Drinking Water Board Packet

August 25, 2026

Agenda

State of Utah
SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Tim Davis
Commissioner

DIVISION OF DRINKING WATER
Nathan Lunstad, Ph.D., P.E.
Director

Drinking Water Board
Justin Maughan, Chair
Blake Tullis, Ph.D., Vice-Chair
Corinna Harris
Shazelle Terry
Phil Bondurant, Dr.PH, LEHS
Jason Luettinger, P.E
Hollie McKinney
Tim Davis
Nathan Lunstad, Ph.D.
Executive Secretary

DRINKING WATER BOARD MEETING

August 25, 2026 1:00 - 4:00pm
Via Zoom Webinar & In Person:
Multi-Agency State Office Building
195 North 1950 West Rm 1015
Salt Lake City, UT 84116

Nathan Lunstad Cell # 385-239-5974

AGENDA - FINAL

1. Call to Order

2. Roll Call – **Nathan Lunstad**

3. Approval of Meeting Minutes
   June 30, 2026

4. Disclosure for Conflict of Interest

5. Directors' Report – **Nathan Lunstad**
   A. Enforcement Report (Board Packet Item Only)

6. Rural Water Association Report – **Shannon Rasmussen**

7. Rule Changes
   A. **R309-400** Water System Rating Criteria (Improvement Priority System, IPS) and **R309-520** Facility Design and Operation: Disinfection - **Colt Smith followed by Rebecca Yoo**
   B. Adoption of **R309-210-1 through R309-210-6**, Distribution System Monitoring Requirements, **R309-110-4** Definitions, and **R309-200-5** Drinking Water Standards. - **Sarah Romero**

8. Financial Assistance Committee Report
   A. Status Report and Cash Flow – **Chris Ledding**
   B. Project Priority List – **Ken Hoffman**
   C. SRF Applications

i. Federal
ii. State
   a. Helper City - Scope of Work Addition - **Allyson Spevak**
   b. Beaver City - Emergency funding - **Heather Pattee**
iii. ARPA
   a. Authorization for any remaining funding - **Ken Hoffman**

9. Water Cybersecurity Grant Program Approval - **Nathan Lunstad and DTS Staff**

10. Public Comment Period

11. Drinking Water Board Training - **Marisa Heiling**
    A. Open and Public Meetings Act

12. Open Board Discussion

13. Other

14. Next Board Meeting

Date:	November 3, 2026
Time:	1:00 - 4:00pm MST
Place:	Multi-Agency State Office Building 195 North 1950 West Rm 1015 Salt Lake City, UT 84116

15. Adjourn

Agenda Item
3

State of Utah
SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Tim Davis
Commissioner

DIVISION OF DRINKING WATER
Nathan Lunstad, Ph.D., P.E.
Director

Drinking Water Board
Justin Maughan, Chair
Blake Tullis, Ph.D., Vice-Chair
Corinna Harris
Shazelle Terry
Phil Bondurant, Dr.PH, LEHS
Jason Luettinger, P.E
Bryan Cox
Hollie McKinney
Tim Davis
Nathan Lunstad, Ph.D.
Executive Secretary

DRINKING WATER BOARD MEETING
June 30, 2026 1:00pm - 4:00pm
Via Zoom Webinar & In Person:
Multi-Agency State Office Building
195 North 1950 West Rm 1015
Salt Lake City, UT 84116

Nathan Lunstad Cell # 385-239-5974

MINUTES - DRAFT

1. Call to Order

Justin Maughan, called the Drinking Water Board (Board, DWB) meeting to order at 1:02PM.

2. Roll Call – Nathan Lunstad

Board Members present at Roll Call: Justin Maughan, Corinna Harris, Shazelle Terry, Jason Luettinger, Tim Davis, Blake Tullis, and Hollie McKinney.

Division of Drinking Water (DDW, Division) Staff Present: Steph Alpizar, Chris Ledding, Jessica Fitzgerald, Kcris Hunter, Michelle Deras, Ken Hoffman, Allyson Spevak, Russell Seeley, Kjori Shelley, Helen Lau, Colt Smith, Sarah Romero, Sarah Page, Michael Newberry, Rebecca Springer, Cameron Draney, Brian Pattee, Heather Pattee, Mark Berger, John Steffan, and Andrea Thurlow.

Other Attendees: Dale Pierson, Shannon Rasmussen, Marisa Heiling, Mike Farrar, Kristy Jackson, Michelle Kinney, Jarry Postema, and Riley Vane.

