headquarters for further guidance.

Next comment is located at Section 9(f)(iv), line 637 on page 14. Ms. Cahn recommended adding "if known" to the passage as the information may not be available at the time of application.

DEQ has added "if known" to the passage.

Our next comment is located at Section 9(g)(ii)

on page 15, line 656. And Ms. Cahn noted that the cross-reference to paragraph (e) is incorrect and should be changed to paragraph (f).

DEQ has corrected the cross-reference.

Our next comment is located at Section 9(j)(ii), line 710 on page 16. And Ms. Cahn recommended adding "if required."

DEQ looked into the passage and modified it as presented, and it is now -- now reads as the following: "Hydraulic analysis that demonstrates how peak hour, average day, maximum day, and maximum day plus fire flows, if fire flows are available, will be improved by upsizing; and"...

Okay. Our next comment takes us to Section 11. We're starting Section 11 on page 20. Ms. Cahn had recommended revising Section 11 by beginning with the source and organizing the rest of the section out from the source.

ACTING CHAIR CAHN: Keenan?

MR. HENDON: Yes, Lorie.

ACTING CHAIR CAHN: I'm just wondering -- I'm worried about the comments that I want to make on the comment responses are going to get lost if we don't address them as -- as chapter by chapter. I'm not sure how you want to do this. If you want to go through everything and

then go over board discussion, or if you want us to address them as you get to them.

MS. ZYGMUNT: Yeah, Madam Chairwoman, so I recommend if you have questions, that you raise them as we go. And let me just clarify. Are you -- do you have questions about our response to comments or further questions about the rule itself?

ACTING CHAIR CAHN: Both. But the first -- the first one would be on changes that were made, not in response to a comment.

MS. ZYGMUNT: Can you give me an example? I don't know that I'm quite following what feedback you'd like to provide.

ACTING CHAIR CAHN: So if we can back up to page 12-4, line 166, back in the definitions.

MS. ZYGMUNT: Okay.

ACTING CHAIR CAHN: Section 5, you added the definition of stabilized drawdown.

MS. ZYGMUNT: That is correct.

ACTING CHAIR CAHN: And I want to look at the construction of that. So if you look at line 170, excuse me, "...and plotted measurements that have not shown a trend of decreasing water level." And that follows "The water column is measured from pre-test static water level..." and it really belongs with the first sentence,

because it's talking about stable -- the water level not changing over at least a six-hour period of constant pumping flow rate. So I think after flow rate we can say "and plotted measurements have not shown a trend decreasing water level," because I think it's all good information, but it's in the wrong order.

MS. ZYGMUNT: Let me turn it back over to Keenan. I know Keenan mentioned this revision.

Keenan, can you remind the group again why we added this definition and where it came from.

MR. HENDON: This came from a pump test clarification request from I believe a commenter, Ben Jordan, wanting to know what stabilized drawdowns would be for a pump test to make sure that we were consistent across districts in our state. We revised the section per request, and then upon further evaluation, it was determined to include a new definition for stabilized drawdown.

With regards to Lorie's comment, we can move the plotted measurements to the first sentence.

MS. ZYGMUNT: Madam Chairwoman, can you read the revised definition as you're proposing?

ACTING CHAIR CAHN: Yeah. Stabilized drawdown means a water level that is not fluctuated by more than plus or minus 0.5 foot for each 100 feet of water in

the well over at least a six-hour period of constant pumping flow rate. And plotted measurements that have not shown a trend of decreasing water level. I know it's a long sentence, but...

And then the next sentence would be the water column is pressured from pre-test, and it would just stay the same as it is through pre-test static water level to the top of the deepest water-bearing fracture that contributes at least 10 percent of total well yield.

MS. ZYGMUNT: Okay. Thank you. We can make that revision.

ACTING CHAIR CAHN: Okay. Thank you.

MS. ZYGMUNT: Okay. Madam Chairwoman, I would like to turn it back over to Keenan, unless there were further comments you had on these sections that we have already reviewed the revisions for.

ACTING CHAIR CAHN: Okay. Just give me a second to cross-check here. I'm good.

And I would just ask the other board members if you have any comments, please feel free to ask to be recognized. Thank you.

MS. ZYGMUNT: Great. Thank you, Madam Chairwoman.

Keenan, turn it back to you.

MR. HENDON: Sure. So we were in Section

11. We'll just go ahead and start I think where we left off. We were looking at page 20 on Section 11. And Ms. Cahn had recommended revising Section 11 by beginning with the source and organizing the rest of the section out from the source.

DEQ has evaluated and researched the comment, and during drafting of the rule, district engineers laid out the content of Section 11 in the order of the events they thought were the most logical from an engineering standpoint.

Additionally, Section 11 also follows the order of events of the 10 States Standards. And at this time the order of items in Section 11 will remain unchanged.

Our next comment is located on Section 11(a), line 870 to line 904 on page 20. Ms. Cahn recommended removing the references to TSS 3.2.7 as all of these 3.2.7 is not incorporated.

DEQ has removed 3.2.7 from 11(a).

Our next comment takes us to Tables 1 and 2 in Section 11. These start on page 23 at line 1033. Ms. Cahn and Mr. Cochran noted the setbacks in the table sections are inconsistent with the setbacks in the Water Quality Rules Chapter 25. Mr. Cochran recommended making the two chapters consistent or obtain agreements from landowners related to permit applications to ensure citing conflicts

do not occur.

DEQ has reviewed both the setback tables in Chapter 12 and 25 and has revised the setback distances for public water supply wells and septic tanks to 100 feet for consistency with Chapter 25.

Our next comment is located in Section 11(e)(i), line 1013 on page 23. Ms. Cahn notes there are several -- there are lots of very small water systems, campgrounds, rest stops, little parks. Ms. Cahn wondered if there is a way of having some kind of de minimis that allow facilities that serve less than a certain number of households, people or size systems to have an exemption from some of the regulations. For instance, if a small system such as a campground, rest stop, little park, are required to have a second well or storage tank, they have to have twice as much the daily demand. Since these are seasonal, there can be water aging problems. Ms. Cahn is concerned that a one-size-fits-all doesn't seem to work and concerned about oversizing systems and making them too expensive.

Ms. Cahn also wondered if using the definition for small water systems would be a good starting point for assisting small public water systems.

Ms. Cahn also noted the current passage seems to indicate each well has to supply twice the maximum daily demand. The passage does not seem to make sense, alongside

the passage that follows that requires one well in storage.

DEQ response, after reviewing the comment, doing some research, looking into what other states provide, DEQ has revised the paragraph and has added a new passage at section (C). We think we've got a good solution that will target our full suite of public water systems we see in the state of Wyoming with this solution. And we've proposed to read the new passage. Proposed design shall include a minimum of: (A) Two wells that are each capable of supplying the maximum average daily demand with the largest producing well out of service; or (B) One well and finished water storage that together equal twice the maximum daily demand; or (C) for public water supplies that are not community water systems or noncommunity trans -- nontransient water systems, as determined by the Administrator, one well that is capable of supplying the max daily demand.

ACTING CHAIR CAHN: Keenan, I appreciate the changes and appreciate you guys looking into this. I mean, it's very important changes.

I'm confused about the wording on line 1023 and 1024. I don't understand the intent, because there's non and non and not all in the same sentence. So I get the first part, for public water supplies that are not community water systems, I get that. But the second part,

or noncommunity nontransient water systems, is that water supplies that are not noncommunity nontransient water systems?

MR. HENDON: Sure.

ACTING CHAIR CAHN: So there's too many "nots" and "nons" for me to understand it. So if you could explain it, and maybe we can reword it to make it more clear.

MR. HENDON: Sure. Essentially what our solution is kind of addition by subtraction method. The community water systems are defined by statute. Noncommunity nontransient water systems are also defined by statute. So both of those systems would qualify in (A) and (B).

We do not have a definition to fit a nontransient noncommunity system, which is what we're looking to find a solution for for our campgrounds and RVs, single gas station-type situations.

MS. ZYGMUNT: So, Madam Chairwoman, let me just add to that. So we are using established definitions in our statutes. And as Keenan indicated, we're using the two that are defined to -- by inference, to find the third, which is not defined in statute. And so it does a nice job, though, of explaining that if you're not a community water system, or if you're not one of these noncommunity

nontransient water systems as defined in statute then item (C) would apply to you.

