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Wyoming Department of Environmental Quality
200 West 17th Street, Suite 200
Cheyenne, Wyoming 82002

RE: Comments for DEQ – WQD Proposed Chapter 12 Rules and Regulations, November 5, 2021 Clean Draft

To Whom it May Concern:

Thank you for the opportunity to present comments on the November 5, 2021 draft of the proposed DEQ – WQD Chapter 12 Rules and Regulations. We had provided comments on the March 4, 2020 draft of the Chapter 12 Rules and Regulations. I have not had time to review the March 4, 2020 comments and the 2018 TSS requirements in an attempt to determine if proposed rule changes in the 2020 DEQ draft are included in the 2018 TSS standards. The comments below are primarily directed to the proposed DEQ Chapter 12 text because of the difficulty in cross referencing multiple documents. I do have concerns with trying to satisfy multiple conflicting sets of standards. One item of importance is that the proposed requirements for acid enhancement of wells submittals is much improved and workable as compared to the previous draft.

Lines 141 to 142. The definition of mineralized water poses a conflict with development of both surface and groundwater sources for public water systems across the state. There are numerous 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. It is presumed that the basis for the 500 mg/L threshold is the EPA secondary standard for total dissolved solids, which is based on aesthetics as versus exposure to harmful constituents. To prevent unnecessary and potentially adversarial requests for variances from Chapter 12 design requirements it is suggested that an alternate concentration for “mineralized” water be considered, such as 1,000 mg/L.

Lines 203 to 204. Section 8 of the draft Chapter 12 refers to plans and specifications, not the engineering design report.

Lines 206 to 207. May need to refer to Sections 10 through 17 of the draft Chapter 12.

Lines 209 to 210. Referenced section should be Section 18.

Lines 234 to 236. 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?

Lines 346 to 388. The requirement of this section that all of the data for well design be presented on plan and profile drawings is quite bizarre. Much of the requested information belongs in the engineering design report and in drawings or specifications. This section should be revised and physical constraints of legible drawings be considered.

Line 540. The term “aquifer” is not defined in Chapter 12; therefore, it is not clear when a pre-application meeting will be required.

Line 552. The referenced paragraph is for engineering design reports for surface water. Should the reference be paragraph (f)?

Line 554. 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.

Line 596. 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…."

Line 618 and 628. 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?

Lines 782 to 792. 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.

Lines 783 and Lines 890 to 892. 2018 TSS Part 3.2.1.1 does not agree with the requirements of Lines 890 to 892.

Lines 890 to 892. 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.

Line 920. Power line clearance requirements or overhead equipment vary by voltage per OSHA requirements. Setting a 10-foot clearance requirement may not be suitably protective.

Line 927. It is not clear what is meant by "casing" that will be pulled. Should this be pump column pipe?

Line 931. How does a well "complete testing and maintain records"? This should be reworded. "Testing and records maintained for water wells shall be as follows:"

Lines 933 to 938. 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.

Lines 1008 to 1009. 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.

Line 1083. 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.

Lines 1016 to 1018. 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.

Lines 1020 to 1022. 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.

Lines 1024 to 1027. 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.

Line 1063. What is the purpose of the “required size to allow for sampling’? This language seems out of place.

Line 1109. 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…….

Lines 1129 to 1130. 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.

Line 1134. 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.

Lines 1148 to 1150. 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.

Lines 1159 to 1161. 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.

Line 1203. There is no (b)(iv) in Section 11 of Chapter 12.

Lines 1205 to 1206. What is the "spring protection area"? A definition of the term would clarify how far away sources of contamination must be removed.

Line 1256. Should the unit of measurement be NTU?

Line 2171. 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.

Respectfully Submitted,

Ben Jordan
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