3. Approval of Meeting Minutes
April 28, 2026

- After confirming necessary edits were made, Shazelle Terry moved to approve the Drinking Water Board meeting minutes on April 28, 2026. Corinna Harris seconded. The motion was carried unanimously by the Board.

4. Disclosure for Conflict of Interest

There were no conflicts of interest

5. Directors Report – Nathan Lunstad

A. Enforcement Report (Board Packet Item Only)

The Enforcement Report can be found in the Drinking Water Board Packet

Nathan Lunstad briefed the Board on several Division updates.

Board Member Bryan Cox Stepping Down
Lunstad informed the Board and meeting attendees that Mayor Cox needs to resign from the Board due to personal reasons. There will be a vacancy for an elected municipal official and Lunstad encouraged all to spread the word to those who qualify. Any questions or requests for information on how to apply can be directed to Steph Alpizar, the Board Administrator. salpizar@utah.gov

Recent Visit to Cape Town, Africa
Lunstad reflected on Cape Town's Day Zero experience and how it mirrors the current environmental climate in the American West. He expressed his appreciation for the hard work of all those in Utah in positions to support the continuing success of providing safe drinking water to the state's residents. This included Federal and State representatives, public water systems staff, the Drinking Water Board, and many more. Lunstad acknowledged that while he was out of town, the state of Utah experienced extreme wildfires, a snowstorm, and additional drought challenges that all significantly impacted the water systems across the state.

6. Rural Water Association Report – Dale Pierson and Janelle Braithwaite

Shannon Rasmussen provided her first report as the new Executive Director. She noted Dale Pierson's continued involvement in legislative advocacy and reported on his improving health. The Rural Water Association of Utah (RWAU) and the Division have renewed their contract for technical assistance. Staff members Janelle Braithwaite and Jake Wood provided updates on support provided to Moroni City and Hatch Town. RWAU is also piloting a "Math Lab" at the upcoming fall conference to assist operators with certification exam preparation. The Board was reminded of the fall conference in August in Layton.

7. Rule Changes

A. R309-225 Consumer Confidence Reports and R309-220 Public Notification Requirements - Colt Smith

Colt Smith presented proposed amendments for federal primacy alignment (PFAS, lead service line inventory, etc.).

- Jason Luettinger motioned that the Board authorize proposed amendments to the Consumer Confidence Reports and Public Notification Requirements rules. Shazelle Terry seconded. The motion was carried unanimously by the Board.

B. R309-400 Water System Rating Criteria (Improvement Priority System) - Colt Smith

Colt Smith presented the repeal and reenactment of the Improvement Priority Systems (IPS) Rule.

Board Discussion
Justin Maughan asked if more information could be provided regarding the changes to this rule and have the Board reconsider it at the next Board Meeting in August. Smith confirmed he would provide more information for the Board to review.

- Justin Maughan motioned that the Board reconsider the Water System Rating Criteria (Improvement Priority System) rule changes at the Board Meeting scheduled for August 25, 2026. Hollie McKinney seconded. The motion was carried unanimously by the Board.

C. Adoption of R309-540 updated rule - Russell Seeley

Russell Seeley presented amendments regarding non-community system pumps and home booster pumps.

- Shazelle Terry moved to adopt the amendment to R309-540, effective July 1, 2026. Jason Luettinger seconded. The motion was carried unanimously by the Board.

8. Financial Assistance Committee Report

A. Status Report and Cash Flow – Chris Ledding

Chris Ledding, DDW Financial Manager, provided an overview of the Status Report and Cash Flow included in the packet. This report covers various financial aspects such as Federal State Revolving Fund (SRF), American Rescue Plan Act (ARPA), Authorized Projects, Lead Service Line, Emerging Contaminants, and State Revolving Fund (SRF).

Chris highlighted the current SRF funds remaining is about $15.3 million. This amount includes current awards plus expected future funding. This amount includes what is being requested in the current Intended Use Plan (IUP).

The ARPA Funds remaining that need to be obligated is down to $0. The current unspent balance is now only $5,030.02.

Board Discussion
Corinna Harris asked about open projects that have not been closed out yet. Ledding advised that Ken Hoffman and his team would be best to answer. Hoffman stated that his team is working on closing those projects and have a plan in place to mitigate projects that remain open for long periods of time without resolution in the future.

B. Project Priority List – Ken Hoffman

Ken Hoffman reported there are no new projects being added to the Project Priority list.

C. SRF Applications

i. Federal

a. Apple Valley - Allyson Spevak

Representing Apple Valley was Mike Farrar, Kristy Jackson, and Michelle Kinney.

