IDAPA 58 – DEPARTMENT OF ENVIRONMENTAL QUALITY

58.01.08 – IDAHO RULES FOR PUBLIC DRINKING WATER SYSTEMS

DOCKET NO. 58-0108-2301 (ZBR CHAPTER REWRITE, FEE RULE)

NOTICE OF RULEMAKING – ADOPTION OF PENDING RULE

EFFECTIVE DATE: This rule has been adopted by the Idaho Board of Environmental Quality (Board) and is now pending review by the 2024 Idaho State Legislature for final approval. Pursuant to Section 67-5224(2)(d), Idaho Code, this pending fee rule shall not become final and effective unless affirmatively approved by concurrent resolution of the Legislature. Pursuant to Section 67-5291(2), Idaho Code, all temporary, pending, and final rules of any nature may be approved or rejected by a concurrent resolution of the Legislature. The concurrent resolution shall state the effective date of the approval or rejection.

AUTHORITY: In compliance with Section 67-5224, Idaho Code, notice is hereby given that the Board has adopted a pending rule. This action is authorized by Chapter 1, Title 39, Idaho Code.

DESCRIPTIVE SUMMARY: A detailed summary of the reason for adopting the rule is set forth in the initial proposal published in the Idaho Administrative Bulletin, September 6, 2023, Vol. 23-9, pages 635 through 783.

After consideration of public comments, Sections 003, 150, 300, 500, 501, 504, 510, 513, 542, 543, and 552 have been revised. DEQ identified revisions that had been inadvertently left out of the proposed rule publication. These revisions were negotiated or are non-substantive in nature: Sections 003 (definition of Vulnerability Assessment), 302, 450, 503, 511, 512, 515, 521, 529 – 532, 540, and 541. The remainder of the rule has been adopted as initially proposed. The board meeting documents are available at https://www.deq.idaho.gov/drinking-water-docket-no-58-0108-2301/.

FEE SUMMARY: This rulemaking does not impose or increase a fee beyond what was previously submitted to and reviewed by the Idaho Legislature in prior rules. Fees included in this rule chapter are authorized by Section 39-119, Idaho Code.

FISCAL IMPACT STATEMENT: The following is a specific description, if applicable, of any negative fiscal impact on the state general fund greater than ten thousand dollars ($10,000) during the fiscal year: Not applicable.

ASSISTANCE ON TECHNICAL QUESTIONS: For assistance on questions concerning the rulemaking, contact the undersigned.

Dated this 6th day of December, 2023.

Kristin Ryan
Deputy Director
Department of Environmental Quality
1410 N. Hilton Street
Boise, Idaho 83706
208-373-0194
Kristin.Ryan@deq.idaho.gov

DOCKET NO. 58-0108-2301 – ADOPTION OF PENDING RULE

(Zero Based Regulation (ZBR) Chapter Rewrite)

Substantive changes have been made to the pending rule.
Italicized **text indicates changes between the text of the proposed rule as adopted in the pending rule.**

The text of the proposed rule was published in the Idaho Administrative Bulletin, Volume 23-9, September 6, 2023, pages 635 through 783.

This rule has been adopted as a pending rule by the agency and is now awaiting review and final approval by the 2024 Idaho State Legislature.

THE FOLLOWING IS THE TEXT OF THE PENDING RULE FOR DOCKET NO. 58-0108-2301

(Only those sections or subsections that have changed from the original proposed text are printed in this Bulletin following this notice.)

58.01.08 – IDAHO RULES FOR PUBLIC DRINKING WATER SYSTEMS

003. DEFINITIONS.

The definitions set forth in 40 CFR 141.2 are ~~herein~~ incorporated by reference, ~~except for the definition of the terms "action level," "disinfection," "noncommunity water system," and "person."~~ The terms "board," "director," "department," and "person" have the meaning provided in Section 39-103, Idaho Code. The term "watersheds" has the meaning provided in Section 39-3602, Idaho Code. The terms "distribution system," "license," "responsible charge," and "responsible charge operator" have the meaning provided in Section 54-2403, Idaho Code. The term "public utility" has the meaning provided in Section 61-129, Idaho Code. The term "pesticide" has the meaning provided in Section 22-3401, Idaho Code. ~~(3-24-22)~~( )

~~**01. Action Level**. The concentration of lead or copper in water that determines, in some cases, whether a water system must install corrosion control treatment, monitor source water, replace lead service lines, or undertake a public education program. (3-24-22)~~

~~**02. Administrator**. The Administrator of the United States Environmental Protection Agency. (3-24-22)~~

~~**03. Annual Samples**. Samples that are required once per calendar year. (3-24-22)~~

~~**04. Annular Opening**. As used in well construction, this term refers to the nominal inside diameter of the borehole minus the outside diameter of the casing divided by two (2). (3-24-22)~~

0~~5~~1. **Aquifer**. A geological formation of permeable saturated material, such as rock, sand, gravel, etc., capable of yielding an economic quantity of water to wells and springs. ( )

~~**06. Average Day Demand**. The volume of water used by a system on an average day based on a one (1) year period. See also the definition of Water Demand in these rules. (3-24-22)~~

0~~7~~2. **Backflow**. The reverse from normal flow direction in a plumbing system or water system caused by back pressure or back siphonage. ( )

~~**08. Bag Filters**. Pressure-driven separation devices that remove particulate matter larger than one (1) micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside. (3-24-22)~~

~~**09. Bank Filtration**. A water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the~~

~~hydraulic gradient imposed by a nearby pumping water supply or other well(s).~~ ~~(3-24-22)~~

~~**10. Board**. The Idaho Board of Environmental Quality.~~ ~~(3-24-22)~~

~~11~~03. **Capacity**. The capabilities required of a public drinking water system (PWS) in order to achieve and maintain compliance with these rules and the requirements of the federal Safe Drinking Water Act (SDWA). It is divided into three (3) main elements: ~~(3-24-22)~~( )

a. Technical capacity means the ~~system~~ PWS has the physical infrastructure to consistently meet drinking water quality standards and treatment requirements and is able to meet the requirements of routine and emergency operations. It further means the ability of ~~system~~ PWS personnel to adequately operate and maintain the ~~system~~ PWS and to otherwise implement technical knowledge. Training of operator(s) is required, as appropriate, for the system size and complexity. ~~(3-24-22)~~( )

b. Financial capacity means the financial resources of the ~~water system~~ PWS, including an appropriate budget; rate structure; cash reserves sufficient for current operation and maintenance, future needs and emergency situations; and adequate fiscal controls. ~~(3-24-22)~~( )

c. Managerial capacity means that the management structure of the ~~water system~~ PWS embodies the aspects of ~~water~~ system operations, including, but not limited to; ~~(3-24-22)~~( )

i. Short and long range planning; ( )

ii. Personnel management; ( )

iii. Fiduciary responsibility; ( )

iv. Emergency response; ( )

v. Customer responsiveness; ( )

vi. Source water protection; ( )

vii. Administrative functions such as billing and consumer awareness; and ( )

viii. Ability to meet the intent of the federal ~~Safe Drinking Water Act~~ SDWA. ~~(3-24-22)~~( )

~~**12. Cartridge Filters**. Pressure driven separation devices that remove particulate matter larger than one (1) micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.~~ ~~(3-24-22)~~

~~**13. Clean Compliance History**. For the purposes of the Revised Total Coliform Rule in Subsection 100.01, clean compliance history means a record of no maximum contaminant level violations under Subsection 050.05, no monitoring violations under Subsection 100.01, and no coliform treatment technique trigger exceedances or treatment technique violations under Subsection 100.01.~~ ~~(3-24-22)~~

~~**14. Combined Distribution System**. The interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.~~ ~~(3-24-22)~~

~~**15. Community Water System**. A public water system which serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents. See also the definition of a Public Drinking Water System in these rules.~~ ~~(3-24-22)~~

~~16~~04. **Components of Finished Water Storage**. Storage is available to serve the system if the storage structure or facility is elevated sufficiently or is equipped with sufficient booster pumping capability to pressurize the system. Components of finished water storage are further defined as: ( )

a. Dead Storage~~.~~ is ~~S~~storage that is either not available for use in the system or can provide only substandard flows and pressures. ~~(3-24-22)~~( )

b. ~~Effective Storage.~~ Effective storage is all storage other than dead storage and is made up of the additive components described in Paragraphs c. through f. of this Subsection. ~~(3-24-22)~~( )

c. ~~Operational Storage.~~ Operational storage supplies water when, under normal conditions, the sources are off. This component is the larger of; ~~(3-24-22)~~( )

i. The volume required to prevent excess pump cycling and ensure that the following volume components are full and ready for use when needed; or ( )

ii. The volume needed to compensate for the sensitivity of the water level sensors. ( )

d. Equalization Storage~~.~~ is ~~S~~storage of finished water in sufficient quantity to compensate for the difference between a water system's maximum pumping capacity and peak hour demand. ~~(3-24-22)~~( )

e. Fire Suppression Storage~~.~~ is ~~T~~the water needed to support fire flow in those systems that provide it. ~~(3-24-22)~~( )

f. ~~Standby Storage.~~ Standby storage provides a measure of reliability or safety factor ~~should~~ if sources fail or when unusual conditions impose higher than anticipated demands. Normally used for emergency operation, if standby power is not provided, to provide water for eight (8) hours of operation at average day demand. ~~(3-24-22)~~( )

~~17~~05. **Composite Correction Program (CCP)**. A systematic approach to identifying opportunities for improving the performance of water treatment and implementing changes that will capitalize on these opportunities. The CCP consists of two (2) elements: ( )

a. Comprehensive Performance Evaluation (CPE). ~~A thorough review and analysis of a treatment plant's performance based capabilities and associated administrative, operation, and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. The CPE must consist of at least the following components: assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report~~ As defined in 40 CFR 141.2. ~~(3-24-22)~~( )

b. Comprehensive Technical Assistance (CTA)~~.~~ is ~~T~~the implementation phase that is carried out if the CPE results indicate improved performance potential. During the CTA phase, the ~~system~~ PWS must identify and systematically address plant-specific factors. The CTA consists of follow-up to the CPE results, implementation of process control priority setting techniques, and maintaining long term involvement to systematically train staff and administrators. ~~(3-24-22)~~( )

~~18. Compositing of Samples. The mixing of up to five (5) samples by the laboratory. (3-24-22)~~

~~19~~06. **Confining Layer**. A nearly impermeable subsurface stratum which is located adjacent to one (1) or more aquifers and does not yield a significant quantity of water to a well. ( )

~~20. Confirmation Sample. A sample of water taken from the same point in the system as the original sample and at a time as soon as possible after the original sample was taken. (3-24-22)~~

~~21. Connection. Each structure, facility, or premises which is connected to a water system, and which is or could be used for domestic purposes, is considered a single connection. A single family residence is considered to be a premises. Multi-family dwellings and apartment, condominium, and office complexes are considered single connections unless individual units are billed separately for water by the water system, in which case each such unit shall be considered a single connection. (3-24-22)~~

~~22. Consecutive System. A public water system that receives some or all of its finished water from one (1) or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one (1) or more consecutive systems.~~ ~~(3-24-22)~~

~~23~~07. **Consumer**. Any person served by a ~~public water system~~ PWS. ~~(3-24-22)~~( )

~~24~~08. **Consumer Confidence Report (CCR)**. An annual report that community water systems must deliver to their customers. The reports must contain information on the quality of the water delivered by the ~~systems~~ PWS and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. ~~(3-24-22)~~( )

~~25. Contaminant. Any physical, chemical, biological, or radiological substance or matter in water.~~ ~~(3-24-22)~~

~~26~~09. **Cross Connection**. ~~Any actual or potential connection or piping arrangement between a public or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable water system used water, water from any source other than an approved public water system, industrial fluid, gas or substance other than the intended potable water with which the system is supplied. Cross connections include bypass arrangements, jumper connections, removable sections, swivel or change over devices and other temporary or permanent devices which, or because of which "backflow" can or may occur~~An actual or potential connection or piping arrangement between a drinking water system and another source that could introduce contamination into the potable water system through backflow, backsiphoning, or backpressure. ~~(3-24-22)~~( )

~~27~~10. **Dead End Main**. A distribution main of any diameter and length that does not loop back into the distribution system. ( )

~~28. Dead Storage. Storage that is either not available for use in the system or can provide only substandard flows and pressures. See also the definition of Components of Finished Water Storage in these rules.~~ ~~(3-24-22)~~

~~29. Department. The Idaho Department of Environmental Quality.~~ ~~(3-24-22)~~

~~30. Director. The Director of the Department of Environmental Quality or his designee.~~ ~~(3-24-22)~~

~~31~~11. **Direct Integrity Test (DIT)**. A physical test applied to a microfiltration or ultrafiltration membrane unit in order to identify integrity breaches. ( )

~~32. Disinfection. Introduction of chlorine, other agents, or processes that are approved by the Department (such as ultraviolet light) in sufficient concentration, dosage, or application, and for the time required to kill or inactivate pathogenic and indicator organisms.~~ ~~(3-24-22)~~

~~33. Disinfection Profile. A summary of daily Giardia lamblia inactivation through the drinking water treatment plant. The procedure for developing a disinfection profile is contained in 40 CFR 141.172 and 40 CFR 141.530-141.536.~~ ~~(3-24-22)~~

~~34. Distribution System. Any combination of pipes, tanks, pumps, and other equipment which delivers water from the source(s), treatment facility(ies), or a combination of source(s) and treatment facility(ies) to the consumer. Chlorination may be considered as a function of a distribution system.~~ ~~(3-24-22)~~

~~35. Drinking Water. Means "water for human consumption."~~ ~~(3-24-22)~~

~~36~~12. **Drinking Water System**. All mains, pipes, and structures through which water is obtained and distributed, including wells and well structures, intakes and cribs, pumping stations, treatment plants, reservoirs, storage tanks and appurtenances, collectively or severally, actually used or intended for use for the purpose of furnishing water for drinking or general domestic use. ( )

~~37. Dual Sample Set. A set of two (2) samples collected at the same time and same location, with one (1) sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purposes of conducting an Initial Distribution System Evaluation (40 CFR Part 141, Subpart U) and for determining compliance with the TTHM and HAA5 MCLs under the Stage 2 Disinfection Byproducts Requirements (40 CFR Part 141, Subpart V).~~ ~~(3-24-22)~~

~~38~~13. **Effective Contact Time**. For the purpose of these rules, effective contact time means the time in minutes that it takes for water to move from the point of completely mixed chemical application to the point where residual concentration is measured. It is the "T" in contact time (CT) calculations and is either "demonstrated" or "calculated." It is the contact time sufficient to achieve the inactivation of target pathogens under the expected range of raw water pH and temperature variation and must be demonstrated through tracer studies or other evaluations or calculations acceptable to the Department. "Improving Clearwell Design for CT Compliance," referenced in Subsection 002.02, contains information that may be used as guidance for these calculations. ( )

~~39. Effective Storage. Effective storage is all storage other than dead storage and is made up of the additive components described in Paragraphs e. through f. of the definition of Components of Finished Water Storage in these rules.~~ ~~(3-24-22)~~

~~40. Enhanced Coagulation. The addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment. Conventional filtration treatment is defined in 40 CFR 141.2.~~ ~~(3-24-22)~~

~~41. Enhanced Softening. The improved removal of disinfection byproduct precursors by precipitative softening.~~ ~~(3-24-22)~~

~~42. Equalization Storage. Storage of finished water in sufficient quantity to compensate for the difference between a water system's maximum pumping capacity and peak hour demand. See also the definition of Components of Finished Water Storage in these rules.~~ ~~(3-24-22)~~

~~43~~14. **Equivalent Dwelling Unit (EDU)**. A unit of measure that standardizes all land use types (housing, retail, office, etc.) to the level of demand created by a single-family detached housing unit within a water system. The demand for one (1) equivalent dwelling unit is equivalent to the amount of water provided to the average single-family detached housing unit within a water system. For example, a business designed to use three (3) times as much water as an average single-family detached housing unit ~~would~~ will have a demand of three (3) equivalent dwelling units. ~~(3-24-22)~~( )

~~44~~15. **Exemption**. A temporary deferment of compliance with a maximum contaminant level or treatment technique requirement which may be granted only if the ~~system~~ PWS demonstrates to the satisfaction of the Department that the ~~system~~ PWS cannot comply due to compelling factors and the deferment does not cause an unreasonable risk to public health. ~~(3-24-22)~~( )

~~45~~16. **Facility Plan**. The facility plan for a ~~public drinking water system~~ PWS describes the overall system, including sources of water, treatment processes and facilities, pumping stations and distribution piping, finished water storage, and waste disposal. It is a comprehensive planning document for infrastructure and includes a plan for the future of the system/facility, including upgrades and additions. It is usually updated on a regular basis due to anticipated or unanticipated growth patterns, regulatory requirements, or other infrastructure needs. A facility plan is sometimes referred to as a master plan or facilities planning study. In general, a facility plan is an overall system-wide plan as opposed to a project specific plan. ~~(3-24-22)~~( )

~~46. Facility Standards and Design Standards. Facility standards and design standards are described in Sections 500 through 552 of these rules. Facility and design standards found in Sections 500 through 552 of these rules must be followed in the planning, design, construction, and review of public drinking water facilities.~~ ~~(3-24-22)~~

~~47. Fee Assessment. A charge assessed on public drinking water systems based on a rate structure calculated by system size.~~ ~~(3-24-22)~~

~~48. Filter Profile. A graphical representation of individual filter performance, based on continuous~~

~~turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.~~ ~~(3-24-22)~~

~~49~~17. **Filtrate**. As the term relates to microfiltration and ultrafiltration, the product water or the portion of the feed stream that has passed through the membrane. ( )

~~50. **Finished Water**. Water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).~~ ~~(3-24-22)~~

~~51~~18. **Finished Water Storage Structures or Facilities**. Finished water storage structures or facilities are defined as: ( )

a. Above-ground storage structure or facility~~.~~ is ~~A~~a finished water storage structure or facility with a bottom elevation above normal ground surface. ~~(3-24-22)~~( )

b. Ground-level storage structure or facility~~.~~ is ~~A~~a finished water storage structure or facility with a bottom elevation at normal ground surface. ~~(3-24-22)~~( )

c. Partially buried storage structure or facility~~.~~ is ~~A~~a finished water storage structure or facility with a bottom elevation below normal ground surface and any portion of the structure or facility above normal ground surface. ~~(3-24-22)~~( )

d. Below-ground storage structure or facility~~.~~ is ~~A~~a finished water storage structure or facility with a bottom elevation and top elevation below normal ground surface. ~~(3-24-22)~~( )

~~52~~19. **Fire Flow Capacity**. The water system capacity, in addition to maximum day demand, that is available for fire fighting purposes within the water system or distribution system pressure zone. Adequacy of the water system fire flow capacity is determined by the local fire authority or through a hydraulic analysis performed by a licensed professional engineer to establish required fire flows in accordance with the International Fire Code as adopted by the State Fire Marshal. ( )

~~53~~20. **Fire Suppression Storage**. The water needed to support fire flow in those systems that provide it. See also the definition of Components of Finished Water Storage in these rules. ( )

~~54~~21. **Fixture Protection**. The practice of installing backflow prevention assemblies or devices to isolate one (1) or more cross connections within a customer's facility. ( )

~~55. **Flowing Stream**. As used in the Long Term 2 Enhanced Surface Water Treatment Rule (40 CFR Part 141, Subpart W), this term means a course of running water flowing in a definite channel.~~ ~~(3-24-22)~~

~~56~~22. **Flux**. The throughput of a pressure-driven membrane filtration process expressed as flow per unit of membrane area, usually in gallons per square foot per day or liters per hour per square meter. ( )

~~57. **Ground Water System**. A public water system which is supplied exclusively by a ground water source or sources.~~ ~~(3-24-22)~~

~~58. **Ground Water Under the Direct Influence of Surface Water (GWUDI)**. Any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large diameter pathogens such as Giardia lamblia or Cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence shall be determined by the Department for individual sources. The determination of direct influence may be based on site specific measurements of water quality, documentation of well construction characteristics and geology with field evaluation, a combination of water quality and documentation, or other information required by the Department.~~ ~~(3-24-22)~~

~~59. **Haloacetic Acids (Five) (HAA5)**. The sum of the concentrations in milligrams per liter of the~~

~~haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid) rounded to two (2) significant figures after addition.~~ ~~(3-24-22)~~

~~60~~23. **Health Hazard~~s~~**. Any condition, operation, or practice in a PWS which creates, or ~~may~~ has the potential to create, an acute or immediate danger to the consumer's health. ~~Health hazards may consist of, but are not limited to, design, construction, operational, structural, collection, storage, distribution, monitoring, treatment or water quality elements of a public water system. See also the definition of Significant Deficiency, which refers to a health hazard identified during a sanitary survey.~~ ~~(3-24-22)~~( )

~~61~~24. **Indirect Integrity Monitoring**. Monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. ( )

~~62~~25. **Inorganic**. Generally refers to compounds that do not contain carbon and hydrogen. ( )

~~63~~26. **Internal or In-Plant Isolation**. The practice of installing backflow prevention assemblies to protect an area within a water customer's structure, facility, or premises from contaminating another part of the structure, facility, or premises. ( )

~~64. **Lake/Reservoir**. As used in the Long Term 2 Enhanced Surface Water Treatment Rule (40 CFR Part 141, Subpart W), this term means a natural or man-made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.~~ ~~(3-24-22)~~

~~65. **Level 1 Assessment**. A Level 1 Assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any Department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.~~ ~~(3-24-22)~~

~~66. **Level 2 Assessment**. A Level 2 Assessment is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the Department in accordance with Subsection 305.03, which may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing.~~ ~~(3-24-22)~~

~~67. **License**. A physical document issued by the Idaho Division of Occupational and Professional Licenses certifying that an individual has met the appropriate qualifications and has been granted the authority to practice in Idaho under the provisions of Chapter 24, Title 54, Idaho Code.~~ ~~(3-24-22)~~

~~68. **Locational Running Annual Average (LRAA)**. The average of sample analytical results for samples taken at a particular monitoring location during the previous four (4) calendar quarters, as set forth in the Stage 2 Disinfection Byproducts Requirements (40 CFR Part 141, Subpart V).~~ ~~(3-24-22)~~

*27. **Like-Kind Replacement**. Repair or replacement of a system component that is identical in capacity, exhibits equivalent design, operational, and material parameters, and does not result in an increase in system capacity or alter existing methods or processes.* *( )*

~~69~~28. **Log**. Logarithm to the base ten (10). In the context of these rules, it is used in the determination of removal or inactivation efficiencies. It is expressed as the logarithm to the base ten (10) or "log" of the concentration of the feed or raw water minus the log of the concentration in the filtrate or product water. For example, if the incoming feed or raw water concentration is one hundred (100), and the outgoing filtrate or product water concentration is ten (10), a 10-fold reduction was attained; or 1-log removal. 1-log removal also equates to ninety percent (90%) removal, as ninety (90) of the original feed concentration counts had been removed, leaving ten (10) in the filtrate. Similarly, 2-log equates to ninety-nine percent (99%) removal. ( )

~~70~~29. **Log Removal Value (LRV)**. LRV is a measure of filtration removal efficiency for a target organism, particulate, or surrogate expressed as Logarithm to the base ten (10). ( )

~~71~~30. **Material Deviation**. A change from the design plans that significantly alters the type or location of ~~facilities, requires engineering judgment to design, or impacts the public safety or welfare~~ system components.
. ~~(3-24-22)~~( )

~~72~~31. **Material Modification**. ~~Those m~~Modifications of an existing ~~public water system~~ PWS that ~~are intended to~~ increase system capacity or alter the methods or processes employed. ~~Any project that adds source water to a system, increases the pumping capacity of a system, increases the potential population served by the system or the number of service connections within the system, adds new or alters existing drinking water system components, or affects the water demand of the system is considered to be increasing system capacity or altering the methods or processes employed. Maintenance and repair performed on the system and the replacement of valves, pumps, or other similar items with new items of the same size and type are not considered a material modification.~~ Increasing system capacity occurs by adding a new water source to a PWS, increasing the pumping and hydraulic capacity of the PWS, increasing potable water demand, or increasing the number of service connections. Altering methods or processes employed occurs by adding new, or altering existing, system components to satisfy increasing potable water demand, or changing engineering design intent of potable water delivery or treatment. Maintenance as outlined in the approved operation and maintenance manual, *or maintenance that does not meet the criteria of a material modification described in this definition,* is not a material modification. *Like-kind replacement is not considered a material modification.* ~~(3-24-22)~~( )

~~73. **Maximum Contaminant Level (MCL)**. The maximum permissible level of a contaminant in water which is delivered to any user of a public water system.~~ ~~(3-24-22)~~

~~74. **Maximum Day Demand**. The average rate of consumption for the twenty-four (24) hour period in which total consumption is the largest for the design year. See also the definition of Water Demand in these rules.~~ ~~(3-24-22)~~

~~75~~32. **Maximum Pumping Capacity**. The pumping capacity with the largest source or pump out of service. ( )

~~76. **Maximum Residual Disinfectant Level (MRDL)**. A level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a public water system is in compliance with the MRDL, when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a public water system is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two (2) consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels under Section 1412 of the Safe Drinking Water Act. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in 40 CFR 141.65, operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.~~ ~~(3-24-22)~~

~~77. **Maximum Residual Disinfectant Level Goal (MRDLG)**. The maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and~~

~~which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.~~ ~~(3-24-22)~~

~~78.~~ ~~**Membrane Filtration**. A pressure or vacuum driven separation process in which particulate matter larger than one (1) micrometer (µm) is rejected by an engineered barrier, primarily through a size exclusion mechanism. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.~~ ~~(3-24-22)~~

~~79~~33. **Membrane Unit**. A group of treatment systems or membrane modules that usually share common control and valving so that the group can be isolated for testing or cleaning. ( )

~~80.~~ ~~**Method Detection Limit (MDL)**. The lowest concentration which can be determined to be greater than zero with ninety-nine percent (99%) confidence, for a particular analytical method.~~ ~~(3-24-22)~~

~~81~~34. **Microfiltration (MF)**. A low-~~-~~pressure membrane filtration process with pore diameter normally in the range of 0.1 to 0.5 µm. ~~(3-24-22)~~( )

~~82~~35. **Module**. As the term relates to membrane filtration, it is the smallest component of a membrane unit in which a specific membrane surface area is housed. The component is typically equipped with a feedwater inlet, a filtrate outlet, and concentrate or backwash outlet structure. ( )

~~83~~36. **Nanofiltration (NF)**. A membrane filtration process that removes dissolved constituents from water. Nanofiltration is similar to reverse osmosis but allows a higher percentage of certain ions to pass through the membrane. These systems typically operate under higher pressure than microfiltration and ultrafiltration. ( )

8~~4.~~37 **New System**. Any water system that meets, for the first time, the definition of a ~~public water system provided in Section 1401 of the federal Safe Drinking Water Act (42 U.S.C. Section 300f). This includes~~ PWS, which includes systems that are entirely new construction ~~and~~ or previously unregulated systems that ~~are expanding~~ increased either the population served or connections. ~~(3-24-22)~~( )

~~85.~~ ~~**Noncommunity Water System**. A public water system that is not a community water system. A non-community water system is either a transient noncommunity water system or a non-transient noncommunity water system. See also the definition of a Public Drinking Water System in these rules.~~ ~~(3-24-22)~~

~~86~~38. **Non-Potable Fluids or Gases**. Any fluids or gases that do not meet the definition of potable water. ~~This definition also includes any gases that are heavier than air such as propane.~~ ~~(3-24-22)~~( )

~~87~~39. **Non-Potable Mains**. Pipelines that collect, deliver, or otherwise convey non-potable fluids. ( )

~~88~~40. **Non-Potable Services or Lines**. Pipelines that collect, deliver, or otherwise convey non-potable fluids to or from a non-potable main. These pipelines connect individual facilities to the non-potable main. This term also refers to pipelines that convey non-potable fluids from a pressurized irrigation system, reclaimed wastewater system, and other non-potable systems to individual consumers. ( )

~~89.~~ ~~**Nontransient Noncommunity Water System**. A public water system that is not a community water system and that regularly serves at least twenty-five (25) of the same persons over six (6) months per year. See also the definition of a Public Drinking Water System in these rules.~~ ~~(3-24-22)~~

~~90~~41. **Operating Shift**. ~~That~~Any period of time during which ~~water system operator decisions that affect public health are necessary for proper operation of the system~~ a licensed operator must be present, or available, for proper operation or oversight of the PWS. ~~(3-24-22)~~( )

~~91~~42. **Operational Storage**. Operational storage supplies water when, under normal conditions, the sources are off. This component is the larger of the volume required to prevent excess pump cycling and ensure that the following volume components are full and ready for use when needed or the volume needed to compensate for the sensitivity of the water level sensors. See also the definition of Components of Finished Water Storage in these rules.

( )

~~92~~43. **Operation and Maintenance Manual**. ~~An operation and maintenance manual~~A comprehensive document that provides procedures for the operations and maintenance of the PWS. The manual typically covers three main subjects: a water system specific operations plan (see definition of Operations Plan); maintenance information and checklists; and manufacturer's product information (including trouble shooting information, a parts list and parts order form, special tools, spare parts list, etc.). An operation and maintenance manual may cover every aspect of the water system or any part of the water system, including but not limited to the following: treatment, pump stations, storage reservoirs, distribution system, pressure reducing valve stations, etc. ~~(3-24-22)~~( )

~~93~~44. **Operations Plan**. The operations plan is part of an operation and maintenance manual. Depending on which facilities of the ~~water system~~ PWS are being addressed, the operations plan may cover many types of information including but not limited to the following: daily, weekly, monthly, and yearly operating instructions; information specific to a particular type of treatment; location of valves and other key distribution system features; pertinent telephone and address contact information including the responsible charge ~~water system~~ PWS operator and ~~water system~~ PWS owner; operator safety procedures; alarm system; emergency procedures; trouble-shooting advice; water quality testing; depressurization events; customer service; and response to customer complaints. ~~(3-24-22)~~( )

~~94~~45. **Owner/Purveyor of Water/Supplier of Water**. The person, company, corporation, association, or other organizational entity which holds legal title to the ~~public water system~~ PWS, who provides, or intends to provide, drinking water to the customers, and who is ultimately responsible for the ~~public water system~~ PWS operation. ~~(3-24-22)~~( )

~~95. Peak Hour Demand. The highest hourly flow, excluding fire flow, that a water system or distribution system pressure zone is likely to experience in the design year. See also the definition of Water Demand in these rules. (3-24-22)~~

~~96. Person. A human being, municipality, or other governmental or political subdivision or other public agency, or public or private corporation, any partnership, firm, association, or other organization, any receiver, trustee, assignee, agent or other legal representative of the foregoing or other legal entity. (3-24-22)~~

~~97. Pesticides. Substances which meet the criteria for regulation pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, and any regulations adopted pursuant to FIFRA. For example, pesticides include, but are not limited to insecticides, fungicides, rodenticides, herbicides, and algaecides. (3-24-22)~~

~~98~~46. **Plant Design Capacity**. The maximum design flow through treatment units. The minimum plant design capacity ~~could~~ may be equal to peak hour demand but ~~could~~ may also be equal to the maximum day demand if equalization storage is provided. ~~(3-24-22)~~( )

~~99~~47. **Plant**. A physical facility where drinking water ~~or wastewater~~ is treated or processed. ~~(3-24-22)~~( )

~~100. Point of Use (POU) Treatment Device. A treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap. (3-24-22)~~

~~101~~48. **Point of Use (POU) Treatment System**. A collection of POU treatment devices. ( )

~~102~~49. **Potable Mains**. Pipelines that deliver potable water to multiple service connections. ( )

~~103~~50. **Potable Services**. Pipelines that convey potable water from a service connection to the potable water main to individual consumers. ~~(3-24-22)~~( )

~~104~~51. **Potable Water**. Water for human consumption. ~~See the definition of Water for Human Consumption in Section 003.~~ Also referred to as Water for Human Consumption or Drinking Water. ~~(3-24-22)~~( )

~~105~~52. **Preliminary Engineering Report (PER)**. ~~The preliminary engineering report for a public drinking~~

~~water system facility is a~~A report that addresses specific portions of the ~~system~~ PWS or facility for which *material* modifications are being designed. *Material* ~~M~~*m*odifications may include, but are not limited to, significant changes to existing processes or facilities, ~~system~~ PWS expansion, addition of treatment, or installation of other processes and facilities. This report addresses specific purpose and scope, design requirements, alternative solutions, costs, operation and maintenance requirements, and other requirements as described in Section 503. Preliminary engineering reports are generally project specific as opposed to an overall system-wide plan, such as a facility plan. ~~(3-24-22)~~( )

~~106~~53. **Premises Isolation or Containment**. The practice of separating the customer's structure, facility, or premises from the purveyor's ~~system~~ PWS by means of a backflow prevention assembly installed on the service line before any distribution takes place. ~~(3-24-22)~~( )

~~107. Presedimentation. A preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.~~ ~~(3-24-22)~~

~~108~~54. **Protected Water Source**. For the purposes of the Revised Total Coliform Rule (40 CFR Part 141, Subpart Y), a protected water source is a ground-water well that is not susceptible to contamination on the basis of well construction, hydrologic data, or contamination history. ~~(3-24-22)~~( )

~~109~~55. **Public Notice**. The notification ~~of public water system~~ to PWS consumers of information pertaining to that ~~water system~~ PWS including information regarding water quality or compliance status of the ~~water system~~ PWS. ~~(3-24-22)~~( )

~~110~~56. **Public Drinking Water System (PWS)**. A system for the provision to the public of water for human consumption through pipes or, after August 5, 1998, other constructed conveyances, if such system has at least fifteen (15) service connections, regardless of the number of water sources or configuration of the distribution system, or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system" as further defined as: ~~(3-24-22)~~( )

a. Community water system. A ~~public water system~~ PWS which serves at least fifteen (15) service connections used by year-round residents or regularly serves at least twenty-five (25) year-round residents. ~~(3-24-22)~~( )

b. Non-community water system. A ~~public water system~~ PWS that is not a community water system. A non-community water system is either a transient non-community water system or a non-transient non-community water system. ~~(3-24-22)~~( )

c. Non-transient non-community water system. A ~~public water system~~ PWS that is not a community water system and that regularly serves at least twenty-five (25) of the same persons over six (6) months per year. ~~(3-24-22)~~( )

d. Transient non-community ~~public~~ water system. A non-community water system which does not regularly serve at least twenty-five (25) of the same persons over six (6) months per year. ~~(3-24-22)~~( )

~~111~~57. **Public Water System (PWS)/Water System/System**. Means "public drinking water system." ~~(3-24-22)~~( )

~~112~~58. **Pump House**. A structure containing important water system components, such as a well, hydropneumatic tank, booster pump, pump controls, flow meter, well discharge line, or a treatment unit. Pump houses are often called well houses in common usage, even though in modern construction these structures may not contain either a well or a pump. These terms are used interchangeably in national standards and trade publications. ( )

~~113~~59. **Qualified Licensed Professional Engineer (QLPE)**. A professional engineer licensed by the state of Idaho; qualified by education or experience in the specific technical fields involved in these rules; and retained or employed by a city, county, quasi-municipal corporation, or regulated public utility for the purposes of plan and specification review. ( )

~~114~~60. **Quasi-Municipal Corporation**. A public entity, other than community government, created or authorized by the legislature to aid the state in, or to take charge of, some public or state work for the general welfare. For the purpose of these rules, this term refers to drinking water districts. ( )

~~115.~~61 **Raw Water**. Raw water is any ground-water, spring water, or surface water utilized as source water prior to treatment for the purpose of producing potable water. ~~(3-24-22)~~( )

~~116~~62. **Redundancy**. The installation of duplicate components or backup systems that are designed to maintain minimum pressure and capacity of the ~~system should~~ PWS if any component fails or is otherwise ~~be~~ out of service for maintenance or repair. ~~(3-24-22)~~( )

~~117. Regulated Public Utility. For the purpose of these rules, any public water system that falls under the jurisdiction of the Idaho Public Utilities Commission and is subject to the rules thereof. (3-24-22)~~