So it's a simple way of targeting that third category, which is not defined in statute, but which are the systems that you pointed out in your comment. So it gets to what we're trying to do, which is to give that flexibility for these small transient noncommunity systems, but it's the most elegant, simple way we can do it right now without having that third definition in our statutes.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: I know it's not the best wording, but if you refer back to the definitions in our statutes, it does -- it is clear.

ACTING CHAIR CAHN: Okay. So do we need to add the word after "or," should we add "not" noncommunity nontransient water systems and maybe give an example such as?

MS. ZYGMUNT: I think we can add the word "not" in after "or," but for the purposes of our rules, I would not want to add an example. We could further clarify some examples in guidance, as we work with people, but I would hesitate to put examples into our rules.

ACTING CHAIR CAHN: Okay.

MS. ZYGMUNT: And, Keenan, I believe I interrupted you.

MR. HENDON: Yeah. I was just going to echo Jennifer's comment, that we could address this in "frequently asked questions" and perhaps write a waterfall for an example in that situation.

ACTING CHAIR CAHN: So I think I'm a little bit confused about being not nontransient water systems. So a lot of the -- I guess maybe I don't understand the transient and nontransient. If you can explain that, because I guess from -- well, go ahead and explain what nontransient is.

MS. ZYGMUNT: Maybe provide an example, Keenan, if you can.

MR. HENDON: Sure. So the community water system definition means a public water supply that has at least 15 service connections used year-round, year-round by residents, or that regularly provide water to at least 25 residents year-round, including but not limited to municipalities and water districts. A nontransient noncommunity water system means a public water supply, which is not a community water system and which regularly provides service to at least 25 of the same persons for more than six months of the year, where those persons are not full-time residents, including but not limited to schools, factories, and office buildings.

So what we are saying is if you are not a

community water system or if you are not a nontransient noncommunity water system, then you can qualify -- which typically an RV, a campground, a single gas station, perhaps a single restaurant, would qualify in our section (C) --

ACTING CHAIR CAHN: Okay.

MR. HENDON: -- category, and it would provide that solution to them.

ACTING CHAIR CAHN: Okay. Great. Then I would suggest we add the word "or not," like we've discussed. But I would reverse noncommunity nontransient to be nontransient noncommunity, which is what you just read out of the statute.

MR. HENDON: Sure. We can do that too.

ACTING CHAIR CAHN: Okay. So I think, even though I had a hard time understanding the language --

MR. HENDON: Sure.

ACTING CHAIR CAHN: -- I think this addresses my concern that a campground that only has needs -- you know, has water supply well for six months or something and it's closed the rest of the year, they don't have -- they can get by with -- they can just supply the maximum daily demand.

MR. HENDON: Correct.

ACTING CHAIR CAHN: Okay. Great. Okay.

Thank you very much. I appreciate that.

MR. HENDON: Sure. We're quite pleased as well to find a solution to that one.

MS. ZYGMUNT: Do you want to talk briefly about what other states do? Okay. No?

MR. HENDON: No.

Section -- our next comment is on 11(e)(ii)(C). We are looking at page 24, line 1042. Ms. Cahn notes the paragraph requires compliance with Water Quality Rules Chapter 3, Section 17(b), but Chapter 3, Section 17(a) seems to exclude public water supplies from requirements of the section.

DEQ's response, we did discuss this at the March meeting and we set to confirm with our Attorney General's Office the requirements of this passage. And the passages of Chapter 3, Section 17(b) are the steps that will be required for the subsurface study. But the reference to this paragraph does not mean all of Chapter 3, Section 17 would apply.

Our next comment is on page 24, 11(e)(iii)(C). It kind of ties back into our previous comments on setbacks, that Mr. Cochran noted the 10-foot setback is inconsistent with the other setbacks in the section, and it may be impractical for landowners and future landowners.

DEQ has reviewed the passage, did some research,

looked at what our surrounding regions eight states have done and have modified the passage to the following: Wells shall be located at least 50 feet from any property line.

Our next comment is located at 11(e)(v), line 1091, page 25. Ms. Cahn noted that the new requirements for acidizing seemed to be regulating for an infrequent event or an event that has not happened yet. Ms. Cahn recalled that in the comment response DEQ had declined to make a revision due to a situation not happening in Wyoming. Ms. Cahn recommended striking the acidization requirements and doing a policy instead of -- instead for consistency with the comment response.

DEQ is unable to determine at which part or section Ms. Cahn was referring to with regards to the acidization. The WWAB had previously approved the proposed acidization passages of the October 17, 2019, meeting. As the requirements allow DEQ to collect information that is needed for DEQ to ensure acidization activities do not negatively impact underground sources of drinking water, DEQ will leave the acidization packages as part of the rule.

Our next comment is located on page 26, Section 11(e)(vii)(C)(II). Ms. Cahn wondered if the TSS 3.2.6.5 conflicts with line 1164, 11(e)(vii)(C)(I).

DEQ's reviewed the comment, TSS 3.2.6.5 covers

limestone or sandstone wells. However, the passage on line 1164 falls under gravel packed or artificial packed wells. There is no conflict.

Additionally, with this review, as noted at the March 15, 2022, addendum to analysis of comments, DEQ will leave the casing requirements in at the 11(e)(vii)(C)(I) and (II) as written as the current requirements provides stability and cross-protection.

Additionally, on line 1172, page 26, 11(e)(vii)(D), DEQ committed to revising the casing requirements for wells that encounter naturally flowing water for consistency with the state engineer's office for casing requirements, and that portion has been corrected.

Our next comment is with regards to 11(e)(vii)(D)(I), page 27, line 1183. Ms. Cahn wondered if water is not flowing back into the well, why couldn't DEQ allow a below-ground vault or some additional way to keep the vault from freezing.

This section is in regards to discussing artesian wells. Buried well, discharge lines, or below-ground vaults with well discharge have demonstrated contamination when the below-grade discharge lines become submerged by groundwater. Freezing considerations have been addressed previously in the section. The paragraph has been revised to include the following:

For an overflow on an artesian well, the well discharge or overflow line, installations must connect to the well casing at least 12 inches above ground and be valved. The size of the air gap between the overflow line from the well to drainage structures shall be twice the diameter of the well overflow pipe. Overflow water must be drained and diverted to prevent ponding around the well casing.

This information is similar to what you would see for the state of Idaho or Utah.

Our next comment is located on page 27, Section 11(e)(vii)(E) and 11(e)(vii)(E)(II). Ms. Cahn noted that for mineralized water, one of the commenters wanted 1,000 per milliliter TDS. Ms. Cahn -- for TDS. Ms. Cahn explained that total dissolved solids and a secondary drinking water standard and EPA considers anything over 1,000 unfit for human consumption. Ms. Cahn recommended that DEQ revise the language referring to 40 CFR 141, drinking water standards, as this reference contains both secondary and primary standards. Ms. Cahn recommended rewording the reference to only refer to primary drinking water standards and to remove the implication that applicants be required to treat mineralized water.

DEQ has looked into the comment. The intent behind the passage at Section 11(e)(vii)(E)(II) is to

ensure that if the applicant proposes to use water that meets the definition of mineralized, then the proposed design will produce water that complies with the applicable standards in Part 141 of the CFR.

The mineralized water is a trigger that will require DEQ to review any treatment design options EPA might require to be installed and operated so that the resulting water system meets the drinking water standards that EPA will enforce. The passage does not require systems to comply with specific primary or secondary standards, which falls under the authority of EPA.

DEQ has clarified the passage as follows: Applicants that propose to use mineralized water as a public water supply shall demonstrate that any necessary treatment will comply with the drinking water quality standards required by 40 CFR 141.

ACTING CHAIR CAHN: Thank you for that clarification. And I'll also clarify that I misspoke in that comment, because 141 just has the primary drinking water standards, and my concern was about the secondary in there in 143. So thank you for your changes.

MR. HENDON: Sure. Okay. Our next comment is located on 11(e)(viii), page 27, line 1215. Ms. Cahn recommended clarifying the passage to indicate diameter and recommends removing extra "shall" or "shalls." Ms. Cahn

also recommended incorporating all 3.2.4 and removing all of (e)(viii) and (ix) per Mr. Jordan's comment.

DEQ has reviewed the 2018 TSS Part 3.2.4 against 11(e)(viii) and (ix). Part 3.2.4 will be added to 11(a) with the subparts stricken from the paragraph. And 11(e)(vii) and (ix) will be stricken as well. With removing of these parts, it makes the concerns with regard to diameter and the use of "shall" obsolete.