Allyson Spevak presented Apple Valley's financial assistance request. Project details can be found in the Drinking Water Board Packet.

Board Discussion

Mayor Mike Farrar presented an update on the emergency water project, reporting that the town successfully resolved radium and water quality issues for 134 users. He requested additional funding to address a $118,000 budget overrun, explaining that the excess costs were due to the lack of locked-in pricing necessitated by the project's emergency nature. Mayor Farrar noted the town's ongoing financial challenges, including high debt and low-income status.

Jason Luettinger inquired regarding the specific cause of the budget variance, asking whether the overages resulted from owner-requested additions or unforeseen site conditions. Mayor Farrar clarified that the overage represented a small percentage of the total costs. They explained that due to the emergency nature of the radium contamination, securing locked-in pricing was not feasible. The representative noted that contractors and suppliers attempted to minimize costs where possible, and that the Washington County Water Conservancy District managed the project funding. They confirmed that all expenditures were reviewed and approved, acknowledging the challenges inherent in managing a project of this magnitude.

- Corinna Harris moved that the Board authorize an ARPA grant of $118,000 to the Town of Apple Valley. Shazelle Terry seconded. The motion passed unanimously.

ii. State

a. Hilldale City: Additional funds - Allyson Spevak

Representing Hilldale City was Jeremy Postema and Ryan Vane.

Jerry Postama, Utility Director for Hilldale, requested an increase in financial assistance for the booster pump station project, noting that construction bids were higher than projected and that a spring collection box was required to resolve associated IPS points. Hilldale City has secured a $52,500 grant from Garkane Power and is contributing $100,000 to the project.

Allyson Spevak presented Hilldale City's financial assistance request. Project details can be found in the Drinking Water Board Packet.

Board Discussion

Corinna Harris asked for clarification on whether the amount included the funds collected in the Spring collection box. Allyson Spevak confirmed that it does. Jason Luettinger asked for

clarification that this amount covers the full project plus the costs required to correct the deficiencies. Allyson Spevak confirmed that it does.

- Jason Luettinger moved that the Board authorize the Drinking Water Board to deauthorize a construction loan of $550,000 at 1.73% interest for 30 years, and a construction grant of $237,500; and the Drinking Water Board authorize a construction loan of $988,000 at 0.5% interest for 39 years, and a construction grant of $423,000 to Hilldale City. Conditions include that they resolve all points on their IPS report. Hollie McKinney seconded. The motion was carried unanimously by the Board.

b. Junction Town: Deauthorization - Kjori Shelley

Kjori Shelley presented Junction Towns' financial assistance request. Project details can be found in the Drinking Water Board Packet.

Junction Town secured alternative funding from the county and no longer requires financial assistance for the project.

- Hollie McKinney moved that the Board deauthorized a construction loan of $480,000 at 1% interest for 30 years, and an ARPA grant of $120,000 to Junction Town. Corinna Harris seconded. The motion was carried unanimously by the Board.

c. State Hardship Grant funds: Town of Apple Valley Drought Conditions Request - Allyson Spevak

Board Member Justin Maughan expressed concern regarding Apple Valley's recent history of receiving high grant-to-loan ratios, stating that he was not in favor of providing additional grants at this time. Mr. Maughan proposed that the Board offer a loan, noting that this would provide assistance while ensuring an equitable distribution of funds. He proposed that the Board offer a $400,000 loan at 0% interest for 30 years. He suggested that if the town required further support, they should pursue the standard application process in September to be ranked competitively against other projects.

Justin Maughan asked if a loan authorized by the Board would accelerate the timeline, but Mr. Hoffman clarified that if utilized as a match, the funding would be subject to the same federal constraints and would not be available any sooner.

Mayor Mike Farrar provided an update on the emergency water situation in Apple Valley, reporting that the town's primary wells were compromised after a neighboring agricultural property deepened an existing well, causing aquifer levels to drop and effectively drying up the town's water source. Mayor Farrar explained that the town declared a state of emergency and contracted drillers to blast and rehabilitate the existing wells, successfully stabilizing the system at a cost of approximately $150,000. While the town is currently stabilized, the Mayor expressed concern that the situation remains precarious, pending negotiations with the property owner to prevent the activation of irrigation pivots that threaten the aquifer. Mayor Farrar noted the town is seeking financial assistance to cover these emergency costs and is also attempting to secure a $400,000 match requirement for a separate, EPA-funded long-term infrastructure project.

Jason Luettinger and Corinna Harris inquired about follow-up meetings with the Division of Emergency Management (DEM), and Mayor Farrar indicated that while they were in communication, the potential assistance was currently being treated as a "gray area" regarding their funding scope. Mayor Farrar has not yet met with the DEM to confirm their ability to provide these funds.