~~118~~63. **Reverse Osmosis (RO)**. A membrane filtration process that removes dissolved constituents from water. Reverse osmosis is similar to nanofiltration but allows a lower percentage of certain ions to pass through the membrane. These systems typically operate under higher pressure than microfiltration and ultrafiltration. ( )

~~119. Repeat Compliance Period. Any subsequent compliance period after the initial compliance period. (3-24-22)~~

~~120~~64. **Resolution**. As the term relates to membrane treatment, it is the size of the smallest integrity breach that contributes to a response from a direct integrity test when testing low pressure membranes. ( )

~~121. Responsible Charge (RC). Responsible Charge means active, daily on-site or on-call responsibility for the performance of operations or active, on-going, on-site, or on-call direction of employees and assistants. (3-24-22)~~

~~122. Responsible Charge Operator. An operator of a public drinking water system, designated by the system owner, who holds a valid license at a class equal to or greater than the drinking water system classification, who is in responsible charge of the public drinking water system. (3-24-22)~~

~~123~~65. **Reviewing Authority**. For those projects requiring preconstruction approval by the Department, the Department is the reviewing authority. For those projects allowing for preconstruction approval by others, pursuant to Subsection 504.03.b. ~~of these rules~~, the qualified Idaho licensed professional engineer (QLPE) is also the reviewing authority. ~~(3-24-22)~~( )

~~124~~66. **Sampling Point**. The location in a ~~*public water system*~~ *PWS* from which a sample is drawn. ~~*(3-24-22)*~~( )

~~125. Sanitary Defect. A defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place. Examples of sanitary defects include but are not limited to: cross connections, inadequate distribution system pressures, inadequate or missing sanitary seal, improperly screened storage tank vents, inadequate protection from contamination during flooding, history of treatment failures, deterioration of system components, and water main leaks or breaks. (3-24-22)~~

~~126. Sanitary Survey. An onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water. The sanitary survey will include, but is not limited to the following elements: (3-24-22)~~

~~a. Source;~~ ~~(3-24-22)~~

~~b. Treatment;~~ ~~(3-24-22)~~

~~c. Distribution system;~~ ~~(3-24-22)~~

~~d. Finished water storage;~~ ~~(3-24-22)~~

~~e. Pumps, pump facilities, and controls;~~ ~~(3-24-22)~~

~~f. Monitoring and reporting and data verification;~~ ~~(3-24-22)~~

~~g. System management and operation; and~~ ~~(3-24-22)~~

~~h. Operator compliance with state requirements.~~ ~~(3-24-22)~~

~~127. SDWIS State. An acronym that stands for "Safe Drinking Water Information System State Version." It is a software package developed under contract to the U.S. Environmental Protection Agency and used by a majority of U.S. states to collect, maintain, and report data about regulated public water systems.~~ ~~(3-24-22)~~

~~128. Seasonal System. A noncommunity water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.~~ ~~(3-24-22)~~

~~129~~67. **Sensitivity**. As the term relates to membrane treatment, it is the maximum log removal value (LRV) for a specific resolution that can be reliably verified by the direct integrity test associated with a given low pressure membrane filtration system. ( )

68. **Service Connection**. Each structure, facility, or premises which is connected to a PWS water source, and which is or may be used for domestic purposes. ( )

~~130~~69. **Sewage**. ~~The w~~Water-carried human ~~or animal~~ wastes from residences, buildings, and industrial establishments ~~or~~ and other places, together with ~~such~~ ground-water infiltration and surface water as may be present. ~~(3-24-22)~~( )

~~131~~70. **Significant Deficiency**. ~~As identified during a sanitary survey, a~~Any defect in a ~~system's~~ PWS's design, operation, maintenance, or administration, as well as any failure or malfunction of any system component, that the Department or its agent determines to cause, or have potential to cause, ~~risk to health or safety, or that could affect the reliable delivery of safe drinking water. See also the definition of Health Hazards~~ the introduction of contamination into the water delivered to consumers. ~~(3-24-22)~~( )

~~132~~71. **Simple Water Main Extension**. New or replacement water main(s) that require plan and specification review by a qualified licensed professional engineer (QLPE) or by the Department per these rules and that is connected to existing water main facilities and does not require the addition of system components designed to control quantity or pressure, including, but not limited to, booster stations, new sources, pressure reducing valve stations, or reservoirs; and continues to provide the pressure and quantity requirements of Subsection 552.01. ( )

~~133. Special Irrigation District. An irrigation district in existence prior to May 18, 1994 that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with the exclusion provisions in Section 1401(4)(B)(i)(II) or (III) of the Safe Drinking Water Act.~~ ~~(3-24-22)~~

~~134~~72. **Spring**. A source of water which flows from a laterally percolating water table's intersection with the surface or from a geological fault that allows the flow of water from an artesian aquifer. ( )

~~135~~73. **Standby Storage**. Standby storage provides a measure of reliability or safety factor ~~should~~ if sources fail or when unusual conditions impose higher than anticipated demands. See also the definition of

Components of Finished Water Storage in these rules. ~~(3-24-22)~~( )

~~136~~74. **Substantially Modified**. The Department ~~shall~~ considers a ~~public water system~~ PWS to be substantially modified when, as the result of one (1) or more ~~projects~~ material modifications to the PWS, there is a combined increase of twenty-five percent (25%) ~~or more above the system's existing configuration~~in any one or combination of the following: ~~in~~ the population served or number of service connections, the total length of transmission and distribution water mains, the *total* source capacity, ~~and~~ or the peak or average water demand for the PWS. Material modifications completed after *May 8, 2009*, are the only modifications counted towards the twenty-five (25%) increase. Like-kind replacement of components will not be counted toward a combined increase of twenty-five percent (25%) calculation. Removal of existing system components will not be used to reduce the combined increase of twenty-five percent (25%) calculation. ~~(3-24-22)~~( )

~~137~~75. **Substitute Responsible Charge Operator**. An operator of a ~~public drinking water system~~ PWS who holds a valid license at a class equal to or greater than the drinking water system classification, designated by the ~~system~~ PWS owner to replace and to perform the duties of the responsible charge operator when the responsible charge operator is not available or accessible. ~~(3-24-22)~~( )

~~138~~76. **Surface Water System**. A ~~public water system~~ PWS which is supplied by one (1) or more surface water sources or ground-water sources under the direct influence of surface water. Also called subpart H systems in applicable sections of 40 CFR Part 141. ~~(3-24-22)~~( )

~~139. Total Organic Carbon (TOC). Total organic carbon in mg/l measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two (2) significant figures.~~ ~~(3-24-22)~~

~~140. Total Trihalomethanes (TTHM). The sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane and tribromomethane [bromoform]), rounded to two (2) significant figures.~~ ~~(3-24-22)~~

~~141. Transient Noncommunity Public Water System. A noncommunity water system which does not regularly serve at least twenty-five (25) of the same persons over six (6) months per year. See also the definition of a Public Drinking Water System in these rules.~~ ~~(3-24-22)~~

~~142~~77. **Treatment Facility**. Any place(s) where a ~~public drinking water system or nontransient noncommunity water system~~ PWS alters the physical or chemical characteristics of the drinking water. Chlorination may be considered as a function of a distribution system. ~~(3-24-22)~~( )

~~143~~78. **Turbidity**. ~~A m~~Measure of the interference of light passage through water, or visual depth restriction ~~due to~~ from the presence of suspended matter such as clay, silt, nonliving organic particulates, plankton, and other microscopic organisms. Operationally, turbidity measurements are expressions of certain light ~~-~~scattering and absorbing properties of a water sample. Turbidity is measured by the ~~N~~nephelometric method. ~~(3-24-22)~~( )

~~144~~79. **Ultrafiltration (UF)**. A low pressure membrane filtration process with pore diameter normally in the range of five thousandths to one tenth micrometer (0.005 to 0.1 µm). ( )

~~145. Ultraviolet (UV) Light Technology. A physical disinfection process that has proven effective against common pathogens in drinking water.~~ ~~(3-24-22)~~

~~146~~80. **UV Transmittance (UVT)**. A measure of the fraction of incident light transmitted through a material (e.g., water sample or quartz). The UVT is usually reported for a wavelength of two hundred fifty-four (254) nm and a pathlength of one (1) cm. It is often represented as a percentage. ( )

~~147~~81. **Unregulated Contaminant**. Any substance that may affect the quality of water but for which a maximum contaminant level or treatment technique has not been established. ( )

~~148~~82. **Use Assessment**. For the purpose of obtaining a waiver from certain monitoring requirements, a use assessment is an evaluation as to whether synthetic organic contaminants are being or have been used,

manufactured, transported, stored, or disposed of in the watershed for surface water or the zone of influence for ground-water. (3-24-22)( )

~~149~~83. **Variance**. A temporary deferment of compliance with a maximum contaminant level or treatment technique requirement which may be granted only when the ~~system~~ PWS demonstrates to the satisfaction of the Department that the raw water characteristics prevent compliance with the MCL or requirement after installation of the best available technology or treatment technique and the determent does not cause an unreasonable risk to public health. (3-24-22)( )

~~150. Very Small Public Drinking Water System. A Community or Nontransient Noncommunity Public Water System that serves five hundred (500) persons or less and has no treatment other than disinfection or has only treatment which does not require any chemical treatment, process adjustment, backwashing or media regeneration by an operator (e.g. calcium carbonate filters, granular activated carbon filters, cartridge filters, ion exchangers).~~ (3-24-22)

~~151.~~84 **Volatile Organic Chemicals (VOCs)**. VOCs are lightweight organic compounds that vaporize or evaporate easily. ( )

~~152~~85. **Vulnerability Assessment**. ~~A~~*Related to monitoring waiver decisions, a* determination of the risk of future contamination of a public drinking water supply. ~~(3-24-22)~~( )

~~153~~86. **Waiver**. ( )

a. ~~For the purposes of these rules, e~~Except for Sections 500 through 552, "waiver" means the Department approval of a temporary reduction in sampling requirements for a particular contaminant. (3-24-22)( )

b. For purposes of Sections 500 through 552, "waiver" means ~~a~~ the dismissal or modification of any requirement of compliance. (3-24-22)( )

c. For the purposes of Section 010, "waiver" means the deferral of a fee assessment for a ~~public drinking water system~~ PWS. (3-24-22)( )

~~154.~~87 **Wastewater**. ~~Any c~~Combination of liquid or water and pollutants from activities and processes occurring in dwellings, commercial buildings, industrial plants, institutions and other establishments, together with any ground-water, surface water, and storm water that may be present; liquid or water that is chemically, biologically, physically or rationally identifiable as containing blackwater, gray water or commercial or industrial pollutants; and sewage. ~~See IDAPA 58.01.16, "Wastewater Rules," for additional information.~~ (3-24-22)( )

~~155. Water for Human Consumption. Water that is used by humans for drinking, bathing for purposes of personal hygiene (including hand washing), showering, cooking, dishwashing, and maintaining oral hygiene. In common usage, the terms "culinary water," "drinking water," and "potable water" are frequently used as synonyms.~~ (3-24-22)

~~156~~88. **Water Demand**. The volume of water requested by ~~system~~ PWS users to satisfy their needs. Water demand can be further categorized as: (3-24-22)( )

a. Average day demand. ~~T~~ is the volume of water used by a ~~system~~ PWS on an average day based on a one (1) year period. (3-24-22)( )

b. Maximum day demand. ~~T~~ is the average rate of consumption for the twenty-four (24) hour period in which total consumption is the largest for the design year. (3-24-22)( )

c. Peak hour demand. ~~T~~ is the highest hourly flow, excluding fire flow, that a ~~water system~~ PWS or distribution system pressure zone is likely to experience in the design year. (3-24-22)( )

~~157~~89. **Water Main**. A pipe within a ~~public water system~~ PWS which is under the control of the ~~system~~

PWS operator and conveys water to two (2) or more service connections or conveys water to a fire hydrant. The collection of water mains within a given water supply is called the distribution system. ~~(3-24-22)~~( )

~~**158. Watershed**. The land area from which water flows into a stream or other body of water which drains the area.~~ ~~(3-24-22)~~

~~**159. Wholesale System**. A public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one (1) or more consecutive systems.~~ ~~(3-24-22)~~

(BREAK IN CONTINUITY OF SECTIONS)

150. REPORTING, PUBLIC NOTIFICATION, RECORDKEEPING.

01. Reporting Requirements. 40 CFR 141.31 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

02. Public Notification of Drinking Water Violations. 40 CFR Part 141, Subpart Q is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

03. Record Maintenance. 40 CFR 141.33 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

04. Reporting for Unregulated Contaminant Monitoring Results. 40 CFR 141.35 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

05. Reporting and Record Keeping Requirements for the Interim Enhanced Surface Water Treatment Rule. 40 CFR 141.175 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

06. Reporting and Record Keeping Requirements for the Disinfectants and Disinfectant Byproducts Rule. 40 CFR 141.134 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

07. Reporting and Record Keeping Requirements for the Revised Total Coliform Rule. 40 CFR 141.861 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

08. Public Notification. The Department may require the owner of a PWS that has been disapproved to notify the public. The manner, content, and timing of this notification will be determined by the Department. This is in addition to any provisions set forth in Section 150 that may also apply. ( )

09. Public Notification for Low System Pressure. ( )

a. During unplanned or emergency situations, when water pressure within the system is known to have fallen below twenty (20) psi, the water supplier must notify the Department, provide public notice to the affected customers within twenty-four (24) hours, and disinfect or flush the system as appropriate. When sampling and corrective procedures have been conducted and after determination by the Department that the water is safe, the water supplier may re-notify the affected customers that the water is safe for consumption. The water supplier must notify the affected customers if the water is not safe for consumption. ( )

b. During planned maintenance or repair situations, when water pressure within the system is expected to fall below twenty (20) psi, the water supplier must provide public notice to the affected customers prior to the planned maintenance or repair activity and *notify customers* that the water is safe for consumption. *( )*

(BREAK IN CONTINUITY OF SECTIONS)

300. FILTRATION AND DISINFECTION.

01. General Requirements. 40 CFR 141.70 is ~~herein~~ incorporated by reference. ~~Each public water system using a surface water source or ground water source directly influenced by surface water shall be operated by personnel, as specified in Sections 553 and 554, who have met state requirements for licensing of water system operators.~~ ~~(3-24-22)~~( )

02. Filtration. 40 CFR 141.73 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

~~**a.** Each system which provides filtration treatment shall submit engineering evaluations, other documentation, or some combination of engineering evaluations and other documentation as required by the Department to demonstrate ongoing compliance with these rules.~~ ~~(3-24-22)~~

~~**b**~**a.** The Department will establish filtration removal credit on a system-by-system basis. Unless otherwise ~~demonstrated to the satisfaction of~~ allowed the Department, the maximum log removal credit allowed for filtration is as follows:

Maximum Log Removal			
Filtration Type	**Giardia lamblia**	**Viruses**	**Cryptosporidium**
Conventional	2.5	2.0	2.5
Direct	2.0	1.0	2.0
Slow sand	2.0	2.0	2.0
Diatomaceous earth	2.0	1.0	2.0
Microfiltration	3.0	0.5	3.0
Ultrafiltration	3.5	2.0	3.5
Nanofiltration	4.0	3.0	4.0
Reverse Osmosis	4.0	3.0	4.0
Alternate technology	2.0	0	2.0

~~(3-24-22)~~( )

~~**c**~**b.** Filtration removal credit ~~shall~~ will be granted for filtration treatment provided the ~~system~~ PWS is: ~~(3-24-22)~~( )

i. Operated in accordance with the Operations Plan specified in Subsection 552.03.a.; and ( )

ii. The ~~system~~ PWS is in compliance with the turbidity performance criteria specified under 40 CFR 141.73; and ~~(3-24-22)~~( )

iii. Coagulant chemicals must be added and coagulation and flocculation unit process must be used at all times during which conventional and direct filtration treatment plants are in operation; and ( )

iv. Slow sand filters are operated at rates not to exceed one-tenth (0.1) gallons per minute per square foot or as approved by the Department; and ( )

v. Diatomaceous earth filters are operated at a rate not to exceed one point five (1.5) gallons per minute per square foot. ( )

03. Criteria for Avoiding Filtration. 40 CFR 141.71 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

04. Disinfection. 40 CFR 141.72 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

a. ~~In addition to the disinfection requirements in 40 CFR 141.72, each system with a s~~Surface water sources or ground-water sources directly influenced by surface water ~~shall~~ must maintain a minimum of at least two-tenths (0.2) ~~parts per million of chlorine~~ mg/l disinfectant residual in the treated water ~~*after* an effective contact time of at least thirty (30) minutes~~ at peak hour demand before delivery to the first customer. ~~Effective contact time is either demonstrated or calculated.~~ ~~(3-24-22)~~( )

~~i. Demonstrated effective contact time is generally determined by tracer studies on a completed contact basin. Prior to conducting a tracer study, a testing plan shall be submitted to the Department for review and approval. The tracer chemical shall not be reactive with anything in the water or be consumed in the process.~~ ~~(3-24-22)~~

~~ii. Calculated effective contact time for tank type contact basins is based on tank baffling and inlet/outlet configurations for the maximum hourly flow rate through that contact basin. Calculated effective contact time in a "pipeline type contact basin" (often called a pipeline contactor) is calculated by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipeline contactor.~~ ~~(3-24-22)~~

b. The Department may allow a ~~system~~ PWS to utilize automatic shut-off of water to the distribution system whenever total disinfectant residual is less than two-tenths (0.2) mg/l rather than provide redundant disinfection components and auxiliary power as required in 40 CFR 141.72(a)(2). An automatic water shut-off may be used if the ~~system~~ PWS demonstrates to the satisfaction of the Department that, at all times, a minimum of twenty (20) psi pressure and adequate fire flow can be maintained in the distribution system when water delivery is shut-off to the distribution system and, at all times, minimum Giardia lamblia and virus inactivation removal rates can be achieved prior to the first customer. ~~(3-24-22)~~( )

c. Each ~~system~~ PWS which is required to provide filtration must provide disinfection treatment such that filtration plus disinfection provide at least 3-Log or ninety-nine and nine tenths percent (99.9%) inactivation/removal of Giardia lamblia cysts and at least 4-Log or ninety-nine and ninety-nine hundredths percent (99.99%) inactivation/removal of viruses as specified in 40 CFR 141.72 and Section 300, and at least 2-Log or ninety-nine percent (99%) removal of Cryptosporidium as required by 40 CFR Part 141, Subpart P or Subpart T. However, in all cases the disinfection portion of the treatment train ~~shall~~ must be designed to provide not less than five tenths (0.5) log Giardia lamblia inactivation, irrespective of the Giardia lamblia removal credit awarded to the filtration portion of the treatment train. ~~(3-24-22)~~( )

05. Analytical and Monitoring Requirements. 40 CFR 141.74 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

~~**a.** Each public water system which is required to provide disinfection shall monitor as follows:~~ ~~(3-24-22)~~

~~i. Each day the system is in operation, the purveyor shall determine the total level of inactivation of Giardia lamblia cysts and viruses achieved through disinfection based on CT99.9 values provided in 40 CFR 141.74(b)(3) (Tables 1.1 through 1.6, 2.1 and 3.1).~~ ~~(3-24-22)~~

~~ii. At least once per day, the system shall monitor the following parameters to determine the total inactivation ratio achieved through disinfection:~~ ~~(3-24-22)~~

~~(1) Temperature of the disinfected water at each residual disinfectant concentration sampling point; and~~ ~~(3-24-22)~~

~~(2) If using chlorine, the pH of the disinfected water at each chlorine residual sampling point.~~ ~~(3-24-22)~~

~~(3) The effective contact time, "T," must be determined each day during peak hour demand. Disinfectant contact time, "T," in pipelines used for Giardia lamblia and virus inactivation shall be calculated by dividing the internal volume of the pipe by the peak hour flow rate through that pipe. Effective contact time, "T," for~~

~~all other system components used for Giardia lamblia and virus inactivation shall be determined by tracer studies or other evaluations or calculations acceptable to the Department.~~ ~~(3-24-22)~~

~~(4) The residual disinfectant concentrations at each residual disinfectant sampling point at or before the first customer, must be determined each day during peak hour demand, or at other times approved by the Department.~~ ~~(3-24-22)~~

~~iii. The purveyor may demonstrate to the Department, based on a Department approved on site disinfection challenge study protocol, that the system is achieving disinfection requirements specified in Subsection 300.04 utilizing CT99.9 values other than those specified in 40 CFR 141.74(b)(3) (Tables 2.1 and 3.1) for ozone, chlorine dioxide, and chloramine.~~ ~~(3-24-22)~~

~~iv.~~**a.** ~~The t~~Total inactivation ratio ~~shall be calculated as follows~~ calculations: 40 CFR 141.74(b)(4)(i) and (ii) are incorporated by reference.~~:~~ ~~(3-24-22)~~( )

~~(1) If the system applies disinfectant at only one (1) point, the system shall determine the total inactivation ratio by either of the two (2) following methods:~~ ~~(3-24-22)~~

~~(a) One inactivation ratio (CTcalc/CT99.9) is determined at/or before the first customer during peak hour demand; or~~ ~~(3-24-22)~~

~~(b) Sequential inactivation ratios are calculated between the point of disinfectant application and a point at or before the first customer during peak hour demand. The following method must be used to calculate the total inactivation ratio:~~ ~~(3-24-22)~~

~~(i) Step 1: Determine (CTcalc/CT99.9) for each sequence.~~ ~~(3-24-22)~~

~~(ii) Step 2: Add the (CTcalc/CT99.9) values for all sequences. The result is the total inactivation ratio.~~ ~~(3-24-22)~~

~~(2) If the system uses more than one point of disinfectant application at or before the first customer, the system must determine the CT value of each disinfection sequence immediately prior to the next point of disinfectant application during peak hour demand. The sum of the (CTcalc/CT99.9) values from all sequences is the total inactivation ratio. (CTcalc/CT99.9) must be determined by the methods described in 40 CFR 141.74(b)(4)(i)(B).~~ ~~(3-24-22)~~

~~v.~~**b.** Log removal credit for disinfection ~~shall~~ must be determined by multiplying the total inactivation ratio by three (3). ~~(3-24-22)~~( )

~~vi. The Department may reduce the CT monitoring requirements specified under Section 300, for any system which demonstrates that the required inactivation levels are consistently exceeded. Reduced CT monitoring shall be allowed only where the reduction in monitoring will not endanger the health of consumers served by the water system.~~ ~~(3-24-22)~~

~~**b.** Residual disinfectant concentrations for ozone must be measured using the Indigo Method, or automated methods may be used if approved by the Department as provided for in 40 CFR 141.74(a)(2).~~ ~~(3-24-22)~~

c. Unfiltered Subpart H systems. 40 CFR 141.857(c) is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

d. ~~As provided for in 40 CFR 141.74(b), the Department may specify interim monitoring requirements for unfiltered systems notified by the Department or U.S. Environmental Protection Agency that filtration treatment must be installed. Until filtration is installed, systems shall conduct monitoring for turbidity and disinfectant residuals as follows unless otherwise specified by the Department.~~Unfiltered PWSs must monitor as required in 40 CFR 141.74(b) upon notification by the Department that filtration treatment must be installed. ~~(3-24-22)~~( )

~~i. Disinfectant residual concentrations entering the distribution system shall be measured at the following minimum frequencies, and samples must be taken at evenly spaced intervals throughout the workday.~~

~~Minimum Frequencies~~	
~~Population~~	~~Samples/day~~
~~Less than 500~~	~~1~~
~~501—1000~~	~~2~~
~~1,001—2,500~~	~~3~~
~~Greater than 2501~~	~~4~~

~~(3-24-22)~~

~~ii. Turbidity shall be measured at least once per day at the entry point to the distribution system.~~ ~~(3-24-22)~~

~~iii.~~ ~~e.~~ During the period prior to filtration treatment installation, ~~T~~the Department may, at its discretion, reduce the turbidity monitoring frequency for any non-community system which demonstrates to the satisfaction of the Department: ~~(3-24-22)~~( )

~~(1)~~i. A free chlorine residual of two-tenths (0.2) part per million is maintained throughout the distribution system; ( )

~~(2)~~ii. The water source is well protected; ( )

~~(3)~~iii. ~~The total coliform~~E. coli MCL is not exceeded or a Level 1 or Level 2 Assessment has not been triggered in accordance with 40 CFR 141.859; and ~~(3-24-22)~~( )

~~(4)~~iv. No significant health risk is present. ( )

~~e. The Department may allow systems with surface water sources or ground water sources under the direct influence of surface water, to substitute continuous turbidity monitoring for grab sample monitoring as specified in 40 CFR 141.74(b)(2) and 40 CFR 141.74(c)(1) and Subsection 300.05. The Department may allow continuous turbidity monitoring provided the continuous turbidimeter is operated, maintained, standardized and calibrated per the manufacturer's recommendations. For purposes of determining compliance with turbidity performance criteria, discrete values must be recorded every four (4) hours water is supplied to the distribution system.~~ ~~(3-24-22)~~

~~f. The Department may allow systems using both a surface water source(s), or ground water source(s) under the direct influence of surface water, and one (1) or more ground water sources, to measure disinfectant residual at points other than the total coliform sampling points, as specified in 40 CFR 141.74(b)(6)(i) and 40 CFR 141.74(c)(3)(i) and Subsection 300.05. The Department may allow alternate sampling points provided the system submits an alternate monitoring plan to the Department for approval in advance of the monitoring requirement that demonstrates the alternative points are more representative of treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in 40 CFR 141.74(a)(1), may be measured in lieu of residual disinfectant concentration as outlined in 40 CFR 141.74(b)(6)(i).~~ ~~(3-24-22)~~

~~g. The Department may allow a reduced turbidity monitoring frequency for systems using slow sand filtration or technology other than conventional, direct, or diatomaceous earth filtration, as specified in 40 CFR 141.74(c)(1) and Subsection 300.05. To be considered for a reduced turbidity monitoring frequency, a system must submit a written request to the Department in advance of the monitoring requirement.~~ ~~(3-24-22)~~

06. Reporting and Recordkeeping Requirements. 40 CFR 141.75 is ~~herein~~ incorporated by

reference. ~~(3-24-22)~~( )

a. As provided in 40 CFR 141.75(a) and Section 300, the Department may establish interim reporting requirements for ~~systems~~ PWSs notified by the Department or U.S. Environmental Protection Agency that filtration treatment must be installed as specified in 40 CFR 141.75(a) and as referred to in Subsection 300.06. Until filtration treatment is installed, ~~systems~~ PWSs required to install filtration treatment ~~shall~~ must report as follows:
~~(3-24-22)~~( )

i. The purveyor ~~shall~~ will immediately report to the Department via telephone or other equally rapid means, but no later than the end of the next business day, the following information: ~~(3-24-22)~~( )

(1) The occurrence of a waterborne disease outbreak potentially attributable to that ~~water system~~ PWS; ~~(3-24-22)~~( )

(2) Any turbidity measurement which exceeds five (5) NTU; and ( )

(3) Any result indicating that the disinfectant residual concentration entering the distribution system is below two-tenths (0.2) mg/l free chlorine. ( )

ii. The purveyor ~~shall~~ will report to the Department within ten (10) days after the end of each month the ~~system~~ PWS serves water to the public the following monitoring information using a Department-approved form: ~~(3-24-22)~~( )

(1) Turbidity monitoring information; and ( )

(2) Disinfectant residual concentrations entering the distribution system. ( )

iii. Personnel qualified under Subsection 300.01 ~~shall~~ will complete and sign the monthly report forms submitted to the Department as required in Subsection 300.06. ~~(3-24-22)~~( )

b. In addition to the reporting requirements in 40 CFR 141.75(b) pertaining to ~~systems~~ PWSs with filtration treatment, each ~~public water system~~ PWS which provides filtration treatment must report the level of Giardia lamblia and virus inactivation/removal achieved each day by filtration and disinfection. ~~(3-24-22)~~( )

07. Recycle Provisions. 40 CFR 141.76 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

a. The Department ~~shall~~ will evaluate recycling records kept by ~~water systems~~ PWSs pursuant to 40 CFR 141.76 during sanitary surveys, comprehensive performance evaluations, or other inspections. ~~(3-24-22)~~( )

b. The Department may require a ~~system~~ PWS to modify recycling practices if it can be shown that these practices adversely affect the ability of the ~~system~~ PWS to meet surface water treatment requirements. ( )

(BREAK IN CONTINUITY OF SECTIONS)

302. SANITARY SURVEYS. ~~FOR SYSTEMS USING SURFACE WATER OR GROUND WATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER~~.
The Department ~~shall~~ conduct a sanitary survey of all ~~public water systems which use surface water or ground water under the direct influence of surface water~~ PWSs. Sanitary surveys will include, but are not limited to, the following elements: source; treatment; distribution system; finished water storage; pump, pump facilities, and controls; monitoring and reporting and data verification; PWS management and operation; and operator compliance with state requirements. For those PWSs using groundwater, 40 CFR Part 141, Subpart S, is incorporated by reference.
~~(3-24-22)~~( )

01. Frequency. For non-community ~~water systems~~ PWSs, a sanitary survey ~~shall~~ must be conducted every five (5) years. For community ~~water systems~~ PWSs, a sanitary survey ~~shall~~ will be conducted every three (3)

years, except ~~that a community water system that has been determined to have outstanding performance, according to criteria established by the Department, may have a sanitary survey conducted every five (5) years~~ as provided below. ~~(3-24-22)~~( )

a. Community systems using surface water or groundwater under the direct influence of surface water that have been determined to have outstanding performance, according to criteria established by the Department, may have a sanitary survey conducted every five (5) years. ( )

b. Community systems using groundwater may have a sanitary survey conducted every five (5) years if the PWS provides at least a four (4)-log treatment of viruses (using inactivation, removal, or a Department-approved combination of 4-log inactivation and removal) before or at the first customer for all of its groundwater sources. ( )

c. Community systems using groundwater may have a sanitary survey conducted every five (5) years if they have an outstanding performance record, as determined by the Department and documented in previous sanitary surveys, and have no history of Revised Total Coliform Rule MCL or monitoring violations under Subsection 100.01 since the last sanitary survey. ( )

02. Report. A ~~The Department will provided a~~ report describing the results of the sanitary survey ~~will be provided~~ to the ~~water system~~ PWS. ~~(3-24-22)~~

~~**a.**~~ As part of the sanitary survey report or as an independent action, the Department ~~shall~~ will provide written notice to the ~~water system~~ PWS describing any significant deficiency within thirty (30) days after the Department identifies the significant deficiency. The notice may specify corrective actions and deadlines for completion of corrective actions. ~~(3-24-22)~~( )

~~**b.** The Department may, at its discretion, provide this written notice at the time of the sanitary survey.~~ ~~(3-24-22)~~

03. Significant Deficiencies. For each of the eight (8) elements of a sanitary survey of a groundwater system, the Department will consider the following deficiencies significant in all cases for the purposes of the notice required in Subsection 303.02. Decisions about the significance of other deficiencies identified during the sanitary survey will be at the Department's discretion, as indicated in the Department's sanitary survey protocol. ( )

a. Source: Lack of or improper sanitary well cap as specified in Subsection 511.06.b. ( )

b. Treatment: ( )

i. Chemical addition lacks emergency shut-off as specified in Subsection 531.02.b.ii. ( )

ii. Chemical addition is not flow proportioned where the rate of flow or chemical demand is not reasonably constant, as specified in Subsection 531.02.b.ii. ( )

c. Distribution system: A minimum system pressure of twenty (20) psi is not maintained throughout the distribution system as specified in Subsection 552.01.b. ( )

d. Finished water storage: Roof leaking, as specified in Subsections 544.09 and 544.09.c. ( )

e. Pumps, pump facilities, and controls: A pump house must be protected from contamination and unauthorized entry, as specified in Subsection 541.01. ( )

f. Monitoring, reporting, and data verification: Repeated failure to collect the required number and type of Revised Total Coliform Rule samples during the most recent two (2) year period, as specified in Subsection 100.01. ( )

g. PWS management and operation: History of frequent depressurization in the distribution system in violation of Subsection 552.01. ( )

h. Operator compliance with state licensing requirements: The PWS does not have a properly licensed responsible charge operator as required in Subsection 554.02. ( )

034. Response Required. ~~T~~After notification from the Department of significant deficiencies, the owner of a ~~public water system~~ PWS must respond in writing, describing how and on what schedule the ~~system~~ PWS will address all significant deficiencies, not later than forty-five (45) days ~~after receiving notification from the Department~~ for PWSs using surface water or groundwater under the direct influence of surface water or thirty (30) days for PWSs only using groundwater. ~~(3-24-22)~~( )

045. Consultation with the Department. ~~Public water systems shall~~PWS owners must consult with the Department prior to taking specific corrective actions in response to significant deficiencies identified during a sanitary survey, unless such corrective actions are specified in detail by the Department in its written notification under Subsection 302.02. ~~(3-24-22)~~( )

05.6 Violation. Failure to address significant deficiencies identified in a sanitary survey ~~that are within the control of the public water system and its governing body shall constitute~~ is a violation of these rules. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

450. USE OF NON-CENTRALIZED TREATMENT DEVICES.

01. Criteria and Procedures for Public Water Systems Using Point of Entry Devices. 40 CFR 141.100 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

02. Point of Use (POU) Treatment Devices. ( )

a. A ~~public water system~~ PWS owner may use point of use (POU) treatment ~~in order~~ to ~~achieve compliance~~ comply with certain maximum contaminant levels (MCL) or treatment techniques~~, in accordance with Subsection 450.02.b.,~~ when the following conditions are met: ~~(3-24-22)~~( )

i. A program for long-term operation, maintenance, and monitoring of the POU treatment system is approved by the Department, pursuant to Subsection ~~450.02.d~~ 450.02.c. ~~(3-24-22)~~( )

ii. The ~~public water system~~ PWS owner or a vendor of POU treatment devices under contract with the ~~public water system~~ PWS must ~~*shall*~~ own, control, and maintain the POU treatment system to ensure proper operation and maintenance and compliance with the MCL or treatment technique. ~~(3-24-22)~~( )

iii. Each POU treatment device is equipped with a mechanical warning mechanism to ensure ~~that~~ customers are automatically notified of operational problems. ~~(3-24-22)~~( )

iv. ~~The~~Each POU treatment device must be certified by an accredited American National Standards Institute (ANSI) certification body to meet applicable ANSI/National Sanitation Foundation (NSF) Standards. ~~(3-24-22)~~( )

~~b.~~v. POU treatment devices ~~shall~~ will not be used to ~~achieve compliance~~ comply with an MCL or treatment technique requirement for a microbial contaminant or an indicator of a microbial contaminant. Community ~~water systems~~ PWSs may not use POU treatment devices to ~~achieve compliance~~ comply with a nitrate or nitrite MCL. ~~(3-24-22)~~( )

~~c~~**b.** The Department will waive the plan and specification requirements of Section 504 relating to material modifications for the following systems only to the extent that the material modification ~~proposed~~ is limited to the installation or use of a POU treatment device(s): ~~(3-24-22)~~( )

i. Community ~~water systems~~ PWSs serving two hundred (200) or fewer service connections.