DEQ has reviewed all formal public comments that we have received including those from Mr. Jordan. We did not receive a specific request to incorporate the 2018 TSS 3.2.4 prior to the recommendation being made at the March 15, 2022, meeting. Just as a reminder, in order for DEQ to adhere to rulemaking procedures, all public comments must be received by DEQ according to the instructions provided in each public notice or the public may read comments into the record during the meetings when public comments are being accepted. Executive order number 1981-12 outlines actions to take should the board members receive additional comments directly from interested parties.

ACTING CHAIR CAHN: I would just like to clarify the comment that I made. Because Mr. Jordan made -- I had notice in the margin of my document and I had -- that Mr. Jordan had made comments on section

(viii) -- (viii) and (ix), and then I also had my own comment about removing -- or incorporating 3.2.4. And so in response to Mr. Jordan's comment that he made in the -- on the record, I had scribbled some notes of my own about how we could resolve his comment and also incorporate. So I think in the end everything has ended up the way it should be. We're in agreement.

I apologize for any confusion on the way I might have worded it, because when I had notes, it sometimes it was hard to tell -- so --

MR. HENDON: Sounds good.

ACTING CHAIR CAHN: -- what was my note and what was Mr. Jordan's comments. So they got muddled, I think, in this response. So I just wanted to clarify there were two different things, and the resolution that you have proposed works for me, and I would assume that you've talked to Mr. Jordan and it probably works for him. But anyways, thank you.

MR. HENDON: Thank you. Thank you, Lorie, for the additional information.

Moving on to our next comment. We're located in Section 11(e)(x), line 1282, page 29. This used to be 11(e)(xii). And Ms. Cahn had noted the response to comment document indicates DEQ would revise this statement, but the revision is not incorporated into the draft chapter.

DEQ did look into the passage, and it is the language proposed in response to comments document.

ACTING CHAIR CAHN: So where -- so where is the green --

MR. HENDON: Unfortunately, we do have a couple of glitches with regard to green versus not green within the greenline version. And, again, we apologize for that.

MS. ZYGMUNT: Keenan, can you remind what the wording change was there.

MS. THOMPSON: There was an apron in here.

MR. HENDON: The original comment from the commenter had concerns about a concrete apron being placed. There's probably debate in the engineering community as to whether to use the word "apron" or not use the word "apron," so we use the terminology "concrete floor."

MS. ZYGMUNT: Madam Chairwoman, does that help answer your question?

ACTING CHAIR CAHN: I'm lost on what line we're on now.

MR. HENDON: 1282.

ACTING CHAIR CAHN: Excuse me.

MR. HENDON: We're on line 1282. I believe Gina has it up on the presentation screen.

ACTING CHAIR CAHN: Okay. Thank you.

MR. HENDON: Okay. Our next comment is located on page 29, Section 11(e)(xvi), line 1304. And Ms. Cahn wondered why the passage requires each well to measure total discharge from the whole field and why the applicant couldn't just add the additional well information together. And Mr. Cochran also noted the chapter requires -- already requires a meter.

And DEQ has looked into the request and the passage and modified it as follows. An instantaneous totalizing flow meter equipped with nonvolatile memory shall be installed on the discharge line of each well in accordance with the manufacturer's specifications. Meters installed on systems with variable frequency drives shall be capable of accurately reading full range of flow rates.

With this revision we also revised 11(e)(xiv) to the following: An accessible check valve, which is not located in the pump column, shall be installed in the discharge line of each well between the pump and shutoff valve. Additional check valves shall be located in the pump column as necessary to prevent negative pressures on the discharge piping.

Our next comment is located on page 30, Section 11(f)(v)(B). Ms. Cahn had noted the response to comment document indicates DEQ would revise the statement, but the revision did not get incorporated into the draft chapter.

DEQ reviewed the passage and proposed in response to comments and revised the chapters as follows: Made of concrete or other material that meets the requirement of Section 15(b)(ii) of this chapter. And this is in regards to spring walls.

And it's a nice tie-in to our next comment. On 11(f)(xiii) page 31, line 1396. Ms. Cahn noted the reference to Section 14 is incorrect, and the correct reference is Section 15. This reference has been corrected. Ms. Cahn also wondered if springs need to be subject to all the requirements in Section 15 if they're not providing fire water.

DEQ looked into it, and we've revised the passage as follows: Spring box design shall comply with Section 15 (a), (b), (f) through (j) and (l) of this chapter. Combined spring box and finished water storage design shall comply with Section 15 of this chapter.

So we think that --

ACTING CHAIR CAHN: So --

MR. HENDON: -- that provides a good off-ramp between the two.

ACTING CHAIR CAHN: So, Keenan, does that mean that if they're not -- I mean, the word "not providing fire water" is not included. So can you explain to me -- there's --

MR. HENDON: Yeah, I think -- if I recall correctly, in our discussion back in March, you had concerns that if -- if we reference a spring box to the full requirements of Section 15, which was finished water storage, that they would have to meet all those requirements with regards to water age, tank turnover, mixing, as well as their additional fire storage that they might provide. And so what we've done is excluded -- if it's just a small -- small spring box to collect the water that then gets dispersed to a storage tank at a later destination, then that storage tank at a later destination would have to meet Section 15.

ACTING CHAIR CAHN: Can you be a little more specific with regards to fire water?

MR. HENDON: Sure.

ACTING CHAIR CAHN: I'm not following, so...

MR. HENDON: Sure. So, again, a spring box needs to comply with Sections 15(a), (b), (f) through (j) and (l). Your question and concern is with regards to section (c), storage facility design shall demonstrate. And in that section is when fire water is required for the storage tank under Section 15. So, again, 15(c) does not apply to a spring box.

ACTING CHAIR CAHN: Okay. Thank you.

MR. HENDON: With regards to -- okay.

ACTING CHAIR CAHN: Go ahead. Finish your thought.

MR. HENDON: It came and went as fast as --

MS. ZYGMUNT: Madam Chairwoman, does that explanation answer your question?

ACTING CHAIR CAHN: Yes.

MS. ZYGMUNT: Okay. Great. Thank you.

MR. HENDON: We're into Section 12 now, we're looking at 12(a), page 32, line 1406. Ms. Cahn notes the incorporated material is listed out of order, and that "through" is inconsistently used, which leads to confusion as to what applies.

DEQ reviewed the incorporations of TSS 2018 and corrected the necessary parts of the passage as discussed.

Our next comment is --

ACTING CHAIR CAHN: Oh, excuse me. I have a lot of comments on section (a). I would suggest we take a five-minute break. It's basically -- come back at 20 after, and we can go over my comments on section (a), 12(a). Thank you.

MR. HENDON: Okay.

ACTING CHAIR CAHN: So we're --

(Special meeting proceedings recessed 10:14 a.m. to 10:23 a.m.)

MS. ZYGMUNT: Madam Chairwoman, are you ready to get going?

ACTING CHAIR CAHN: Yes. Let's reconvene.

MS. ZYGMUNT: So, Madam Chairwoman, it sounded like you had further feedback on 12(a). Let's go ahead and take any further comments there.

ACTING CHAIR CAHN: That's correct.

MS. ZYGMUNT: Okay.

ACTING CHAIR CAHN: Again, there is out of order things on here. So, for instance, 4.4.1 comes after 4.4.3, and 4.3.4.2 on line 1408, 4.3.4.4, et cetera, that comes before 4.3.1.1. So things are -- for one, things are out of order, and I think that makes it very confusing for anybody who is trying to go back and forth between what's in the rule and what's in the 10 States Standards.

So first of all, it's out of order. Second -- let's take individual things. So -- so first of all, did you follow the out of order? So on line 1408, 4.3.4.2 number through 4.3.4.9(b)(e)(f), the design of sand filters, that's in the wrong place.

MR. HENDON: So noted.

ACTING CHAIR CAHN: Also on line 1415, 4.4.1(a), (b), contact time, CT, and points of application, those are also out of order, so...

MS. ZYGMUNT: Yes, Madam Chairwoman. Good

comment. We will review this entire section and make sure things are in order.

ACTING CHAIR CAHN: Okay. The next issue -- I'm going have to flip -- okay. It's 4.4, disinfection on line 1414, it's still confusing to me as to what's included. And so if we flip back to the 10 States Standards to 4.4.4 -- sorry, 4.4, disinfection is on line -- page 62.

Maybe, Gina, you can pull that up. It's page 62.