Corinna Harris asked about the specific mechanisms of the requested $400,000 match funding, inquiring if the funding could be structured as a grant. Ken Hoffman clarified that the town's emergency needs and the Environmental Protection Agency (EPA) match requirement are distinct funding requests with different timelines and constraints. Hoffman explained that federal SRF funds, if used as a match, are subject to federal encumbrances—including environmental reviews, "Build America, Buy America" (BABA) requirements, and 30-day public bidding periods—which would likely delay the availability of such funds for 90 to 120 days.

Regarding the town's immediate vulnerability, Mayor Farrar outlined a contingency plan that included attempting to coordinate irrigation schedules with the farmer to nighttime hours, issuing violation notices regarding the property's zoning status, and relying on limited, lower-quality water reserves as a temporary supplement.

Shazelle Terry asked for clarification regarding the nature of the emergency work, specifically whether the town had rehabilitated existing wells or drilled new ones. She expressed concern regarding the root cause of the crisis, questioning the impact of the town's water rights disputes with local agricultural operators and whether the proposed future drilling would truly solve the issue. She suggested that the Board consider tabling the request until the town could better determine the scope of the permanent fix. Mayor Farrar explained that the crisis was triggered when a neighboring farmer deepened an agricultural well, causing the town's primary wells to fail. He clarified that the town is consulting with engineers and exploring a potential new water source in a separate, adjacent aquifer, as the United States Geological Survey (USGS) has advised against further development in the current, fragile aquifer.

Jason Luettinger observed that because the immediate emergency stabilization work was complete, the standard application process through the Division of Drinking Water would be the most appropriate path for the $400,000 match funding. Mayor Farrar stated that pursuing further debt was a last resort, noting that the town was already struggling with $4.5 million in legacy debt and that the lack of water remained the primary barrier to town growth and revenue generation.

Jason Luettinger asked if there were any mechanisms for the Board to expedite funding for an emergency of this nature. Ken Hoffman explained that the fastest available mechanism would be the "State Hardship Grant Fund." He described this as a flexible financial tool—derived from interest and hardship fees on state loans—that is not subject to the federal encumbrances associated with SRF funds. Mr. Hoffman noted that the Board has approximately $5 to $6 million available in this account, and agreements could be executed rapidly compared to federal processes. He clarified that these funds can be awarded as grants or advances, provided they are not used for prohibited operations and maintenance (O&M) expenses.

- Justin Maughan moved to authorize a $200,000 loan through the State Drinking Water Revolving Fund at 0% interest for 30 years, stipulating that the funds be used only for emergency work already performed and not for operations and maintenance. Hollie McKinney seconded the motion. The motion was carried unanimously by the Board.

Following the motion, Mayor Hollie McKinney advised Mayor Farrar to contact the Utah Inland Port Authority, noting that the Authority has been beneficial to her own municipality in managing growth-related infrastructure costs. Mayor Farrar thanked the Board for their consideration and assistance.

9. Public Comment Period

None.

10. Emerging Contaminants Program Presentation - Ken Hoffman and Sarah Romero

Sarah Romero presented on the Emerging Contaminants program, specifically addressing PFAS (per- and polyfluoroalkyl substances) , perchlorate, and manganese. She discussed the two funding pots available Emerging Contaminants State Revolving Fund and Emerging Contaminants in Small or Disadvantaged Communities Grant (ECSRF and ECSDC) and the ongoing technical assistance provided by contractors.

11. Open Board Discussion

12. Other

13. Next Board Meeting

Date: August 25, 2026
Time: 1:00pm - 4:00pm MST
Place: Multi-Agency State Office Building
195 North 1950 West Rm 1015
Salt Lake City, UT 84116