~~(3-24-22)~~( )

ii. Non-transient non-community ~~water systems~~ PWSs; ~~(3-24-22)~~( )

iii. Transient non-community ~~water systems~~ PWSs; or ~~(3-24-22)~~( )

iv. Community ~~water systems~~ PWSs serving more than two hundred (200) service connections if approved by the Department through the waiver process outlined in Subsection 005.~~01.a.~~02. ~~(3-24-22)~~( )

~~d~~c. ~~A public water system must obtain written approval by the Department before installation of a POU treatment device for the purpose of achieving compliance with a MCL or treatment technique. The public water system shall~~Prior to installation, the PWS owner must submit the following documentation for approval to the Department~~.~~. ~~(3-24-22)~~( )

i. Water system information:
~~Information identifying the public water system name and number, total number of service connections, contaminant(s) to be treated, type of POU treatment device to be installed, manufacturer and model number of the POU treatment device, type and function of the mechanical warning mechanism (performance indicator) on the POU treatment device, certification verification for ANSI/NSF, installer qualifications, and a proposed date for installation of the POU treatment device(s).~~ ~~(3-24-22)~~( )

(1) PWS name and identification number; ( )

(2) Total number of service connections; ( )

(3) Demonstration that all POU treatment devices are owned, controlled, and maintained by the PWS owner or by a vendor of POU treatment devices under contract with the PWS owner; ( )

(4) Documentation that a customer at each service connection has agreed to installation and use of a POU treatment device and has granted access for installation, maintenance, and sampling; ( )

(5) A statement of recognition that failure to maintain compliance with the MCL, or the failure to operate and maintain compliance with a POU treatment system as approved by the Department, may necessitate installation of centralized treatment; and ( )

(6) Documentation that the PWS is current with certified operator requirements pursuant to Section 554. ( )

ii. POU device information: ( )

(1) Type of POU treatment device; ( )

(2) Manufacturer, model number, and manufacturer's specifications; ( )

(3) Contaminant to be treated and documentation that the POU is certified and is of sufficient design and capacity for removal of the contaminant; ( )

(4) Documentation that the PWS's water chemistry is compatible with the POU; ( )

(5) Type and function of the mechanical warning (performance indicator); ( )

(6) Certification verification for ANSI/NSF; ( )

(7) Documentation describing how other drinking water dispensing units, such as hot water dispensers and refrigerators, soda machines, water fountains, and other similar units will be provided with treated water and how the water will be transported to that unit with non-reactive piping or tubing. Non-transient non-community and

transient non-community PWSs must demonstrate that the POU treatment devices are located in areas adequate to protect public health and in sufficient quantity to serve the system's users; ( )

(8) Installer qualifications; and ( )

(9) Proposed date for completing installation(s). ( )

iii. POU operation, maintenance, and sampling plan that includes documentation on how the PWS owner will: ( )

(1) Address any non-compliance with Subsection 450.02.c.i.(4); ( )

(2) Ensure real estate disclosures for the POU treatment systems; ( )

(3) Deliver ongoing education and outreach to customers, including renters, regarding POU treatment and health effects of the contaminant(s) of concern; ( )

(4) Address and perform on-going maintenance activities, including frequency of treatment media replacements and treatment device replacements, periodic verification that the mechanical warning device is functional, schedule of planned maintenance activities, a plan to address unscheduled maintenance problems, and a plan and method of waste disposal; and ( )

(5) Collect samples from the location of all service connections and demonstrating that all POU treatment devices will be sampled for compliance with the treated contaminant(s) during every compliance period or other frequency designated by the Department. ( )

~~ii. The manufacturer's specifications for the POU treatment device including demonstration that the POU treatment device is suited for the water chemistry of the public water system and contaminant(s) of concern and is of sufficient design and capacity for the particular application. (3-24-22)~~

~~iii. Information relating to how other drinking water dispensing units, such as instant hot water dispensers and refrigerator water and ice dispensers, whose primary function is to provide drinking water, will be provided with treated water. If water is transported from a POU treatment device to another drinking water dispensing unit, the conducting tube shall be of non-reactive material. (3-24-22)~~

~~iv. For non-transient non-community water systems and transient non-community water systems, demonstration that the drinking water dispensing units are located in areas adequate to protect public health. (3-24-22)~~

~~v. Demonstration that all POU treatment devices are owned, controlled, and maintained by the public water system or by a vendor of POU treatment devices under contract with the public water system. (3-24-22)~~

~~vi. A sampling plan identifying the location of all service connections and demonstrating how the system will ensure that all POU treatment devices are sampled for compliance with the contaminant(s) being treated during every compliance period or at a frequency designated by the Department. (3-24-22)~~

~~vii. Documentation that a customer at each service connection has agreed to installation and use of a POU treatment device and has granted access for installation, maintenance, and sampling. (3-24-22)~~

~~viii. A plan that describes how the public water system will address any non-compliance with Subsection 450.02.d.vii. (3-24-22)~~

~~ix. A maintenance plan that demonstrates how on-going maintenance activities will be performed and on what frequency, including: frequency of treatment media replacements, frequency of POU treatment device replacements, periodic verification that the mechanical warning device is functional, schedule of planned maintenance activities, plan of how the system will address unscheduled maintenance problems, and a plan and method of waste disposal. (3-24-22)~~

~~x. Documentation that the system meets the current requirements for a certified operator pursuant to Section 554.~~ ~~(3-24-22)~~

~~xi. A plan for on-going education and outreach to the customers of the public water system, including rental customers, on POU treatment and health effects of the contaminant(s) of concern.~~ ~~(3-24-22)~~

~~xii. A plan for how the system will ensure real estate disclosures for the POU treatment system.~~ ~~(3-24-22)~~

~~xiii. A statement of recognition that failure to maintain compliance with the MCL, or the failure to operate and maintain compliance with a POU treatment system as approved by the Department, may necessitate installation of centralized treatment.~~ ~~(3-24-22)~~

~~e~~**d.** Within thirty (30) days of installing the approved POU treatment system, the ~~public water system shall~~ PWS owner must: ~~(3-24-22)~~( )

i. ~~n~~Notify the Department in writing that the POU treatment system was installed as approved by the Department. ~~(3-24-22)~~( )

~~**f.** Within thirty (30) days of installing the approved POU treatment system, the public water system shall s~~

ii. Submit samples from each POU treatment device to a certified laboratory for the contaminant(s) being treated ~~by the POU treatment device. The samples shall be used~~ to demonstrate initial compliance with the MCL. ~~(3-24-22)~~( )

~~g~~**e.** The ~~water system~~ PWS owner or operator must maintain records for a POU treatment system. Records ~~shall~~ must be submitted to the Department at a frequency and in a format specified by the Department. Records to maintain ~~shall~~ include: ~~(3-24-22)~~( )

i. Requirements of Subsection 450.02.~~d~~c.; ~~(3-24-22)~~( )

ii. All sampling performed on the POU treatment devices; ( )

iii. Maintenance logs and schedules; ( )

iv. Log of installed units; and ( )

v. Contracts, lease agreements, or other legal documents with vendors and consumers. ( )

03. Use of Bottled Water. 40 CFR 141.101 is ~~herein~~ incorporated by reference. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

500. ~~FACILITY AND DESIGN STANDARDS:~~ DEMONSTRATION OF TECHNICAL, FINANCIAL, AND MANAGERIAL CAPACITY OF PUBLIC DRINKING WATER SYSTEMS.
No person ~~shall~~ may proceed, or cause to proceed, with construction of a new ~~or substantially modified~~ community or non-transient, non-community ~~drinking water system~~ PWS until ~~it has been~~ they have demonstrated to the Department that the ~~water system~~ PWS will have adequate technical, financial, and managerial capacity, as defined in Section 003. ~~of these rules~~. Existing community or non-transient, non-community PWSs *incapable of demonstrating* technical, financial, or managerial *capacity as identified through operational problems,* may be required to submit technical, financial, and managerial documentation to the Department for review and approval. With the exception of water sources, demonstration of capacity ~~shall~~ must be submitted to the Department prior to or concurrent with the submittal of plans and specifications, as required in Section 39-118, Idaho Code, and Subsection 504.03 ~~of these rules~~. Plans and specifications for water sources may be submitted to the Department prior to demonstration of

capacity for the ~~water system~~ PWS. The Department ~~shall~~ will issue its approval of the new ~~system~~ PWS capacity demonstration in writing. ~~(3-24-22)~~( )

01. Technical Capacity. ~~In order to meet this requirement, the public water system shall submit documentation to demonstrate~~ Demonstration of technical capacity must include the following: ~~(3-24-22)~~( )

a. The ~~system~~ PWS meets the relevant design, construction, and operating requirements of these rules; ~~(3-24-22)~~( )

b. The ~~system~~ PWS has an adequate and consistent source of water; ~~(3-24-22)~~( )

c. A plan is in place to protect the water source and deal with emergencies; ( )

d. A plan exists for replacement or improvement of infrastructure as necessary; and ( )

e. The ~~system~~ PWS has trained personnel with an understanding of the technical and operational characteristics of the ~~system~~ PWS. ~~(3-24-22)~~( )

02. Financial Capacity. ~~A d~~Demonstration of financial capacity must include ~~but is not limited to~~ the following ~~information~~: ~~(3-24-22)~~( )

a. Documentation that organizational and financial arrangements are adequate to construct and operate the ~~public water system~~ PWS in accordance with these rules. This information can be provided by submitting estimated construction, operation, and maintenance costs, letters of credit, or other access to financial capital through public or private sources and, if available, a certified financial statement; ~~(3-24-22)~~( )

b. Demonstration of revenue sufficiency, that includes but is not limited to billing and collection procedures; a proposed rate structure which demonstrates the availability of operating funds, revenues for depreciation and reserves, and the ability to accrue a capital replacement fund. A preliminary operating budget ~~shall~~ must be provided; and ~~(3-24-22)~~( )

c. Adequate fiscal controls must be demonstrated. ( )

03. Managerial Capacity. ~~In order to demonstrate adequate~~Demonstration of managerial capacity, the ~~owner or operator of a new drinking water system shall submit at least~~ must include the following ~~information to the Department~~: ~~(3-24-22)~~( )

a. Clear documentation of legal ownership and any plans that may exist for transfer of that ownership upon completion of construction or after a period of operation; ( )

b. The name, address, and telephone number of the person who will be accountable for ensuring that the ~~water system~~ PWS is in compliance with these rules; ~~(3-24-22)~~( )

c. The name, address, and telephone number of the responsible charge operator; ( )

d. A description of the manner in which the ~~water system~~ PWS will be managed. Information such as by-laws, restrictive covenants, articles of incorporation, or procedures and policy manuals which describe the management organizational structure ~~shall~~ must be provided; ~~(3-24-22)~~( )

e. A recommendation of staff qualifications, including training, experience, certification or licensing, and continuing education; ( )

f. An explanation of how the ~~water system~~ PWS will establish and maintain effective communications and relationships between the ~~water system~~ PWS management, its customers, professional service providers, and any applicable regulatory agencies; and ~~(3-24-22)~~( )

g. Evidence of planning for future growth, equipment repair and maintenance, and long term

replacement of system components. ( )

04. Submittal ~~Form~~. ~~The Department shall provide a standard form to be used in preparing a new system capacity demonstration. The submittal form and general~~The PWS owner may request guidance on how to prepare a ~~new system~~ capacity document ~~is provided in, "How to Demonstrate Financial, Technical, and Managerial Capacity in New Public Water Systems." This document may be requested~~ submittal from the Department, ~~and~~ the guidance is available on the D~~EQ~~epartment website at http://www.deq.idaho.gov. ~~(3-24-22)~~( )

05. Expanding Systems. A ~~public water system~~ PWS which comes into existence as a result of growth in population or number of service connections within a previously unregulated system will be considered a new ~~system~~ PWS under these rules and is subject to all design, construction, and operating requirements herein. ~~(3-24-22)~~( )

06. Consolidation. In demonstrating new ~~system~~ PWS capacity, the owner of the proposed new ~~system~~ PWS must investigate the feasibility of obtaining water service from an established ~~public water system~~ PWS. If such service is available, but the owner elects to proceed with an independent ~~system~~ PWS, the owner must explain why this choice is in the public interest in terms of environmental protection, affordability to water users, and protection of public health. ~~(3-24-22)~~( )

07. Exclusion. New ~~public water systems~~ PWSs which are public utilities as defined in Sections 61-104 (Corporation), 61-124 (Water System), 61-125 (Water Corporation), and 61-129 (Public Utility), Idaho Code, must meet the regulatory requirements of the Idaho Public Utilities Commission (IPUC) in Chapter 1, Title 61, Idaho Code, Public Utilities Law, and IDAPA 31.01.01, "Rules of Procedure of the Idaho Public Utilities Commission." Such water systems will not be required to meet any requirements of this Section which are in conflict with the provisions and requirements of the IPUC. ~~(3-24-22)~~( )

501. ~~FACILITY AND DESIGN STANDARDS:~~ GENERAL DESIGN REQUIREMENTS FOR PUBLIC DRINKING WATER SYSTEMS.

Unless otherwise specified by the Department, the design of new ~~drinking water systems~~ PWSs, or modifications to existing~~, public drinking water systems, shall be in conformance with~~ PWSs must conform to the facility and design standards set forth in 40 CFR 141.5, and Sections ~~006 and~~ 500 through 552 ~~of these rules~~. The following general design requirements ~~shall~~ apply as applicable for the type of ~~water system~~ PWS and the treatment or other processes employed. ~~(3-24-22)~~( )

01. Materials Used in Construction. Products that are used to construct ~~public drinking water systems~~ PWSs and have water contact surfaces ~~shall~~ must conform to applicable AWWA standards and be certified by an accredited ANSI certification body to meet applicable ANSI/NSF standards, where products meeting such AWWA and ANSI/NSF standards exist, and must conform to 40 CFR 143 Subpart B. In the absence of such products, products meeting applicable product standards and acceptable to the ~~reviewing authority~~ Department may be selected. Corrosion control ~~shall~~ must be taken into account during all aspects of ~~public water system~~ PWS design. ~~(3-24-22)~~( )

02. Additives Used in Operation. No chemical or other substance ~~shall~~ will be added to drinking water, nor ~~shall~~ will any process be utilized to treat drinking water, unless ~~specifically~~ approved by the Department. All chemicals ~~shall~~ must conform to applicable AWWA standards and be certified by an accredited ANSI certification body to meet ANSI/NSF Standard 60, referenced in Subsection 002.02. ~~(3-24-22)~~( )

03. Design Basis. The ~~system~~ PWS, including the water source and treatment facilities, ~~shall~~ must be designed to provide either peak hour demand of the ~~system~~ PWS or maximum day demand plus equalization storage at the design year. ~~(3-24-22)~~( )

04. Design of Treatment Facilities. Design of treatment facilities ~~shall~~ must address: ~~(3-24-22)~~( )

a. Functional aspects of facility layout and provisions for future facility expansion; ( )

b. Provision for expansion of waste treatment and disposal facilities (see Section 540); ( )

c. Roads constructed to provide year-round access by vehicles and equipment needed for repair and maintenance; ( )

d. Site grading and drainage; and ( )

e. ~~Chemical Feed or Injection. Unless otherwise approved by the Department based on documentation provided by the design engineer, all chemical feed or injection systems must be designed to ensure complete mixing through rapid mix devices or other measures.~~Chemical feed or injection systems must be designed to ensure complete mixing through rapid mix devices or other measures unless otherwise approved by the Department. ~~(3-24-22)~~( )

f. ~~Redundancy.~~ Unless otherwise approved by the Department or as specified in other sections of these rules, to ensure that minimum quality, quantity, and pressure requirements ~~of these rules~~ are continuously met during maintenance, breakdowns, structural failures, emergencies, or other periods when components must be out of service, water system treatment, filtration, and disinfection components for all new or substantially modified community or non-transient, non-community ~~drinking water systems shall~~ PWSs must be designed with redundancy or other acceptable methods, such that plant design capacity can be maintained with any component out of service. Raw water intake structures are excluded from the general redundancy requirement but ~~shall~~ must be designed to ensure that plant design capacity will be maintained. ~~(3-24-22)~~( )

05. Design of Buildings. The design of buildings that are a part ~~of public drinking water systems shall~~ PWSs must provide for: ~~(3-24-22)~~( )

a. Adequate ventilation, lighting, heating, and air conditioning; ( )

b. Adequate drainage; ( )

c. Dehumidification equipment, if necessary; ( )

d. Accessibility of equipment for operation, servicing, and removal; ( )

e. Flexibility and convenience of operation and safety of operators; and ( )

f. Separate room(s) for chemical storage and feed equipment that may be required based on type of chemicals and associated hazards. ( )

06. Electrical. Main switch gear electrical controls ~~shall~~ must be located above grade, in areas not subject to flooding. All electrical work ~~shall~~ must conform to the requirements of the National Electrical Code or to relevant state/local codes. The National Electrical Code is available from the National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02169-7471, (617)770-3000, http://www.nfpa.org. ~~(3-24-22)~~( )

07. Reliability and Emergency Operation. New community ~~water systems constructed after April 15, 2007~~ PWSs are required to have sufficient dedicated on-site standby power, with automatic switch-over capability, or standby storage so that water may be treated and supplied to pressurize the entire distribution system during power outages. During a power outage, the ~~water system shall~~ PWS must be able to meet the operating pressure requirements of Subsection 552.01.b. for a minimum of eight (8) hours at average day demand plus fire flow where provided. A minimum of eight (8) hours of fuel storage ~~shall~~ must be located on site unless an equivalent plan is authorized by the Department. Standby power provided in a ~~public drinking water system shall~~ PWS may be coordinated with the standby power that is provided in the wastewater collection and treatment system. ~~(3-24-22)~~( )

a. The Department may require the installation of standby power or storage facilities in existing ~~systems~~ PWSs if the frequency and duration of power outages a ~~system~~ PWS experiences constitute a health hazard. ~~(3-24-22)~~( )

b. Existing community ~~public water systems~~ PWSs that are substantially modified ~~after April 15, 2007 shall~~ must meet the requirements of Subsection 501.07. in those portions of the ~~system~~ PWS affected by the

modifications. ~~(3-24-22)~~( )

c. New sources and booster pumps intended to increase ~~system~~ PWS capacity ~~shall~~ must be provided with standby power or equivalent unless, during a power outage, the ~~public water system~~ PWS or distribution system pressure zone can already meet the minimum operating capacity and pressure requirements in Subsection 501.07 for a minimum of eight (8) hours at average day demand plus fire flow where provided for each pressure zone. ~~(3-24-22)~~( )

d. For both new and existing ~~public water systems~~ PWSs, the Department may reduce the requirements of Subsection 501.07 if the ~~system~~ PWS can demonstrate the capacity to adequately protect public health during a power outage. Any decision by the Department will be based on, but not limited to, the following considerations: ~~(3-24-22)~~( )

i. An adequate emergency response and operation plan and the capacity to implement that plan. ( )

ii. The adequacy of the ~~system's~~ PWS's cross connection control program and the capacity to protect public health in the event of a system wide depressurization. ~~(3-24-22)~~( )

iii. Demonstration of historical and projected reliability of the electrical power supplied to the ~~water system~~ PWS. ~~(3-24-22)~~( )

iv. A strategy for providing information to the public during power outages, including instructions to stop irrigation, boil water, etc., until notified otherwise. ( )

v. The level of reliability acceptable to consumers. This can be accomplished with either a vote of the majority of consumers for privately owned and operated ~~systems~~ PWSs or a decision by the governing body for publicly governed ~~systems~~ PWSs. ~~(3-24-22)~~( )

vi. Other considerations that may be pertinent, including connections to other ~~public water systems~~ PWSs, agreements to provide water in emergency situations, and the availability of dedicated portable auxiliary power. ~~(3-24-22)~~( )

08. On-Site Analysis and Testing Capabilities. Each ~~public water system shall~~ PWS must have equipment and facilities for routine testing necessary to ensure proper operation. Equipment selection ~~shall~~ must be based on the characteristics of the raw water source and the complexity of the treatment process involved. ~~(3-24-22)~~( )

09. Sample Taps. Sample taps ~~shall~~ must be provided so that water samples can be obtained from each water source and from appropriate locations in each unit operation of treatment, and from the finished water. Taps ~~shall~~ must be consistent with sampling needs and shall not be of the petcock type. Taps owned by the ~~water system~~ PWS and used for obtaining samples for bacteriological analysis ~~shall~~ must be of the smooth-nosed type without interior or exterior threads, ~~shall~~ will not be of the mixing type, and ~~shall~~ will not have a screen, aerator, or other such appurtenance. ~~(3-24-22)~~( )

10. Facility Potable Water Supply. The facility water supply service line and the plant finished water sample tap ~~shall~~ must be supplied from a source of finished water at a point where all chemicals have been thoroughly mixed, and the required disinfectant contact time, if applicable, has been achieved. There ~~shall~~ may be no cross connections between the facility water supply service line and any piping, troughs, tanks, or other treatment units containing wastewater, treatment chemicals, raw or partially treated water. ~~(3-24-22)~~( )

11. Meters. All water supplies ~~shall~~ must have an acceptable means of measuring the flow from each source, the wash water, the recycled water, any blended water of different quality, and the finished water. ~~(3-24-22)~~( )

12. Operation and Maintenance Manual. A new or updated operation and maintenance manual that addresses all ~~water system~~ PWS facilities ~~shall~~ must be submitted to the Department for review and approval prior to

start-up of the new or materially modified ~~public water system~~ PWS unless the same system components are already covered in an existing operation and maintenance manual. For existing ~~systems~~ PWSs with continual operational problems as determined by the Department, the Department may require that an operation and maintenance manual be submitted to the Department for review and approval. The operator ~~shall~~ will ensure that the ~~system~~ PWS is operated in accordance with the approved operation and maintenance manual. ~~(3-24-22)~~( )

13. Start-Up Training. Provisions ~~shall~~ must be made for operator instruction at the start-up of a new plant or pumping station. ~~(3-24-22)~~( )

14. Safety. Consideration ~~shall~~ must be given to the protection of maintenance personnel and visitors from typical and foreseeable hazards in accordance with the engineering standards of care. The design ~~shall~~ must comply with all applicable safety codes and regulations that may include the Uniform Building Code, International Fire Code, National Fire Protection Association Standards, and state and federal OSHA standards. Items to be considered include, but are not limited to, noise arresters, noise protection, confined space entry, protective equipment and clothing, gas masks, safety showers and eye washes, handrails and guards, warning signs, smoke detectors, toxic gas detectors and fire extinguishers. ~~(3-24-22)~~( )

15. Security. Appropriate design measures to help ensure the security of ~~water system~~ PWS facilities ~~shall~~ must be incorporated. Such measures, at a minimum, ~~shall~~ will include means to lock all exterior doorways, windows, gates and other entrances to source, treatment, pumping stations, and water storage facilities. ~~(3-24-22)~~( )

16. Other Regulations. Consideration must be given to the design requirements of other federal, state, and local regulatory agencies for items such as safety requirements, special designs for the handicapped, plumbing and electrical codes, and construction in the flood plain. ( )

17. Ground-Water Source Redundancy. New community ~~water systems~~ PWSs served by ~~ground water shall~~ groundwater must have a minimum of two (2) sources if they are intended to serve more than twenty-five (25) connections or equivalent dwelling units (EDUs). Under normal operating conditions, with any source out of service, the remaining source(s) ~~shall~~ must be capable of providing either the peak hour demand of the ~~system~~ PWS or a minimum of the maximum day demand plus equalization storage. See Subsection 501.18 for general design and redundancy requirements concerning fire flow capacity. ~~(3-24-22)~~( )

18. Redundant Fire Flow Capacity. ( )

a. ~~Public water systems~~PWSs that provide fire flow ~~shall~~ must be designed to provide maximum day demand plus fire flow. Fire flow requirements and system adequacy ~~shall~~ will be determined by the local fire authority or by a hydraulic analysis by a licensed professional engineer to establish required fire flows in accordance with the International Fire Code as adopted by the State Fire Marshal. Pumping systems supporting fire flow capacity must be designed so that maximum day demand plus fire flow may be provided with any pump out of service. ~~(3-24-22)~~( )

b. The requirement for redundant pumping capacity specified in Subsection 501.18.a. may be reduced to the extent that fire suppression storage is provided in sufficient quantity to meet some or all of fire flow demands. Where fire suppression storage is not provided, the requirement for fire flow pumping redundancy may be reduced or eliminated if the following conditions are met: ( )

i. The local fire authority justifies that the fire flow capacity of the ~~system~~ PWS is acceptable and is compatible with the water demand of existing and planned fire-fighting equipment and fire-fighting practices in the area served by the ~~system~~ PWS. ~~(3-24-22)~~( )

ii. In a manner appropriate to the ~~system~~ PWS type and situation, notification is provided to customers that describes the design of the ~~system's~~ PWS's fire-fighting capability and explains how it differs from the requirements of Subsection 501.18.a. ~~(3-24-22)~~( )

19. Pilot Studies. Unless otherwise approved by the Department ~~based on documentation provided by the design engineer~~, pilot studies are required for treatment processes other than chlorine disinfection or point of use

installations. Pilot studies may be performed in the field using the proposed source water or in conjunction with bench scale testing in the lab using the proposed source water. The ~~system shall~~ PWS must obtain the Department's approval of a pilot study plan before the pilot study is implemented. A pilot study ~~shall~~ will be conducted for a period that ~~shall be~~ is determined by the design engineer and approved by the Department. A final pilot study report with results ~~shall~~ must be submitted to the Department for review and approval. Upon completion of the pilot study, final approval of equipment and treatment processes is subject to the applicable requirements of Sections 500 through 552. ~~(3-24-22)~~( )

a. ~~Pilot Study Plan.~~ A pilot study plan ~~shall~~ must include the following and any other items required by the Department: ~~(3-24-22)~~( )

i. ~~Introduction and Background. The plan shall discuss g~~General information about the project including the existing system, the reason for conducting the pilot study, and anticipated results of a successful pilot study. ~~(3-24-22)~~( )

ii. ~~Alternative Processes. Provide a~~A brief description of alternative processes that ~~could~~ may be used if the proposed process is shown to be ineffective from the study. ~~(3-24-22)~~( )

iii. ~~Procedures and Methods. The procedures and methods section shall discuss~~Discussion of how the pilot study will be conducted, the time frame of the study, source water quality, how source water may be altered to mimic various source water quality conditions, and the water quality parameters that are monitored and evaluated to determine if the treatment process was effective. ~~(3-24-22)~~( )

b. ~~Pilot Study Report.~~ The pilot study report ~~shall~~ must include the following and any other items required by the Department: ~~(3-24-22)~~( )

i. Introduction and Background. ( )

ii. ~~Results.~~ A discussion of the overall pilot study progress, including any issues or problems and a general discussion of results of the study and what the results indicate. This discussion ~~should~~ will determine parameters necessary for full scale implementation. ~~(3-24-22)~~( )

iii. ~~Conclusions.~~ Conclusions and recommendation to proceed with the treatment process if the results of the study proved successful. ~~(3-24-22)~~( )

c. Additional specific pilot study requirements in Sections 500 through 552 ~~shall~~ must be included in pilot study plans and reports. ~~(3-24-22)~~( )

d. ~~Engineer's Seal Required.~~ Pilot study plans and pilot study reports submitted to the Department ~~shall~~ must bear the imprint of an Idaho licensed professional engineer's seal that is both signed and dated by the engineer. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

503. ~~FACILITY AND DESIGN STANDARDS:~~ PRELIMINARY ENGINEERING REPORTS.
See the definition of Preliminary Engineering Report (PER) in Section 003. ~~Preliminary engineering reports~~PERs are required for all new ~~water systems~~ PWSs or material modifications to existing ~~water systems~~ PWSs that require plan and specification review and approval pursuant to Subsection 504.03. The ~~preliminary engineering~~ PER must ~~*report shall*~~ be in conformance with the approved facility plan or ~~shall~~ must describe any modifications to the facility plan. ~~Preliminary engineering reports~~PERs must be completed for all major ~~water system~~ PWS projects including, but not limited to, source, pump station, pressure control, storage, and treatment projects. ~~Preliminary engineering reports~~PERs are not required for simple water main extensions that are approved in accordance with Subsections 502.01.a. or 502.01.b. ~~(3-24-22)~~( )

01. Submittal to Reviewing Authority. ~~Preliminary engineering reports shall~~PERs must be submitted

to the Department for review and ~~must be approved by the Department~~ approval prior to the submission of plans and specifications. The Department may allow well construction plans and specifications to be submitted concurrently with a ~~preliminary engineering report~~ PER for these projects. ~~(3-24-22)~~( )

02. Seal Required. ~~Preliminary engineering reports~~PERs submitted to the Department ~~shall~~ must bear the imprint of an Idaho licensed professional engineer's seal that is both signed and dated by the engineer. The Department will accept the seal and signature of an Idaho licensed professional geologist ~~on preliminary reports~~ for well source, spring source, or infiltration gallery site reports, and for well construction. ~~(3-24-22)~~( )

03. ~~Preliminary Engineering Report~~PER Contents. The ~~preliminary engineering report~~ PER must include sufficient detail to demonstrate that the proposed project meets applicable criteria. The items included in Subsections 503.03.a. through 503.03.e., and all applicable issues and items specifically required in Sections 500 through 552, ~~shall~~ must be addressed in detail or justification must be provided for any proposed deviations where specifically allowed. As required, a ~~preliminary engineering report shall~~ PER must also identify and evaluate drinking water related problems, assemble basic information, present criteria and assumptions, examine alternative solutions with preliminary layouts and cost estimates, offer a conclusion with a proposed project, and outline official actions and procedures to implement the project. If specific items in Subsections 503.03.a. through 503.03.e. are not applicable to a particular design, then the designer ~~shall~~ must state this in the ~~preliminary engineering report~~ PER and state the reason why it is not applicable. Items adequately addressed in the facility plan under which the project is being designed may be addressed by reference for purposes of the ~~preliminary engineering report~~ PER.
~~(3-24-22)~~( )

a. All ~~preliminary engineering reports shall~~ PERs must include items in Subsection 503.03.a. and the applicable items from Subsections 503.03.b. through 503.03.e. ~~(3-24-22)~~( )

i. ~~General information.~~ The ~~preliminary engineering report~~ general information ~~shall~~ must include, but is not limited to: ~~(3-24-22)~~( )

(1) ~~Project description.~~ A detailed description of the proposed project; ~~(3-24-22)~~( )

(2) ~~Site selection.~~ A general description of the location of the project and justification of the site selection; ~~(3-24-22)~~( )

(3) ~~Access and utilities.~~ A general discussion of adequacy of local roadways and availability of power or other utilities; ~~(3-24-22)~~( )

(4) ~~Surrounding land use.~~ A general discussion of surrounding land use, including any potential sources of contamination; and ~~(3-24-22)~~( )

(5) ~~Security.~~ A general discussion of planned security features such as fencing, lighting, alarm systems, etc. ~~(3-24-22)~~( )

ii. ~~Coordination with facility plan. The preliminary engineering report shall~~The PER must discuss or reference items provided in the Department-approved facility plan. These items include, but are not limited to:
~~(3-24-22)~~( )

(1) ~~Existing System.~~ A general description of the existing ~~system~~ PWS and how the project fits into the overall system and facility plan; ~~(3-24-22)~~( )

(2) ~~Size.~~ The estimated ~~system~~ PWS size based on number of persons, number of connections, or number of EDUs served or impacted by the project; ~~(3-24-22)~~( )

(3) ~~Water Quantity.~~ Design data for domestic, irrigation, fire fighting, commercial and industrial water uses, including peak hour, maximum day, and average day demands; ~~(3-24-22)~~( )

(4) ~~Storage.~~ How the project will affect various storage requirements. See definition of Components of Finished Water Storage in Section 003; ~~(3-24-22)~~( )

(5) ~~Operating Pressure.~~ Pressure ranges for all flow conditions prescribed by these rules; ~~(3-24-22)~~( )

(6) ~~Hydraulic Analysis.~~ A computer ~~analysis~~ model of the hydraulics of the distribution system ~~if requested~~ based on flow demands and pressure requirements is required unless otherwise approved by the Department; any ~~analysis~~ hydraulic model of an existing distribution system ~~shall~~ must be properly calibrated. The type and sophistication of ~~analysis shall~~ hydraulic model will be dependent on the type of ~~system~~ PWS; ~~(3-24-22)~~( )

(7) ~~Sources of Water.~~ A general discussion of the adequacy, quality and availability of source of water. A ~~water system~~ PWS that is to be served by a separate non-potable irrigation system must provide documentation to demonstrate the actual availability of water in sufficient quantity to ensure that the irrigation system will not compete with or in any way diminish the source of water for the potable water system; ~~(3-24-22)~~( )

(8) ~~Sewage.~~ Describe the ~~sewage~~ wastewater collection system and ~~sewage~~ wastewater treatment works, with special reference to their relationship to existing or proposed water works structures which may affect the operation of the water supply system, or which may affect the quality of the supply; ~~(3-24-22)~~( )

(9) ~~Treatment wastes.~~ Assesses and characterize all anticipated treatment waste discharges generated by the project and any activities that ~~could~~ may impact the water supply. The location of each waste handling area or discharge point ~~shall~~ must be shown on a scale map; ~~(3-24-22)~~( )

(10) ~~Financing methods.~~ Provide brief discussion of financing options investigated or planned; and ~~(3-24-22)~~( )

(11) ~~Flooding.~~ Discuss mechanisms for protection of the ~~system~~ PWS from flooding. ~~(3-24-22)~~( )

iii. ~~Code provisions. The preliminary engineering report shall i~~Include a summary of applicable codes and standards that apply to the proposed project. ~~(3-24-22)~~( )

iv. ~~Cost estimate. The preliminary engineering report shall p~~ Provide, as applicable, estimated construction costs for public works projects or projects funded through public monies. ~~(3-24-22)~~( )

v. ~~Construction schedule. The preliminary engineering report shall i~~Include the proposed construction schedule. ~~(3-24-22)~~( )

vi. ~~Potential sources of contamination.~~ Identify sources of contamination and describe how the drinking water sources will be protected. ~~(3-24-22)~~( )

vii. ~~Soils and ground water levels.~~ Generally discuss soil, ground-water conditions, and potential building foundation problems, including a description of: ~~(3-24-22)~~( )

(1) The character of the soil through which water mains are to be laid; ( )

(2) Characteristics of the soil, water table, and geological substrate that may affect the design and construction of the foundations of proposed structures; and ( )