MS. THOMPSON: Uh-huh. Right there.

ACTING CHAIR CAHN: Okay. So by including 4.4, disinfection, it's unclear -- to me that would mean all of Section 4.4, disinfection. But you don't intend to include 4.4.2, and so -- and then it kind of picks and chooses 4.4.1 is in there in a different section, 4.4.3(a) and (d) are in there, and 4.4.4.3 is in there. So I think it's really ambiguous, because -- maybe you need to specify 4.4 only par -- first two paragraphs, or something, because 4.4, disinfection, is the entire Section 4.4. It's all about disinfection. But that's not your intent.

MS. ZYGMUNT: Yeah.

ACTING CHAIR CAHN: You've excluded sections.

MS. ZYGMUNT: Yeah. Good comment. I think we're considering here.

Keenan, do you have any thoughts?

MR. HENDON: Yeah we can review the 4.4 to include -- I can check with Gina to check with the AG's folks to see what we can do to just capture the first two paragraphs so that we're clear we're not capturing the entire section. And then we can clarify 4.4.3 to identify that we're just capturing (a), (b) and (d).

ACTING CHAIR CAHN: Yeah, which I think -- yeah. And then it goes on, because you've got automatic switch-over and cross-connection, protection, pipe material, chloramines.

MR. HENDON: Yeah. So we have specific components that we've selected out of that section.

ACTING CHAIR CAHN: Yeah.

MR. HENDON: So we can -- we'll work to find the solution to make it clear that we're just targeting the first two paragraphs of 4.4.

ACTING CHAIR CAHN: Okay. All right. And then the next question I have is on 4.5.2.19. So it's on line 1418. Let's see. 4 -- 4.5.2.19. 4 -- okay. 4.5.2.19 is on page 78, Gina. Okay. And the title that you have is 4.5.2.19, and then on the next line it says "softening," but softening is not part of the title for construction materials and housing. So if you look back at line 417 -- no, sorry -- 1419, it has a list, 4.5.2.13(a)

through (f), which has to do with brine and salt storage tanks. And then 4.5.2.14, which is salt and brine storage capacity. And then --

MR. HENDON: Yep. It looks as though we need to include the named descriptions for each of these.

ACTING CHAIR CAHN: Okay. And then when you look at 4.1 -- so 4.6, line 1419, starting with 4.6, through 4.6.14, anion exchange treatment. In that case, all of 4.6 is included? I don't see anything that's omitted. So I think we could delete the through 4.6.14, because it just -- we're including all the 4.6, anion exchange treatment.

MR. HENDON: So noted.

MS. ZYGMUNT: We can make that correction.

ACTING CHAIR CAHN: And then 9.5, this is now on line 1425, on "red water" waste. Again, it's confusing to say you're going 9.5 to 9.5.3, because you're not including all of 9.5. You're excluding everything after 9.5.3.

MR. HENDON: So we can -- so we can address that to do what we've done with the previous sections and just address 9.5, 9.5.1, 9.5.2 and 9.5.3.

ACTING CHAIR CAHN: Yeah. So I have more comments in other places. Maybe when we get through all the comments we can then go through the situations like

that in the TSS. So, okay, that's it for Section 12(a) for me.

MR. HENDON: Okay. We are back in Section 12. We are looking at comment from Brian Deurloo located on page 36, line 1587, located in Section 12(k)(ii)(G)(II). Mr. Deurloo recommends revising the passage from identical to equivalent.

DEQ has revised the passage as requested.

MS. THOMPSON: I will note on the record that it looks like the formatting mark got missed. I believe my helpful Word Wizard didn't help -- it didn't catch everything to point out changes, so...

MR. HENDON: Unfortunately, it's not green.

MS. THOMPSON: But it is "equivalent."

ACTING CHAIR CAHN: What line number is that?

MR. HENDON: 1587, page 36.

Moving on to the next comment we are looking -- the original comment and reference was Section 12(j)(i)(C). It is now located in Section 12(l)(i)(D)(II), page 39, line 1734. Ms. Cahn recommended revising the passage to the maximum fee point back pressure shall not exceed 100 psi unless the chlorine solution pump is used.

The DEQ has revised the passage as requested.

Our next comment is located on page 44, line

1978, Section 12(n). Ms. Cahn notes the term hydrofluo -- hydrofluosilic acid is misspelled and should be hydrofluorosilicic.

DEQ's corrected the term as recommended.

Page -- our next comment is located at page 12(o)(i), line 2052, page 46. Ms. Cahn notes the term absorb is used in the passage, but granulated activated carbon adsorbs.

The DEQ has corrected the passage as suggested.

Our next comment is located at Section 12(q)(i) and (ii). Ms. Cahn's requested the incorporated manual include the phrase "US EPA."

DEQ's revised the references as requested.

Our next comment is located at Section 12(r), page 48, line 2139. Ms. Cahn recommended removing redundancy in paragraph (r) and (r)(i).

DEQ has combined the passages and renumbered the section as recommended.

Our next --

ACTING CHAIR CAHN: Again -- again we're not seeing the red line -- the green.

MS. THOMPSON: Right. So I'm going to pull up the previous one and I'll read to you what it says. I used a wizard in Microsoft Word that was supposed to show me changes, and it didn't do it as consistently as I would

have hoped. So that I could make those formatting marks in this version.

MR. HENDON: Dang wizards.

MS. THOMPSON: Okay. So previously the paragraph led in with bag and cartridge filters shall comply with the following requirements: Paragraph (i), facilities that propose bag or cartridge filters shall comply with the procedures identified in Section 6 of this chapter.

And then (A), filter performance will be based on cryptosporidium oocyst removal. So we took out the additional language -- we took out bag and cartridge filters shall comply with the following requirements. Here at P, and then renumbering this based on other renumbering that needed to happen in the section.

MS. ZYGMUNT: Madam Chairwoman, does that address your comment?

ACTING CHAIR CAHN: Yeah. It's just been confusing not having the green so --

MS. ZYGMUNT: Understood. And I will just reiterate that Gina has to manage three different versions. Obviously sometimes we do miss some of the formatting changes. We do our very best to not do that, and we will continue to do so moving forward. So we apologize for the confusion today, but again, the main take-home message for

your comment there is we made the proposed edits, took out the redundancy and streamlined that passage, but did not change any of the meaning.

ACTING CHAIR CAHN: Yeah. Thank you.

MS. ZYGMUNT: Sure.

MR. HENDON: Our next comment is located at 12(r)(xii), line 2176 on page 49. Ms. Cahn noted that the response to comment document indicates DEQ would revise the statement, but the revision is not incorporated into the draft of the chapter.

DEQ has corrected the passage to include the language proposed in the response to comments. The missing language was the following: Or shall demonstrate that combined filtration and disinfection will provide 3-log removal.

Our next -- our next comment is located at Section 12(t)(i), line 2202, page 49. Ms. Cahn notes the phrase simple well system is used in the passage, and wonders where is the definition of this term and what the requirements would be for a nonsimple well system.

When the chapter was being proposed, Chapter 12, at one time there was a -- two types of well systems I think had been identified. One was for a -- what was the word --

MS. THOMPSON: Complex.

MR. HENDON: -- complex well. We had a complex well and a simple well. Based on the revisions, complex well was removed, which left simple well. This cleans it up. We are removing the word "simple." And it will now just read "well system." Please note that the document you have does not reflect the change in removal of the word "simple," but we will have that corrected.

Our next comment is located in Section 13. We're looking at Section 13(a), line 2271, page 51. Ms. Cahn had identified that "are herein incorporated by reference" was used repeatedly in the passage and recommended striking unnecessary uses.

DEQ has gone through and revised the passage as requested.

ACTING CHAIR CAHN: Again, I'm not seeing green.

MS. THOMPSON: So at line -- at the reference to 5.4.1(d)(7 through 10), 5.4.1(f) and (h), we used "are herein incorporated by reference" after every reference at the end of that paragraph. So we've stricken those. And so we only have it once now. It used to appear multiple times, but now we only have it here.

ACTING CHAIR CAHN: Okay. Thanks.

MR. HENDON: So it's now a capstone at the end of the section.

Our next comment is with regard to Section 14. We're looking at Section 14(g)(iv), line 2346, on page 52. Ms. Cahn noted the passage seems unnecessarily prescriptive and does not seem necessary.