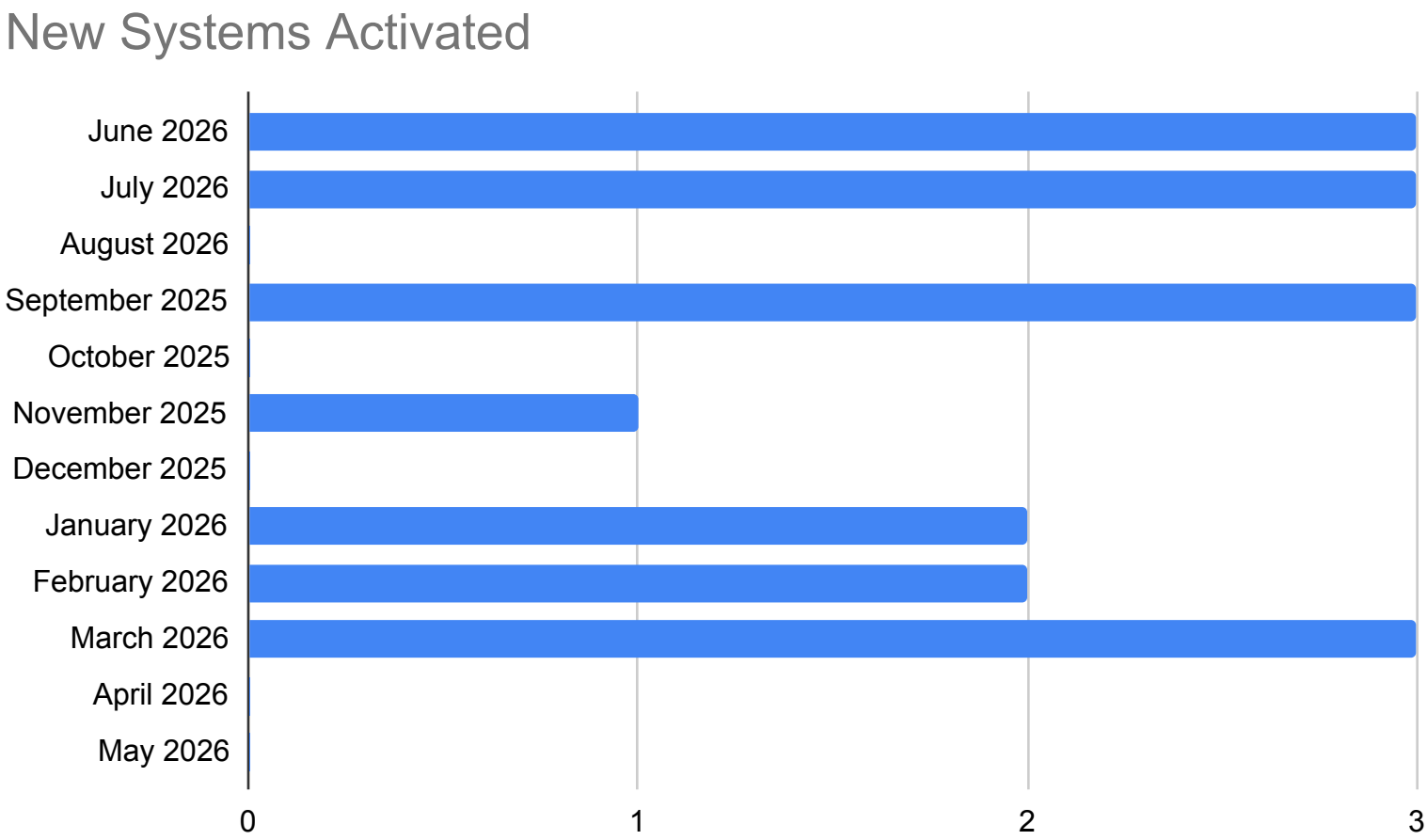
14. Adjourn

- Hollie McKinney moved to adjourn the meeting. Corinna Harris seconded. The motion was carried unanimously by the Board.