(3) The approximate elevation of ground-water in relation to subsurface structures. ~~(3-24-22)~~( )

b. ~~Drinking water wells and spring construction projects.~~ In addition to items listed in Subsection 503.03.a., a ~~preliminary engineering report~~ PER for source water construction projects ~~shall~~ using wells or springs must include all items listed in Subsection 503.03.b., applicable items in Sections 510 through 514, and Sections 500 to 552 ~~should~~ are to be evaluated for their relevance to the project. ~~(3-24-22)~~( )

i. ~~Anticipated geology and hydrogeology.~~ Include geological data and existing well logs. ~~(3-24-22)~~( )

ii. ~~Drilling methodology.~~ Describe the anticipated drilling method and well construction. ~~(3-24-22)~~( )

iii. ~~Water quality.~~ Anticipated potability and water quality including monitoring results required for new sources by these rules. ~~(3-24-22)~~( )

iv. ~~Water rights.~~ Provide the appropriate documentation for the water rights for the drinking water source. ~~(3-24-22)~~( )

v. Dimensions of the well lot and location of source. Include geographical coordinates of the source location. ( )

vi. ~~Evaluation of surface water influence.~~ For all new ground-water sources, including but not limited to wells, springs, and infiltration galleries, ~~systems shall~~ PWSs must supply information as required by the Department for the Department to determine if these sources are under the direct influence of surface water. The determination of direct influence may be based on site-specific measurements of water quality, documentation of well construction characteristics and geology with field evaluation, a combination of water quality and documentation, or other information required by the Department. ~~(3-24-22)~~( )

vii. Provide a site evaluation report as required by Section 510 for wells and 514 for springs. ( )

c. ~~Well and pump house construction projects.~~ In addition to items listed in Subsection 503.03.a., ~~preliminary engineering reports~~ PERs for well and pump house construction projects ~~shall~~ must include all items listed in Subsection 503.03.c., applicable items in Sections 511, 541, 547, and Sections 500 to 552 ~~should~~ are to be evaluated for their relevance to the project. ~~(3-24-22)~~( )

i. ~~Well house.~~ Include information on the anticipated construction and well house equipment such as heating, ventilation, interior lighting, and drain(s). ~~(3-24-22)~~( )

ii. ~~Water Level.~~ Provide a brief description of the means for measuring the water level in the well. ~~(3-24-22)~~( )

iii. ~~Well pump.~~ Include information on the proposed or planned pump, including the pump curve. ~~(3-24-22)~~( )

iv. ~~Controls.~~ Describe the equipment and controls for the well and pump house. This includes but is not limited to system control and data acquisition, variable frequency drive, and other manual or automated controls within the well house. ~~(3-24-22)~~( )

v. Piping and appurtenances including but not limited to sample taps, discharge piping, flow meters, check valves, and pressure gauges. Describe the receiving system for the pump to waste volume of water including an evaluation of the capacity of the receiving system and, if applicable, provide documentation that the system owner will accept the estimated volume of water and any limitations the owner places upon that acceptance. ( )

vi. ~~Well vent.~~ Describe the well vent if applicable. ~~(3-24-22)~~( )

vii. ~~Casings and well caps.~~ Describe the anticipated casing and well cap type and materials. ~~(3-24-22)~~( )

viii. ~~Pitless adapters and units.~~ Describe the anticipated pitless adapter for the well. ~~(3-24-22)~~( )

ix. ~~Soil and water conditions.~~ Describe the soil and ground-water conditions that may affect the design and construction of proposed structure(s). ~~(3-24-22)~~( )

d. ~~Reservoir and storage construction projects.~~ In addition to items listed in Subsection 503.03.a., ~~preliminary engineering reports~~ PERs for reservoir and storage construction projects ~~shall~~ must include all items

listed in Subsection 503.03.d., applicable items in Sections 544, and Sections 500 to 552 ~~should~~ are to be evaluated for their relevance to the project. ~~(3-24-22)~~( )

i. ~~Sizing.~~ Describe the required storage capacity and the related components of finished water storage. ~~(3-24-22)~~( )

ii. ~~Overflow.~~ Describe the anticipated overflow system for the water storage project and where the overflow will discharge. ~~(3-24-22)~~( )

iii. ~~Vents.~~ Describe the venting system used for the water storage project if applicable. ~~(3-24-22)~~( )

iv. ~~Construction materials.~~ Describe the construction materials used for the storage project. ~~(3-24-22)~~( )

v. ~~Protection from freezing.~~ Describe the protection of storage facility features from freezing especially riser pipes, overflows, and vents. ~~(3-24-22)~~( )

vi. ~~Grading.~~ Describe any site work or grading that may be necessary. ~~(3-24-22)~~( )

vii. ~~Corrosion prevention.~~ Provide a discussion on methods to prevent corrosion such as coatings, cathodic protection, corrosion resistant materials, and encasement. ~~(3-24-22)~~( )

viii. ~~Disinfection.~~ Describe the methods to be used to disinfect the storage facility and the testing to check for proper disinfection. ~~(3-24-22)~~( )

e. Surface water and ground-water under the direct influence of surface water (GWUDI) treatment construction projects. In addition to items listed in Subsection 503.03.a., ~~preliminary engineering reports~~ PERs for surface water treatment and GWUDI construction projects ~~shall~~ must include all items listed in Sections 503.03.e., applicable items in Sections 515 through 540, and Sections 500 to 552 ~~should~~ are to be evaluated for their relevance to the project. ~~(3-24-22)~~( )

i. ~~Intake structures.~~ Describe the intake structures that will be used. ~~(3-24-22)~~( )

ii. ~~Off-stream raw water storage.~~ If applicable, describe the proposed off-stream raw water storage. ~~(3-24-22)~~( )

iii. ~~Treatment methods.~~ Describe the treatment methods and potential alternatives including the removal of pathogens, disinfection, enhanced disinfection, water quality monitoring, and redundancy provisions. ~~(3-24-22)~~( )

iv. ~~Treatment Wastes.~~ Characterize the various wastes from the water treatment processes and, if applicable, their volumes, constituents, and proposed treatment and disposal. If discharging to a sanitary sewage system, verify that the system is capable of handling the flow to the treatment works and that the treatment works is capable and willing to accept the additional loading. ~~(3-24-22)~~( )

v. ~~Monitoring Results.~~ Provide applicable raw water monitoring results as required by these rules including anticipated turbidity ranges, microbiological, physical, chemical, radiological, and other parameters as determined by the Department. ~~(3-24-22)~~( )

vi. ~~Potential contamination.~~ An assessment of the degree of hazard to the supply by agricultural, industrial, recreational, and residential activities in the watershed, and by accidental spillage of materials that may be toxic, harmful or detrimental to treatment processes. ~~(3-24-22)~~( )

vii. ~~Waste discharge.~~ Assess all waste discharges and activities that ~~could~~ may impact the water supply. The location of each waste discharge ~~shall~~ must be shown on a scale map. ~~(3-24-22)~~( )

viii. ~~Hydrological and historical stream flow data.~~ Provide any available records and data regarding hydrological and historical stream flow. ~~(3-24-22)~~( )

ix. ~~Water rights and water quantity.~~ A copy of the appropriate permit(s) or application(s) from the Idaho Department of Water Resources regarding authorization to appropriate public waters of the state of Idaho in sufficient quantity to meet the design requirements of the ~~system~~ PWS. ~~(3-24-22)~~( )

x. ~~Turbidity.~~ Anticipated turbidity range. ~~(3-24-22)~~( )

xi. ~~Watershed.~~ Assessment of the degree of control the ~~water system~~ PWS will be able to exercise over the watershed. ~~(3-24-22)~~( )

xii. Projected future uses of impoundments or reservoirs within the watershed. ~~(3-24-22)~~( )

xiii. ~~Water quality.~~ Submit source water sample data over a sufficient period of time to assess the microbiological, physical, chemical and radiological characteristics of the water. ~~(3-24-22)~~( )

xiv. ~~Stream characteristics.~~ Provide consideration of currents, wind and ice conditions, and the effect of confluent streams. ~~(3-24-22)~~( )

504. ~~FACILITY AND DESIGN STANDARDS:~~ REVIEW OF PLANS AND SPECIFICATIONS.
The Department will apply the facility and design standards set forth in these rules ~~shall be applied~~, Subsections 500 through 548, in the review of plans and specifications for ~~public water system~~ PWS facilities. If design issues are not addressed by the facility and design standards set out in these rules, then guidance documents, some of which are listed in Subsection 002.02, ~~shall~~ must be used as guidance in the design and review of plans and specifications for public drinking water facilities. See also Section 013. ~~(3-24-22)~~( )

01. Ownership. ~~D~~The PWS owner must provide documentation of the ownership and responsibility for operating the proposed ~~system shall be made available~~ PWS to the Department prior to or concurrent with the submittal of plans and specifications as required in Subsection 504.03. The documentation must show organization and financial arrangements adequate to assure construction, operation and maintenance of the ~~system~~ PWS according to these rules. Documentation ~~shall~~ also includes the name of the ~~water system~~ PWS, the name, address, and phone number of the supplier of water, the ~~system~~ PWS size, and the name, address, and phone number of the ~~system~~ PWS operator. This information may be presented in a will serve letter as required in Subsection 504.02. ~~(3-24-22)~~( )

02. ~~Connection to an Existing System~~Will Serve Letter. If the proposed project is to be connected to an existing ~~public water system~~ PWS, a letter from the purveyor must be submitted to the Department stating that the purveyor will be able to provide services to the proposed project and that purveyor has reviewed and accepted the proposed construction plans and specifications *that are subject to Department review and approval*. The Department may require documentation supporting the ability of the purveyor to provide service to the new system without diminishing quality of service to existing customers, as described in Subsection 502.01.a and 502.01.b. This letter must be submitted prior to or concurrent with the submittal of plans and specifications as required in Subsection 504.03. ~~(3-24-22)~~( )

03. Plans and Specifications Required. ( )

a. Prior to construction of new ~~public drinking water systems, new drinking water systems designed to serve fifteen (15) or more service connections,~~ PWSs or material modifications of existing ~~public water systems~~ PWSs, the owner must submit plans and specifications ~~must be submitted~~ to the Department for review and approval. Construction ~~should~~ must commence as soon as practical after approval, and if construction is not completed within twelve (12) months of the Department's final approval, an extension or re-approval must be obtained from the Department. The Department may require re-submittal of all or part of the plans and specifications prior to issuing an extension or re-approving the plans and specifications. ~~(3-24-22)~~( )

b. Plans and specifications for simple water main extensions ~~shall~~ do not require pre-construction approval by the Department when such extensions will be owned and operated by a city, county, quasi-municipal

corporation or regulated public utility, provided that such plans and specifications are reviewed and approved by a QLPE who was not involved in the preparation of the plans and specifications being reviewed to verify compliance with the requirements of these rules prior to initiation of construction. Any plans and specifications approved pursuant to Subsection 504.03.b. ~~shall~~ must be transmitted to the Department at the time construction is authorized and ~~shall~~ will be marked or stamped as "Approved for Construction." Along with the plans and specifications, the transmittal must include the items listed in Subsections 504.03.b.i. through 504.03.b.vii. The plans and specifications must bear the imprint of an Idaho licensed professional engineer's seal that is both signed and dated by the engineer, and the approval or transmittal letter must be sealed, signed, and dated by the QLPE that is approving the plans and specifications. ~~(3-24-22)~~( )

i. A statement that the author of the transmittal letter is the QLPE representing the city, county, quasi-municipal corporation or regulated public entity. ( )

ii. A statement that the extension project complies with the current facility plan or ~~preliminary engineering report~~ PER, or a statement that the ~~water system~~ PWS has adequate capacity. Please see Subsection 502.01.b. for further information. ~~(3-24-22)~~( )

iii. A statement from the city, county, quasi-municipal corporation or regulated public entity or its authorized agent that the ~~water system~~ PWS purveyor will serve the project. ~~(3-24-22)~~( )

iv. A statement from the city, county, quasi-municipal corporation or regulated public entity or its authorized agent that the ~~water system~~ PWS purveyor will own and operate the project after construction is complete. ~~(3-24-22)~~( )

v. A statement by the QLPE that the plans and specifications are approved for construction. ( )

vi. A statement by the QLPE that the plans and specifications comply with the facility standards within these rules. ( )

vii. A statement recommending whether sanitary restrictions can be released or ~~should~~ will remain in force. ~~(3-24-22)~~( )

c. Subsections 504.03.c.i. through 504.03.c.vi. outline the projects which QLPEs may approve and which QLPEs may not approve. ( )

i. A QLPE may approve plans and specifications for simple water main extensions that are able to connect to an existing ~~water system~~ PWS owned by a city, county, quasi-municipal corporation, or regulated public utility at the time the extension is approved for construction by the QLPE. ~~(3-24-22)~~( )

ii. A QLPE may approve plans for simple water main extensions which will connect to an existing ~~water system~~ PWS, but are unable to connect to the ~~system~~ PWS at the time the extension is approved for construction by the QLPE, provided sanitary restrictions remain in force for the proposed extension. ~~(3-24-22)~~( )

iii. A QLPE may not approve plans and specifications which include mechanical systems such as booster stations. ( )

iv. A QLPE may not approve plans and specifications for projects which the QLPE was the design engineer or otherwise involved in the design. ( )

v. A QLPE employed by a city, county, quasi-municipal corporation, or regulated public utility may approve a design that was prepared by a subordinate engineer or an engineer from a separate design group within the city, county, quasi-municipal corporation, or regulated public utility. ( )

vi. A QLPE who is not employed by a city, county, quasi-municipal corporation, or regulated public utility, but is retained by a city, county, quasi-municipal corporation, or regulated public utility for the purpose of plan and specification review may not approve projects designed by the company with which the QLPE is employed. ( )

d. At the discretion of the city, county, quasi-municipal corporation or regulated public utility, the plans addressed by Subsection 504.03.b. may be referred to the Department for review and approval prior to initiation of construction. ( )

04. ~~**Criteria for**~~ **Review Criteria**. The Department ~~shall~~ will review plans and specifications to determine compliance with these rules and engineering standards of care. If the plans and specifications comply with these rules and engineering standards of care, the Department ~~shall~~ will not substitute its judgment for that of the owner's design engineer concerning the manner of compliance with the rule. ~~(3-24-22)~~( )

05. ~~**Schedule for**~~ **Review Schedule**. The Department ~~shall~~ will review plans and specifications ~~and endeavor to resolve design issues within forty-two (42) calendar days of submittal such that approval can be granted. If the Department and applicant have not resolved design issues within forty-two (42) calendar days or at any time thereafter, the applicant may file a written demand to the Department for a decision. Upon receipt of such written demand, the Department shall deliver a written decision to the applicant within no more than seven (7) calendar days explaining any reasons for disapproval. The Department shall maintain records of all written demands for decision made pursuant to Subsection 504.05 with such records including the final decision rendered and the timeliness thereof~~ in accordance with timelines set forth in Section 39-118, Idaho Code. ~~(3-24-22)~~( )

06. Engineer's Seal Required. Plans and specifications submitted to the Department ~~shall~~ must bear the imprint of an Idaho licensed professional engineer's seal; except that the Department will accept the seal of an Idaho licensed professional geologist on the following: ~~(3-24-22)~~( )

a. Well source, spring source, or infiltration gallery site evaluation reports, as specified in Subsections 510 and 514. ( )

b. Plans and specifications for well construction and results of field inspection and testing, as specified in Section 510. ( )

07. Contents of Plans and Specifications. Plans and specifications ~~shall~~ must, where pertinent, provide the following: ~~(3-24-22)~~( )

a. General layout, including: ( )

i. Suitable title. ( )

ii. Name of municipality or other entity or person responsible for the water supply. ( )

iii. Area or institution to be served. ( )

iv. Scale of drawings. ( )

v. North arrow. ( )

vi. Datum used. ( )

vii. General boundaries of municipality or area to be served. ( )

viii. Date, name, and address of the designing engineer. ( )

ix. Legible prints suitable for reproduction. ( )

x. Location and size of existing water mains, if applicable. ( )

xi. For ~~systems~~ PWSs undergoing material modification, location and nature of existing water works structures and appurtenances affecting the proposed improvements. ~~(3-24-22)~~( )

b. Detailed plans, including: ( )

i. Stream crossings, providing profiles with elevations of the stream bed and the estimated normal and extreme high and, where appropriate, low water levels. ( )

ii. Location and size of the property to be used for the development with respect to known references such as roads, streams, section lines, or streets. ( )

iii. Topography and arrangement of present or planned wells or structures. ( )

iv. Elevations of the one hundred (100) year flood level in relation to the floor of structures, upper termination of protective casings, and grade surrounding facilities. ( )

v. Details of well construction, including diameter and depth of drill holes, casing and liner diameters and depths, grouting depths, elevations, and designation of geological formations, water levels and other data as specified in Section 510. ( )

vi. Location of all known existing and potential sources of pollution within five hundred (500) feet of water sources or underground treated storage facilities. ( )

vii. Size, length, and materials of proposed water mains. ( )

viii. Location of existing or proposed streets; water sources, ponds, lakes, and drains; storm sanitary, combined and house sewers; septic tanks, disposal fields and cesspools. ( )

ix. Schematic flow diagrams and hydraulic profiles showing the flow through various plant units. ( )

x. Piping in sufficient detail to show flow through the plant including waste lines. ( )

xi. Locations of all chemical storage areas, chemical feeding equipment, and points of chemical application. ( )

xii. All appurtenances, specific structures, equipment, water treatment plant waste disposal units and points of discharge having any relationship to the plans for water mains or water works structures. ( )

xiii. Locations of sanitary or other facilities, such as lavatories, showers, toilets, and lockers, when applicable or required by the Department. ( )

xiv. Locations, dimensions, and elevations of all proposed plant facilities. ( )

xv. Locations of all sampling taps owned by the ~~water system~~ PWS. ~~(3-24-22)~~( )

xvi. Adequate description of any significant features not otherwise covered by the specifications that may impact public safety or welfare. ( )

c. Complete, detailed technical specifications ~~shall~~ must be supplied for the proposed project, including: ~~(3-24-22)~~( )

i. A program for keeping existing water works facilities in operation during construction of additional facilities so as to minimize interruption of service. ( )

ii. Laboratory facilities and equipment. ( )

iii. Description of chemical feeding equipment. ( )

iv. Procedures for flushing, disinfection and testing, as needed, prior to placing the project in service.

All wells, pipes, tanks, and equipment which can convey or store potable water ~~shall~~ must be disinfected in accordance with AWWA Standards, incorporated into these rules at Subsection 002.01. Plans or specifications ~~shall~~ must outline the procedure and include the disinfectant dosage, contact time, and method of testing the results of this procedure. ~~(3-24-22)~~( )

v. Materials or proprietary equipment for sanitary or other facilities, including any necessary backflow or back-siphonage protection. ( )

d. Complete design criteria, as set forth in these rules. ( )

e. The Department may require additional information which is not part of the construction drawings, including, but not limited to, head loss calculations, proprietary technical data, and copies of contracts. ( )

08. Notification of Material Deviations. As set forth in Subsection 504.03, during construction or modification, the ~~reviewing authority~~ Department must be notified of any material deviation from the approved plans. The reviewing authority's prior written approval is required before any material deviation is allowed. ~~(3-24-22)~~( )

09. Record Plans and Specifications Required. ( )

a. ~~Within thirty (30) calendar days of the completion of construction of facilities for which plans are required to be reviewed pursuant to Subsection 504.03, record plans and specifications based on information provided by the construction contractor and field observations made by the engineer or the engineer's designee depicting the actual construction of facilities performed, must be submitted to the Department by the engineer representing the city, county, quasi-municipal corporation or regulated public utility that owns the project, or by the design engineer or owner designated substitute engineer if the facilities will not be owned and operated by a city, county, quasi-municipal corporation or regulated public utility. Such submittal by the professional engineer must confirm material compliance with the approved plans and specifications or disclose any material deviations therefrom. If the construction does not materially deviate from the approved plans and specifications, the owner may have a statement to that effect prepared by an Idaho licensed professional engineer and filed with the Department in lieu of submitting a complete and accurate set of record drawings.~~Must be submitted to the Department by the design engineer as specified in Section 39-118(3), Idaho Code. ~~(3-24-22)~~( )

b. Record plans and specifications, or a statement submitted in lieu of record plans and specifications, must bear the imprint of an Idaho licensed professional engineer's seal that is both signed and dated by the engineer. ( )

c. The Department will accept the seal and signature of an Idaho licensed professional geologist on record plans and specifications, or a statement bearing the seal and signature of an Idaho licensed professional geologist in lieu of record plans and specifications, for record plans and specifications for well construction and results of field inspection and testing, as specified in Section 510. ( )

10. Exception. The Department may waive the plan and specification approval required of any ~~particular~~ facility or category of facilities when doing so will have no significant impact on public health or the environment. ~~(3-24-22)~~( )

11. ~~Requirement to Have Approved Plans and Specifications and~~Department Approval ~~Letter~~ On-Site During Construction. It is the responsibility of the owner to maintain one (1) copy of the approved plans and specifications and the approval letter from the reviewing authority on-site during construction at all times. ~~(3-24-22)~~( )

12. Construction. Except as provided in Subsection 504.03.b., no construction ~~shall~~ will commence until all of the necessary approvals have been received from the Department. The owner ~~shall~~ must provide for the inspection of the construction of a ~~public drinking water system~~PWS facility by an Idaho licensed professional engineer to the extent required to confirm material compliance with the approved plans and to produce accurate record documents as required by Subsection 504.09. ~~(3-24-22)~~( )

505. -- 509. (RESERVED)

510. ~~FACILITY AND DESIGN STANDARDS:~~ SITING AND CONSTRUCTION OF WELLS.
Written approval by the Department is required before water from any new or reconstructed well may be served to the public. Any supplier of water for a ~~public water system~~ PWS served by one (1) or more wells ~~shall~~ must ensure that the following requirements are met: ~~(3-24-22)~~( )

01. Site Approval. Prior to drilling, the site of a ~~public water system~~ PWS well must be approved in writing by the Department. ~~The Department shall require the supplier of water to submit a~~ A well site evaluation report must be submitted prior to or concurrent with the PER for the well. ~~that~~ The well site evaluation must take~~s~~ into account the proposed size, depth, and location of the well. The evaluation may include, but is not limited to the following types of information: ~~(3-24-22)~~( )

a. An evaluation of the quality of anticipated ground-water. ~~(3-24-22)~~( )

b. Identification of the known aquifers and the extent of each aquifer, based on the stratigraphy, sedimentation, and geologic structure beneath the proposed well site. ( )

c. An estimate of hydrologic and geologic properties of each aquifer and confining layers. ( )

d. Prediction of the sources of water to be extracted by the well and the drawdown of existing wells, springs, and surface water bodies that may be caused by pumping the proposed well. This prediction may be based on analytical or numerical models as determined by the Idaho Department of Water Resources permitting process. ( )

e. Demonstration of the extent of the capture zone of the well, based on the well's design discharge and on aquifer geology, using estimates of hydraulic conductivity and storativity. ( )

f. Description of potential sources of contamination including, but not limited to, sewers and sewage treatment/disposal facilities, highways, railroads, landfills, outcroppings of consolidated water-bearing formations, chemical facilities, waste disposal wells, and agricultural uses within five hundred (500) feet of the well site. ~~(3-24-22)~~( )

02. Location. ~~Each well shall be staked by the design engineer or licensed professional geologist prior to drilling, be located a minimum of fifty (50) feet from the nearest property line, be located a minimum of fifty (50) feet from any potential source of contamination, and be no closer to specified sources of contamination than set forth in Subsection 900.01.~~ In vulnerable settings, the Department may require engineering or hydrologic analysis to determine if the required setback distance is adequate to prevent contamination. Each well must be staked by the design engineer or licensed professional geologist prior to drilling and meet the following minimum distances:

Minimum Distances from a Public Water System Well	
Frost free hydrant	5 feet
Property line	50 feet
Gravity wastewater line	50 feet
Any potential source of contamination	50 feet
Pressure wastewater line	100 feet
Class A Municipal Reclaimed Wastewater Pressure distribution line	50 feet

Minimum Distances from a Public Water System Well	
Individual home septic tank	100 feet
Individual home disposal field	100 feet
Individual home seepage pit	100 feet
Privies	100 feet
Livestock	50 feet
Drainfield - standard subsurface disposal module	100 feet
Absorption module - large soil absorption system	150 - 300 feet, see IDAPA 58.01.03
Canals, streams, ditches, lakes, ponds and tanks used to store non-potable substances	50 feet
Storm water facilities disposing storm water originating off the well lot	50 feet
Municipal or industrial wastewater treatment plant	500 feet
Reclamation and reuse of municipal and industrial wastewater sites	See IDAPA 58.01.17
Biosolids application site	1,000 feet

~~(3-24-22)~~( )

03. Construction Standards. In addition to meeting the requirements of these rules, all wells ~~shall~~ must be constructed in accordance with IDAPA 37.03.09, "Well Construction Standards Rules," and related rules and laws administered by the Idaho Department of Water Resources. All wells ~~shall~~ must comply with the drilling permit requirements of Section 42-235, Idaho Code. ~~(3-24-22)~~( )

a. ~~Casing that meets the requirements set forth in Subsection 900.02 (Table 2). The use of plastic well casing for public water system wells may be considered on a case-by-case basis. Plastic casing shall meet or exceed ASTM Standard F480-02 and ANSI/NSF Standard 61.~~Casing for steel pipe must meet the following requirements:

STEEL PIPE					
DIAMETER (inches)			THICKNESS (inches)	WEIGHT PER FOOT (pounds)	
SIZE	External	Internal		Plain Ends (calculated)	With Threads and Couplings (nominal)
6(id)	6.625	6.065	0.280	18.97	19.18
8	8.625	7.981	0.322	28.55	29.35
10	10.750	10.020	0.365	40.48	41.85
12	12.750	12.000	0.375	49.56	51.15
14 (od)	14.000	13.250	0.375	54.57	57.00
16	16.000	15.250	0.375	62.58	
18	18.000	17.250	0.375	70.59	
20	20.000	19.250	0.500	78.60	
22	22.000	21.000	0.500	114.81	
24	24.000	23.000	0.500	125.49	
26	26.000	25.000	0.500	136.17	
28	28.000	27.000	0.500	146.85	
30	30.000	29.000	0.500	157.53	
32	32.000	31.000	0.500	168.21	
34	34.000	33.000	0.500	178.89	
36	36.000	35.000	0.500	189.57	

* id = inside diameter
od = outside diameter

~~(3-24-22)~~( )

b. The use of plastic well casing for PWS wells may be considered on a case-by-case basis. Plastic casing must meet or exceed ASTM Standard F480, current edition, and ANSI/NSF Standard 61. Plastic casing must also meet the following requirements: ( )

i. Have a minimum wall thickness equivalent to standard dimension *ratio* 21. However, diameters of 8 inches or greater or deep wells may require greater thickness to meet collapse strength requirements; ( )

ii. Must not be used at sites where permeation by hydrocarbons or degradation may occur; ( )

iii. Must be assembled using coupling or solvent welded joints. All coupling and solvents must meet ANSI/NSF Standard 14, ASTM F480, or similar requirements; and ( )

iv. Must not be driven. ( )

~~b~~**c.** ~~Public water system~~PWS wells ~~shall~~ must have no less than fifty-eight (58) feet of annular seal of not less than one and one-half (1 ½) inches thickness as measured from land surface to the bottom of the seal unless: ~~(3-24-22)~~( )

i. It can be demonstrated to the Department's satisfaction that there is a confining layer at lesser depth that is capable of preventing unwanted water from reaching the intake zone of the well; or ( )

ii. The best and most practical aquifer at a particular site is less than fifty-eight (58) feet deep; or; ( )

iii. The Department specifies a different annular seal depth based on local hydrologic conditions. ( )

~~iv. More stringent standards are required by applicable Rules of the Idaho Water Resources Board, referenced in Subsection 002.02.~~ ~~(3-24-22)~~

~~d~~**d.** Specifications ~~shall~~ must include allowable tolerances for plumbness and alignment in accordance with AWWA Standards, incorporated by reference into these rules at Subsection 002.01, or as otherwise approved by the Department. If the well fails to meet these requirements, it may be accepted by the Department if it does not interfere with the installation or operation of the pump or uniform placement of grout. ~~(3-24-22)~~( )

~~d~~**e.** Geological data ~~shall~~ must be collected at each pronounced change in formation and shall be recorded in the driller's log. Supplemental data includes, but is not limited to, accurate geographical location such as latitude and longitude or GIS coordinates, and other information on accurate records of drillhole diameters and depths, assembled order of size and length of casing, screens and liners, grouting depths, formations penetrated, and water levels. ~~(3-24-22)~~( )

~~e~~**f.** The owner of each well ~~shall~~ must retain all records pertaining to each well until the well has been properly abandoned. ~~(3-24-22)~~( )

~~f~~**g.** Wells with intake screens ~~shall~~ must: ~~(3-24-22)~~( )

i. Be constructed of materials resistant to damage by chemical action of ground-water or cleaning operations. ~~(3-24-22)~~( )

ii. Have openings based on sieve analysis of formation, or~~r~~f gravel pack materials, or both. ~~(3-24-22)~~( )

iii. Have sufficient length and diameter to provide adequate specific capacity and aperture entrance velocity not to exceed point ~~three~~ one (0.~~3~~1) feet per second, or as otherwise approved by the Department. ~~(3-24-22)~~( )

iv. Be installed so that the pumping water level remains above the screen under all operating conditions, or otherwise approved by the Department. Where a bottom plate or sump is utilized, it ~~shall~~ must be of the same material as the screen, or as otherwise approved by the Department. Where a washdown assembly, tailpipe or sump is used below the screen, it may be made of a different material than the screen. ~~(3-24-22)~~( )

~~g~~**h.** Permanent well casing ~~shall~~ must be surrounded by a minimum of one and one-half (1 ½) inches of grout to the depth required by Subsection 510.03.b. ~~of these rules~~, or by the Rules of the ~~Idaho Water Resources Board referenced in Subsection 002.02~~ Idaho Department of Water Resources, whichever is greater. All casing identified in plans and specifications as temporary casing ~~shall~~ must be removed prior to well completion. ~~(3-24-22)~~( )

i. Neat cement grout consisting of cement that conforms to AWWA Standard A-100, and water, with not more than six (6) gallons of water per ninety-four (94) pounds of cement, ~~shall~~ must be used for one and one-half (1 ½) inch ~~openings~~ annular space. Additives may be used to ~~enhance effectiveness~~ increase fluidity and are subject to approval by the ~~reviewing authority~~ Department and the Idaho Department of Water Resources on a case-by-case basis. ~~(3-24-22)~~( )

ii. Bentonite grout ~~shall~~ must have a solids content not less than twenty-five (25) percent by weight

when mixed with water and be specifically manufactured for use in sealing of well casing. Bentonite grout shall not contain weighting agents to increase solids content. Bentonite grout ~~shall~~ must not be used above the water table. All bentonite grout ~~shall~~ must be installed by positive displacement from the bottom up through a tremmie or float shoe. ~~(3-24-22)~~( )

iii. Where a dry annular space is to be sealed, a minimum of two (2) inches on all sides of the casing ~~shall~~ will be required to place bentonite to depths not greater than one hundred (100) feet, using #8 mesh granular bentonite. All dry pour granular bentonite ~~shall~~ must be tagged at appropriate intervals to verify placement. If a bridge occurs, a tremmie pipe ~~shall~~ must be washed or jetted through the bridge to allow for pumping of grout. Bentonite chips ~~shall~~ must be of sufficient size to accommodate proper placement for the existing subsurface conditions. ~~(3-24-22)~~( )

iv. Dry granular bentonite used in wells where a dry annular space is to be sealed with depths greater than one hundred (100) feet ~~shall~~ will require an annulus of at least three (3) inches on all sides of the casing, or as approved by the ~~reviewing authority~~ Department and the Idaho Department of Water Resources. If a bridge occurs, a tremmie pipe ~~shall~~ must be washed or jetted through the bridge to allow for pumping of grout. Bentonite chips ~~shall~~ must be of sufficient size to accommodate proper placement for the existing subsurface conditions. ~~(3-24-22)~~( )

v. All chip bentonite seals installed through water ~~shall~~ must only be used in annular spaces of at least four (4) inches on all sides of the casing. If a bridge occurs, a tremmie pipe ~~shall~~ must be washed or jetted through the bridge to allow for pumping of grout. Bentonite chips ~~shall~~ must be of sufficient size to accommodate proper placement for the existing subsurface conditions. Chip bentonite seals installed through water ~~shall~~ must be: ~~(3-24-22)~~( )

(1) Installed in accordance with manufacturer's specifications; or ( )

(2) Installed by pouring chips over a one-quarter (1/4) inch mesh screen for three-eighths (3/8) inch chips to remove fines to prevent bridging at the water table; or ( )

(3) Installed using coated pellets to retard hydration if approved by the ~~reviewing authority~~ Department and the Idaho Department of Water Resources. ~~(3-24-22)~~( )

vi. Concrete may be approved on a case-by-case basis by the ~~reviewing authority~~ Department and the Idaho Department of Water Resources. Upon such approval, the approved method ~~shall~~ must use a six (6) sack minus one-half (1/2) inch Portland cement concrete and ~~shall~~ must be installed by positive displacement from the bottom up through a tremmie pipe. ~~(3-24-22)~~( )

04. Disinfection. All tools, bits, pipe, and other materials to be inserted in the borehole ~~shall~~ must be cleaned and disinfected in accordance with the Well Construction Standards and permitting requirements of the ~~Idaho Water Resources Board, referenced in Subsection 002.02~~ Idaho Department of Water Resources. This applies to new well construction and repair of existing wells. ~~(3-24-22)~~( )

05. Well Completion Report ~~Required~~. Upon completion of a well, and prior to its use as a drinking water source, the following information and data must be submitted by the ~~water system~~ PWS to the Department. The well completion report must be submitted to the Department prior to or concurrent with the submittal of the preliminary engineering report for well house construction/modification. The well completion report ~~shall~~ must bear the imprint of an Idaho licensed professional engineer's or an Idaho licensed professional geologist's seal that is both signed and dated by the engineer or geologist: ~~(3-24-22)~~( )

a. A copy of all well logs; ( )

b. Results of test pumping, as specified in Subsection 510.06; ( )

c. As constructed plans showing at least the following: ( )

i. Annular seal, including depth and sealant material used and method of application; ( )

ii. Casing perforations, results of sieve analysis used in designing screens installed in sand or gravel aquifers, gravel packs; and ( )

iii. Recommended pump location. ( )

d. Other information as may be specified by the Department. ( )

e. Sampling results for iron, manganese, corrosivity, and other secondary contaminants specified by the Department. Other monitoring requirements are specified in Subsections 510.05.e.i. through 510.05.e.iii. ( )

i. Community ~~S~~systems must submit~~. R~~ results of analysis for total coliform, inorganic chemical contaminants, organic chemicals, and radionuclide contaminants set forth in Subsections 050.01, 050.02, 050.05, 100.01, 100.03, 100.04, 100.05, and 100.06, unless analysis is waived pursuant to Subsection 100.07. ~~(3-24-22)~~( )

ii. Non-transient Non-community ~~S~~systems must submit r~~. R~~esults of analysis for total coliform and inorganic and organic chemical contaminants listed in Subsections 050.01, 050.02, 100.01, 100.03, 100.04, unless analysis is waived pursuant to Subsection 100.07. ~~(3-24-22)~~( )

iii. Transient Non-community ~~S~~systems must submit ~~. R~~results of a total coliform, nitrite, and nitrate analysis listed in Subsections 050.01, 100.01 and 100.03. ~~(3-24-22)~~( )

06. Test Pumping. Upon completion of a ground-water source, test pumping ~~shall~~ must be conducted in accordance with the following procedures to meet the specified requirements: ~~(3-24-22)~~( )

a. The well ~~shall~~ must be test pumped at the desired yield (design capacity) of the well for at least twenty-four (24) consecutive hours after the drawdown trend has stabilized, as determined by the supervising engineer or geologist. Alternatively, the well may be pumped at a rate of one hundred fifty percent (150%) of the desired yield for at least six (6) continuous hours after the drawdown trend has stabilized, as determined by the supervising engineer or geologist. The field pumping equipment must be capable of maintaining a constant rate of discharge during the test. Discharge water must be piped an adequate distance to prevent recharge of the well during the test. If the well fails the test protocol, design of the ~~water system shall~~ PWS must be re-evaluated and submitted to the Department for approval. ~~(3-24-22)~~( )

b. Upon completion of well development, the well ~~shall~~ must be tested for sand production. Fifteen (15) minutes after the start of the test pumping (at or above the design production rate), the sand content of a new well ~~shall~~ may not be more than five (5) parts per million. Sand production ~~shall~~ must be measured by a centrifugal sand sampler or other means acceptable to the Department. If sand production exceeds five (5) ppm, the well ~~shall~~ must be screened gravel packed, or re-developed. ~~(3-24-22)~~( )

c. The following data ~~shall~~ must be provided: ~~(3-24-22)~~( )

i. Static water level ~~in the well prior to test pumping~~ and stabilized drawdown; ~~(3-24-22)~~( )

ii. Well yield in gpm and duration of the pump test, including a discussion of any discrepancy between the desired yield and the yield observed during the test; ( )

iii. Water level in the well recorded at regular intervals during pumping; ( )

iv. Profile of water level recovery from the pumping level projected to the original static water level. ( )

v. Depth at which the test pump was positioned in the well; ( )

vi. Test pump capacity and head characteristics; ( )

vii. Sand production data. ( )

viii. Results of analysis based on the drawdown and recovery test pertaining to aquifer properties, long term ~~sustained~~ yield, and boundary conditions affecting drawdown. ~~(3-24-22)~~( )

d. The Department may allow the use of other pump test protocols that are generally accepted by engineering firms with specialized experience in well construction, by the well drilling industry, or as described in national standards (such as ANSI/AWWA A100~~-97~~), as long as the minimum data specified in Subsection 510.06.c. are provided. The Department welcomes more extensive data about the well, such as step-drawdown evaluations used in determining well capacity for test pumping purposes, zone of influence calculations, and any other information that may be of use in source protection activities or in routine ~~water system~~ PWS operations. ~~(3-24-22)~~( )

e. Where aquifer yield, sustainability, or water quality are questionable, the Department, at its discretion, may require additional site~~-~~-specific investigations that ~~could~~ include test well construction, long-term pumping tests, or other means to demonstrate that the aquifer yield is sufficient to meet the long-term water requirements of the project. ~~(3-24-22)~~( )

07. Conversion of Non-Public Water System Wells for Public Water System Use. Any existing well constructed for use other than as a ~~public water system~~ PWS source may be considered for use as a ~~public water system~~ PWS source on a case-by-case basis. The owner of such a well must demonstrate to the Department's satisfaction that the well site conforms to the requirements of Subsections 510.01, 510.02, and Section 512, the well is constructed in a manner that is protective of public health, and that both the quantity and quality of water produced by the well meet ~~public water system~~ PWS standards set forth in these rules. ~~(3-24-22)~~( )

08. ~~Observation~~ Monitoring Wells. If monitoring (observation) wells are used and are intended to remain in service after completion of the water supply well, the observation wells ~~shall~~ must be constructed in accordance with the requirements for permanent wells and be protected at the upper terminal to preclude entrance of foreign materials in accordance with the "Well Construction Standard Rules," IDAPA 37.03.09. ~~See Rules of the Idaho Water Resources Board referenced in Subsection 002.02.~~ ~~(3-24-22)~~( )

09. Well Abandonment. ~~Any water supply well that will no longer be used must be abandoned by sealing the borehole carefully to prevent pollution of the ground water, eliminate any physical hazard, conserve aquifer yield, maintain confined head conditions in artesian wells, and prevent mixing of waters from different aquifers. The objective of proper well abandonment procedures is to restore, as far as possible, the original hydrogeologic conditions. The services of a licensed well driller are required. Instructions for abandoning various types of wells may be obtained from the Idaho Department of Water Resources. See Rules of the Idaho Water Resources Board referenced in Subsection 002.02.~~Well decommissioning (abandonment) must be performed in accordance with Department of Water Resources requirements set forth in IDAPA 37.03.09, "Well Construction Standard Rules." ~~(3-24-22)~~( )

511. ~~FACILITY AND DESIGN STANDARDS:~~ WELL PUMPS, DISCHARGE PIPING, AND APPURTENANCES.