DEQ would like to note the passage has been in the rule since 1985 and is part of common engineering design practices to determine head loss in a system. DEQ has not received comments or feedback from applicants or engineers that would indicate the passage is unnecessary or burdensome.

DEQ uses the submitted information to verify the proposed design will meet the requirements of paragraphs (g)(i) to (iii), to ensure the overall design will meet the intent of the Environmental Quality Act to ensure that we have adequate pressures within our water system. We intend to leave the passage as written.

Our next comment is located with -- in Section 14. It's located at (i)(ii), line 2390, 3553. Ms. Cahn has noted the revision does not clarify the requirement.

This was a response to an initial request at the December meeting. DEQ has reviewed and re-reviewed the section, done some additional research, determined the section will revert to the original language which includes the term "manifolded." The original term and language is common in the industry. It's language used also by

numerous surrounding Region 8 and 9 states. And we intend to restore the paragraph to the following: Each pump shall either have an individual suction line or the suction lines shall be manifolded such they demonstrate similar hydraulic operating conditions.

Our next comment is in Section 15. This is a comment from Mark Pepper with WARWS. It's located in Section 15(a), line 2398, page 54. Mr. Pepper noted that the 2018 TSS Part 7.0.6, water storage age, was omitted. We know that with many upcoming regulations (lead and copper revision, disinfection byproducts review), water age is paramount. The TSS 2018 recommends no longer than five days on water storage. We believe this to be in agreement with AWWA recommendations.

DEQ has considered the comment. Water age is included in Chapter 12, in Sections 15(c) and 15 (e). The draft chapter does not address a maximum day exceedance for water storage. Based on further review and research, DEQ will include the 2018 TSS Part 7.0.6 in Section 15(a) in Chapter 12.

Section 16 is our next comment. This is a comment, again, from Mark Pepper. Mark Pepper -- the comment is in request to Section 16(a), line 2529 to 30, page 56. Mr. Pepper had noted the 2018 TSS Part 8.7.9, separation from other utilities, was omitted. Again while

you assume design engineers would consider maintenance of distribution pipes and ability to be important, sometimes that's not the case.

DEQ considered the comment and will revise Section 16(a) to include 2018 TSS 8.7.8 and 8.7.9 for clarity on aggressive soil provision and ideal utilities separation distances.

Our next comment is located in the Section 16, 16(a), page 56, line 2597 on page 58. Comment is from Mr. Pepper. Mr. Pepper noted the 2018 TSS Part 8.7.2, bedding was omitted. It's important to protect the investments of the State and the system by ensuring quality bedding material is used, and this isn't the case on some projects.

DEQ's considered the comment. We agree pipe bedding requirements are important, and they are provided in Chapter 12, Section 16(i), which describes that distribution system bedding shall be in accordance with ASTM C12 Classes A, B, C for rigid pipe. And flexible pipe bedding shall be designed in accordance with ASTM D2321 Class I, II, or III.

We are to our next comment. It is comment 16(g). Ms. Cahn noted that DEQ's response to the public comment on the passage is insufficient. Ms. Cahn notes that manholes are difficult to keep water out -- coatings leak,

fiberglass can flood, flooding can cause rust/ difficult to use safety issues. Ms. Cahn asked DEQ to look at valve boxes and the wording on "chambers" to clarify these are synonymous.

So I think this is -- this is kind of a -- I think there's multiple parts to this comment and question. 16(g) was in relation to air relief valves and automatic air relief valves. We have incorporated the TSS 2018 8.5, which would remove Section 16(g). However, chambers, vaults, and manholes would not be synonymous with a valve box. And for an automatic air relief valve, that would need to be installed in a chamber vault or manhole for maintenance, access, and operations of that automatic air relief valve.

For a valve, I think the second part of this question was in relation to a river crossing that was proposed by one of the commenters. And, again, this part is covered in the 10 States Standards under Section 8.9.2 underwater crossings. And with regards to underwater crossing, we would require valves on either side. And valves should be easily accessible and not subject to flooding. So they could be placed in a chamber, vault, manhole or valve box or other provided solution.

And with that, that takes us through the comments that we had received from the WWAB board members at the

March 15th board meeting. That also includes the comments we had received from public comment through Mark Pepper with WARWS.

And with that, I'll turn it back over to Jennifer.

ACTING CHAIR CAHN: Excuse me. I want to go back to that last comment.

MR. HENDON: Sure.

ACTING CHAIR CAHN: It says that 16 -- 16(g) has been struck. But I don't -- can we go to page 12-58.

MS. THOMPSON: Yeah. Let me read in what was stricken and didn't appear in my review. So what had previously been in there was a passage numbered as (g) that stated manholes or chambers for automatic air relief valves shall be designed to prevent submerging the valve with groundwater or surface water. And so we have stricken that because it is redundant with 8.5 in the 10 States Standards which covers air relief valves.

ACTING CHAIR CAHN: So that -- the big red line -- the green line/strikeout should have been included.

MS. THOMPSON: It should have appeared there when I looked for it, but it didn't, yes.

MR. HENDON: We forgot to send you guys the invisible ink to make it show back up.

MS. THOMPSON: Right.

ACTING CHAIR CAHN: Yeah. Okay.

MS. ZYGMUNT: So, again, Madam Chairwoman, members of the Board, that does conclude our presentation to review the revisions that we have made since March 15th. If there are no further questions -- well, let me first ask. Are there any further questions about the revisions we have made or further discussion you'd like to have?

ACTING CHAIR CAHN: I probably have some questions on the TSS. What's included, what's not, and why. So you'll have to bear with me.

MS. ZYGMUNT: Does that go back to 12(a)?

ACTING CHAIR CAHN: No. It's probably -- I'm starting at the beginning of the TSS. So the first section that we incorporate is the engineer's report, 1.1.1. And the part that precedes that, if you -- under 1.1 says where pertinent presents the following information. And I think we need to include that "where pertinent." So if you look at the TSS, page 2.

MS. ZYGMUNT: Madam Chairman, can you repeat the comment? I'm not understanding what your suggestion is.

ACTING CHAIR CAHN: Okay. I think it would be clear -- so the section -- the engineering design report in the TSS has an introductory paragraph that says the

engineer's report for waterworks improvements shall, where pertinent, present the following information. And then it starts out with 1.1.1. And we -- so do you see that above it, the -- the four -- the line right above -- the second line?

MS. ZYGMUNT: Yes.

ACTING CHAIR CAHN: And it says "...where pertinent, present the following information." And what we're doing is starting to incorporate in the engineer's report starting at 1.1.1, and we're missing the "where pertinent." So I think that that's a really important part of the engineering design report. That's a lot of the problems I have with the engineering design report, is things are not always pertinent that are -- and so I think we're miss -- I think that needs to be included somehow.

MS. ZYGMUNT: Yeah. Yes, Madam Chairwoman, understanding your comment, I think I would disagree and push back in that we have already reviewed the sections of the 10 States Standards that we feel are applicable to the engineering design reports that we need. And I know we've discussed specific aspects of those reports that are applicable. And I think I would disagree -- and I'm going to ask Keenan to speak up next -- that we need to further clarify by adding language "where pertinent." I think we have already incorporated the sections that we feel are

needed for the engineering design report.

MR. HENDON: I think -- if we include the word "pertinent," we open ourselves up to go down a rabbit hole to argue with our engineers or the applicants as far as what is and what isn't pertinent. So we are requesting the information we want to receive in order to review their permit application so that we can ensure that they are complying with the necessary parts of the DEQ regulations, as well as meeting the drinking water quality requirements.

ACTING CHAIR CAHN: Okay. So then if we go down to 1.1.7, sources of water supply, that two little lines is not included, and so to me I don't understand why we're parsing out -- it just says describe the proposed sources or sources of water supply to be developed, the reason for their selection, and provide information as follows. And I don't understand why a little two sent -- you know, sentence like that is parsed -- is cut out.

MS. ZYGMUNT: Again, Madam Chairwoman, we are incorporating by reference specific sections of the 10 States Standards. We're not taking the whole manual. So again, in our review and development of this chapter, we have already vetted what sections we feel we need to pull into our rule to be regulatory requirements for our design and construction standards. I am a bit concerned about going through the whole 10 States Standards -- and

I appreciate your comments and I appreciate your perspective -- but, again, I think we've already vetted what we are and are not including through what we have pulled into our rule and what we've already reviewed under the past two meetings.

MR. HENDON: And in addition to kind of support that, the district engineers have gone through this document. We've had over 20 meetings with regard to the 10 States Standards, the incorporation by reference, revisions to Chapter 12. So we've taken into consideration their comments, direction and insight.