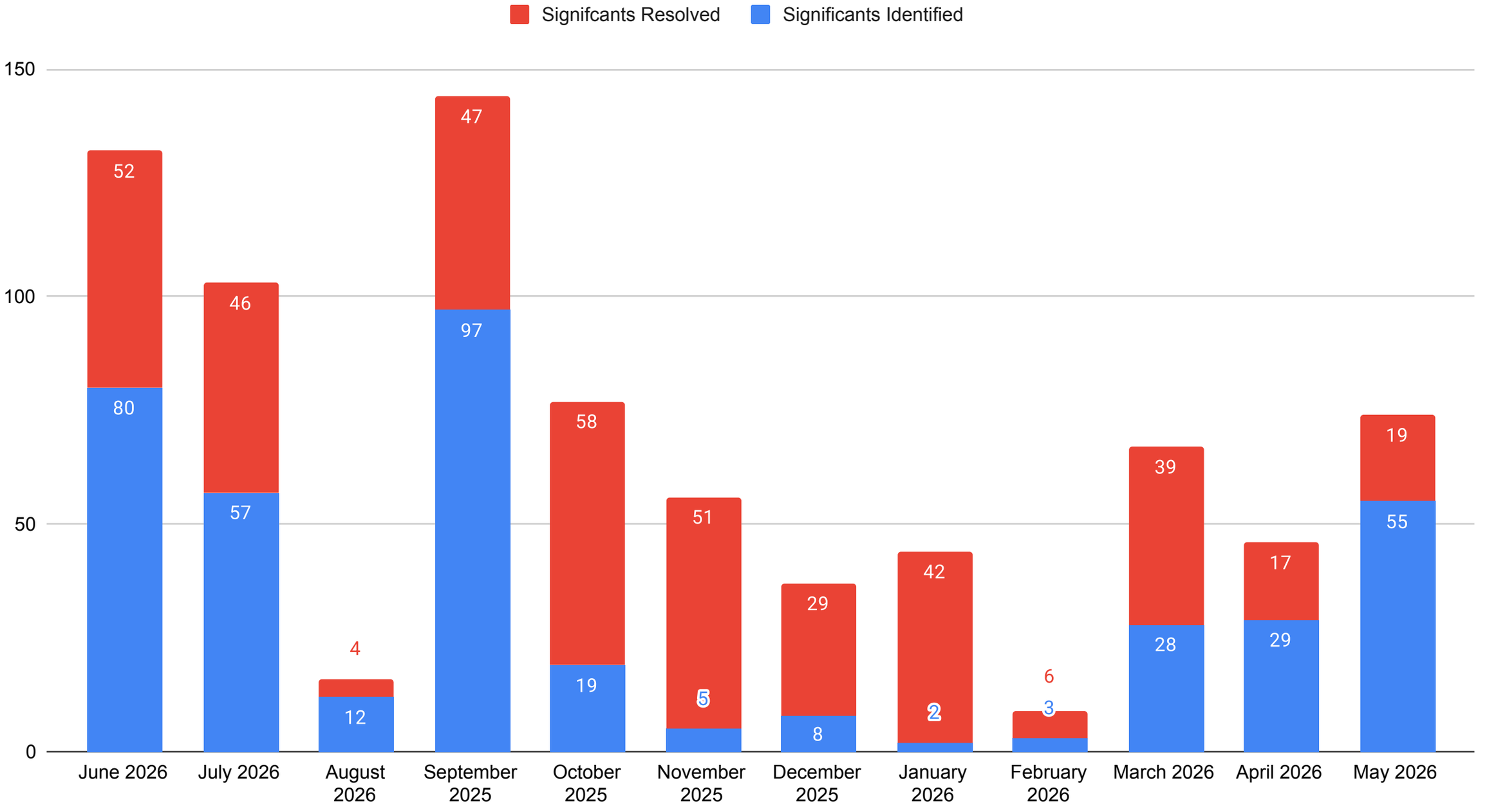
The Meeting adjourned at 3:11 pm MST.

Agenda Item
5

Board Report As of August 10, 2026						
PWS ID	**PWS Name**	**PWS Type**	**Pop Served**	**IPS Pts**	**Rating**	**Rating Date**
Corrective Action Systems						
UTAH25190	CANYON CREEK EVENTS	Transient Non-Community	203	0	Corrective Action	9/30/2025
UTAH10012	DAY STAR ADVENTIST ACADEMY	Community	35	300	Corrective Action	4/24/2025
UTAH14051	DESERET - OASIS SSD	Community	490	105	Corrective Action	1/3/2024
UTAH22072	ECHO STATE PARK	Transient Non-Community	250	60	Corrective Action	1/13/2020
UTAH22004	FRANCIS TOWN WATER SYSTEM	Community	1700	50	Corrective Action	3/7/2025
UTAH29053	GREEN HILLS COUNTRY ESTATES	Community	237	530	Corrective Action	1/2/2024
UTAH11070	IRONTOWN	Community	75	250	Corrective Action	7/10/2026
UTAH18055	MT HAVEN OWNERS ASSOCIATION	Transient Non-Community	85	25	Corrective Action	4/12/2023
UTAH26043	OAK HAVEN WATER COMPANY	Community	388	80	Corrective Action	5/8/2025
UTAH22080	PINES RANCH	Transient Non-Community	100	75	Corrective Action	4/11/2024
Not Approved Systems						
UTAH25190	CANYON CREEK EVENTS	Transient Non-Community	203	0	Corrective Action	9/30/2025
UTAH10012	DAY STAR ADVENTIST ACADEMY	Community	35	300	Corrective Action	4/24/2025
UTAH14051	DESERET - OASIS SSD	Community	490	105	Corrective Action	1/3/2024
UTAH22072	ECHO STATE PARK	Transient Non-Community	250	60	Corrective Action	1/13/2020
UTAH22004	FRANCIS TOWN WATER SYSTEM	Community	1700	50	Corrective Action	3/7/2025
UTAH29053	GREEN HILLS COUNTRY ESTATES	Community	237	530	Corrective Action	1/2/2024
UTAH11070	IRONTOWN	Community	75	250	Corrective Action	7/10/2026
UTAH18055	MT HAVEN OWNERS ASSOCIATION	Transient Non-Community	85	25	Corrective Action	4/12/2023
UTAH26043	OAK HAVEN WATER COMPANY	Community	388	80	Corrective Action	5/8/2025
UTAH22080	PINES RANCH	Transient Non-Community	100	75	Corrective Action	4/11/2024