01. Sample Tap Required. A sample tap suitable for collecting bacteriological samples ~~shall~~ must be provided as required by Subsection 501.09 on the discharge piping from every well at a point where pressure is maintained but prior to any treatment. ~~This sample tap shall be of the smooth-nosed type without interior or exterior threads, shall not be of the mixing or petcock type, and shall not have a screen, aerator, or other such appurtenance. The sample tap for collecting bacteriological samples may be used for other sampling purposes.~~ In addition, threaded hose bib taps may also be used for collecting samples, other than bacteriological samples, if equipped with an appropriate backflow prevention device as may be necessary to protect the ~~public water system~~ PWS from contamination. ~~(3-24-22)~~( )

02. Discharge Piping. The discharge line ~~shall~~ must be equipped with the necessary valves and appurtenances to allow a well to be pumped to waste at the ~~design capacity of the~~ scour velocity of the well column via an approved air gap of no less than two (2) pipe diameters, unless otherwise approved by the Department, through an approved non-corrodible screen *or equivalent* at a location prior to the first service connection, and ~~shall~~ must meet the following requirements: ~~(3-24-22)~~( )

a. Be designed to minimize friction loss. ( )

b. Have control valves and appurtenances located above the pump house floor when an above-ground discharge is provided. ( )

c. Be protected against contamination. ( )

d. Vertical turbine pumps ~~shall~~ must be equipped with an air release-vacuum relief valve, or equivalent, located upstream from the check valve, with exhaust/relief piping terminating in a down-turned position at least eighteen (18) inches above the floor and covered with a twenty-four (24) mesh corrosion resistant screen. ~~(3-24-22)~~( )

e. Have all exposed piping, valves and appurtenances protected against physical damage and freezing. ( )

f. Be properly anchored to prevent movement, and protected against surge or water hammer. ( )

g. The pump to waste discharge piping ~~shall~~ must be valved to ensure that other ~~system~~ PWS components that ~~could~~ may be negatively affected by the quality of the discharged water are not pressurized by the water that is being pumped to waste. ~~(3-24-22)~~( )

h. Where two (2) or more wells are connected to a common well house, the discharge piping ~~shall~~ must be designed to ensure that each well can be pumped to waste independently without affecting the ability of the other well or wells to pressurize the ~~system~~ PWS. ~~(3-24-22)~~( )

03. Pressure Gauge Required. A pressure gauge ~~shall~~ must be provided on ~~all~~ discharge piping. ~~(3-24-22)~~( )

04. Flow Meter and Check Valve. 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~~ must be installed on the discharge line of each well in accordance with the manufacturer's specifications. Meters installed on ~~systems~~ PWSs with variable frequency drives ~~shall~~ must be capable of accurately reading the full range of flow rates. An accessible check valve, which is not located in the pump column, ~~shall~~ must be installed in the discharge line of each well between the pump and the shut-off valve. Additional check valves ~~shall~~ must be located in the pump column as necessary. ~~(3-24-22)~~( )

05. Well Vent. All wells ~~shall~~ must be vented, unless it can be demonstrated that the drawdown under maximum pumping conditions will not exceed ten (10) feet. ~~(3-24-22)~~( )

a. For wells not in a pump house, the open end of the vent ~~shall~~ must be screened with a twenty-four (24) mesh or similar non-corrodible screen and terminated downward at least eighteen (18) inches above the final ground surface. ~~(3-24-22)~~( )

b. If the well is in a pump house, the open end of the vent ~~shall~~ must be screened with a twenty-four (24) mesh or similar non-corrodible screen and must terminate downward at least twelve (12) inches above the pump house floor. ~~(3-24-22)~~( )

c. Artesian wells equipped with pumps may need venting or an air valve as determined by the Department. ( )

06. Casings and Sanitary Well Caps. The following requirements apply to well casings and sanitary caps: ( )

a. Casings ~~shall~~ must extend at least eighteen (18) inches above the final ground surface. If the well is located within a pump house, casings ~~shall~~ must extend least twelve (12) inches above the pump house floor. For a well located in an area subject to flooding, the Department may require an extension of the casing above the one

hundred (100) year or highest known flood level, whichever is higher. ~~(3-24-22)~~( )

b. Wells ~~shall~~ must be cased and provided with an approved cap in such a manner that ~~surface water~~ contamination cannot enter the well. ~~(3-24-22)~~( )

c. For community ~~water systems~~ PWSs, a permanent means for measuring water level within the casing must be provided. For other ~~water systems~~ PWSs, a temporary means to measure water levels ~~should~~ may be made available. All equipment required for conducting water level measurements ~~shall~~ must be purchased and made available to the ~~water system~~ PWS operator at the time the well is put into service. Where pneumatic or electronic water level measuring equipment is used, it ~~shall~~ must be made using corrosion resistant materials attached firmly to the drop pipe or pump column and in such a manner as to prevent entrance of foreign materials. ~~(3-24-22)~~( )

07. Well Houses. For regulatory purposes, a well house is considered a pump house as defined in Section 003. Well houses must meet the requirements for pump houses as set forth in Section 541. All above ground discharge piping ~~shall~~ must be contained in a well house or otherwise protected from freezing. ~~(3-24-22)~~( )

08. Pitless Adapters and Units. ~~Pitless adapters or pitless units:~~ ~~(3-24-22)~~( )

a. ~~Shall be of the type m~~Marked approved by the National Sanitation Foundation or Pitless Adapter Division of the Water Systems Council. ~~(3-24-22)~~( )

b. ~~Shall be d~~Designed, constructed and installed to be watertight including the cap, cover, casing extension and other attachments. ~~(3-24-22)~~( )

c. ~~Shall be f~~Field tested for leaks before being put into service. The procedure outlined in "Manual of Individual and Non-Public Water Supply Systems," referenced in Subsection 002.02, or other procedure approved by the Department ~~shall~~ Must be followed. ~~(3-24-22)~~( )

d. ~~Pitless adapters with a two (2) inch or smaller discharge line shall be p~~If the discharge line is two (2) inches or smaller, be provided with a swing joint outside the pitless adapter unit to reduce strain, deformation, and possible leakage of the pitless seal caused by settling soils in the trench. The orientation of swing joints ~~shall~~ must be such that any settling that occurs will tighten the threads. The hole in the casing ~~shall~~ must be cut with a saw rather than a torch with an opening large enough to allow seating of gaskets. ~~(3-24-22)~~( )

e. ~~Shall be p~~Provided with a contamination-proof entrance connection for electrical cable. ~~(3-24-22)~~( )

f. ~~In the case of p~~Pitless adapters: ~~(3-24-22)~~( )

i. Threaded adapters ~~shall~~ must be installed by drilling a hole not more than one quarter (1/4) inch larger than the outer diameter of the pitless shank. No torch-cut holes ~~shall~~ will be accepted. The orientation of swing joints ~~shall~~ must be such that any settling that occurs will tighten the threads. ~~(3-24-22)~~( )

ii. The only field welding permitted will be that needed to connect a pitless adapter to the casing. ( )

g. ~~In the case of p~~Pitless units must be: ~~(3-24-22)~~( )

i. ~~Shall be s~~Shop-fabricated from the point of connection with the well casing to the unit cap or cover. ~~(3-24-22)~~( )

ii. ~~Shall be c~~Constructed of materials and weight at least equivalent to and compatible with the well casing. ~~(3-24-22)~~( )

iii. ~~Shall be t~~Threaded or welded to the well casing. Threaded units ~~shall~~ must be installed by drilling a hole not more than one quarter (¼) inch larger than the outer diameter of the pitless shank. No torch-cut holes ~~shall~~ will be accepted. If the connection to the casing is by field weld, the shop-assembled unit must be designed

specifically for field welding to the casing. ~~(3-24-22)~~( )

iv. ~~Shall t~~Terminate at least eighteen (18) inches above final ground elevation ~~or three (3) feet above the 100-year flood level or the highest known flood elevation, whichever is higher, or as otherwise approved by the Department~~. For a well located in an area subject to flooding, the Department may require an extension of the casing above the one hundred (100) year or highest known flood level, whichever is higher. ~~(3-24-22)~~( )

v. ~~Shall be p~~Provided with access to disinfect the well. ~~(3-24-22)~~( )

vi. ~~Shall have f~~Field connect~~ion~~ ed to the lateral discharge from the pitless unit of threaded, flanged, or mechanical joint connection. ~~(3-24-22)~~( )

h. After installation of a pitless adapter or unit, the disturbed well seal ~~shall~~ must be repaired or replaced to meet original seal specifications unless otherwise ~~proposed by the design engineer and~~ approved by the Department. The engineering proposal ~~shall~~ must ensure that the material surrounding the final seal is moisture controlled and compacted such that it equals or exceeds the characteristics of the native soil prior to being disturbed. ~~(3-24-22)~~( )

09. Wells Not Allowed in Pits. Wells ~~shall~~ must not be located in pits. Exceptions to this requirement will be granted by the Department if the well was constructed prior to November 5, 1964, and the installation is constructed or reconstructed in accordance with the requirements of the Department to provide watertight construction of pit walls and floors, floor drains and acceptable pit covers. ~~(3-24-22)~~( )

10. Discharge Pumps. Discharge pumps ~~shall be~~ are subject to the following requirements: ~~(3-24-22)~~( )

a. Line shaft pumps ~~shall.~~ must: ~~(3-24-22)~~( )

i. Have the casing firmly connected to the pump structure or have the casing inserted into a recess extending at least one-half (1/2) inch into the pump base. ( )

ii. Have the pump foundation and base designed to prevent water from coming into contact with the joint. ( )

iii. Use lubricants that meet ANSI/NSF Standard 61. ( )

b. ~~When a s~~Submersible pumps ~~is used~~: ~~(3-24-22)~~( )

i. The top of the casing ~~shall~~ must be effectively sealed against the entrance of water under all conditions of vibration or movement of conductors or cables. ~~(3-24-22)~~( )

ii. The electrical cable ~~shall~~ must be firmly attached to the drop pipe at twenty-one (21) foot intervals or less, or at each coupling or joint. ~~(3-24-22)~~( )

512. ~~FACILITY AND DESIGN STANDARDS:~~ WELL LOT.

A well lot ~~shall~~ must be provided for wells constructed after November 1, 1977. The well lot ~~shall~~ must be owned in fee simple by the supplier of water or controlled by lease or easement with a term of not less than the useful life of the well and be large enough to provide a minimum distance of fifty (50) feet between the well and the nearest property line. ~~(3-24-22)~~( )

01. Use of Chemicals ~~on the Well Lot~~. No pesticides, herbicides, or fertilizers ~~shall~~ may be applied to a well lot without prior approval from the Department. ~~(3-24-22)~~( )

02. Storage of Hazardous Materials ~~on the Well Lot~~. No pesticides, herbicides, fertilizers, portable containers of petroleum products, or other materials known to be toxic or hazardous ~~shall~~ may be stored on a well lot, except that: ~~(3-24-22)~~( )

a. An internal combustion engine to drive either a generator for emergency standby power or a pump to provide fire flows, and an associated fuel tank, may be placed on the well lot. ( )

b. A propane or natural gas powered generator is preferable to reduce risk of fuel spillage. ( )

c. If a diesel or gasoline-fueled engine is used, the fuel tank and connecting piping must be approved by the Underwriter's Laboratory, Inc., double-walled, meet the requirements of the local fire jurisdiction, and include both spill prevention and overfill protection features. The tank must be above ground and may be contained within the structural base of the generator unit. A spill containment structure must surround all fuel tanks and be sized to contain at least one hundred ten percent (110%) of the fuel tank volume. The Department may require additional containment capacity in settings where accumulation of snow, ice, or rain water may be expected to diminish the usable capacity of the structure. A licensed ~~water system~~ PWS operator ~~shall~~ must be present during filling of the tank following a period of usage, or during periodic extraction and replacement of outdated fuel. ~~(3-24-22)~~( )

d. ~~Should~~If the internal combustion engine ~~be~~ is located within the pump house, the floor of the pump house ~~shall~~ must be constructed so as to contain all petroleum drips and spills so that they will not be able to reach the floor drain(s). Engine exhaust ~~shall~~ must be directly discharged outside the pump house. ~~(3-24-22)~~( )

~~**e.** A spill containment structure shall surround all fuel tanks and be sized to contain at least one hundred ten percent (110%) of the fuel tank volume. The Department may require additional containment capacity in settings where accumulation of snow, ice, or rain water could be expected to diminish the usable capacity of the structure.~~ ~~(3-24-22)~~

~~**03. Location of Hydrants.** Hydrants of the frost free type shall be placed in the buried piping system at a minimum of five (5) feet away from the well casing to prevent drain water from accumulating and compromising the grout seal surrounding the well casing.~~ ~~(3-24-22)~~

043. Parking Lots and Vehicle Storage. ~~*No p*~~*P*ublic parking or vehicle storage ~~shall be~~ *is not* allowed on the well lot, except that operation/maintenance vehicles may be ~~*temporary*~~ *temporarily* parked on the well lot during the normal course of business. ~~(3-24-22)~~( )

513. ~~FACILITY AND DESIGN STANDARDS:~~ NUMBER OF GROUND~~—~~WATER SOURCES REQUIRED – EXISTING SYSTEMS.
Existing community ~~water systems~~ PWSs served by ground-water and intending to serve more than twenty-five (25) connections or equivalent dwelling units are subject to the following requirements for the number of ground-water sources required. ~~(3-24-22)~~( )

01. Existing System with All Sources Constructed Prior to July 1, 1985. A community ~~water system~~ PWS served by ground-water and with all existing sources constructed prior to July 1, 1985 will be required to comply with Subsection 501.17 upon substantially modifying the ~~system~~ PWS after July 2002. ~~(3-24-22)~~( )

02. Existing System with Any Sources Constructed After July 1, 1985. A community ~~water system~~ PWS served by ground-water with any sources constructed after July 1, 1985 is required to comply with Subsection 501.17 when a *material* modification is made to the ~~system~~ PWS ~~*which increases the population served or number of service connections, increases the length of transmission and distribution water mains, or increases the peak or average water demand*~~ *after May 8, 2009, which triggers the PWS to be classified as substantially modified*. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

515. ~~FACILITY AND DESIGN STANDARDS:~~ SURFACE SOURCES AND GROUND~~—~~WATER SOURCES UNDER THE DIRECT INFLUENCE OF SURFACE WATER.
Written approval by the Department is required before water from any new surface source or ground-water source that is under the direct influence of surface water may be served to the public. Infiltration collection lines or galleries are considered ground-water under the direct influence of surface water unless demonstrated otherwise. Infiltration

galleries that are not directly influenced by surface water ~~shall~~ must meet the requirements of Section 514. The area around infiltration lines ~~shall~~ must be under the control of the water purveyor for a distance acceptable to the Department. ~~(3-24-22)~~( )

01. Intake Structures. Design of intake structures ~~shall~~ must provide for: ~~(3-24-22)~~( )

a. Withdrawal of water from more than one (1) level if quality varies with depth. ( )

b. Separate facilities for release of less desirable water held in storage. ( )

c. Where frazil ice may be a problem, holding the velocity of flow into the intake structure to a minimum, generally not to exceed point five (0.5) feet per second. Frazil ice is made up of randomly distributed ice crystals that are formed in flowing water that has cooled below thirty-two (32) degrees Fahrenheit and is prevented from forming into ice sheets by the movement of the water. ( )

d. Inspection manholes every one thousand (1000) feet for pipe sizes large enough to permit visual inspection. ( )

e. Cleaning the intake line as needed. ( )

f. Adequate protection against rupture by dragging anchors, ice, or other hazards. ( )

g. Ports located above the bottom of the stream, lake or impoundment, but at sufficient depth to be kept submerged at low water levels. ( )

h. Where shore wells are not provided, a diversion device capable of keeping large quantities of fish or debris from entering an intake structure. ( )

i. If necessary, provisions ~~shall~~ must be made in the intake structure to control the influx of nuisance aquatic organisms. Specific control methods must be approved by the ~~reviewing authority~~ Department. ~~(3-24-22)~~( )

j. When buried surface water collectors are used, sufficient intake opening area must be provided to minimize inlet headloss. Particular attention ~~shall~~ must be given to the selection of backfill material in relation to the collector pipe slot size and gradation of the native material over the collector system. ~~(3-24-22)~~( )

02. Raw Water Pumps. Raw water pumping wells ~~shall~~ must: ~~(3-24-22)~~( )

a. Have motors and electrical controls located above grade (except for submersible pumps)~~,~~ and protected from flooding as required by the ~~*reviewing authority*~~ *Department*. ~~*(3-24-22)*~~*( )*

b. Be accessible and designed to prevent flotation. ( )

c. Be equipped with removable or traveling screens before the pump suction well. ( )

d. Provide for introduction of chlorine or other chemicals in the raw water transmission main if necessary for quality control. ( )

e. Where practical, have intake valves and provisions for back flushing or cleaning by a mechanical device and testing for leaks. ( )

f. Have provisions for withstanding surges where necessary. ( )

03. Off-stream Raw Water Storage. An off-stream raw water storage reservoir is a facility into which water is pumped during periods of good quality and high stream flow for future release to treatment facilities. These off-stream raw water storage reservoirs ~~shall~~ must be constructed to assure that: ~~(3-24-22)~~( )

a. Water quality is protected by controlling runoff into the reservoir. ( )

b. Dikes are structurally sound and protected against wave action and erosion. ( )

c. Intake structures and devices meet requirements of Subsection 515.01. ( )

d. Point of influent flow is separated from the point of withdrawal. ( )

e. Separate pipes are provided for influent to and effluent from the reservoir. ( )

04. Reservoirs. Impoundments and reservoirs ~~shall~~ must provide, where applicable: ~~(3-24-22)~~( )

a. Removal of brush and trees to high water elevation. ( )

b. Protection from floods during construction. ~~(3-24-22)~~( )

c. ~~Abandonment of all w~~Wells which will be inundated~~,~~ by the reservoir must be abandoned in accordance with requirements of the Idaho Department of Water Resources. See Rules of the Idaho ~~Water Resources Board~~ Department of Water Resources referenced in Subsection 002.02. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

521. ~~FACILITY AND DESIGN STANDARDS:~~ SURFACE WATER TREATMENT: ~~FILTRATION USING~~ RAPID RATE GRAVITY FILTERS.

01. Pretreatment. The use of rapid rate gravity filters ~~shall~~ requires pretreatment in the form of coagulation, flocculation, and sedimentation. ~~(3-24-22)~~( )

02. Rate of Filtration. The filter rate must be proposed and justified by the design engineer ~~to the satisfaction of~~ in the Department ~~prior to the preparation of final plans and specifications~~ approved PER. ~~(3-24-22)~~( )

03. Number of Units. A minimum of two (2) units for redundancy ~~shall~~ must be provided for filtration such that plant design capacity can be maintained with any component out of service for maintenance or repairs. Where declining rate filtration is provided, the variable aspect of filtration rates, and the number of filters must be considered when determining the design capacity for the filters. ~~(3-24-22)~~( )

04. Structure and Hydraulics. The filter structure ~~shall~~ must be designed to provide for: ~~(3-24-22)~~( )

a. ~~Vertical walls within the filter.~~ There ~~shall~~ may be no protrusion of the vertical filter walls into the filter media. ~~(3-24-22)~~( )

b. Cover by superstructure with sufficient headroom to permit normal inspection and operation. ( )

c. Minimum depth of filter box of eight and one-half (8.5) feet. ( )

d. Minimum water depth over the surface of the filter media of three (3) feet. ( )

e. Trapped effluent to prevent backflow of air to the bottom of the filters. ( )

f. Prevention of floor drainage to the filter with a minimum four (4) inch curb around the filters. ( )

g. Prevention of flooding by providing overflow. ( )

h. Maximum velocity of treated water entering the filters of two (2) feet per second. ( )

i. Cleanouts and straight alignment for influent pipes or conduits where solids loading is heavy, or following lime-soda softening. ( )

j. Washwater drain capacity to carry maximum flow. ( )

k. Walkways around filters to be not less than twenty-four (24) inches wide and equipped with safety handrails or walls. ( )

l. Construction so as to prevent cross connections and common walls between potable water and non-potable fluids. ( )

05. Wash~~w~~ Water Troughs. Washwater troughs ~~shall~~ must be constructed to have: ~~(3-24-22)~~( )

a. The bottom elevation above the maximum level of expanded media during washing. ( )

b. A two (2) inch freeboard at the maximum rate of wash. ( )

c. The top edge level and all at the same elevation. ( )

d. Spacing so that each trough serves the same number of square feet of filter area. ( )

e. Maximum horizontal travel of suspended particles to reach the trough not to exceed three (3) feet. ( )

06. Filter Material. The media ~~shall~~ must be clean silica sand or other natural or synthetic media free from detrimental chemical or bacterial contaminants, approved by the Department, and having the following characteristics: ~~(3-24-22)~~( )

a. A total depth of not less than twenty-four (24) inches and generally not more than thirty (30) inches. ( )

b. An effective size range of the smallest material no greater than forty-five hundredths (0.45) of a millimeter to fifty-five hundredths (0.55) of a millimeter. ( )

c. A uniformity coefficient of the smallest material not greater than one and sixty-five hundredths (1.65). ( )

d. A minimum of twelve (12) inches of media with an effective size range no greater than forty-five hundredths (0.45) of a millimeter to fifty-five hundredths (0.55) of a millimeter and a specific gravity greater than other filtering materials within the filter. ( )

e. Types of filter media are as follows: ( )

i. Clean, crushed anthracite or a combination of anthracite and other media may be considered on the basis of experimental data specific to the project. The anthracite ~~shall~~ must have the following characteristics: ~~(3-24-22)~~( )

(1) Effective size of forty-five hundredths (0.45) of a millimeter to fifty-five hundredths (0.55) of a millimeter with uniformity coefficient not greater than sixty-five hundredths (1.65) when used alone. ( )

(2) Effective size of eight tenths (0.8) of a millimeter to one and two-tenths (1.2) millimeters with a uniformity coefficient not greater than one and eighty-five hundredths (1.85) when used as a cap. ( )

(3) Effective size for anthracite used as a single media on potable ground-water for iron and manganese removal only ~~shall~~ must be a maximum of eight tenths (0.8) of a millimeter (effective sizes greater than this may be approved based upon onsite pilot plant studies or other demonstration acceptable to the Department). See Subsection 501.19 for general information on conducting pilot studies. ~~(3-24-22)~~( )

ii. Sand media ~~shall~~ must have the following characteristics: ~~(3-24-22)~~( )

(1) Effective size of forty-five hundredths (0.45) of a millimeter to fifty-five hundredths (0.55) of a millimeter. ( )

(2) Uniformity coefficient of not greater than one and sixty-five hundredths (1.65). ( )

(3) Larger size sand media may be allowed by the Department where full-scale tests have demonstrated that treatment goals can be met under all conditions. ( )

iii. Granular activated carbon (GAC) as a single media may be considered for filtration only after pilot or full-scale testing and with prior approval of the Department. ~~See~~ in accordance with Subsection 501.19 ~~for general information on conducting pilot studies~~. The design ~~*shall*~~ *must* include the following: ~~(3-24-22)~~( )

(1) The media must meet the basic specifications for filter media as given in Subsections 521.06.a. through d., except that larger size media may be allowed where full scale tests have demonstrated that treatment goals can be met under all conditions. ( )

(2) There must be a means for periodic treatment of filter material for control of bacterial and other growth. ( )

(3) Provisions must be made for frequent replacement or regeneration. ( )

iv. Other media will be considered based on experimental data and operating experience. ( )

v. A three (3) inch layer of torpedo sand ~~shall~~ must be used as a supporting media for filter sand where supporting gravel is used, and ~~shall~~ must have an effective size of eight-tenths (0.8) millimeters to two (2.0) millimeters, and a uniformity coefficient not greater than one and seven-tenths (1.7). ~~(3-24-22)~~( )

vi. Gravel, when used as the supporting media, ~~shall~~ must consist of cleaned and washed, hard, durable, rounded silica particles and ~~shall~~ must not include flat or elongated particles. The coarsest gravel ~~shall~~ must be two and one-half (2.5) inches in size when the gravel rests directly on a lateral system and must extend above the top of the perforated laterals. Not less than four (4) layers of gravel ~~shall~~ must be provided in accordance with the size and depth distribution specified in the table below. Reduction of gravel depths and other size gradations may be considered upon justification to the ~~reviewing authority for slow sand filtration or~~ Department when proprietary filter bottoms are specified.

Size of Gravel	Depth
2 ½ to 1 ½ inches	5 to 8 inches
1 ½ to ¾ inches	3 to 5 inches
¾ to ½ inches	3 to 5 inches
½ to 3/16 inches	2 to 3 inches
3/16 to 3/32 inches	2 to 3 inches

~~(3-24-22)~~( )

07. Filter Bottoms and Strainer Systems. Departure from the standards set out in Subsection 521.07 may be acceptable for high rate filters and for proprietary bottoms. Porous plate bottoms ~~shall~~ must not be used where

iron or manganese may clog them or with waters softened by lime. The design of manifold-type collection systems ~~shall~~ must: ~~(3-24-22)~~( )

a. Minimize loss of head in the manifold and laterals. ( )

b. Ensure even distribution of wash water and even rate of filtration over the entire area of the filter. ( )

c. Provide the ratio of the area of the final openings of the strainer systems to the area of the filter at about three-thousandths (0.003), ( )

d. Provide the total cross-sectional area of the laterals at ~~about~~ twice the total area of the final openings. ~~(3-24-22)~~( )

e. Provide the cross-sectional area of the manifold at one and one-half (1.5) to two (2) times the total area of the laterals. ( )

f. Lateral perforations without strainers ~~shall~~ must be directed downward. ~~(3-24-22)~~( )

08. Surface or Subsurface Wash. Surface or subsurface wash facilities are required except for filters used exclusively for iron or manganese removal, and may be accomplished by a system of fixed nozzles or a revolving-type apparatus. All devices ~~shall~~ must be designed with: ~~(3-24-22)~~( )

a. Provision for water pressures of at least forty-five (45) pounds per square inch. ( )

b. A properly installed vacuum breaker or other approved device to prevent back siphonage if connected to the treated water system. ( )

c. Rate of flow of two (2.0) gallons per minute per square foot of filter area with fixed nozzles or one-half (0.5) gallon per minute per square foot with revolving arms. ( )

d. Air wash can be considered based on experimental data and operating experiences. ( )

09. Air Scouring. Air scouring can be considered in place of surface wash provided the following conditions are met: ( )

a. Air flow for air scouring the filter must be three (3) to five (5) standard cubic feet per minute square foot of filter area when the air is introduced in the underdrain; a lower air rate must be used when the air scour distribution system is placed above the underdrains. ( )

b. A method for avoiding excessive loss of the filter media during backwashing must be provided. ( )

c. Air scouring must be followed by a fluidization wash sufficient to restratify the media. ( )

d. Air must be free from contamination. ( )

e. Air scour distribution systems ~~shall~~ must be placed below the media and supporting bed interface with the following exception: if placed at the interface the air scour nozzles ~~shall~~ must be designed to prevent media from clogging the nozzles or entering the air distribution system. ~~(3-24-22)~~( )

f. Piping for the air distribution system ~~shall~~ must not be flexible hose which will collapse when not under air pressure and ~~shall~~ must not be a relatively soft material which may erode at the orifice opening with the passage of air at high velocity. ~~(3-24-22)~~( )

g. Air delivery piping ~~shall~~ must not pass down through the filter media nor ~~shall~~ may there be any arrangement in the filter design which ~~would~~ allows short circuiting between the applied unfiltered water and the

filtered water. ~~(3-24-22)~~( )

h. The backwash water delivery system must be capable of fifteen (15) gallons per minute per square foot of filter surface area (37 m/hr); however, when air scour is provided the backwash water rate must be variable and ~~should~~ not exceed eight (8) gallons per minute per square foot (20 m/hr) unless operating experience shows that a higher rate is necessary to remove scoured particles from filter media surfaces. ~~(3-24-22)~~( )

i. The filter underdrains ~~shall~~ must be designed to accommodate air scour piping when the piping is installed in the underdrain. ~~(3-24-22)~~( )

10. Filter Appurtenances. The following ~~shall~~ must be provided for every filter: ~~(3-24-22)~~( )

a. Influent and effluent sampling taps. ( )

b. A gauge capable of indicating loss of head. ( )

c. A meter indicating rate-of flow. A modified rate controller which limits the rate of filtration to a maximum rate may be used. However, equipment that simply maintains a constant water level on the filters is not acceptable, unless the rate of flow onto the filter is properly controlled. A pump or a flow meter in each filter effluent line may be used as the limiting device for the rate of filtration only if approved by the Department on a site-specific basis. ( )

11. Backwash. Provisions ~~shall~~ must be made for washing filters as follows: ~~(3-24-22)~~( )

a. A minimum backwash rate such that a fifty (50) percent expansion of the filter bed is achieved. ( )

b. Filtered water provided at the required rate by wash water tanks, a wash water pump, from the high service main, or a combination of these. ( )

c. Wash water pumps in duplicate unless an alternate means of obtaining wash water is available. ( )

d. Not less than fifteen (15) minutes wash of one filter at the design rate of wash. ( )

e. A wash water regulator or valve on the main wash water line to obtain the desired rate of filter wash with the wash water valves on the individual filters open wide. ( )

f. A rate-of-flow indicator, preferably with a totalizer, on the main wash water line, located so that it can be easily read by the operator during the washing process. ( )

g. Design to prevent rapid changes in backwash water flow. Backwash ~~shall~~ must be operator initiated. Automated systems ~~shall~~ must be operator adjustable. ~~(3-24-22)~~( )

12. Roof Drainage. Roof drains ~~shall~~ must not discharge into the filters or basins and conduits preceding the filters. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

529. ~~FACILITY AND DESIGN STANDARDS:~~ REQUIRED DISINFECTION OF DRINKING WATER, ULTRAVIOLET LIGHT.

01. General. ( )

a. Ultraviolet (UV) light technology is a primary disinfectant typically used for Cryptosporidium,

Giardia lamblia, and virus inactivation of both surface water and ground-water supplies. Reactor performance in terms of inactivation of any particular organism is a function of the delivered dose which is determined by validation testing. PWSs that are required to maintain a disinfectant residual in the distribution system must supplement UV disinfection with a chemical disinfectant. ~~(3-24-22)~~( )

b. UV disinfection credit will be awarded for filtered ~~systems~~ PWSs and unfiltered ~~systems~~ PWSs if the ~~system~~ unfiltered PWS meets the requirements ~~for unfiltered systems~~ in 40 CFR 141.71. ~~Systems~~PWSs will receive Cryptosporidium, Giardia lamblia, and virus treatment credits by achieving the corresponding UV dose values for the appropriate target pathogen and log reduction shown in Subsection 529.03, calculated to take into account the validation factor and reduction equivalent dose. The target pathogen and the target log inactivation ~~shall be~~ is used to identify the corresponding required UV dose. ~~(3-24-22)~~( )

c. For ~~water systems~~ PWSs using UV light to meet microbial treatment requirements, at least ninety-five percent (95%) of the water delivered to the public every month must be treated by UV reactors operating within validated conditions for the required UV dose. ~~(3-24-22)~~( )

d. When reviewing proposed UV disinfection projects, the Department will use the USEPA UV Disinfection Guidance Manual for the Final Long Term 2 Enhanced Surface Water Treatment Rule referenced in Subsection 002.02 (UV Disinfection Guidance Manual) for guidance. ( )

02. Pilot Studies and Validation. ( )

a. The Department may allow on-site pilot studies on a case-by-case basis in accordance with Subsection 501.19. Pilot studies are usually used to determine how much fouling occurs on site, to evaluate UV system reliability (e.g. UV sensors, UV transmittance (UVT) monitors, ballast reliability) and to provide operators experience running a UV system. They may also be used to assess lamp aging or impacts of power quality. ~~See Subsection 501.19 for general information on conducting pilot studies.~~ ~~(3-24-22)~~( )

b. Validation testing determines the operating conditions and monitoring algorithms that the UV system will use to define how much UV dose is being delivered by the reactor during operation. The validated dose as determined through validation testing is compared to the required dose in the UV Dose Table (Subsection 529.03) to determine inactivation credit. The validated dose is calculated by dividing the determined reduction equivalent dose by a validation factor to account for biases and experimental uncertainty. UV light treatment reactors ~~shall~~ must be validated by a third party entity approved by the Department. At a minimum, validation testing must account for the following: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line UV sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps and other critical system components; inlet and outlet piping configuration of the UV reactor; lamp and UV sensor locations; and other parameters required by the Department. The Department may allow alternative test microbes such as MS2 phage where the UV dose response better matches that of Cryptosporidium and Giardia lamblia to provide more accurate and efficient UV dose monitoring. Additional guidance is available in the UV Disinfection Guidance Manual, referenced in Subsection 002.02, or another validation standard as approved by the Department. ~~(3-24-22)~~( )

c. Validation testing ~~shall~~ must be conducted on full scale testing of a reactor that conforms uniformly to the UV reactors used by the ~~system~~ PWS and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp. ~~(3-24-22)~~( )

d. Validation testing must determine and establish validated operating conditions under which the reactor delivers the required UV dose in Subsection 529.03. Validated operating conditions include: ( )

i. Flow rate; ( )

ii. UV Intensity as measured by a UV sensor; ( )

iii. UV lamp operating status. ( )

e. The ~~d~~Department may approve an alternative approach to validation testing. ~~(3-24-22)~~( )

03. UV Dose Table. The treatment credits listed in the dose table are based on UV light at a wavelength of two hundred fifty-four (254) nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, the ~~system shall~~ PWS must demonstrate an equivalent germicidal dose through validation testing.