Your comment with regards to 1.1.7, sources of water, we do address those specifically in the chapter, for source water sources, groundwater sources, and so forth.

MS. ZYGMUNT: So let me just interject here, Madam Chairwoman. We are at 11:00, which is the end of the time I had allotted for this special meeting. Again, recognizing that it sounds like you have further thoughts on the 10 States Standards, again, I'll just make the general comment that I feel we have already reviewed the specific sections that are appropriate to include or not include.

In the interest of time and making good use of everybody's time today, I would ask if we can, rather than going item by item through the 10 States Standards, are

there broader questions -- or comments that you can provide to us to consider for future rule packages in terms of how we incorporate by reference? We'd be happy to hear that feedback. But I've not incorporated time into the meeting today to go through the 10 States Standards in detail.

However, I would be interested in hearing from board members how you would like to proceed. I think as you're probably aware, I am looking for a recommendation from the Board, your advice to move forward with formal ruling making before the close of the meeting today. Or if that is not the advice the Board, I would like to know what your advice is so we can take that into consideration with the director and decide how we would like to proceed forward.

So since we're at the end of the allotted time for the meeting today, I would like to get, Madam Chairwoman, your thoughts how to proceed forward, along with feedback from the other board members.

ACTING CHAIR CAHN: Okay. Does any board member want to say something before I do?

BOARD MEMBER DEURLOO: No. I'll wait to hear your comments, Madam Chairwoman.

ACTING CHAIR CAHN: Okay. I still have some comments that I think are important regarding the 10 States Standards, and we obviously don't have enough time

allotted for it. I did -- I have some concerns right off the bat about this meeting. And I'll say that according to the -- let me just grab my sources here. According to the Public Meetings Act that the boards are required to comply by, and does not -- that doesn't apply to directors and administrators. Special meetings are called by the presiding officer of the Board of the -- and so I'm a little bit concerned about a couple of things. One is the fact that this meeting was not called by the Board, and it was called by DEQ. So I'm a little bit concerned about some of the things that we do today being null and void. So that -- I'll just say that.

I have some concerns about not incorporating enough time to discuss comments, when I did let DEQ know in email that -- I had Brian's email, and I asked DEQ to please forward it on to the -- to Jim Cochran and Brian Dickson. And I don't know if that was actually forwarded to them.

That said, that I did have some concerns that we hadn't gone over in the other meeting. So I'm just -- I also mentioned in that email that I was going to be out of cell phone range and internet range for quite a long time before the meeting. So I have just seen this stuff basically late last night, and at 5:30 this morning.

So I'm also -- I have a lot of concerns. I have

another concern about the fact that in the email that I sent out, I mentioned that I was not going to be available -- you guys -- I was presented with two weeks of which we could have this meeting, and of those two weeks, up until yesterday, the whole first week and up until yesterday, I was not available and I said I was not available, and yet, even though this meeting's supposed to be called by the chair of the meeting, the Doodle poll went out asking everybody if they could meet last week, and during days I said I could not meet. So I have concerns about that, we'll just -- then --

So, basically, since I haven't had a lot of time to look at these changes -- and every time I look at this document, it's complicated, particularly because we are bouncing back and forth between the 10 States Standards and the proposed rule. And to do a thorough review, all of us have to really -- to do our jobs, we have to look at both. And it's time consuming to do that, and it's confusing. And every time I look at this, I see something new. Maybe less and less as time goes on, because we're catching a lot of these things, but I still do see new things.

And so with the volume of public comments that we received and for new board members, it was a significant volume of public comments compared to other regulations we've looked at on this board. And the amount of changes

that -- which is good. You know, I'm really pleased to see all the changes. And I really appreciate all the work that DEQ and the board and the public have done to bring this rule, I think it would be prudent to have one more public comment period and consider it at our next regularly scheduled board meeting, quarterly board meeting, which is coming up here pretty quick, have a public comment period, including comments at the meeting.

And I know that, you know, Jennifer and Keenan, you mentioned you're new to this. And, you know, I'm -- I've been on the board for over 20 years, and we often have brought back a proposed rule again to the public in these types of circumstances. And this has happened many times in the past. And during my tenure on the board -- and I don't think it's unreasonable to do this one more time. And I just think it's -- it's a big change to the rule and it just -- to make the changes to the rule just takes time to try to get it right. So that's my 2 cents, and I'll open it up for Board discussion.

MS. ZYGMUNT: Thank you, Madam Chairwoman. Before we hear from other board members, let me just respond to a few logistic questions there.

First, in terms of appropriate procedures, I'll just remind the Board that the Water Quality Division Administrator is the executive secretary for the Board. So

I -- I feel it is appropriate for me to have called the meeting. We can double-check with the Attorney Generals, but I feel we're in accordance with proper procedures in order to call this meeting. So I'm not concerned about the proceedings being null and void. But thank you for raising that issue.

Good comments, Madam Chairwoman. Let me stop there and give the other board members chance to provide feedback.

BOARD MEMBER DEURLOO: Well, if nobody else is going to say anything, I guess I will. That's a tough one. I have a -- I said this at the last meeting too. Do we want the rule done right or do we want the rule done right now? I have a lot of faith in both -- the whole team around the table.

Jennifer, you and your team have done an excellent job of updating the -- and capturing what the comments -- mainly from Lorie's camp, but from the rest of the Board as well. So congratulations. Good job on that.

I would have a difficult time veering away from Chairman Cahn's recommendation, just because of her tenure on the board over 20 years. And I really defer a lot to her decision-making process on this, because I don't know how many times she's seen Section 12, but I'll bet you this isn't the first time. Probably the third or fourth or

fifth time.

So I don't know -- I will follow Chairwoman Cahn's recommendation on this and go from there. Thank you.

MS. ZYGMUNT: Thanks, Brian.

ACTING CHAIR CAHN: Are there other board members that would like to comment?

BOARD MEMBER COCHRAN: Madam Chair, this is Jim Cochran. I guess the only thing I would add is that there's been several opportunities for public comment, and it seems like that's kind of dried up and they're no longer commenting. And I don't know if that's wrong, they've got all their comments in, they're just tired of looking at this, or -- so I don't know, maybe it's time -- time to at least consider moving on.

We're not the final say on this chapter. It still has to go to the EQC for final comments and changes. I'm sure we're welcome to comment at their meetings. So if -- if the public's ready and the staff's ready to move on, I think I'm ready too. So that would be the only thing I would add.

ACTING CHAIR CAHN: Okay. Thank you, Jim. And I would just like to add that we specifically did not request public comments -- or did not allow public comments for this meeting. And I think the recommendation probably

came from me. And I think that the reason for that was that we were still going through comments -- we were still going through board comments on them, so I guess I felt like we still had some words to work on before we would go back out to the public for comments. So I'll just leave it at that.

MS. ZYGMUNT: Let me add in a few more thoughts procedurally based on Jim's comments. So from here, before we can proceed to formal rulemaking before I make -- well, first, I, as the administrator, will make recommendation to the Director. If the Director decides to proceed forward, we first go to governor's office to get approval to move forward. Advisory board feedback would be communicated to the governor's office at that time, and then if we go forward to the EQC, the advisory board's comments are provided to the Council as part of the information package.

So I think, Jim, it is a fair comment, just to support what you said, any advisory board feedback and discussion is included with the packet that goes to the Council, and we would discuss that with the governor's office as well. So I just want to make sure that the Board knows that your feedback is not lost. And, again, the -- the Board's role as per statutes is to advise the administrator on the content of the rule before I make a

formal recommendation to the Director to move forward.

To the public notice, I would question the need to have another public comment opportunity. The board seemed pretty clear in our March meeting that we had done extensive public comment opportunity. Again, the rule was out for approximately 100 days. We did get some substantial feedback. But, again, my team here reached out personally to all of those commenters. And to our knowledge, everybody, you know, was -- was -- felt their comments had been heard and resolved with the responses that we provided.

It was the Board's direction not to do public comment with this meeting. I would be hesitant to say that I feel the need to do another public comment opportunity if we decided to bring this back to the advisory board one more time. Furthermore, there will be a public comment opportunity associated with the EQC meeting.