New Systems Activated
June 2026
July 2026
August 2026
September 2025
October 2025
November 2025
December 2025
January 2026
February 2026
March 2026
April 2026
May 2026
0
1
2
3

Significants Identified and Signifcants Resolved



Agenda Item
6

RURAL WATER ASSOCIATION OF UTAH

July 2026 wildfires & emergency response

Beaver City + Junction + Elk Meadows, Utah



Field response, technical assistance and coordination to reduce damage and restore dependable water service.

BEAVER, UTAH

July 20–21 | Disinfection, flushing and verification







- Documented damage at the spring collection area
- Assisted with repairs to the Spring transmission line into town
- Dosed Tanks
- Flushed ash and debris from water mains
- Assisted with sampling

BEAVER, UTAH

July 20–21 | Disinfection, flushing and verification







Repairing the water main that was torn out of place by debris:

- Fused together HDPE Pipe
- Replaced the fittings
- Reset the pipe on Cradles
- Disinfected and put back online in one day

JUNCTION, UTAH

July 27–28 | Damage assessment and system recovery

Documented damage at the spring collection area and supported immediate repairs, sampling and recovery work.







RESPONSE:

- Cleaned and disinfected storage tanks
- Flushed the Town's distribution system while monitoring chlorine residual
- Assisted with Bacteriological sampling to help lift boil order
- Assessed damage to spring area.

Goal: remove ash and debris, verify water quality and restore dependable service.

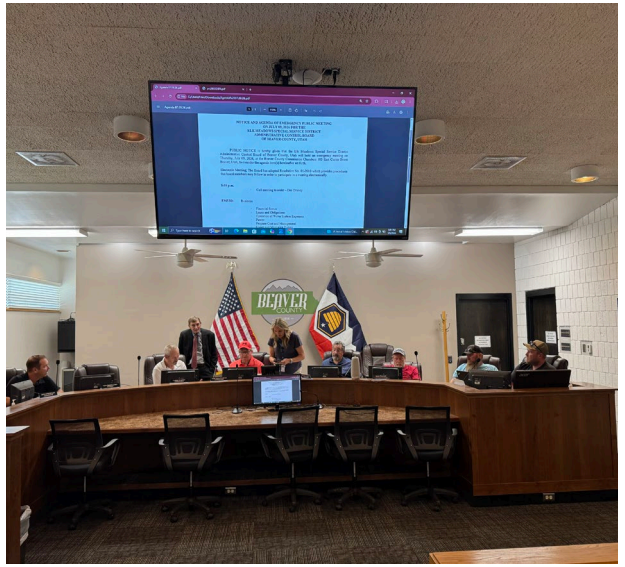
ELK MEADOWS SSD

July 9 | Emergency meeting and system assessment

Brandon contacted Rural Water about emergency-repair funding after Cottonwood Fire damage.







SYSTEM CONCERNS:

- **Burned cabins**
- **Known system damage**
- **Backpressure**
- **Ash & debris infiltration**
- **Emergency Funding**

