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

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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.