UV Dose Table (millijoules per square centimeter)			
Log	**Cryptosporidium**	**Giardia lamblia**	**Virus**
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

~~(3-24-22)~~( )

04. Reactor Design. Inlet and outlet conditions ~~shall~~ must ensure that UV dose delivery at the plant is equal to or exceeds that utilized during validation. At a minimum, design criteria ~~shall~~ need to address target pathogen(s), required log inactivation and UV dose, flow rate, UVT, and lamp aging and fouling factors. UVT and flow rate ~~shall~~ are to be selected to account for seasonal changes in UVT. Lamp aging and fouling factors ~~shall~~ must be supported by documentation or pilot study data. Recommended approaches of the UV Disinfection Guidance Manual, referenced in Subsection 002.02, ~~shall~~ are to be used in meeting this requirement. ~~(3-24-22)~~( )

a. The reactor systems must be designed to monitor and record parameters to verify the operation within the validated operating conditions approved by the Department. The ~~system~~ PWS must be equipped with facilities to monitor and record UV intensity as measured by a UV sensor, flow rate, lamp status, UVT, and other parameters designated by the Department. ~~(3-24-22)~~( )

b. The ultraviolet treatment device ~~shall~~ must be designed to provide a UV light dose equal to or greater than that specified in the UV Dose Table for the required log reduction. The UV Disinfection Guidance Manual, referenced in Subsection 002.02, ~~shall~~ must be utilized in evaluating the appropriate dose required for the target microbe. The reactor ~~shall also~~ will need to deliver the target dose while operating within the validated operating conditions for that particular unit. ~~(3-24-22)~~( )

c. The ultraviolet treatment assemblies ~~shall~~ must be designed to allow for cleaning and replacement of the lamp, lamp sleeves, and sensor window or lens. ~~(3-24-22)~~( )

d. All ultraviolet treatment device designs ~~shall~~ must evaluate lamp fouling and aging issues and manufacturer's recommendations regarding fouling, aging, and replacement ~~shall~~ will be discussed in the Operation and Maintenance Manual. ~~(3-24-22)~~( )

e. For in-situ cleaning of the lamp sleeve, the design ~~shall~~ must protect the potable water from cleaning solutions. ~~(3-24-22)~~( )

f. When off-line chemical cleaning systems are used, the UV enclosure ~~shall~~ must be removed from service, drained, flushed with an NSF/ANSI Standard 60 certified solution, drained, and rinsed before being placed back in service. ~~(3-24-22)~~( )

g. On-line systems that use wipers or brushes may use chemical solutions provided they are NSF/

ANSI Standard 60 certified. ( )

h. An automatic shutdown valve ~~shall~~ must be installed in the water supply line from the ultraviolet treatment device such that if power is not provided to the reactor or valve, the valve ~~shall~~ will be in the closed position. ~~(3-24-22)~~( )

i. The design of the inlet and outlet piping configuration and the locations of expansions, bends, tees and valves ~~shall~~ will assure that the UV dose delivery is equal to or greater than the required UV dose. Approach length prior to each reactor included in the credited dose calculations, downstream length following each reactor, and locations of any cleaning device/mechanism ~~shall~~ must be based on validation testing. ~~(3-24-22)~~( )

j. For parallel trains, the flow to each reactor ~~shall~~ must be equally distributed and metered or otherwise account for uneven flows in the design to ensure that the required UV dose is delivered to each train under varying flow conditions. ~~(3-24-22)~~( )

k. Valves ~~shall~~ must be provided to allow isolating and removing from service each UV reactor. ~~(3-24-22)~~( )

l. Reactors ~~shall~~ will be provided with air relief and pressure control valves per manufacturer requirements. ~~(3-24-22)~~( )

m. UVT analyzers ~~shall~~ must be provided if UVT is part of the dose monitoring strategy. It is recommended that UVT be monitored on a regular basis for all ~~systems~~ PWSs to assess UVT variability. ~~(3-24-22)~~( )

n. A single train with a standby reactor or a sufficient number of parallel ultraviolet treatment devices ~~shall~~ must be installed to ensure that adequate disinfection is provided when one unit is out of service. The Department may approve an alternate method that provides adequate disinfection such as standby chlorination. Any ~~system~~ PWS that produces water on an irregular schedule may provide documentation for the Department's review and approval that a single reactor ~~would be~~ is an acceptable design by demonstrating there ~~would be~~ is adequate ~~for~~ time for maintenance and cleaning during operation shutdowns. ~~(3-24-22)~~( )

o. No bypass of the ultraviolet treatment process may be installed unless an alternate method of providing adequate disinfection is provided. ( )

05. Controls. ( )

a. A delay mechanism ~~shall~~ must be installed to provide sufficient lamp warm-up prior to allowing water to flow from the ultraviolet treatment unit. ~~(3-24-22)~~( )

b. An automatic shutdown ~~shall~~ must be designed to activate the shutdown valve in cases where the ultraviolet light dose falls below the approved design dose or outside of the validated specifications. ~~(3-24-22)~~( )

06. Reliability. The ~~system~~ PWS must be capable of producing the plant design capacity at all times. ~~(3-24-22)~~( )

a. ~~Standby equipment.~~ Unless otherwise approved by the Department ~~based on documentation provided by the design engineer~~ and in accordance with Subsection 529.04.n., a minimum of two (2) reactors is required to maintain disinfection when one unit is taken out of service. Each reactor must be sized to deliver the required UV dose under the operating conditions of flow and UVT that occur at the plant. The conditions ~~shall~~ must fall within the validated range of the reactor as determined during validation testing. ~~(3-24-22)~~( )

b. ~~Power supply.~~ The quality and reliability of the power supply ~~shall~~ must be analyzed and back-up power supplies ~~shall~~ will be discussed in the contingency plan. ~~(3-24-22)~~( )

c. ~~Validated operating conditions.~~ If UVT is above the validated range of UVT, the UV dose

monitoring algorithm ~~shall~~ must default to the maximum of the validated range. If UVT is below the validated range, the UV system operation ~~shall~~ must be recorded as outside of the validated operating conditions. When UVT falls outside of ranges identified in the validated operating conditions, the contingency plan ~~shall~~ will be enacted if UVT is part of the dose monitoring strategy. ~~(3-24-22)~~( )

d. ~~Contingency plan.~~ A contingency plan for total UV disinfection failure, loss of power, or in the event that water quality changes produce water quality unsuitable for UV disinfection ~~shall~~ must be described in the ~~preliminary engineering report~~ PER. ~~(3-24-22)~~( )

07. Monitoring. ~~Water systems~~PWSs using UV light must monitor for the parameters necessary to demonstrate operation within the validated conditions of the required UV dose. PWS~~s~~ owners must check the calibration of UV sensors and online UVT monitors and recalibrate in accordance with a protocol approved by the Department. At a minimum, the following parameters must be monitored: ~~(3-24-22)~~( )

a. ~~Flow rate.~~ If the flow rate is below the validated range, then the UV dose monitoring algorithm ~~shall~~ must default to the validated range. If the flow rate is above the validated range, then the UV system operation ~~shall~~ will be recorded as outside of the validated operating conditions; ~~(3-24-22)~~( )

b. UV intensity as measured by UV sensors; ( )

c. UVT if UVT is part of the dose monitoring strategy; and ( )

d. Lamp status. ( )

08. Alarms. The settings or predetermined set points for the alarms ~~shall~~ must be specified in the ~~preliminary engineering report~~ PER. The report ~~shall~~ must also specify the alarms that ~~shall~~ will activate the contingency plan response. At a minimum, the following alarms are required: ~~(3-24-22)~~( )

a. Low UV intensity; ( )

b. High turbidity if required by the Department; ( )

c. Low UVT; ( )

d. Low UV dose; ( )

e. Lamp failure; ( )

f. UVT monitor failure; ( )

g. UV sensor failure; ( )

h. Low water level; and ( )

i. High flow rate. ( )

09. Initial Startup. The following items ~~shall~~ must be tested and verified before UV disinfected water is distributed: ~~(3-24-22)~~( )

a. Electrical components; ( )

b. Water level; ( )

c. Flow split between reactor trains if applicable; ( )

d. Controls and alarms; and ( )

e. Instrument calibration. ( )

10. Operation and Maintenance Manual. A project specific operation and maintenance manual ~~shall~~ must be provided as required in Subsection 501.12. See definition of Operation and Maintenance Manual in Section 003 for the typical contents of an operation and maintenance manual and the included operations plan. The operations plan in the operation and maintenance manual ~~shall~~ must include, but is not limited to, the following information: ~~(3-24-22)~~( )

a. ~~Lamp aging and replacement intervals.~~ Lamp replacement intervals may be based on the degree of lamp aging as indicated by the UV sensors; ~~(3-24-22)~~( )

b. Lamp fouling analysis and cleaning procedures; ( )

c. Lamp replacement; and ( )

d. Lamp breakage. ( )

530. ~~FACILITY AND DESIGN STANDARDS:~~ DISINFECTION OF DRINKING WATER, DISINFECTING AGENTS.
~~Disinfection may be accomplished~~PWS owners may accomplish with gas and liquid chlorine, calcium or sodium hypochlorites, chlorine dioxide, ozone, or ultraviolet light. Other disinfecting agents will be considered, providing reliable application equipment is available and testing procedures for a residual are recognized in "Standard Methods for the Examination of Water and Wastewater," referenced in Subsection 002.02, or an equivalent means of measuring effectiveness exists. The required amount of primary disinfection needed ~~shall~~ will be specified by the Department. Consideration must be given to the formation of disinfection by-products (DBP) when selecting the disinfectant. See Section 531, ~~Facility Design Standards~~ Design Standards for Chemical Application. For ~~public water systems~~ PWSs using only ground-water and that voluntarily chlorinate, see Subsection 552.04.
~~(3-24-22)~~( )

01. Chlorination. ( )

a. In addition to the requirements of Section 531, chlorination equipment ~~shall~~ must meet the following requirements: ~~(3-24-22)~~( )

i. Solution-feed gas chlorinators or hypochlorite feeders of the positive displacement type must be provided. ( )

ii. Standby or backup equipment of sufficient capacity ~~shall~~ will be available to replace the largest unit. Spare parts ~~shall~~ will be on hand to replace parts subject to wear and breakage. ~~(3-24-22)~~( )

iii. Automatic proportioning chlorinators are required where the rate of flow or chlorine demand is not reasonably constant. ( )

iv. Each eductor (submerged jet pump) must be selected for the point of application with particular attention given to the quantity of chlorine to be added, the maximum injector waterflow, the total discharge back pressure, the injector operating pressure, and the size of the chlorine solution line. ( )

v. The chlorine solution injector/diffuser must be compatible with the point of application to provide a rapid and thorough mix with all the water being treated. ( )

vi. Automatic switch-over of chlorination treatment units ~~shall~~ will be provided, where necessary, to assure continuous disinfection. ~~(3-24-22)~~( )

b. Effective contact time and point of application requirements are as follows: ( )

i. Effective contact time sufficient to achieve the inactivation of target pathogens under the expected range of raw water pH and temperature variation must be demonstrated through tracer studies or other evaluations or

calculations acceptable to the Department. Improving Clearwell Design for CT Compliance, referenced in Section 002.02, contains information that may be used as guidance for these calculations. Additional baffling can be added to new or existing basins to minimize short circuiting and increase contact time. ( )

ii. At least two (2) contactors ~~shall~~ must be provided which are each capable of providing the required effective contact time at one-half (1/2) of the plant design capacity. Alternatively, a single contactor that can provide effective contact time at plant design capacity may be designed with separate sections and bypass piping to allow sections to be cleaned or maintained individually during low flow conditions. Any ~~system~~ PWS that produces water on an irregular schedule may provide documentation for the Department's review and approval that a single contactor ~~would be~~ i ~~a~~s an acceptable design by demonstrating there ~~would be~~ is adequate time for maintenance and cleaning during operation shutdowns. ~~(3-24-22)~~( )

iii. At plants treating surface water, except slow sand filtration systems: ~~(3-24-22)~~

~~(1)~~ Unless otherwise approved by the Department, in addition to the injection point prior to the disinfection contact tank, injection points ~~shall~~, including all appurtenant chemical feed piping, must also be provided for applying the disinfectant to the raw water, settled water, and water entering the distribution system. ~~(3-24-22)~~( )

~~(2) Unless otherwise approved by the Department, chemical piping or tubing shall be installed from the disinfectant feed system to each injection system during the initial construction.~~ ~~(3-24-22)~~

iv. For pipeline contactors, provision ~~shall~~ must be made to drain accumulated sediment from the bottom of the contactor if the discharge from the contactor is not located at the bottom. ~~(3-24-22)~~( )

c. Chlorine residual test equipment recognized in the "Standard Methods for the Examination of Water and Wastewater," referenced in Subsection 002.02, ~~shall~~ must be provided for use by the operator. All surface water treatment plants that serve a population greater that three thousand three hundred (3,300) must have equipment to measure chlorine residuals continuously entering the distribution system. A sample tap ~~shall~~ must be provided to measure chlorine residual and ~~shall~~ will be located at a point after receiving the required contact time and at or prior to the first service connection. ~~(3-24-22)~~( )

d. Chlorinator piping requirements: ( )

i. ~~Cross connection protection:~~ The chlorinator water supply piping ~~shall~~ must be designed to prevent contamination of the treated water supply by sources of questionable quality. At all facilities treating surface water, pre- and post-chlorination systems must be independent to prevent possible siphoning of partially treated water into the clear well. The water supply to each eductor ~~shall~~ must have a separate shut-off valve. No master shut-off valve will be allowed. ~~(3-24-22)~~( )

ii. The pipes carrying elemental liquid or dry gaseous chlorine under pressure must be Schedule 80 seamless steel tubing or other materials recommended by the Chlorine Institute (never use PVC). Rubber, PVC, polyethylene, or other materials recommended by the Chlorine Institute must be used for chlorine solution piping and fittings. Nylon products are not acceptable for any part of the chlorine solution piping system. ( )

02. Disinfection with Ozone. ~~Systems~~PWSs that are required to maintain a disinfectant residual in the distribution system ~~shall~~ must supplement ozone disinfection with a chemical disinfectant. ~~(3-24-22)~~( )

a. The following are requirements for feed gas preparation: ( )

i. Feed gas can be air, oxygen enriched air, or high purity oxygen. Sources of high purity oxygen include purchased liquid oxygen conforming with AWWA Standard B-304; on site generation using cryogenic air separation; or temperature, pressure or vacuum swing (adsorptive separation) technology. In all cases, the design engineer must ensure that the maximum dew point of -76°F (-60°C) will not be exceeded at any time. ( )

ii. Air compression: ( )

(1) Air compressors ~~shall~~ will be of the liquid-ring or rotary lobe, oil-less, positive displacement type for smaller systems or dry rotary screw compressors for larger systems. ~~(3-24-22)~~( )

(2) The air compressors ~~shall~~ will have the capacity to simultaneously provide for maximum ozone demand, provide the air flow required for purging the desiccant dryers (where required) and allow for standby capacity. ~~(3-24-22)~~( )

(3) Air feed for the compressor ~~shall~~ will be drawn from a point protected from rain, condensation, mist, fog and contaminated air sources to minimize moisture and hydrocarbon content of the air supply. ~~(3-24-22)~~( )

(4) A compressed air after-cooler, entrainment separator, or a combination of the two (2) with automatic drain ~~shall~~ will be provided prior to the dryers to reduce the water vapor. ~~(3-24-22)~~( )

(5) A back-up air compressor must be provided so that ozone generation is not interrupted in the event of a break-down. ( )

iii. Air drying: ( )

(1) Dry, dust-free and oil-free feed gas must be provided to the ozone generator. Dry gas is essential to prevent formation of nitric acid, to increase the efficiency of ozone generation and to prevent damage to the generator dielectrics. Sufficient drying to a maximum dew point of -76°F (-60°C) must be provided at the end of the drying cycle. ( )

(2) Drying for high pressure systems may be accomplished using heatless desiccant dryers only. For low pressure systems, a refrigeration air dryer in series with heat-reactivated desiccant dryers ~~shall~~ will be used. ~~(3-24-22)~~( )

(3) A refrigeration dryer capable of reducing inlet air temperature to 40°F (4°C) ~~shall~~ will be provided for low pressure air preparation systems. The dryer can be of the compressed refrigerant type or chilled water type. ~~(3-24-22)~~( )

(4) For heat-reactivated desiccant dryers, the unit ~~shall~~ must contain two (2) desiccant filled towers complete with pressure relief valves, two (2) four-way valves and a heater. In addition, external type dryers ~~shall~~ must have a cooler unit and blowers. The size of the unit ~~shall~~ will be such that the specified dew point will be achieved during a minimum adsorption cycle time of sixteen (16) hours while operating at the maximum expected moisture loading conditions. ~~(3-24-22)~~( )

(5) Multiple air dryers ~~shall~~ will be provided so that the ozone generation is not interrupted in the event of dryer breakdown. ~~(3-24-22)~~( )

(6) Each dryer ~~shall~~ will be capable of venting "dry" gas to the atmosphere, prior to the ozone generator, to allow start-up when other dryers are "on-line." ~~(3-24-22)~~( )

iv. Air filters: ( )

(1) Air filters ~~shall~~ will be provided on the suction side of the air compressors, between the air compressors and the dryers and between the dryers and the ozone generators. ~~(3-24-22)~~( )

(2) The filter before the desiccant dryers ~~shall~~ will be of the coalescing type and be capable of removing aerosol and particulates larger than 0.3 microns in diameter. The filter after the desiccant dryer ~~shall~~ will be of the particulate type and be capable of removing all particulates greater than 0.1 microns in diameter, or smaller if specified by the generator manufacturer. ~~(3-24-22)~~( )

v. Piping in the air preparation system can be common grade steel, seamless copper, stainless steel or galvanized steel. The piping must be designed to withstand the maximum pressures in the air preparation system. ( )

b. The following requirements apply to the ozone generator: ( )

i. Capacity. ( )

(1) The production rating of the ozone generators ~~shall~~ must be stated in pounds per day and kWhr per pound at a maximum cooling water temperature and maximum ozone concentration. ~~(3-24-22)~~( )

(2) The design ~~shall~~ will ensure that the minimum concentration of ozone in the generator exit gas will not be less than one (1) percent (by weight). ~~(3-24-22)~~( )

(3) Generators ~~shall~~ will be sized to have sufficient reserve capacity so that the ~~system~~ PWS does not operate at peak capacity for extended periods of time resulting in premature breakdown of the dielectrics. ~~(3-24-22)~~( )

(4) The production rate of ozone generators will decrease as the temperature of the coolant increases. If there is to be a variation in the supply temperature of the coolant throughout the year, then pertinent data ~~shall~~ will be used to determine production changes due to the temperature change of the supplied coolant. The design ~~shall~~ will ensure that the generators can produce the required ozone at maximum coolant temperature. ~~(3-24-22)~~( )

(5) Appropriate ozone generator backup equipment must be provided. ( )

ii. ~~Electrical.~~ The generators can be low, medium or high frequency type. Specifications ~~shall~~ will require that the transformers, electronic circuitry and other electrical hardware be proven, high quality components designed for ozone service. ~~(3-24-22)~~( )

iii. ~~Cooling.~~ Adequate cooling ~~shall~~ must be provided. The cooling water must be properly treated to minimize corrosion, scaling and microbiological fouling of the water side of the tubes. Where cooling water is treated, cross connection control ~~shall~~ must be provided to prevent contamination of the potable water supply. ~~(3-24-22)~~( )

iv. ~~Materials.~~ To prevent corrosion, the ozone generator shell and tubes ~~shall~~ must be constructed of Type 316L stainless steel. ~~(3-24-22)~~( )

c. The following requirements apply to ozone contactors: ( )

i. Bubble diffusers. ( )

(1) Where disinfection is the primary application, a minimum of two (2) contact chambers, each equipped with baffles to prevent short circuiting and induce countercurrent flow, ~~shall~~ will be provided. Ozone ~~shall~~ must be applied using porous-tube or dome diffusers. ~~(3-24-22)~~( )

(2) The minimum contact time ~~shall~~ will be ten (10) minutes. A shorter contact time (CT) may be approved by the Department if justified by appropriate design and "CT" considerations. ~~(3-24-22)~~( )

(3) Where taste and odor control is of concern, multiple application points and contactors ~~shall~~ will be considered. ~~(3-24-22)~~( )

(4) Contactors ~~shall~~ will be separate closed vessels that have no common walls with adjacent rooms. The contactor must be kept under negative pressure and sufficient ozone monitors ~~shall~~ will be provided to protect worker safety. ~~(3-24-22)~~( )

(5) Contact vessels can be made of reinforced concrete, stainless steel, fiberglass or other material which will be stable in the presence of residual ozone and ozone in the gas phase above the water level. If contact vessels are made of reinforced concrete, all reinforcement bars ~~shall~~ must be covered with a minimum of one and one-half (1.5) inches of concrete. ~~(3-24-22)~~( )

(6) Where necessary, a system ~~shall~~ is to be provided between the contactor and the off-gas destruct unit to remove froth from the air and return the other to the contactor or other location acceptable to the ~~reviewing authority~~ Department. If foaming is expected to be excessive, then a potable water spray system ~~shall~~ must be placed in the contactor head space. ~~(3-24-22)~~( )

(7) All openings into the contactor for pipe connections, hatchways, etc. ~~shall~~ must be properly sealed using welds or ozone resistant gaskets such as Teflon or Hypalon. ~~(3-24-22)~~( )

(8) Multiple sampling ports ~~shall~~ must be provided to enable sampling of each compartment's effluent water and to confirm "CT" calculations. ~~(3-24-22)~~( )

(9) A pressure/vacuum relief valve ~~shall~~ must be provided in the contactor and piped to a location where there will be no damage to the destruction unit. ~~(3-24-22)~~( )

(10) The depth of water in bubble diffuser contactors ~~shall~~ must be a minimum of eighteen (18) feet. The contactor ~~shall~~ must also have a minimum of three (3) feet of freeboard to allow for foaming. ~~(3-24-22)~~( )

(11) All contactors ~~shall~~ will have provisions for cleaning, maintenance and drainage of the contactor. Each contactor compartment ~~shall~~ must also be equipped with an access hatchway. ~~(3-24-22)~~( )

(12) Aeration diffusers ~~shall~~ must be fully serviceable by either cleaning or replacement. ~~(3-24-22)~~( )

ii. Other contactors, such as the venturi or aspirating turbine mixer contactor, may be approved by the Department provided adequate ozone transfer is achieved and the required contact times and residuals can be met and verified. ( )

d. The following requirements apply to ozone destruction units: ( )

i. A system for treating the final off-gas from each contactor must be provided in order to meet safety and air quality standards. Acceptable systems include thermal destruction and thermal/catalytic destruction units. ( )

ii. The maximum allowable ozone concentration in the discharge is 0.1 ppm (by volume). ( )

iii. At least two (2) units ~~*shall*~~ *will* be provided which are each capable of handling the entire gas flow. ~~*(3-24-22)*~~( )

iv. Exhaust blowers ~~shall~~ must be provided in order to draw off-gas from the contactor into the destruct unit. ~~(3-24-22)~~( )

v. Catalysts must be protected from froth, moisture and other impurities which may harm the catalyst. ( )

vi. The catalyst and heating elements ~~shall~~ will be located where they can easily be reached for maintenance. ~~(3-24-22)~~( )

e. ~~Piping materials:~~ Only low carbon 304L and 316L stainless steels ~~shall~~ may be used for ozone service with 316L preferred. ~~(3-24-22)~~( )

f. The following requirements apply to joints and connections: ( )

i. Connections on piping used for ozone service are to be welded where possible. ( )

ii. Connections with meters, valves or other equipment are to be made with flanged joints with ozone resistant gaskets, such as Teflon or Hypalon. Screwed fittings ~~shall~~ may not be used because of their tendency to leak. ~~(3-24-22)~~( )

iii. A positive closing plug or butterfly valve plus a leak-proof check valve ~~shall~~ must be provided in the piping between the generator and the contactor to prevent moisture reaching the generator. ~~(3-24-22)~~( )

g. The following ~~requirements apply to~~ instrumentation must be provided: ~~(3-24-22)~~( )

i. Pressure gauges ~~shall be provided~~ at the discharge from the air compressor, at the inlet to the refrigeration dryers, at the inlet and outlet of the desiccant dryers, at the inlet to the ozone generators and contactors, and at the inlet to the ozone destruction unit. ~~(3-24-22)~~( )

ii. ~~Each generator shall have a~~A trip which shuts down the generator when the wattage exceeds a certain preset level. ~~(3-24-22)~~( )

iii. Dew point monitors ~~shall be provided~~ for measuring the moisture of the feed gas from the desiccant dryers. Where there is potential for moisture entering the ozone generator from downstream of the unit or where moisture accumulation can occur in the generator during shutdown, post-generator dew point monitors ~~shall~~ must be used. ~~(3-24-22)~~( )

iv. Air flow meters ~~shall be provided~~ for measuring air flow from the desiccant dryers to each of the other ozone generators, air flow to each contactor, and purge air flow to the desiccant dryers. ~~(3-24-22)~~( )

v. Temperature gauges ~~shall be provided~~ for the inlet and outlet of the ozone cooling water and the inlet and outlet of the ozone generator feed gas and, if necessary, for the inlet and outlet of the ozone power supply cooling water. ~~(3-24-22)~~( )

vi. Water flow meters ~~shall be installed~~ to monitor the flow of cooling water to the ozone generators and, if necessary, to the ozone power supply. ~~(3-24-22)~~( )

vii. Ozone monitors ~~shall be installed~~ to measure zone concentration in both the feed-gas and off-gas from the contactor and in the off-gas from the destruct unit. For disinfection systems, monitors ~~shall also be provided~~ for monitoring ozone residuals in the water. The number and location of ozone residual monitors ~~shall~~ must be such that the amount of time that the water is in contact with the ozone residual can be determined. ~~(3-24-22)~~( )

viii. A minimum of one ambient ozone monitor ~~shall be~~ installed in the vicinity of the contactor and a minimum of one ~~shall be~~ installed in the vicinity of the generator. Ozone monitors ~~shall also~~ must be installed in any areas where ozone gas may accumulate. ~~(3-24-22)~~( )

h. Safety requirements are as follows: ( )

i. The maximum allowable ozone concentration in the air to which workers may be exposed must not exceed one-tenth part per million (0.1 ppm) by volume. ( )

ii. Noise levels resulting from the operating equipment of the ozonation system ~~shall~~ must be controlled to within acceptable limits by special room construction and equipment isolation. ~~(3-24-22)~~( )

iii. PWS owners must provide e~~E~~mergency exhaust fans ~~must be provided~~ in the rooms containing the ozone generators to remove ozone gas if leakage occurs. ~~(3-24-22)~~( )

iv. PWS owners must post a~~A~~ sign ~~shall be posted~~ indicating "No smoking, oxygen in use" at all entrances to the treatment plant. In addition, no flammable or combustible materials ~~shall~~ may be stored within the oxygen generator areas. ~~(3-24-22)~~( )

03. Disinfection with Chlorine Dioxide. Chlorine dioxide may be considered as a primary and residual disinfectant, a pre-oxidant to control tastes and odors, to oxidize iron and manganese, and to control hydrogen sulfide and phenolic compounds. When choosing chlorine dioxide, consideration must be given to formation of the regulated by-products, chlorite and chlorate. ( )

a. Chlorine dioxide generation equipment ~~shall~~ must be factory assembled pre-engineered units with a minimum efficiency of ninety-five (95) percent. The excess free chlorine ~~shall~~ may not exceed three (3) percent of the theoretical stoichiometric concentration required. ~~(3-24-22)~~( )

b. Other design requirements include: ( )

i. The design ~~shall~~ must comply with all applicable portions of Subsections 530.01.a. through 530.01.d. ~~(3-24-22)~~( )

ii. The maximum residual disinfectant level allowed ~~shall be~~ is zero point eight (0.8) milligrams per liter (mg/l), even for short term exposures. ~~(3-24-22)~~( )

iii. Notification of a change in disinfection practices and the schedule for the changes ~~shall~~ must be made known to the public; particularly to hospitals, kidney dialysis facilities and fish breeders, as chlorine dioxide and its by-products may have effects similar to chloramines. ~~(3-24-22)~~( )

04. Other Disinfecting Agents. Proposals for use of disinfecting agents other than those listed ~~shall~~ must be submitted to the Department for approval ~~prior to preparation of final plans and specifications.~~ in the preliminary engineering report required under Section 503. ~~(3-24-22)~~( )

531. ~~FACILITY AND DESIGN STANDARDS:~~ DESIGN STANDARDS FOR CHEMICAL APPLICATION.

01. General Equipment Design. General equipment design ~~shall~~ must be such that: ~~(3-24-22)~~( )

a. Feeders will be able to supply, at all times, the necessary amounts of chemicals at an accurate rate, throughout the range of feed. ( )

b. Chemical-contact materials and surfaces are resistant to the aggressiveness of the chemical solution. ( )

c. Corrosive chemicals are introduced in such a manner as to minimize potential for corrosion. ( )

d. Chemicals that are incompatible are not stored or handled together. At facilities where more than one (1) chemical is stored or handled, tanks and pipelines ~~shall~~ must be clearly labeled to identify the chemical they contain. ~~(3-24-22)~~( )

e. All chemicals are conducted from the feeder to the point of application in separate conduits. ( )

f. Chemical feeders are as near as practical to the feed point. ( )

g. Chemical feeders and pumps ~~shall~~ must operate at no lower than twenty percent (20%) of the feed range unless two fully independent adjustment mechanisms such as pump pulse rate and stroke length are fitted, ~~w~~then the pump ~~shall~~ must operate at no lower than ten percent (10%) of the rated maximum. ~~(3-24-22)~~( )

h. Spare parts ~~shall~~ must be on hand for parts of feeders that are subject to frequent wear and damage. ~~(3-24-22)~~( )

i. Redundant chemical feeders with automatic switchover ~~shall~~ must be provided when necessary to ensure adequate treatment. If the water treatment system includes at least two (2) process trains of equipment so that the plant design capacity can be maintained with any component out of service, redundant chemical feeders are not required on each process train. ~~(3-24-22)~~( )

02. Facility Design. ( )

a. Where chemical feed is necessary for the protection of the supply, such as disinfection, coagulation or other essential processes, a minimum of two feeders ~~shall~~ must be provided and a separate feeder ~~shall~~ will be used for each chemical applied. ~~(3-24-22)~~( )

b. Chemical application control systems ~~shall~~ must meet the following requirements: ~~(3-24-22)~~( )

i. Feeders may be manually or automatically controlled, with automatic controls being designed so as to allow override by manual controls. ( )

ii. Chemical feeders ~~*shall*~~ *will* be ~~*controlled*~~ *energized* by a flow sensing device so that injection of the chemicals will not continue when the flow of water stops. ~~*(3-24-22)*~~( )

iii. Automatic proportioning ~~*chlorinators*~~ *chemical feeders* are required where the rate of flow ~~*or chlorine demand*~~ is not reasonably constant. ~~*(3-24-22)*~~( )

iv. A means to measure water flow must be provided in order to determine chemical feed rates. ( )

v. Provisions ~~shall~~ will be made for measuring the quantities of chemicals used. ~~(3-24-22)~~( )

vi. Weighing scales ~~shall~~ will be provided for weighing cylinders at all plants utilizing chlorine gas, fluoride solution feed. ~~(3-24-22)~~( )

vii. Weighing scales ~~shall~~ must be capable of providing reasonable precision in relation to average daily dose. ~~(3-24-22)~~( )

viii. Where conditions warrant, for example with rapidly fluctuating intake turbidity, coagulant and coagulant aid addition may be made according to turbidity, streaming current or other sensed parameter. ( )

c. Dry chemical feeders ~~shall~~ will measure chemicals volumetrically or gravimetrically, provide adequate solution water and agitation of the chemical in the solution pot, and completely enclose chemicals to prevent emission of dust to the operating room. ~~(3-24-22)~~( )

d. Positive displacement type solution feed pumps must be capable of operating at the required maximum head conditions found at the point of injection. ( )

e. Liquid chemical feeders ~~shall~~ must be such that chemical solutions cannot be siphoned or overfed into the water supply, by assuring discharge at a point of positive pressure, or providing vacuum relief, or providing a suitable air gap, or providing other suitable means or combinations as necessary. ~~(3-24-22)~~( )

f. Cross connection control must be provided to assure that the following requirements are satisfied. ( )

i. The service water lines discharging to solution tanks ~~shall~~ must be properly protected from backflow. ~~(3-24-22)~~( )

ii. No direct connection exists between any sewer and a drain or overflow from the feeder, solution chamber or tank by providing that all drains terminate at least six (6) inches or two pipe diameters, whichever is greater, above the overflow rim of a receiving sump, conduit or waste receptacle. ( )

g. Chemical feed equipment ~~shall~~ must be readily accessible for servicing, repair, and observation of operation. ~~(3-24-22)~~( )

h. In-plant water supply for chemical mixing ~~shall~~ must be: ~~(3-24-22)~~( )

i. Ample in quantity and adequate in pressure. ( )

ii. Provided with means for measurement when preparing specific solution concentrations by dilution. ( )

iii. Properly treated for hardness, when necessary. ( )

iv. Properly protected against backflow. ( )

v. Obtained from a location sufficiently downstream of any chemical feed point to assure adequate mixing. ( )

i. Chemical storage facilities ~~shall~~ must satisfy the following requirements: ~~(3-24-22)~~( )

i. Storage tanks and pipelines for liquid chemicals ~~shall~~ must be specified for use with individual chemicals and not used for different chemicals. Off-loading areas must be clearly labeled to prevent accidental cross-contamination. ~~(3-24-22)~~( )

ii. Chemicals ~~shall~~ will be stored in covered or unopened shipping containers, unless the chemical is transferred into an approved storage unit. ~~(3-24-22)~~( )

j. Bulk liquid storage tanks ~~shall~~ must comply with the following requirements: ~~(3-24-22)~~( )

i. A means which is consistent with the nature of the chemical ~~solution shall~~ stored will be provided in a ~~solution~~ liquid storage tank to maintain a uniform strength of solution. Continuous agitation ~~shall~~ will be provided to maintain slurries in suspension. ~~(3-24-22)~~( )

ii. Means ~~shall~~ will be provided to measure the liquid level in the tank. ~~(3-24-22)~~( )

iii. Bulk liquid storage tanks ~~shall~~ will be kept covered. Bulk liquid storage tanks with access openings ~~shall~~ will have such openings curbed and fitted with overhanging covers. ~~(3-24-22)~~( )

iv. Subsurface locations for bulk liquid storage tanks ~~shall~~ will be free from sources of possible contamination, and assure positive drainage for ground-waters, accumulated water, chemical spills and overflows. ~~(3-24-22)~~( )

v. Bulk liquid storage tanks ~~shall~~ will be vented, but ~~shall~~ may not vent through vents common with other chemicals or day tanks. Acid storage tanks must be vented to the outside atmosphere, but not through vents in common with other chemicals or day tanks. ~~(3-24-22)~~( )

vi. Each bulk liquid storage tank ~~shall~~ will be provided with a valved drain, protected against backflow and cross-connections. ~~(3-24-22)~~( )

vii. Bulk liquid storage tanks ~~shall~~ will have an overflow, when provided, that is turned downward with the end screened with a twenty-four (24) mesh or similar non-corrodible screen, have a free fall discharge, and be located where noticeable. ~~(3-24-22)~~( )

viii. Where chemical feed is necessary for the protection of the supply, a means to assure continuity of chemical supply while servicing a bulk liquid storage tank will be provided. ( )

~~viii~~ix. Bulk liquid storage tanks ~~shall~~ will be provided with secondary containment so that chemicals from equipment failure, spillage, or accidental drainage ~~shall be fully contained~~ will not enter the water in conduits, treatment, or storage basins. A common receiving basin may be provided for each group of compatible chemicals. The bulk liquid storage tank basin or the common receiving basin ~~shall~~ will provide a secondary containment volume sufficient to hold one hundred ten percent (110%) of the volume of the largest storage tank. Piping ~~shall~~ will be designed to minimize or contain chemical spills in the event of pipe ruptures. ~~(3-24-22)~~( )

~~ix. Where chemical feed is necessary for the protection of the supply, a means to assure continuity of~~

~~chemical supply while servicing a bulk liquid storage tank shall be provided.~~ ~~(3-24-22)~~

k. Day tanks ~~are subject to the requirements in Subsections 531.02.k.i. through 531.02.k.iv.~~ will be provided where bulk storage of liquid chemical is provided. However, upon approval by the Department, chemicals may be fed directly from shipping containers no larger than fifty-five (55) gallons. For the purposes of Section 531, day tanks are defined as liquid chemical tanks holding no more than a thirty (30) hour chemical supply. ~~(3-24-22)~~( )

i. Day tanks ~~shall be provided where bulk storage of liquid chemicals are provided. The Department may allow chemicals to be fed directly from shipping containers no larger than fifty-five (55) gallons~~ are subject to the requirements in Subsections 531.02.j.i. through 531.02.j.vii. except shipping containers do not require overflow pipe and drains. ~~(3-24-22)~~( )