ACTING CHAIR CAHN: And, you know, I would just say it's not unusual to go back out, once -- you know, once we have most of the comments incorporated, to go back out for one last time. And the hope would be that we wouldn't get a lot of comments, but I think because typically with the extent of changes that are made, that's kind of how, as a board, we weigh whether or not we think we should have additional public comments. And there have

been, you know, significant substantial and significant changes, which is good. And hopefully, you know, the public will say, hey, I like this now, you know. And I think we'd have a lot more confidence going forward if we just get one more chance to look at this, and, you know, catch -- there's always something that we can catch to make it a better rule.

And I think, you know, if it had been minor changes since the public had last seen it and made their comments, that would be a way to say, no, we don't need to go back out. But they're significant changes, and, you know, we want this rule to be as good as we can get it.

MS. ZYGMUNT: Absolutely. We are all interested in a good product. And, again, I'm going to speak for the work that my team has done. I do think we have that good product. I think I would disagree that the revisions made since the last time the public comment -- public has seen this are substantial. Again, I think these are all revisions that the public could comment on prior to the EQC meeting if appropriate.

Again, recognizing that Keenan and I are new to the position, neither of us are new to public comment opportunities such as this, and we do understand the importance of public transparency, but I do feel we have achieved that with this rule package.

BOARD MEMBER DEURLOO: Madam Chairman, question for Ms. Zygmunt. Has it ever been where a Board Member of the -- from our advisory board makes a public comment to the EQC?

MS. THOMPSON: Yes, sir.

BOARD MEMBER DEURLOO: For example, I know we're commenting on it right now, but if there's some other things that are stuck in people's craw or something like that, that we make a -- an overall comment to the EQC for their review?

MS. ZYGMUNT: Yeah, thanks for the question. Brian, I may ask Jim Peters to speak to that issue in terms of the advisory board's role here and the mission to advise the administrator versus role of the EQC.

Jim, would you help us out with that.

MR. PETERS: Yeah. Happy to jump in. So I guess my first -- first piece -- or first answer is I'm not aware of that has occurred before. As the administrator mentioned, obviously, the Board's duty and role is to consult with and advise the Administrator and the Director on the adoption of rules. The statutes don't reference advising, consulting, commenting, EQC. So as I would read the statutes on the advisory board, the main duty of the board is advising the Administrator and the Director on the rules.

Does that help answer your question, Brian?

ACTING CHAIR CAHN: I know --

BOARD MEMBER DEURLOO: Yeah.

ACTING CHAIR CAHN: -- from experience there was an example where somebody from the Board went to EQC. It has happened. And EQC did not move forward with that rule.

MS. THOMPSON: Yes, I'd like to clarify also that at that time, when that board member discussed it with the EQC, that board member was encouraged to note that they were representing themselves as a private individual, and that they were not representing the Board. So when -- when that happened, they were not representing the Board in front of the EQC. They were representing themselves.

And it is correct that that rulemaking was returned to the agency to do additional work.

MS. ZYGMUNT: So, again, you know, what -- as I would put it, you know, this -- these meetings are the Board's opportunity to advise me before I go to the director with my recommendation. Again, the packet that we put together for the Environmental Quality Council will include all of the transcripts from the meetings, and it will provide a summary of the Board's feedback. And, in this case, there will be, you know, fairly lengthy summary because we've had, you know, three meetings. And so it

will -- we will capture the Board's feedback and final recommendation and advice on the rule. So that is communicated to the EQC. But, again, I would say in terms of your role in advising me on how I move forward, these meetings are the place to do that. It does not preclude anybody going to the EQC outside of the role as the advisory board to provide comments on a rule package, though.

ACTING CHAIR CAHN: Are there other Board comments?

BOARD MEMBER DEURLOO: I don't know. I see both sides.

Lorie, how -- how -- I get your -- I get your point on this, and your -- I'm so thankful for your thoroughness and dedication to this. What are your feelings about just moving this forward to the EQC?

ACTING CHAIR CAHN: I'm not in favor at this time, but I'm optimistic that with one more go at it, with time to go over additional comments, that we can move forward. I'm optimistic.

BOARD MEMBER DEURLOO: Do we -- okay. To Jim's -- Board Member Jim's comments where -- I don't disagree with you. It seems like some of the public comments have kind of dried up, and we've given them a lot. Is the -- is the main issue -- you're doing the

cross-reference with the 10 States Standards, like more picking up your comments, Lorie? And maybe I didn't hear you. You probably voiced it, but I didn't pick up on it. Is the concern mainly with getting more comments from the public or addressing your cross-references and comments?

ACTING CHAIR CAHN: I think both. Both. You know, I would like to know how the public sees the changes that we've made. And, you know, and hopefully it sits better with them. I don't think it sits -- you know, there was some significant issues that the public brought up. And I'm hoping that, you know, we addressed most of their comments. But just because we've -- they've had a response to the comments doesn't mean that they would necessarily not still have issues.

MS. ZYGMUNT: Madam Chairwoman, can you explain why the public notice before the EQC meeting would not serve the same purpose to gather the final feedback on the rule that the Board has advised us on?

ACTING CHAIR CAHN: I think that our board tends to play a more technical role than EQC. And typically I think EQC relies on the advisory boards to really work out a lot of the technical issues so that when it comes up to them, it's really ready for their review and signature, you know, passing on to the governor for signature. So I think that I see our board as a -- as a --

the board that really gets into the nitty-gritty details.

MS. ZYGMUNT: Sure. Sure. And I would agree with that overall assessment. I will, you know, again state that I think we have accomplished that. I think you guys have given us a very thorough review of this rule. I also feel that my staff have done a very thorough review of the 10 States Standards and a very thorough job in preparing this rule.

You know, there's -- this is a big rule. It is detailed. There's a lot that goes into it, but I feel like we have done our due diligence in updating the rule accurately and reviewing the technical standards that are appropriate for this rule. And, again, with the feedback that you have already given us, I feel that we have the product that we need to move forward competently to the EQC so that they know they have a vetted product between DEQ's extensive work over the past five, six plus years, in addition to the Board's advice through these past three meetings.

MR. HENDON: And to add onto that, heading into the March meeting, staff here at DEQ reached out to each and every commenter that provided us comments to address those comments one by one. We went through those comments, provided them with our response, and came to a mutual understanding, either on their side or our side.

So with regards to additional public comments with regards to the chapter, I'm curious, is there feedback that you're getting, Ms. Cahn, that we are unaware of here in Cheyenne?

ACTING CHAIR CAHN: No. Not at all. I just -- you know, when I look at cross-walking between the, you know, proposed regulation and the TSS, I'm still finding issues. For instance, you know, I'm looking at my notes, there's some rapid mix disconnects between the two. And so it just gives me pause that, you know, we didn't get a lot -- I didn't get a lot of time for this meeting, a lot of notice for it, a lot of -- and so I just -- I'm still seeing things that are disconnect, and even with not a lot of time looking at it.

So -- and it's just not -- in my tenure, it's not at all unusual to go out, you know, one more time when you make changes like this to go to the public again. So -- and I think that -- that would be -- give me a whole lot more assurance that -- I mean, I don't know what the public thinks. I have no idea. But I know that --

MS. ZYGMUNT: And Lorie --

ACTING CHAIR CAHN: -- from the volume of comments that we did get, that there was a lot of concern, and I think we should give the public, you know, one more opportunity to look at the whole thing with all the

changes. And I think they deserve that. You know, this rule hasn't changed for 40 years. If we wait two or three more months -- you know, when's our next meeting? I think it's in June. You know, if we -- it's May now. So, you know, we're not talking about a huge delay. And I think that the -- the ability to -- for EQC to have confidence in it, I think the Board support, and, you know, seeing there are no more public comments, I think that would really help this rule when it goes to EQC.

So I think our probability of success is much greater if we go -- if we do this one more time.

MS. ZYGMUNT: Yeah. Thank you, Madam Chairwoman. And I appreciate your perspective. I would still voice my disagreement that, again, in my 18 years here at DEQ, I think we've gone above and beyond what we need to do for public notice with the recognition that the public again will have another 45-day public comment period prior to the Environmental Quality Council meeting to review the final rule.

As we do outreach events around the state, we continue to remind people about Chapter 12, and we will continue to do so to let them know it will be going to the Council, and there will be another opportunity to provide public comment. So we will continue to push that public transparency and encourage people, if they have further

comments on the chapter, to do so prior to the EQC.