~~ii. Day tanks shall meet all the requirements of Subsection 531.02.j., with the exception of Subsection 531.02.j.viii. Shipping containers do not require overflow pipes or drains as required by Subsection 531.02.j. and are not subject to the requirements of Subsection 531.02.j.viii.~~ ~~(3-24-22)~~

ii~~i~~. Where feasible, secondary containment ~~shall~~ will be provided so that chemicals from equipment failure, spillage, or accidental drainage of day tanks ~~shall~~ will be fully contained. A common receiving basin may be provided for each group of compatible chemicals. The common receiving basin ~~shall~~ will provide a secondary containment volume sufficient to hold the volume of the largest storage tank. If secondary containment is not feasible, day tanks ~~shall~~ will be located and protective curbings provided so that chemicals from equipment failure, spillage, or accidental drainage of day tanks ~~shall~~ will not enter the water in conduits, treatment, or storage basins. Secondary containment is not required for a day tank if an Idaho licensed professional engineer demonstrates to the Department that the chemical concentration and volume, if spilled, will not be a safety hazard to employees, will not be hazardous to the public health, and will not harm the environment. ~~(3-24-22)~~( )

~~iv~~iii. Day tanks and the tank refilling line entry points ~~shall~~ will be clearly labeled with the name of the chemical contained. ~~(3-24-22)~~( )

iv. Filling of day tanks may not be automated unless otherwise approved by the Department. ( )

l. Provisions ~~shall~~ must be made for measuring quantities of chemicals used to prepare feed solutions. ~~(3-24-22)~~( )

m. Vents from feeders, storage facilities and equipment exhaust ~~shall~~ must discharge to the outside atmosphere above grade and remote from air intakes. ~~(3-24-22)~~( )

03. Chemicals. Chemical shipping containers ~~shall~~ must be fully labeled to include chemical name, purity and concentration, supplier name and address, and evidence of ANSI/NSF certification where applicable. ~~(3-24-22)~~( )

04. Safety Requirements for Chemical Facilities. ( )

a. The following requirements apply to chlorine gas feed and storage rooms: ( )

i. Each storage room ~~shall~~ will be enclosed and separated from other operating areas. They ~~shall~~ will be constructed in such a manner that all openings between the chlorine room and the remainder of the plant are sealed, and provided with doors equipped with panic hardware, assuring ready means of exit and opening outward only to the building exterior. ~~(3-24-22)~~( )

ii. Each room ~~shall~~ will be provided with a shatter resistant inspection window installed in an interior wall. ~~(3-24-22)~~( )

iii. Each room ~~shall~~ will have a ventilating fan with a capacity which provides one (1) complete air change per minute when the room is occupied. Where this is not appropriate due to the size of the room, a lesser rate may be allowed by the Department on a site specific basis. ~~(3-24-22)~~( )

iv. The ventilating fan ~~shall~~ will take suction near the floor as far as practical from the door and air inlet, with the point of discharge ~~so~~ located as ~~not to contaminate~~ far away as possible from doors, air inlets to any rooms or structures~~.~~, or occupied areas. Air inlets ~~shall~~ will be through louvers near the ceiling. ~~(3-24-22)~~( )

v. Louvers for chlorine room air intake and exhaust ~~shall~~ will facilitate airtight closure. ~~(3-24-22)~~( )

vi. Separate switches for the fan and lights ~~shall~~ will be located outside of the chlorine room and at the inspection window. Outside switches ~~shall~~ will be protected from vandalism. A signal light indicating fan operation ~~shall~~ will be provided at each entrance when the fan can be controlled from more than one (1) point. ~~(3-24-22)~~( )

vii. Vents from feeders and storage ~~shall~~ will discharge to the outside atmosphere, above grade. ~~(3-24-22)~~( )

viii. Where provided, floor drains ~~shall~~ will discharge to the outside of the building and ~~shall~~ will not be connected to any internal drainage systems or external drainage systems unless the external drainage systems drain to an approved discharge point. ~~(3-24-22)~~( )

ix. Chlorinator rooms ~~shall~~ will be heated to sixty degrees Fahrenheit (60°F) and be protected from excessive heat. Cylinders and gas lines ~~shall~~ will be protected from temperatures above that of the feed equipment. ~~(3-24-22)~~( )

x. Pressurized chlorine feed lines ~~shall~~ may not carry chlorine gas beyond the chlorinator room. ~~(3-24-22)~~( )

xi. Critical isolation valves ~~shall~~ will be conspicuously marked and access kept unobstructed. ~~(3-24-22)~~( )

xii. All chlorine rooms, buildings, and areas ~~shall~~ will be posted with a prominent danger sign warning of the presence of chlorine. ~~(3-24-22)~~( )

xiii. Full and empty cylinders of chlorine gas ~~shall~~ will be isolated from operating areas and stored in definitely assigned places away from elevators, stairs, or gangways. They ~~shall~~ will be restrained in position to prevent being knocked over or damaged by passing or falling objects. In addition, they ~~shall~~ will be stored in rooms separate from ammonia storage, out of direct sunlight, and at least twenty (20) feet from highly combustible materials. Cylinders ~~shall~~ may not be kept in unventilated enclosures such as lockers and cupboards. ~~(3-24-22)~~( )

b. Where acids and caustics are used, they ~~shall~~ must be kept in closed corrosion-resistant shipping containers or storage units. Acids and caustics ~~shall~~ may not be handled in open vessels, but ~~shall~~ will be pumped in undiluted form from original containers through suitable hose to the point of treatment or to a covered day tank. ~~(3-24-22)~~( )

c. ~~Sodium chlorite for chlorine dioxide generation.~~ Proposals for the storage and use of sodium chlorite ~~shall~~ must be approved by the Department prior to the preparation of final plans and specifications. Provisions ~~shall~~ must be made for proper storage and handling of sodium chlorite to eliminate any danger of fire or explosion associated with its oxidizing nature. ~~(3-24-22)~~( )

i. Chlorite (sodium chlorite) ~~shall~~ will be stored by itself in a separate room. It must be stored away from organic materials. The storage structure ~~shall~~ will be constructed of noncombustible materials. If the storage structure must be located in an area where a fire may occur, water must be available to keep the sodium chlorite area cool enough to prevent heat-induced explosive decomposition of the chlorite. ~~(3-24-22)~~( )

ii. Care ~~shall~~ will be taken to prevent spillage. An emergency plan of operation ~~shall~~ will be available for the clean up of any spillage. Storage drums ~~shall~~ will be thoroughly flushed prior to recycling or disposal.

~~(3-24-22)~~( )

d. Where ammonium hydroxide is used, an exhaust fan ~~shall~~ must be installed to withdraw air from high points in the room and makeup air ~~shall~~ must be allowed to enter at a low point. The feed pump, regulators, and lines ~~shall~~ must be fitted with pressure relief vents discharging outside the building away from any air intake and with water purge lines leading back to the headspace of the bulk storage tank. ~~(3-24-22)~~( )

e. Where anhydrous ammonia is used, the storage and feed systems (including heaters where required) ~~shall~~ must be enclosed and separated from other work areas and constructed of corrosion resistant materials. ~~(3-24-22~~( )

i. Pressurized ammonia feed lines ~~shall~~ will be restricted to the ammonia room. ~~(3-24-22)~~( )

ii. An emergency air exhaust system, as described in Subsection 531.04.a., but with an elevated intake, ~~shall~~ must be provided in the ammonia storage room. ~~(3-24-22)~~( )

iii. Leak detection systems ~~shall~~ must be fitted in all areas through which ammonia is piped. ~~(3-24-22)~~( )

iv. Special vacuum breaker/regulator provisions must be made to avoid potentially violent results of backflow of water into cylinders or storage tanks. ( )

v. Consideration ~~shall~~ must be given to the provision of an emergency gas scrubber capable of absorbing the entire contents of the largest ammonia storage unit whenever there is a risk to the public as a result of potential ammonia leaks. ~~(3-24-22)~~( )

05. Operator Safety. The Idaho General Safety and Health Standards, referenced in Subsection 002.02, may be used as guidance in designing facilities to ensure the safety of operators. ~~The following requirements are in addition to the requirements of Subsection 501.12.~~ Facilities must meet applicable regulations from the Occupational Health and Safety Administration. ~~(3-24-22)~~( )

~~**a.** Respiratory protection equipment, meeting the requirements of the National Institute for Occupational Safety and Health (NIOSH) shall be available where chlorine gas is handled, and shall be stored at a convenient heated location, but not inside any room where chlorine is used or stored. The units shall use compressed air, have at least a thirty (30) minute capacity, and be compatible with or exactly the same as units used by the fire department responsible for the plant.~~ ~~(3-24-22)~~

~~**b.** Chlorine leak detection. A bottle of concentrated ammonium hydroxide (fifty six (56) per cent ammonia solution) shall be available for chlorine leak detection. Where ton containers are used, a leak repair kit approved by the Chlorine Institute shall be provided.~~ ~~(3-24-22)~~

~~**c.** Protective equipment.~~ ~~(3-24-22)~~

~~i. At least one pair of rubber gloves, a dust respirator of a type certified by NIOSH for toxic dusts, an apron or other protective clothing, and goggles or face mask shall be provided for each operator.~~ ~~(3-24-22)~~

~~ii. A deluge shower and eyewashing device shall be installed where strong acids and alkalis are used or stored. A water holding tank that will allow water to come to room temperature shall be installed in the water line feeding the deluge shower and eyewashing device. Other methods of water tempering will be considered on an individual basis.~~ ~~(3-24-22)~~

~~iii. For chemicals other than strong acids and alkalis, an appropriate eye washing device or station shall be provided.~~ ~~(3-24-22)~~

~~iv. Other protective equipment shall be provided as necessary.~~ ~~(3-24-22)~~

06. Design Requirements for Specific Applications. In addition to Subsection 531.01 through

531.03, the following design requirements apply for the specific applications within Subsection 531.06 of this rule. ( )

a. ~~Sodium chlorite for chlorine dioxide generation.~~ Positive displacement feeders ~~shall~~ will be provided for sodium chlorite used for chlorine dioxide generation. Tubing for conveying sodium chlorite or chlorine dioxide solutions ~~shall~~ must be Type 1 PVC, polyethylene or materials recommended by the manufacturer. Chemical feeders may be installed in chlorine rooms if sufficient space is provided. Otherwise, facilities meeting the requirements of chlorine rooms ~~shall~~ will be provided. Feed lines ~~shall~~ will be installed in a manner to prevent formation of gas pockets and ~~shall~~ will terminate at a point of positive pressure. Check valves ~~shall~~ will be provided to prevent the backflow of chlorine into the sodium chlorite line. ~~(3-24-22)~~( )

b. Hypochlorite facilities ~~shall~~ must meet the following requirements: ~~(3-24-22)~~( )

i. Hypochlorite ~~shall~~ will be stored in the original shipping containers or in hypochlorite compatible containers. Storage containers or tanks ~~shall~~ will be sited out of the sunlight in a cool and ventilated area. ~~(3-24-22)~~( )

ii. Stored hypochlorite ~~shall~~ will be pumped undiluted to the point of addition. Where dilution is unavoidable, deionized or softened water ~~shall~~ will be used unless otherwise approved by the Department. ~~(3-24-22)~~( )

iii. Storage areas, tanks, and pipe work ~~shall~~ will be designed to avoid the possibility of uncontrolled discharges and a sufficient amount of appropriately selected spill absorbent ~~shall~~ will be stored on-site. ~~(3-24-22)~~( )

iv. Hypochlorite feeders ~~shall~~ will be positive displacement pumps with compatible materials for wetted surfaces. ~~(3-24-22)~~( )

v. To avoid air locking in smaller installations, small diameter suction lines ~~shall~~ will be used with foot valves and degassing pump heads. In larger installations flooded suction ~~shall~~ will be used with pipe work arranged to ease escape of gas bubbles. Calibration tubes or mass flow monitors which allow for direct physical checking of actual feed rates ~~shall~~ will be fitted. ~~(3-24-22)~~( )

vi. Injectors ~~shall~~ will be made removable for regular cleaning where hard water is to be treated. ~~(3-24-22)~~( )

c. When ammonium sulfate is used, the tank and dosing equipment contact surfaces ~~shall~~ must be made of corrosion resistant non-metallic materials. Provision ~~shall~~ will be made for removal of the agitator after dissolving the solid. The tank ~~shall~~ will be fitted with a lid and vented outdoors. Injection of the solution ~~should~~ will take place in the center of treated water flow at a location where there is high velocity movement. ~~(3-24-22)~~( )

d. When aqua ammonia (ammonium hydroxide) is used, the feed pumps and storage ~~shall~~ will be enclosed and separated from other operating areas. The aqua ammonia room ~~shall~~ will be equipped as required for chlorinator rooms with the following changes: ~~(3-24-22)~~( )

i. A corrosion resistant, closed, unpressurized tank ~~shall~~ will be used for bulk storage, vented through an inert liquid trap to a high point outside and an incompatible connector, or lockout provisions ~~shall~~ will be made to prevent accidental addition of other chemicals to the storage tank. ~~(3-24-22)~~( )

ii. The storage tank ~~shall~~ will be designed to avoid conditions where temperature increases cause the ammonia vapor pressure over the aqua ammonia to exceed atmospheric pressure. This capability can be provided by cooling/refrigeration or diluting or mixing the contents with water without opening the system. ~~(3-24-22)~~( )

iii. The aqua ammonia ~~shall~~ will be conveyed direct from storage to the treated water stream injector without the use of a carrier water stream unless the carrier stream is softened. ~~(3-24-22)~~( )

iv. The point of delivery to the main water stream ~~shall~~ will be placed in a region of turbulent water

flow. ~~(3-24-22)~~( )

v. Provisions ~~shall~~ will be made for easy access for removal of calcium scale deposits from the injector. ~~(3-24-22)~~( )

532. ~~FACILITY AND DESIGN STANDARDS:~~ DESIGN STANDARDS FOR SOFTENING.
The softening process selected must be based upon the mineral qualities of the raw water and the desired finished water quality in conjunction with requirements for disposal of sludge or brine waste (see Section 540), cost of plant, cost of chemicals, and plant location. Applicability of the process chosen ~~shall~~ must be demonstrated. ~~(3-24-22)~~( )

01. Lime or Lime-Soda Process. Rapid mix, flocculation, and sedimentation processes ~~shall~~ must meet the requirements of Section 520. In addition the following requirements must be met: ~~(3-24-22)~~( )

a. When split treatment is used, an accurate means of measuring and splitting the flow must be provided. ( )

b. Rapid mix basins must provide not more than thirty (30) seconds detention time with adequate velocity gradients to keep the lime particles dispersed. ( )

c. Equipment for stabilization of water softened by the lime or lime-soda process is required, see Section 537. ( )

d. Mechanical sludge removal equipment ~~shall~~ will be provided in the sedimentation basin. ~~(3-24-22)~~( )

e. Provisions must be included for proper disposal of softening sludges; see Section 540. ( )

f. The plant processes must be manually started following shut-down. ( )

02. Cation Exchange Process. ( )

a. Pre-treatment is required when the content of iron, manganese, or a combination of the two, is one milligram per liter (1 mg/~~l~~L) or more. ~~(3-24-22)~~( )

b. The units may be of pressure or gravity type, of either an upflow or downflow design. Automatic regeneration based on volume of water softened ~~shall~~will be used unless manual regeneration is justified and is approved by the Department. A manual override ~~shall~~ will be provided on all automatic controls. ~~(3-24-22)~~( )

c. Rate-of-flow controllers or the equivalent ~~shall~~ will be used to control the hydraulic loading of cation exchange units. ~~(3-24-22)~~( )

d. The bottoms, strainer systems and support for the exchange resin ~~shall~~ will conform to the criteria provided for rapid rate gravity filters in Section 521. ~~(3-24-22)~~( )

e. ~~Cross Connection Control.~~ Backwash, rinse and air relief discharge pipes ~~shall~~ will be installed in such a manner as to prevent any possibility of back-siphonage. ~~(3-24-22)~~( )

f. A bypass must be provided around softening units to produce a blended water of desirable hardness. Totalizing meters must be installed on the bypass line and on each softener unit. The bypass line must have a shutoff valve. ( )

g. When the applied water contains a chlorine residual, the cation exchange resin ~~shall~~ must be a type that is not damaged by residual chlorine. ~~(3-24-22)~~( )

h. Smooth-nose sampling taps must be provided for the collection of representative samples. The taps ~~shall~~ will be located to provide for sampling of the softener influent, effluent, blended water, and on the brine tank

discharge piping. The sampling taps for the blended water ~~shall~~ will be at least twenty (20) feet downstream from the point of blending. Petcocks are not acceptable as sampling taps. ~~(3-24-22)~~( )

i. Brine and salt storage tanks ~~shall~~ must meet the following requirements: ~~(3-24-22)~~( )

i. Salt dissolving or brine tanks and wet salt storage tanks must be covered and must be corrosion-resistant. ( )

ii. The make-up water inlet must be protected from back-siphonage. ( )

iii. Wet salt storage basins must be equipped with manholes or hatchways for access and for direct dumping of salt from truck or railcar. Openings must be provided with raised curbs and watertight covers having overlapping edges similar to those required for finished water reservoirs. ( )

iv. Overflows, where provided, must be protected with twenty-four (24) mesh or similar non-corrodible screens, and must terminate with either a turned downed bend having a proper free fall discharge or a self-closing flap valve. ( )

v. The salt ~~shall~~ will be supported on graduated layers of gravel placed over a brine collection system. ~~(3-24-22)~~( )

vi. Alternative designs which are conducive to frequent cleaning of the wet salt storage tank may be considered. ( )

vii. An eductor may be used to transfer brine from the brine tank to the softeners. If a pump is used, a brine measuring tank or means of metering ~~shall~~ will be provided to obtain the proper dilution. ~~(3-24-22)~~( )

j. Suitable disposal must be provided for brine waste; see Section 540. Where the volume of spent brine must be reduced, consideration may be given to using a part of the spent liquid concentrate for a subsequent regeneration. ( )

k. Pipes and contact materials must be resistant to the aggressiveness of salt. Plastic and red brass are acceptable piping materials. Steel and concrete must be coated with a non-leaching protective coating which is compatible with salt and brine. ( )

l. Bagged salt and dry bulk salt storage ~~shall~~ will be enclosed and separated from other operating areas in order to prevent damage to equipment. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

540. ~~FACILITY AND DESIGN STANDARDS:~~ DESIGN STANDARDS FOR TREATMENT AND DISPOSAL OF TREATMENT PLANT WASTE RESIDUALS.
~~Provisions must be made for~~PWS owners must provide proper disposal of water treatment plant waste such as sanitary, laboratory, clarification sludge, softening sludge, iron sludge, filter backwash water, and liquid concentrates. In locating waste disposal facilities, due consideration ~~shall~~ must be given to preventing potential contamination of the water supply. ~~(3-24-22)~~( )

01. Sanitary Waste. The sanitary waste from water treatment plants, pumping stations, and other waterworks installations must receive treatment. Waste from these facilities ~~shall~~ must be discharged directly to a sanitary sewer system, when available and feasible, or to an adequate on-site waste treatment facility approved under the provisions of IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules." ~~(3-24-22)~~( )

02. Liquid Concentrates. ( )

a. Waste from ion exchange plants, demineralization plants, reverse osmosis, on-site chlorine

generators, red water filters, or other plants which produce liquid concentrates may be disposed of by the following methods: ~~(3-24-22)~~( )

i. Liquid concentrates that contain radionuclides must be further treated to remove the radioactive constituents as sludge. See Subsection 540.03.e. for disposal requirements for sludge that contains radionuclides. The residual liquids from which radionuclides have been removed may be disposed of in accordance with Subsections 540.02.a.ii. through 540.02.a.iv. ( )

ii. Controlled discharge to a stream or other receiving water body if ~~adequate dilution is available. Such discharge will require a National Pollution Elimination System Permit from the U.S. Environmental Protection Agency, Region 10, 1200 Sixth Avenue, Seattle, WA 98101, Telephone (206) 553-1200.~~ a surface water discharge permit has been issued by the applicable permitting authority and limits and conditions of discharge permit can be reasonably met. ~~(3-24-22)~~( )

iii. Liquid concentrates may be discharged to a sanitary sewer, if available and feasible. Acceptance of such waste must be approved by the sewer authority. ( )

iv. Subsurface disposal, ~~or~~ land application ~~of~~, or total containment lagoons may be considered for liquid concentrate when in compliance with IDAPA 58.01.16, "Wastewater Rules." Untreated liquid concentrates may not be permitted~~, but only if such discharge meets the requirements of~~ for subsurface or land application unless otherwise approved by the Department and in accordance with IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules" for subsurface disposal or ~~the requirements of~~ IDAPA 58.01.17, "Recycled Water Rules" for land application. ~~(3-24-22)~~( )

b. ~~Should~~If the nature of the liquid concentrate causes it to be ineligible for permitted discharge as described in Subsection 540.02.a., further onsite treatment of the liquid concentrate may be required in order to produce sludge and liquid waste that will meet the permit criteria for one (1) or more of the disposal options. ~~(3-24-22)~~( )

c. If sand filters are used to treat the waste filter wash water, red water, from iron and manganese removal plants, they must have the following features: ( )

i. Total filter area sufficient to adequately dewater applied solids. Unless the filter is small enough to be cleaned and returned to service in one (1) day, two (2) or more cells are required. ( )

ii. Sufficient capacity to contain, above the level of the sand, the entire volume of wash water produced by washing all of the production filters in the plant, unless the production filters are washed on a rotating schedule and the flow through the production filters is regulated by true rate of flow controllers. Sufficient volume will be provided to dispose of the wash water involved. ( )

iii. Provisions for covering the filters during winter months where freezing is a problem. ( )

03. Sludge Waste. Sludge is the solid waste resulting from coagulation, precipitation, or passive settling of liquid concentrates. Depending on composition, liquids remaining after sludge removal may be disposed of by methods described in Subsection 540.02, recycled through the treatment plant, or may be pure enough to be unregulated. The following methods of treatment and disposal apply to sludge: ( )

a. Precipitative Softening Sludge. ( )

i. At least two (2) temporary storage lagoons must be provided in order to give flexibility in operation. Provisions must be made for convenient cleaning. An acceptable means of final sludge disposal must be provided. ( )

ii. Liquid or dewatered precipitative softening sludge may be applied to farm land if heavy metals or other contaminants do not exceed the requirements of IDAPA 58.01.02, "Water Quality Standards." ( )

iii. Dewatered precipitative softening sludge may be disposed of in a sanitary landfill in accordance

with the requirements of IDAPA 58.01.06, "Solid Waste Management Rules." Acceptance of such waste is at the discretion of the landfill authority. ( )

b. Alum or Ferric Sludge. ( )

i. Temporary storage lagoons must contain at least two (2) compartments to facilitate independent filling and dewatering operations. Mechanical concentration may be considered. If mechanical dewatering is used, it ~~shall~~ must be preceded by sludge concentration and chemical pre-treatment. A pilot plant study is required before the design of a mechanical dewatering installation~~. See~~ in accordance with Subsection 501.19 ~~for general information on conducting pilot studies~~. ~~(3-24-22)~~( )

ii. Alum or ferric sludge may be discharged to a sanitary sewer if available and feasible. Acceptance of such waste must be approved by the sewer authority. ( )

iii. Dewatered alum or ferric sludge may be disposed of in a sanitary landfill in accordance with the requirements of IDAPA 58.01.06, "Solid Waste Management Rules." Acceptance of such waste is at the discretion of the landfill authority. ( )

iv. Alum or ferric sludge may be disposed of by land application if the permitting requirements of IDAPA 58.01.02, "Water Quality Standards," and IDAPA 58.01.17, "Recycled Water Rules," are met. ( )

v. Water removed from alum or ferric sludge may be disposed of in the same manner as liquid concentrates, as described in Subsection 540.02. ( )

~~**c.** Red Water. Red water is the waste filter wash water from iron and manganese removal plants. (3-24-22)~~

~~i. If sand filters are used they shall have the following features: (3-24-22)~~

~~(1) Total filter area shall be sufficient to adequately dewater applied solids. Unless the filter is small enough to be cleaned and returned to service in one (1) day, two (2) or more cells are required. (3-24-22)~~

~~(2) The "red water" filter shall have sufficient capacity to contain, above the level of the sand, the entire volume of wash water produced by washing all of the production filters in the plant, unless the production filters are washed on a rotating schedule and the flow through the production filters is regulated by true rate of flow controllers. Then sufficient volume shall be provided to properly dispose of the wash water involved. (3-24-22)~~

~~(3) Where freezing is a problem, provisions should be made for covering the filters during the winter months. (3-24-22)~~

~~(4) "Red water" filters shall not have common walls with finished water. (3-24-22)~~

~~ii. Subsurface infiltration lagoons may be permitted, but only if such discharge meets the requirements of IDAPA 58.01.03, "Individual/Subsurface Sewage Disposal Rules." (3-24-22)~~

~~iii. "Red water" may be discharged to a sanitary sewer if available and feasible. Acceptance of such waste must be approved by the sewer authority. Design shall prevent cross connections and there shall be no common walls between potable and non-potable fluid. (3-24-22)~~

~~**d.**~~**c.** Filter Backwash ~~Water~~ Sludge. ~~(3-24-22)~~( )

i. Recycling is permitted if the backwash waters are returned to the head of the treatment plant or another entry point if supported by engineering studies. Backwash water ~~shall~~ will be held for a sufficient time prior to recycling to allow solids to settle out. ~~(3-24-22)~~( )

ii. Dewatered sludge from backwash water clarification processes may be disposed of in a sanitary landfill in accordance with the requirements of IDAPA 58.01.06, "Solid Waste Management Rules." Acceptance of

such waste must be approved by the landfill authority. ( )

~~e~~d. ~~Radioactive Sludge.~~ Waste residuals containing radioactive substances, including, but not limited to granular activated carbon used for radon removal or ion-exchange regeneration waste from uranium removal, must be disposed of in accordance with IDAPA 58.01.10, "Rules Regulating the Disposal of Radioactive Materials Not Regulated Under The Atomic Energy Act of 1954, As Amended." ~~(3-24-22)~~( )

i. The buildup of radioactive materials such as uranium or radon and its decay products ~~shall~~ must be considered and adequate shielding and safeguards ~~*shall*~~ *will* be provided for operators and visitors. ~~(3-24-22)~~( )

ii. Waste residuals containing naturally occurring radioactive materials that have been concentrated by human activities must be disposed of in an approved hazardous waste landfill (Class D), in accordance with the IDAPA 58.01.10, "Rules Regulating the Disposal of Radioactive Materials not Regulated Under the Atomic Energy Act of 1954, as Amended," and IDAPA 58.01.06, "Solid Waste Management Rules." ( )

iii. Waste residuals containing greater than point zero five (.05) percent by weight of uranium are subject to licensing and disposal under the regulations of the U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, TX 76011, Phone 817-860-8299. ( )

~~f~~e. ~~Arsenic Sludge.~~ Solid waste residuals containing arsenic at a concentration less than five (5) mg/l may be disposed of at a sanitary landfill if permitted under IDAPA 58.01.06, "Solid Waste Management Rules." Solid waste containing arsenic at a concentration greater than five (5) mg/l must be disposed of at an approved hazardous waste landfill. Liquid wastes generated by arsenic treatment processes are subject to the handling and disposal requirements for liquid concentrates, as discussed under Subsection 540.02. ~~(3-24-22)~~( )

04. Spent Media. Exhausted ion exchange media, adsorption media, disposable filters, and other components of treatment processes that contain concentrated contaminants ~~shall~~ must be disposed of in accordance with IDAPA 58.01.06, "Solid Waste Management Rules," ~~and/~~or IDAPA 58.01.10, "Rules Regulating the Disposal of Radioactive Materials not Regulated Under the Atomic Energy Act of 1954, as Amended." ~~(3-24-22)~~( )

541. ~~FACILITY AND DESIGN STANDARDS:~~ PUMPING FACILITIES.
Pumping facilities ~~shall~~ must be designed to maintain the sanitary quality of pumped water. ~~(3-24-22)~~( )

01. Pump Houses. Unless otherwise approved by the Department ~~based on documentation provided by the design engineer~~, pump house components ~~shall~~ must be located above-grade. The following requirements apply to pump houses as defined in Section 003 unless it can be shown that some or all of these requirements are not needed to protect the combination of system components in a given structure: ~~(3-24-22)~~( )

a. Pump houses ~~shall~~ must be readily accessible for operation, maintenance, and repair at all times and under all weather conditions unless permitted to be out of service for a period of inaccessibility. ~~(3-24-22)~~( )

b. Pump houses ~~shall~~ must be protected from flooding and ~~shall~~ must be adequately drained. The ground surface ~~shall~~ will be graded so as to lead surface drainage away from the pump house. Unless otherwise approved by the Department ~~based on documentation provided by the design engineer~~, the floor surface ~~shall~~ will be at least six (6) inches above the final ground surface and pump house components ~~shall~~ will be located at least six (6) inches above the floor surface. ~~(3-24-22)~~( )

c. Pump houses ~~shall~~ must be of durable construction, fire and weather resistant, and with outward-opening doors. All underground structures ~~shall~~ must be waterproofed. ~~(3-24-22)~~( )

d. Provisions ~~shall~~ must be made for adequate heating for the comfort of the operator and the safe and efficient operation of the equipment. In pump houses not occupied by personnel, only enough heat need be provided to prevent freezing of equipment or treatment processes. ~~(3-24-22)~~( )

e. Ventilation ~~shall~~ must conform to existing local and ~~/or~~ state codes. Adequate ventilation ~~shall~~ will be provided for all pumping stations for operator comfort and dissipation of excess heat and moisture from the

equipment. In all cases, measures must be taken to minimize corrosion of metallic and electrical components. ~~(3-24-22)~~( )

f. Pump houses ~~shall~~ must be provided with a locking door or access to prevent unauthorized entrance and ~~shall~~ must be protected to prevent vandalism and entrance by animals. Plans and specifications for pump houses must provide enough detail to enable the ~~reviewing engineer~~ Department to determine that the facility is secure, safe, accessible, and that it conforms to electrical and plumbing codes. ~~(3-24-22)~~( )

g. Pump houses ~~shall~~ must be kept clean and in good repair and ~~shall~~ may not be used to store toxic or hazardous materials other than those materials required for treatment processes. ~~(3-24-22)~~( )

h. A suitable outlet ~~shall~~ must be provided for drainage from pump glands without discharging onto the floor. ~~(3-24-22)~~( )

i. Floor drains ~~shall~~ may not be connected to sewers, storm drains, chlorination room drains, or any other source of contamination unless otherwise approved by the Department ~~based on documentation provided by the design engineer~~. Gas chlorination room drains ~~shall~~ may not be connected to any other drainage system and ~~should~~ must terminate in a properly located below ground sump. Sumps for pump house floor drains ~~shall~~ may not be closer than thirty (30) feet from any well. ~~(3-24-22)~~( )

j. Adequate space ~~shall~~ must be provided for the installation of potential additional units and for the safe and efficient servicing of all equipment. ~~(3-24-22)~~( )

k. Suction basins ~~shall~~ must be watertight, have floors sloped to permit removal of water and settled solids, be covered or otherwise protected against contamination, and have two (2) pumping compartments or other means to allow the suction basin to be taken out of service for inspection maintenance or repair. ~~(3-24-22)~~( )

l. Pump houses ~~shall~~ must be designed to allow efficient equipment servicing. Crain-ways, hoist beams, eyebolts, or other adequate facilities for servicing or removal of pumps, motors or other heavy equipment ~~shall~~ will be provided. Openings in floors, roofs or wherever else ~~shall~~ must be provided as needed for removal of heavy or bulky equipment. ~~(3-24-22)~~( )

m. All remote controlled stations ~~shall~~ must be electrically operated and controlled and ~~shall~~ have signaling apparatus of proven performance. Signaling apparatus ~~shall~~ must report automatically when the station is out of service. ~~(3-24-22)~~( )

n. Any threaded hose bib installed in the pump house must be equipped with an appropriate backflow prevention device. ( )

02. Pumping Units. At least two (2) pumping units ~~shall~~ must be provided for raw water and surface source pumps. Pumps using seals containing mercury ~~shall~~ may not be used in ~~public drinking water system~~ PWS facilities. With any pump out of service, the remaining pump or pumps ~~shall~~ must be capable of providing the peak hour demand of the ~~system~~ PWS or a minimum of the maximum day demand plus equalization storage. See Subsection 501.18 for general design requirements concerning fire flow capacity and Subsection 501.07 regarding reliability and emergency operation. The pumping units ~~shall~~ must meet the following requirements: ~~(3-24-22)~~( )

a. The pumps ~~shall~~ have ample capacity to supply the maximum demand against the required pressure without dangerous overloading. ~~(3-24-22)~~( )

b. The pumps ~~shall be~~ are driven by prime movers able to meet the maximum horsepower condition of the pumps. ~~(3-24-22)~~( )

c. The pumps ~~shall be~~ are provided with readily available spare parts and tools. ~~(3-24-22)~~( )

d. The pumps ~~shall~~ are to be served by control equipment that has proper heater and overload protection for air temperature encountered. ~~(3-24-22)~~( )

e. Suction lift ~~shall be~~ is avoided if possible. When suction lift is used, it ~~shall~~ must be within the limits allowed by the manufacturer of the pumps, and provision ~~shall~~ will be made for priming the pumps. ~~(3-24-22)~~( )

f. Prime water must not be of lesser sanitary quality than that of the water being pumped. Means ~~shall~~ will be provided to prevent either backpressure or backsiphonage backflow. When an air-operated ejector is used, the twenty-four (24) mesh or similar non-corrodible screened intake ~~shall~~ will draw clean air from a point at least ten (10) feet above the ground or other source of possible contamination, unless the air is filtered by an apparatus approved by the ~~reviewing authority~~ Department. Vacuum priming may be used. ~~(3-24-22)~~( )

03. Appurtenances. The following appurtenances ~~shall~~ must be provided for all water pumps. Additional requirements specific to well pumps are provided in Section 511. ~~(3-24-22)~~( )

a. Pumps ~~shall~~ must be protected against freezing and valved to permit satisfactory operation, maintenance, and repair of the equipment. If foot valves are necessary, they ~~shall~~ must have a net valve area of at least two and one-half (2.5) times the area of the suction pipe and ~~they shall~~ be screened. Each pump ~~shall~~ must have an accessible check valve on the discharge side between the pump and the shut-off valve or a combination valve that performs both control valve and check valve functions. Surge relief measures ~~shall~~ must be designed to minimize hydraulic transients. ~~(3-24-22)~~( )

b. ~~In general, piping shall be designed so that it will have watertight joints, be protected against surge or water hammer, be provided with suitable restraints where necessary, be designed so that friction losses will be minimized, and not be subject to contamination.~~ Piping must be designed with watertight joints, friction losses minimized, protection against surge or water hammer, suitable restraints, and not be subject to contamination. ~~(3-24-22)~~( )

c. Each pump ~~shall~~ must have an individual suction line or ~~the~~ manifolded suction lines ~~shall be manifolded~~ such that they will ensure similar hydraulic and operating conditions. ~~(3-24-22)~~( )

~~c~~**d.** Each pump station ~~shall~~ must have a standard pressure gauge on its discharge line and suction line. ~~(3-24-22)~~( )

~~d~~**e.** Water seals ~~shall~~ may not be supplied with water of a lesser sanitary quality than that of the water being pumped. Where pumps are sealed with potable water and are pumping water of lesser sanitary quality, the seal ~~shall~~ must: ~~(3-24-22)~~( )

i. Be provided with either an approved reduced pressure principle backflow preventer or a break tank open to atmospheric pressure, ( )

ii. Where a break tank is provided, have an air gap of at least six (6) inches or two (2) pipe diameters, whichever is greater, between the feeder line and the flood rim of the tank. ( )

~~e~~**f.** Pumps, their prime movers, and accessories ~~shall~~ must be controlled in such a manner that they will operate at rated capacity without dangerous overload. Where two (2) or more pumps are installed, provision ~~shall~~ must be made for alternation. Provision ~~shall~~ must be made to prevent energizing the motor in the event of a backspin cycle. Equipment ~~shall~~ will be provided or other arrangements made to prevent surge pressures from activating controls which switch on pumps or activate other equipment outside the normal design cycle of operation. ~~(3-24-22)~~( )

04. Booster Pumps. In addition to other applicable requirements in Section 541, booster pumps must comply with the following: ( )

a. In-line booster pumps ~~shall~~ must maintain an operating pressure that is consistent with the requirements specified in Subsection 552.01, and ~~shall~~ be supplied with an automatic cutoff when intake pressure is less than or equal to five (5) psi. ~~(3-24-22)~~( )

b. Booster pumps with a suction line directly connected to any storage reservoirs ~~shall~~ must be protected by an automatic cutoff to prevent pump damage and avoid excessive reservoir drawdown. ~~(3-24-22)~~( )

c. Each booster pumping station ~~shall~~ must contain not less than two (2) pumps with capacities such that peak hour demand, or a minimum of the maximum day demand plus equalization storage, can be satisfied with any pump out of service. See Subsection 501.18 for general design requirements concerning fire flow capacity. ~~(3-24-22)~~( )

542. ~~FACILITY AND DESIGN STANDARDS –~~ DISTRIBUTION SYSTEM.

01. Protection from Contamination. The distribution system ~~shall~~ must be protected from contamination and be designed to prevent contamination by steam condensate or cooling water from engine jackets or other heat exchange devices. ~~(3-24-22)~~( )

02. Installation of Water Mains. Division 400 of "Idaho Standards for Public Works Construction," referenced in Subsection 002.02, may be used as guidance for installation of water mains. In addition, the following provisions ~~shall~~ apply: ~~(3-24-22)~~( )

a. Installed pipe ~~shall~~ must be pressure tested and leakage tested in accordance with the applicable AWWA Standards, incorporated by reference into these rules at Subsection 002.01. ~~(3-24-22)~~( )

b. New, cleaned, and repaired water mains ~~shall~~ must be disinfected in accordance with AWWA Standard C651, incorporated by reference into these rules at Subsection 002.01. The specifications ~~shall~~ must include detailed procedures for the adequate flushing, disinfection, and microbiological testing of all water mains. ~~(3-24-22)~~( )

c. In areas where aggressive soil conditions are suspected or known to exist, analyses ~~shall~~ must be performed to determine the actual aggressiveness of the soil. If soils are found to be aggressive, action ~~shall~~ must be taken to protect metallic joint restraints and the water main, such as encasement in polyethylene, provision of cathodic protection, or use of corrosion resistant materials. ~~(3-24-22)~~( )

d. The Department must approve any interconnection between potable water ~~supplies~~ sources, taking into account differences in water quality between the two systems. ~~(3-24-22)~~( )

e. A continuous and uniform bedding ~~shall~~ must be provided in the trench for all buried pipe. Backfill material ~~shall~~ must be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench ~~shall~~ must be removed for a depth of at least six (6) inches below the bottom of the pipe. ~~(3-24-22)~~( )

f. Water mains ~~shall~~ must be covered with sufficient earth or other insulation to prevent freezing. ~~(3-24-22)~~( )

g. All tees, bends, plugs and hydrants ~~shall~~ must be provided with reaction blocking, tie rods or joints designed to prevent movement. ~~(3-24-22)~~( )

03. Pressure Relief Valves. All pumps connected directly to the distribution system ~~shall~~ must be designed in conjunction with a water pressure relief valve of type, size, and material approved by the Department unless the Department approves another method that will prevent excessive pressure development. ~~(3-24-22)~~( )

04. Flow Meter Required. Unless otherwise approved by the Department ~~based on documentation provided by the design engineer~~, all source pumps and booster pumps connected directly to the distribution system ~~shall~~ must have an instantaneous and totalizing flow meter, equipped with nonvolatile memory, installed in accordance with manufacturer's specifications. ~~(3-24-22)~~( )

05. Pipe and Jointing Materials. Pipe and jointing materials comply with the standards set forth in Subsection 501.01. Pipe ~~shall~~ must be manufactured of materials resistant internally and externally to corrosion and

not imparting tastes, odors, color, or any contaminant into the ~~system~~ PWS. Where distribution systems are installed in areas of ground-water contaminated by organic compounds: ~~(3-24-22)~~( )

a. Pipe and joint materials which do not allow permeation of the organic compounds ~~shall~~ must be used; and ~~(3-24-22)~~( )

b. Non-permeable materials ~~shall~~ must be used for all portions of the ~~system~~ PWS including pipe, joint materials, hydrant leads, and service connections. ~~(3-24-22)~~( )

06. Size of Water Mains. When fire hydrants are provided, they ~~shall~~ may not be connected to water mains smaller than six (6) inches in diameter, and fire hydrants ~~shall~~ may not be installed unless fire flow volumes are available. If fire flow is not provided, water mains ~~shall~~ will be no less than three (3) inches in diameter. Any departure from ~~this~~ these minimum standards ~~shall~~ must be supported by hydraulic analysis and detailed projections of water use. ~~(3-24-22~~( )

07. Separation of Potable, Non-Potable, and Raw Water Pipelines. The requirements for the protection of potable ~~mains~~ pipelines from contamination by non-potable pipelines are described in Subsections 542.07.a. through 542.07.~~c~~d. For the purposes of Subsection 542.07, the term "pipeline" applies to both mains and services. The Department will use the Memorandum of Understanding with the Plumbing Bureau as guidance in determining the relative responsibilities for reviewing service lines. The conditions of Subsections 542.07.a. ~~and~~ through 542.07.~~b~~d. ~~shall~~ apply to all potable services constructed or reconstructed after April 15, 2007 and where the Department or the QLPE is the reviewing authority. Raw water pipelines must be protected from contamination from non-potable pipelines, and must not contaminate potable pipelines. They ~~shall therefore~~ must meet equivalent separation distances shown below from either potable or non-potable pipelines. ~~(3-24-22)~~( )

a. Alternative separation distances may be considered for Subsections 542.07.b through 542.07.c. on a case-by-case basis when considering constructability, public health risk, environmental risk, and cost. The design engineer must submit data to the Department for review and approval showing that the proposed installation will be protective of public health and the environment. ( )

~~a~~**b.** Parallel installation requirements. ( )

i. Potable mains in relation to non-potable mains. ( )

(1) Greater than ten (10) feet separation: no additional requirements. ( )

(2) Ten (10) feet to six (6) feet separation: separate trenches, with the bottom of the potable main above the top of the non-potable main, and non-potable main constructed with potable water class pipe. ( )

~~(3) Less than six (6) feet separation: design engineer to submit data to the Department for review and approval showing that this installation will protect public health and the environment, non-potable main to be constructed of potable water class pipe, and with the bottom of the potable main above the top of the non-potable main.~~ ~~(3-24-22)~~

(~~4~~3) Non-potable mains are prohibited from being located in the same trench as potable mains. ( )

~~(5) Pressure wastewater mains or other pressurized mains or lines containing non-potable fluids shall be no closer horizontally than ten (10) feet from potable mains.~~ ~~(3-24-22)~~

ii. ~~New p~~Potable services in relation to non-potable ~~services, new potable services in relation to non-potable mains,~~ pipelines and ~~new~~ non-potable services in relation to potable ~~mains~~ pipelines. ~~(3-24-22)~~( )

(1) Greater than six (6) feet separation: no additional requirements ~~based on separation distance~~. ~~(3-24-22)~~( )

~~(2) Less than six (6) feet separation: design engineer to submit data that this installation will protect public health and the environment and non-potable service constructed with potable water class pipe.~~ ~~(3-24-22)~~

(~~3~~2) ~~New p~~Potable services are prohibited from being located in the same trench as non-potable ~~mains or non-potable services~~ pipelines. ~~(3-24-22)~~( )

~~b~~**c.** Requirements for potable water ~~mains or services~~ pipelines crossing non-potable ~~water mains or services~~ pipelines. Crossings must be perpendicular, unless otherwise approved by the Department. ~~(3-24-22)~~( )

i. If there is eighteen (18) inches or more vertical separation with the potable water pipeline above the non-potable pipeline, then the potable pipeline joints must be as far as possible from the non-potable water pipeline. ( )

ii. If there is eighteen (18) inches or more vertical separation with the potable water pipeline below the non-potable pipeline, then the potable pipeline joints must be as far as possible from the non-potable pipeline, and the non-potable pipeline must be supported through the crossing to prevent settling. ( )

iii. Less than eighteen (18) inches vertical separation: ( )

(1) Potable pipeline joint ~~to~~ must be as far as possible from the non-potable pipeline; and either: ~~(3-24-22)~~( )

(a) Non-potable pipeline must be constructed with potable water class pipe for a minimum of ten (10) feet either side of potable pipeline with a single twenty (20) foot section of potable water class pipe centered on the crossing; or ~~(3-24-22)~~( )

(b) ~~Sleeve~~The non-potable or potable pipeline must be sleeved with potable water class pipe for ten (10) feet either side of crossing. Use of hydraulic cementitious materials such as concrete, controlled density fill, and concrete slurry encasement is not allowed as a substitute for sleeving. ~~(3-24-22)~~( )

(2) If potable pipeline is below non-potable pipeline, the non-potable pipeline must also be supported through the crossing to prevent settling. ( )

~~iv. Pressure wastewater mains or other pressurized mains or lines containing non-potable fluids shall be no closer vertically than eighteen (18) inches from potable mains.~~ ~~(3-24-22)~~

~~c. Existing potable services in relation to new non-potable mains, existing non-potable services in relation to new potable mains, and existing potable services in relation to new non-potable services shall meet the requirements of Subsection 542.07.b., where practical, based on cost, construction factors, and public health significance. If the Department determines that there are significant health concerns with these services, such as where a large existing service serves an apartment building or a shopping center, then the design shall conform with Subsection 542.07.b.~~ ~~(3-24-22)~~

c. Non-potable pressure pipelines must not be: ( )

i. Closer horizontally than ten (10) feet from potable mains. ( )

ii. Closer vertically than eighteen (18) inches from potable pipelines. ( )

08. Separation from Subsurface Wastewater Systems and Other Sources of Contamination. A minimum horizontal distance of twenty-five (25) feet ~~shall~~ must be maintained between any potable water pipe and a septic tank or subsurface wastewater disposal system. Guidance on separation from other potential sources of contamination, such as stormwater facilities, may be found on the ~~DEQ~~ Department website http://www.deq.idaho.gov. ~~(3-24-22)~~( )

09. Dead End Mains. All dead end water mains ~~shall~~ must be equipped with a means of flushing ~~and shall be flushed at least semiannually~~ at a water velocity of two and one-half (2.5) feet per second. ~~(3-24-22)~~( )

a. Dead ends ~~shall~~ must be minimized by ~~making appropriate tie-ins~~ looping whenever practical in

order to provide increased reliability of service and reduce head loss. ~~(3-24-22)~~( )

b. Flushing ~~shall~~ must be ~~performed~~ designed in such a way as to minimize any erosion of unprotected areas and, if applicable, ~~shall~~ be coordinated with the owner of the receiving system. No water main flushing device ~~shall~~ may be directly connected to any sewer. ~~(3-24-22)~~( )

c. Stub outs for future main connections ~~shall~~ must meet all requirements for dead end mains listed in Subsection 542.09 as determined by the Department. Flushing devices may be temporary in nature. ~~(3-24-22)~~( )

10. Repair of Leaks. Leaking water mains ~~shall~~ must be repaired or replaced upon discovery and disinfected in accordance with American Water Works Association (AWWA) Standards, incorporated by reference into these rules at Subsection 002.01. ~~(3-24-22)~~( )

11. Separation from Structures. Water mains ~~shall~~ must be separated by at least five (5) feet from buildings, industrial facilities, and other permanent structures. ~~(3-24-22)~~( )

12. ~~Meter Vault~~ Shut-Off Valve Required. All new ~~public water systems shall~~ PWSs, and *portions of existing* systems undergoing material modification *of distribution or transmission lines*, must include a*n accessible and lockable shut-off valve ~~meter vault~~* at each service connection *in the section of distribution or transmission line that is being constructed or modified within the project*. *~~A lockable s~~Shut*-off valve*s ~~shall~~ may* be installed in *~~the~~ a* meter vault. ~~This requirement shall also apply to extensions of the distribution system of existing public water systems.~~ ~~(3-24-22)~~( )

13. Minimum Pressure at Building Sites. Any ~~public water system~~ PWS constructed or undergoing material modification where topographical relief may affect water pressure at the customers' premises ~~shall~~ must provide the Department with an analysis which demonstrates that the pressure at each designated building site will be at least forty (40) psi, based on dynamic pressure in the main, as set forth in Subsections 552.01.b.i. and 552.01.b.v., plus a static compensation from the elevation of the main to the elevation of each building site. ~~(3-24-22)~~( )

a. If forty (40) psi cannot be provided at each designated building site, the Department may require that reasonable effort be made to provide notification to existing and potential customers of the expected pressure. ( )

b. The Department will not authorize a service connection at any designated building site where analysis indicates that pressure will be less than twenty (20) psi ~~static~~ dynamic pressure (or twenty-six point five (26.5) psi for two (2) story buildings). ~~(3-24-22)~~( )

14. Isolation Valves. A sufficient number of valves ~~shall~~ must be provided on water mains to minimize inconvenience and sanitary hazards during repairs. ~~(3-24-22)~~( )

15. Air Valves. At high points in water mains where air can accumulate, provisions ~~shall~~ must be made to remove the air by means of air release and vacuum relief valves or combination air release/vacuum relief valves. Air release valves, vacuum relief valves, or combination air release/vacuum relief valves may not be required if vacuum relief and air release functions in the pipeline can be adequately handled by approved appurtenances such as fire hydrants. ~~(3-24-22)~~( )

a. The open end of an air valve ~~shall~~ must be extended to at least one (1) foot above grade and provided with a twenty-four (24) mesh or similar non-corrodible screened, downward-facing elbow. When the air vent on an air relief valve cannot be practically installed above ground, the vent may be below grade provided ~~that the valve is manually operated and~~ the air vent is extended to the top of the valve vault and provided with a twenty-four (24) mesh or similar non-corrodible screened, downward-facing elbow. In addition, for below ground vents, the valve vault must be rated for appropriate traffic loading in traffic areas and the vault drained to daylight or provided with adequate drainage to prevent flooding of the vault. ~~(3-24-22)~~( )

b. Discharge piping from air valves or combination air release/vacuum relief valves ~~shall~~ may not connect directly to any storm drain, storm sewer, or sanitary sewer. ~~(3-24-22)~~( )

16. Backflow Protection. Automatic air relief valves ~~shall~~ must be equipped with a means of backflow protection. ~~(3-24-22)~~( )

17. Surface Water Crossings. For the purposes of Subsection 542.17, surface water is defined as all surface accumulations of water, natural or artificial, public or private, or parts thereof which are wholly or partially within, which flow through or border upon the state. This includes, but is not limited to, rivers, streams, canals, ditches, lakes, and ponds. Surface water crossings, whether over or under water, ~~shall~~ must be constructed as follows: ~~(3-24-22)~~( )

a. ~~Above water crossings: the pipe shall~~Pipe used in above water crossings must be adequately supported and anchored, protected from damage and freezing, and ~~shall~~ be accessible for repair or replacement. ~~(3-24-22)~~( )

b. ~~Under water crossings: A~~Pipe used in under water crossings must have a minimum cover of two (2) feet ~~shall be provided over the pipe~~. When crossing a water course that is greater than fifteen (15) feet in width, the following ~~shall~~ must be provided: ~~(3-24-22)~~( )

i. The pipe ~~shall~~ will be of special construction, having flexible, restrained, or welded water-tight joints; and ~~(3-24-22)~~( )

ii. Valves ~~shall~~ are to be provided at both ends of water crossings so that the section can be isolated for testing or repair; the valves ~~shall~~ will be easily accessible and not subject to flooding; and ~~(3-24-22)~~( )

iii. Permanent taps or other provisions to allow insertion of a small meter to determine leakage and obtain water samples ~~shall~~ will be made on each side of the valve closest to the supply source. ~~(3-24-22)~~( )

543. ~~FACILITY AND DESIGN STANDARDS:~~ CROSS CONNECTION CONTROL.
There ~~shall~~ must be no connection between the distribution system and any pipes, pumps, hydrants, water loading stations, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into a PWS.~~public water system. The water purveyor is responsible through its cross connection control program to take reasonable and prudent measures to protect the water system against contamination and pollution from cross connections through premises isolation or containment, internal or in plant isolation, fixture protection, or some combination of premises isolation, internal isolation, and fixture protection.~~ Community PWS owners must meet the cross connection control program requirements in Subsection 552.06. ~~(3-24-22)~~( )

01. Testable Assemblies. All double check valve backflow prevention assemblies, reduced pressure principle backflow prevention assemblies, spill resistant vacuum breakers, and pressure vacuum breakers used must pass a performance test conducted by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research (USC Foundation) and be included on the USC Foundation "List of Approved Assemblies~~."~~ *for the application and orientation for which they are installed.* ~~(3-24-22)~~( )

02. Atmospheric Vacuum Breakers. All atmospheric vacuum breakers used ~~shall~~ must be marked approved either by the International Association of Plumbing and Mechanical Officials (IAPMO) or by the American Society of Sanitation Engineers (ASSE). ~~(3-24-22)~~( )

03. Replacement Parts and Components. All replacement parts and components, including resilient seated shutoff valves, ~~shall~~ must meet original manufacturer's specifications or otherwise be approved by the USC Foundation as replacement parts or components for use on double check valve backflow prevention assemblies, reduced pressure principle backflow prevention assemblies, pressure vacuum breakers, and spill resistant pressure vacuum breakers. The design, material, or operational characteristics of any assembly must not be altered during maintenance or repair. ~~(3-24-22)~~( )

04. Assembly Selection. Appropriate and adequate backflow prevention assembly types for various facilities, fixtures, equipment, and uses of water ~~should~~ must be selected from the ~~AWWA Pacific Northwest Section Cross-Connection Control Manual, the Uniform Plumbing Code, the~~ AWWA Recommended Practice for Backflow Prevention and Cross Connection Control (M14), the USC Foundation Manual of Cross Connection Control, or other sources deemed acceptable by the Department. The selected assembly manufacturer model number must be included

on the USC Foundation "List of Approved Assemblies" and must comply with local ordinances. ~~(3-24-22)~~( )

(BREAK IN CONTINUITY OF SECTIONS)

552. OPERATING CRITERIA FOR PUBLIC WATER SYSTEMS.

01. Quantity and Pressure Requirements. Design requirements regarding pressure analysis are found in Section 542.13. (3-24-22)

a. ~~Minimum Capacity.~~ The minimum capacity of a ~~public drinking water system shall~~ PWS must be at least eight hundred (800) gallons per day per residence. ~~(3-24-22)~~( )

i. The minimum capacity of eight hundred (800) gallons per day ~~shall be~~ is the design maximum day demand rate exclusive of irrigation and fire flow requirements. ~~(3-24-22)~~( )

ii. The minimum capacity of eight hundred (800) gallons per day is only acceptable if the ~~public drinking water system~~ PWS has equalization storage of finished water in sufficient quantity to compensate for the difference between a ~~water system's~~ PWS's maximum pumping capacity and peak hour demand. ~~(3-24-22)~~( )

iii. The design capacity of a ~~public drinking water system~~ PWS for material modifications may be less than eight hundred (800) gallons per day ~~per residence~~ if the ~~water system~~ PWS owner provides information that demonstrates to the Department's satisfaction the maximum day demand for the ~~system~~ PWS, exclusive of irrigation and fire flows, is less than eight hundred (800) gallons per day per residence. ~~(3-24-22)~~( )

b. ~~Pressure.~~ All ~~public water systems shall~~ PWS owners must meet the following pressure requirements: ~~(3-24-22)~~( )

i. ~~Any public water system shall b~~Be capable of providing sufficient water during maximum day demand conditions, including fire flow where provided, to maintain a minimum pressure of twenty (20) psi throughout the distribution system, at ground level, as measured at the service connection or along the property line adjacent to the consumer's premises. ~~(3-24-22)~~( )

~~ii. Public Notification.~~ ~~(3-24-22)~~

~~(1) During unplanned or emergency situations, when water pressure within the system is known to have fallen below twenty (20) psi, the water supplier must notify the Department, provide public notice to the affected customers within twenty-four (24) hours, and disinfect or flush the system as appropriate. When sampling and corrective procedures have been conducted and after determination by the Department that the water is safe, the water supplier may re-notify the affected customers that the water is safe for consumption. The water supplier shall notify the affected customers if the water is not safe for consumption.~~ ~~(3-24-22)~~

~~(2) During planned maintenance or repair situations, when water pressure within the system is expected to fall below twenty (20) psi, the water supplier must provide public notice to the affected customers prior to the planned maintenance or repair activity and shall ensure that the water is safe for consumption.~~ ~~(3-24-22)~~

ii~~i~~. If an initial investigation by the water supplier fails to discover the causes of inadequate or excessive pressure, the Department may require the water supplier to conduct a local pressure monitoring study to diagnose and correct pressure problems. Compliance with these requirements by ~~water systems~~ PWSs that do not have a meter vault or other point of access at the service connection or along the property line adjacent to the consumer's premises where pressure in the distribution system can be reliably measured ~~shall~~ must be determined by measurements within the consumer's premises, or at another representative location acceptable to the Department. ~~(3-24-22)~~( )

~~iv~~iii. Copies of pressure monitoring study reports required under Subsection 552.01.b.iii. detailing study results and any resulting corrective actions planned or performed by the ~~public water system shall~~ PWS owner must

be submitted to the Department in accordance with these rules. ~~(3-24-22)~~( )

iv. The following ~~public water systems~~ PWSs or service areas of ~~public water systems shall~~ PWSs must maintain a minimum pressure of forty (40) psi throughout the distribution system, during peak hour demand conditions, excluding fire flow, measured at the service connection or along the property line adjacent to the consumer's premises. ~~(3-24-22)~~( )

(1) Any ~~public water system~~ PWS constructed or substantially modified after July 1, 1985. ~~(3-24-22)~~( )

(2) Any new service areas. ( )

(3) Any ~~public water system~~ PWS that is undergoing material modification where it is feasible to meet the pressure requirements as part of the material modification. ~~(3-24-22)~~( )

v~~i~~. Any ~~public water system shall~~ *newly constructed* PWS*s, or portions of existing systems that are materially modified after July 1, 2024,* must keep static pressure within the distribution system below ~~one hundred~~ eighty (~~100~~80) psi ~~and should ordinarily keep static pressure below eighty (80) psi~~. Pressures above ~~one hundred~~ eighty (~~100~~80) psi ~~shall~~ must be controlled by pressure reducing valve stations installed in the distribution main. In areas where failure of installed pressure reducing valve stations ~~would~~ result in extremely high pressure, pressure relief valves may be required. The Department may approve the use of pressure reducing devices at individual service connections on a case-~~-~~by-~~-~~case basis, if it can be demonstrated that higher pressures in portions of the distribution system are required for efficient ~~system~~ PWS operation. If ~~system~~ PWS modification will cause pressure to routinely exceed eighty (80) psi, or if a check valve or an individual pressure reducing device is added to the service line, the ~~water system~~ PWS owner ~~shall~~ must notify affected customers. Notification may include reasons for the elevated pressure, problems or damage that elevated pressure can inflict on appliances or plumbing systems, and suggested procedures or mitigation efforts affected property owners may initiate to minimize problems or damage. ~~(3-24-22)~~( )

vi~~i~~. The Department may allow the installation of booster pump systems at individual service connections on a case-~~-~~by-~~-~~case basis. However, such an installation may only occur with the full knowledge and agreement of the ~~public water system~~ PWS owner, including assurance by the ~~water system~~ PWS that the individual booster pump will cause no adverse effects on ~~system~~ PWS operation. ~~(3-24-22)~~( )

vii~~i~~. For elevated storage tanks, pressure calculations during peak hour demand ~~shall be~~ are based on the lowest water level after both operational storage and equalization storage have been exhausted. Pressure calculations during fire flow demands ~~shall be~~ are based on the lowest water level after operational storage, equalization storage, and fire suppression storage have been exhausted. ~~(3-24-22)~~( )

~~ix~~viii. For hydropneumatic tanks, pressure calculations ~~shall be~~ are based on the lowest pressure of the pressure cycle and this requirement ~~shall~~ must be noted in the operation and maintenance manual. ~~(3-24-22)~~( )

c. ~~Fire Flows.~~ Any ~~public water system~~ PWS designed to provide fire flows ~~shall~~ must ensure that such flows are compatible with the water demand of existing and planned fire-fighting equipment and fire fighting practices in the area served by the ~~system~~ PWS. ~~(3-24-22)~~( )

d. Irrigation Flows. ( )

i. Any ~~public water system~~ PWS constructed after November 1, 1977, ~~shall~~ must be capable of providing water for uncontrolled, simultaneous foreseeable irrigation demand, which ~~shall~~ includes all acreage that the ~~system~~ PWS is designed to irrigate. ~~(3-24-22)~~( )

(1) The Department must concur with assumptions regarding the acreage to be irrigated. In general, an assumption that no outside watering will occur is considered unsound and is unlikely to be approved. ( )

(2) An assumption of minimal outside watering, as in recreational subdivisions, may be acceptable if design flows are adequate for maintenance of "green zones" for protection against wildland fire. ( )

ii. The Department may modify the requirement of Subsection 552.01.d.i. ~~may be modified by the Department~~ if: ~~(3-24-22)~~( )

(1) A separate irrigation system is provided; or ( )

(2) The supplier of water can regulate the rate of irrigation through its police powers, and the ~~water system~~ PWS is designed to accommodate a regulated rate of irrigation flow. The Department may require the ~~water system~~ PWS to submit a legal opinion addressing the enforceability of such police powers. ~~(3-24-22)~~( )

iii. If a separate non-potable irrigation system is provided for the consumers, all mains, hydrants and appurtenances ~~shall~~ must be easily identified as non-potable. The Department must concur with a plan to ensure that each new potable water service is not cross-connected with the irrigation system. ~~(3-24-22)~~( )

02. Ground-Water. ~~(3-24-22)~~( )

a. ~~Public water systems constructed after July 1, 1985, and~~PWSs supplied by ground-water, ~~shall~~ must treat water within the ~~system~~ PWS by disinfection if the ground-water source is not protected from contamination. ~~(3-24-22)~~( )

b. The Department may~~, in its discretion,~~ require disinfection for any existing ~~public water system~~ PWS supplied by ground-water if the ~~system~~ PWS has repeated ~~coliform present samples or~~ E.coli MCL exceedances, and if the ~~system~~ PWS does not appear adequately protected from contamination. Adequate protection will be determined based upon at least the following factors: ~~(3-24-22)~~( )

i. Location of possible sources of contamination; ( )

ii. Size of the well lot; ( )

iii. Depth of the source of water; ( )

iv. Bacteriological quality of the aquifer; ( )

v. Geological characteristics of the area; and ( )

vi. Adequacy of development of the source. ( )

03. Operating Criteria. The operating criteria for ~~systems~~ PWSs that provide filtration ~~shall be~~ are as follows: ~~(3-24-22)~~( )

a. A project specific operation and maintenance manual ~~shall~~ must be provided as required in Subsection 501.12. See definition of Operation and Maintenance Manual in Section 003 for the typical contents of an operation and maintenance manual and the included operations plan. For the operations plan in the operation and maintenance manual, additional guidance for several types of filtration systems can be found in the Department's SWTR Compliance Guidance referenced in Subsection 002.02. ~~(3-24-22)~~( )

b. The ~~system shall~~ PWS must conduct monitoring specified by the Department before serving water to the public in order to protect the health of consumers served by the ~~system~~ PWS. ~~(3-24-22)~~( )

c. New treatment facilities ~~shall~~ must be operated in accordance with Subsection 552.03.a., and the ~~system shall~~ PWS must conduct monitoring specified by the Department for a trial period specified by the Department before serving water to the public in order to protect the health of consumers served by the ~~system~~ PWS. ~~(3-24-22)~~( )

04. ~~Chlorination~~Disinfection. ~~Systems~~PWSs that regularly ~~add chlorine to~~ disinfect their water using chlorine are subject to the provisions of Section 320. ~~Systems~~PWSs using surface water or ground-water under the direct influence of surface water, are subject to the disinfection requirements of Sections 300 and 518. PWSs using

chlorine, ozone, chlorine dioxide, or other disinfecting agents for the purposes of disinfection must meet the facility and design standards of Sections 530 and 531. PWSs using ultraviolet light for the purposes of disinfection must meet the facility and design standards of Section 529. (3-24-22)( )

a. SystemsPWSs using only ground water that add chlorine a disinfectant for the purpose of disinfection, as defined in Section 003, are subject to the following requirements: (3-24-22)( )

i. Chlorinator and chlorine contact tank capacity shall be such that the system is able toThe PWS must demonstrate that it is routinely achieving four (4) logs (ninety-nine point ninety-nine percent) (99.99%)) inactivation/removal of viruses. The required effective contact time will be specified must be approved by the Department. This condition must be attainable even when the plant design capacity coincides with anticipated maximum chlorine disinfectant demands. (3-24-22)( )

ii. A detectable chlorine disinfectant residual shall must be maintained throughout the distribution system. PWSs disinfecting through ultraviolet light will need to maintain a supplemental disinfectant capable of maintaining a detectable disinfectant residual. (3-24-22)( )

iii. Automatic proportioning chlorinators are required where the rate of flow or chlorine demand is not reasonably constant. (3-24-22)

iviii. Analysis for free chlorine disinfectant residual shall must be conducted at a location at or prior to the first service connection at least daily and records of these analyses shall are to be kept by the supplier of water for at least one (1) year. A report of all daily chlorine residual measurements for each calendar month shall must be submitted to the Department no later than the tenth day of the following month. The frequency of measuring free chlorine disinfectant residuals shall must be sufficient to detect variations in chlorine demand or changes in water flow. (3-24-22)( )

v. If gas chlorination equipment is provided, a separate and ventilated room is required. (3-24-22)

viiv. The Department may, in its discretion, require a treatment rate higher than that specified in Subsection 552.04.a.i. ( )

vii. When chlorine gas is used, chlorine leak detection devices and safety equipment shall be provided and equipped with both an audible alarm and a warning light. (3-24-22)

viii. The Department may require redundant chlorine pumping capabilities with automatic switchover for systems with documented source water contamination problems and that lack adequate storage to supply the system during a pump failure. (3-24-22)

b. SystemsPWSs using only ground water that add chlorine disinfectant for the purpose of maintaining a disinfectant residual in the distribution system, when the source(s) is not at risk of microbial contamination, are subject to the following requirements: (3-24-22)( )

i. Automatic proportioning chlorinators are required where the rate of flow or chlorine demand is not reasonably constant. (3-24-22)

ii. A analysis for free chlorine disinfectant residual shall be made at a frequency that is sufficient to detect variations in chlorine demand or changes in water flow. (3-24-22)( )

c. SystemsPWSs using only ground water that add chlorine for other purposes, such as oxidation of metals or taste and odor control, when the source(s) is known to be free of microbial contamination, must ensure that chlorine residual entering the distribution system after treatment is less than four (4.0) mg/L. The requirements in Subsection 552.04.b.ii. also apply if the system PWS maintains a chlorine residual in the distribution system. (3-24-22)( )

05. Fluoridation. ( )

a. Commercial sodium fluoride, sodium silico fluoride and hydrofluosilicic acid which conform to the applicable American Water Works Association (AWWA) Standards, incorporated by reference into these rules at Subsection 002.01, are acceptable. Use of other chemicals ~~shall~~ must be specifically approved by the Department. ~~(3-24-22)~~( )

b. Fluoride compounds ~~shall~~ are to be stored in covered or unopened shipping containers. ~~(3-24-22)~~( )

c. Provisions ~~shall~~ must be made to minimize the quantity of fluoride dust. Empty bags, drums, or barrels ~~shall~~ are to be disposed of in a manner that will minimize exposure to fluoride dusts. ~~(3-24-22)~~( )

d. Daily records of flow and amounts of fluoride added ~~shall~~ must be kept. An analysis for fluoride in finished water ~~shall~~ must be made at least weekly. Records of these analyses ~~shall~~ are to be kept by the supplier of water for five (5) years. ~~(3-24-22~~( )

06. Cross Connection Control Program - Community Water Systems. The water purveyor is responsible through its cross connection control program to take reasonable and prudent measures to protect the ~~water system~~ PWS against contamination and pollution from cross connections through premises isolation, internal or in-plant isolation, fixture protection, or some combination of premises isolation, internal isolation, and fixture protection. Pursuant to Section 543, all suppliers of water for community ~~water systems shall~~ PWSs must implement a cross connection control program to prevent the entrance to the ~~system~~ PWS of materials known to be toxic or hazardous. The water purveyor is responsible to enforce the ~~system's~~ PWS's cross connection control program. The program will at a minimum include: ~~(3-24-22)~~( )

a. An inspection program to locate cross connections and determine required suitable protection. For new connections, PWS owners must *verify* suitable protection ~~must be~~ *was* installed prior to providing water service. ~~*(3-24-22)*~~( )

b. Required installation and operation of adequate backflow prevention assemblies. Appropriate and adequate backflow prevention assembly types for various facilities, fixtures, equipment, and uses of water ~~should~~ must be selected from the ~~AWWA Pacific Northwest Section Cross Connection Control Manual, the~~ Uniform Plumbing Code, the AWWA Recommended Practice for Backflow Prevention and Cross Connection Control (M14), the USC Foundation Manual of Cross Connection Control, or other sources deemed acceptable by the Department. The assemblies must meet the requirements of Section 543 and comply with local ordinances. ~~(3-24-22)~~( )

c. Annual inspections and testing of all installed backflow prevention assemblies by a tester licensed by a licensing authority recognized by the Department. Testing ~~shall~~ must be done in accordance with the test procedures published by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research. See the USC Foundation Manual of Cross-Connection Control referenced in Subsection 002.02. ~~(3-24-22)~~( )

d. Discontinuance of service to any structure, facility, or premises where suitable backflow protection has not been provided for a cross connection. ( )

e. Assemblies that cannot pass annual tests or those found to be defective ~~shall~~ are to be repaired, replaced, or isolated within ten (10) business days. If the failed assembly cannot be repaired, replaced, or isolated within ten (10) business days, water service to the failed assembly ~~shall~~ must be discontinued. ~~(3-24-22)~~( )

07. Cross Connection Control - Non-Community Water Systems. All suppliers of water for non-community water systems ~~shall~~ must ensure that cross connections do not exist or are isolated from the potable water system by an approved backflow prevention assembly. Backflow prevention assemblies ~~shall~~ must be inspected and tested annually for functionality by an Idaho licensed tester, as specified in Subsections 552.06.c. and 552.06.e. ~~(3-24-22)~~( )

08. Start-up Procedures For Seasonal Systems Subject To Subsections 100.01.a., c., and d. ( )

a. All seasonal ~~system~~ PWS owners ~~and operators~~ must demonstrate completion of a Department approved start-up procedure, including start-up sampling, prior to serving water to the public. The ~~system~~ PWS owner ~~or operator~~ must submit information on a Department provided or approved form that includes a statement certifying that the ~~system~~ PWS owner or operator followed proper start-up procedures. The form ~~shall~~ must be submitted to the Department within 30 (thirty) days following the ~~system's~~ PWS's start-up date. Start-up sampling must include total coliform samples submitted to a certified laboratory demonstrating the absence of total coliform within thirty (30) days prior to serving water to the public. ~~(3-24-22)~~( )

b. The Department may exempt any seasonal ~~system~~ PWS from Subsection 552.08.a. if the entire distribution system remains pressurized during the entire period that the ~~system~~ PWS is not operating, except that the ~~systems~~ PWSs that monitor less frequently than monthly must still monitor during the vulnerable period designated by the Department. The Department may exempt a seasonal ~~system~~ PWS from Subsection 552.08.a. if the owner or operator of the ~~system~~ PWS meets all of the following conditions: ~~(3-24-22)~~( )

i. Requests an exemption in writing to the Department for approval; ( )

ii. Demonstrates a clean compliance history as defined in Section 003 for a minimum of five (5) years; ( )

iii. Has no uncorrected significant deficiencies from the most recent sanitary survey; and ( )

iv. Total coliform samples submitted to a certified laboratory within 30 (thirty) days prior to serving water to the public demonstrate the absence of total coliform. ( )