So I don't think we're sacrificing public transparency. And, again, I think my staff have done -- again, they've gone above and beyond to respond to the public comments that we received on this, and it's giving me some ideas on how we move forward and how to standardize some ways that we respond to public comments. So I think we've learned a lot from this process, but I think we have fully vetted public input at this step with, again, the recognition that there is still public opportunity to comment before the EQC.

So I am not hearing any further feedback. I will leave it to the Board if you would like to provide me any more specific advice to capture in our notes, or if you would like to voice a formal recommendation through a motion.

BOARD MEMBER DICKSON: This is Brian Dickson. I'm hearing two very compelling arguments, because I agree with both of them. But I think that with the work that this staff has done and the work that this Board has done, I think we're ready to move on. I would move that we -- we -- we approve the changes that have been made in Chapters 12 that we have reviewed at our last meetings and today.

ACTING CHAIR CAHN: We have a motion on the

floor. Do I have a second?

BOARD MEMBER COCHRAN: Madam Chair, this is Jim Cochran. I would second.

ACTING CHAIR CAHN: Board discussion?

Okay. Hearing none. All in favor say aye.

BOARD MEMBER COCHRAN: Aye.

BOARD MEMBER DICKSON: Aye.

ACTING CHAIR CAHN: We're going to have to do it one at a time. I can't tell who says aye.

BOARD MEMBER COCHRAN: Jim Cochran, aye.

BOARD MEMBER DICKSON: Brian Dickson, aye.

ACTING CHAIR CAHN: All opposed, nay.

BOARD MEMBER DEURLOO: Nay.

ACTING CHAIR CAHN: Okay. Motion does not carry.

So I think that is time to adjourn our meeting.

MS. ZYGMUNT: Great. Thank you very much. Appreciate the discussion. I will take the advice and the -- that failed motion into consideration and talk with our director, and we will be in touch and let you know how we decide to move forward.

ACTING CHAIR CAHN: Okay. Thank you very much.

MS. ZYGMUNT: All right. Thank you, everyone.

ACTING CHAIR CAHN: Meeting adjourned.

BOARD MEMBER DEURLOO: Thank you.

(Special meeting proceedings concluded 11:31 a.m., May 3, 2022.)

C E R T I F I C A T E

I, KATHY J. KENDRICK, a Registered Professional Reporter, do hereby certify that I reported by machine shorthand the foregoing proceedings contained herein, constituting a full, true and correct transcript.

Dated this 27th day of May, 2022.

KATHY J. KENDRICK
Registered Professional Reporter

Water and Waste Advisory Board Comments
May 3, 2022 Meeting
Chapter 12

General Comments

Lorie Cahn: Ms. Cahn advised WDEQ/WQD to include 2018 TSS 1.1, specifically the phrase "where pertinent" in Chapter 12.

> **Department Response:** As discussed at the May 3, 2022 meeting, WDEQ/WQD will not include the reference and the phrase "where pertinent" as the phrase may lead to confusion and potential enforcement issues.

Lorie Cahn: Ms. Cahn advised WDEQ/WQD to include 2018 TSS 1.1.7 in Chapter 12.

> **Department Response:** As noted at the May 3, 2022 meeting, WDEQ/WQD will not include the reference as the part applies to sources of water that are addressed in Chapter 12 and the inclusion would be redundant.

Lorie Cahn: Ms. Cahn noted that she did not think that WDEQ/WQD provided enough time for her to review and discuss her comments on the chapter. Ms. Cahn noted that she did not think that WDEQ/WQD adequately considered her limited availability for the May 3, 2022 meeting. She explained that she needed to thoroughly review both the 2018 TSS and the proposed revisions to Chapter 12 and that her review was time-consuming and confusing. Ms. Cahn noted that she discovered other potential conflicts in her comparison of the 2018 TSS to Chapter 12. Ms. Cahn noted concern at the volume of public comments received for Chapter 12. Ms. Cahn advised WDEQ/WQD to provide an additional comment period and Water and Waste Advisory Board presentation as she thinks the revisions that WDEQ/WQD proposed since the March 15, 2022 are significant. Ms. Cahn explained that she believes the role of the WWAB is to provide a technical review to ensure rules are ready for the Environmental Quality Council's review and adoption.

> **Department Response:** WDEQ/WQD reviewed our correspondence with Ms. Cahn regarding the scheduling of the May 3, 2022 Water and Waste Advisory Board (WWAB) Special Meeting. In the March 26, 2022 email that Ms. Cahn sent to Administrator Zygmunt and WDEQ/WQD rulemaking staff, she indicated she would be available the weeks of April 18-22, May 3-6, and May 9-13.
>
> WDEQ/WQD compared Ms. Cahn's request to staff availability and sent a scheduling poll to the four WWAB members and to WDEQ/WQD staff to find a date that would provide a quorum of the WWAB and adequate participation by WDEQ/WQD staff. Due to the nature of the WWAB members' schedules and the WDEQ/WQD staff schedules, finding meeting dates that work for everyone can be difficult. If WWAB members are unable to attend a scheduled meeting but there is a quorum, WDEQ/WQD would

potentially proceed with scheduling and would explain to board members that are unavailable for a particular meeting date that they may request that another board member or the WDEQ/WQD Administrator read the unavailable board member's comments into the record.

However, in the case of the May 3, 2022 meeting, all four board members indicated in their poll responses that they would be available on May 3. WDEQ/WQD staff, meeting space, and a court reporter were also available on May 3. On April 4, 2022, WDEQ/WQD staff sent a calendar invitation to the WWAB and WDEQ/WQD staff that the next meeting would be on May 3. The WQD did not receive further correspondence from Ms. Cahn regarding her availability for the May 3 meeting.

WDEQ/WQD understands that it can be confusing to review the 2018 TSS and the proposed revisions to Chapter 12 as both documents contain public water supply requirements that pertain to complex engineering designs. However, the WDEQ/WQD's drafting process to consider the incorporation of the 2018 TSS into Chapter 12 was thorough, the material we are proposing to incorporate is appropriate, and we have addressed comments received from the comment opportunities provided between November 5, 2021 and March 15, 2022. Comments from both the public and the WWAB have provided helpful feedback that the WDEQ/WQD has used to refine and improve incorporation by reference of the 2018 TSS into the proposed rule.

As WDEQ/WQD had received only one additional public comment at the March 15, 2022 meeting after conducting thorough and individualized outreach with entities that had submitted public comments before the March 15, 2022 meeting, WDEQ/WQD agreed with the WWAB's request to close the public comment period as it seemed the public was satisfied with WDEQ/WQD's resolution of comments and updated revisions. WDEQ/WQD revised Chapter 12 after the March 15, 2022 meeting in response to WWAB advice and the one public comment received during the meeting. However, the changes were not substantively different from what the public had seen previously, were a logical outgrowth of public discussion, and are in line with the scope proposed in all of the public notices. Therefore, the WDEQ/WQD disagrees that an additional public comment opportunity would add value at this time, and, as discussed during the May 3 meeting, a 45-day formal rulemaking public comment opportunity will be provided in advance of the EQC meeting.

WDEQ/WQD appreciates the specific feedback that all board members have provided to WDEQ/WQD throughout the Chapter 12 rulemaking process; this feedback has helped to improve the proposed rule. WDEQ/WQD has provided the WWAB with three opportunities to provide advice, and the WWAB has provided advice on the rule in its entirety. Therefore, the WQD has determined that the WWAB has satisfied its statutory requirement to advise the Administrator per Wyoming Statutes § 35-11-114(b). WDEQ/WQD has openly and thoroughly considered the WWAB advice, and proposed

revisions to Chapter 12 satisfy the provisions and purposes of the Environmental Quality Act. At this time, the WQD Administrator will recommend that the Director proceeds with proposing the adoption of Chapter 12 to the EQC.

11(e)(i)

Lorie Cahn: Ms. Cahn recommended revising the proposed edit to "or not ~~noncommunity nontransient~~ nontransient noncommunity water systems..."

Department Response: WDEQ/WQD corrected the passage as advised.

12(a)

Lorie Cahn: Ms. Cahn identified areas in 12(a) where the references were out of numerical order. For the references to 2018 TSS Part 4.4, 4.6, and 9.5. Ms. Cahn explained the references are unclear as to what parts are included. Ms. Cahn identified additional 2018 TSS references that included incorrect titles.

Department Response: WDEQ/WQD reviewed the references in Section 12(a) and corrected titles and numerical order as needed. For 2018 Part 4.4, WDEQ/WQD has stricken the reference and added in the passages from the 2018 TSS to Chapter 12, Section 12(l).