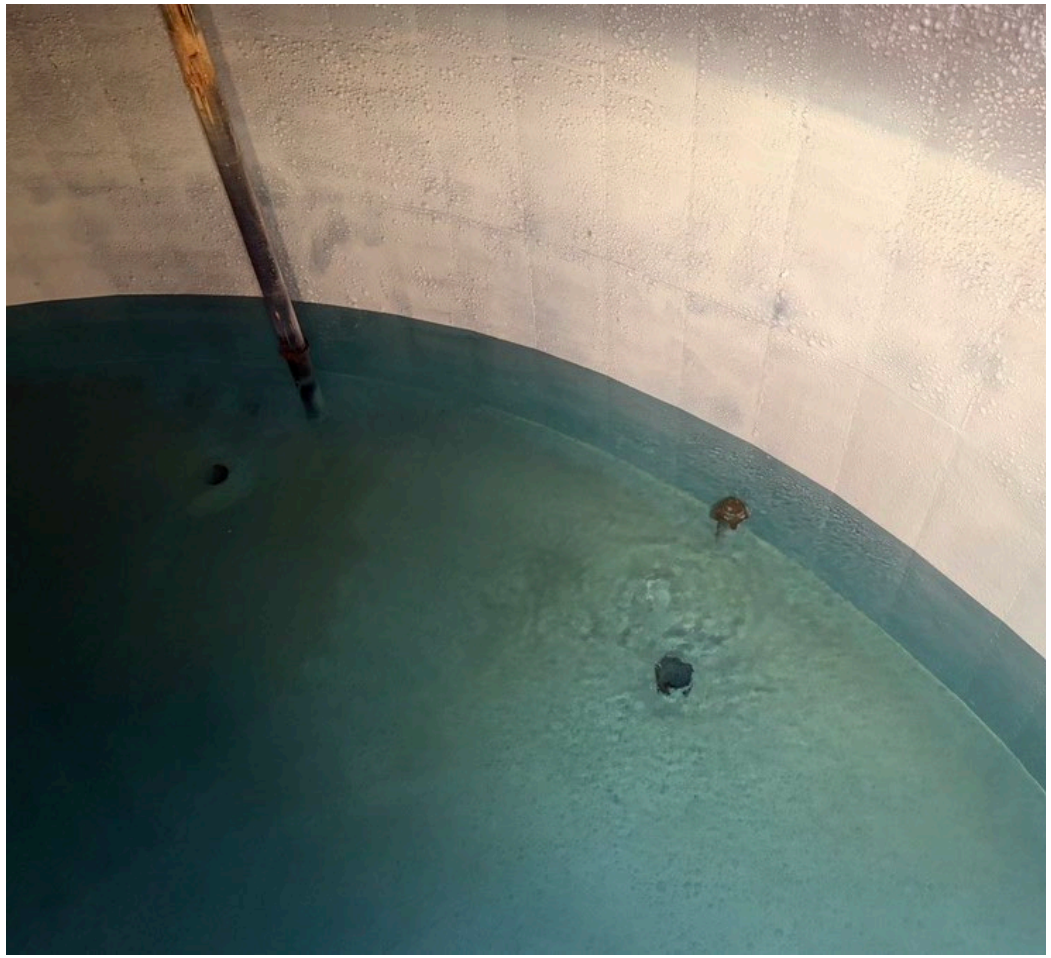
- Janell Braithwaite attended the Elk Meadows SSD emergency public meeting on July 9.
- James Leavitt from Congresswoman Celeste Maloy's staff also attended.
- Updates covered burned cabins, known damage, backpressure, and ash and debris infiltration.
- Janell followed up with **DDW Infrastructure Manager Ken Hoffman** regarding the system's situation and funding needs.

JULY 2026 RESPONSE

Response accelerated recovery across three communities

Document.
Repair.
Coordinate.
Verify.

Field work and coordination helped mitigate damage, shorten boil orders and reduce time without water in Beaver, Junction and Elk Meadows.



Agenda Item
7(A)

R309. Environmental Quality, Drinking Water.
R309-520. Facility Design and Operation: Disinfection.
[~~R309-520-1. Purpose.~~
~~This rule specifies requirements for facilities that disinfect public drinking water. It is to be applied in conjunction with rules R309-500 through R309-550, Drinking Water Facility Construction, Design, and Operation. Collectively, these Rules govern the design, construction, and operation and maintenance of public drinking water system facilities. These Rules are intended to assure that such facilities are reliably capable of supplying adequate quantities of water that consistently meet applicable drinking water quality requirements and do no harm to general public health.~~

~~R309-520-2. Authority.~~
~~This rule is promulgated by the Drinking Water Board as authorized by Title 19, Environmental Quality Code, Chapter 4, Safe Drinking Water Act, Subsection 104(1)(a)(ii) of the Utah Code and in accordance with Title 63G, Chapter 3 of the same, known as the Administrative Rulemaking Act.~~

~~R309-520-3. Definitions.~~
~~Definitions for certain terms used in this rule are given in R309-110 but may be further clarified herein.~~

~~R309-520-4. Primary Disinfectants.~~
~~Primary disinfection is the means to provide adequate levels of inactivation of pathogenic microorganisms within the treatment process. The effectiveness of chemical disinfectants is measured as CT, a function of disinfectant residual and contact time. The effectiveness of UV disinfection is determined through validation testing of each model and specific configuration of UV reactor proposed in the design, as described in R309-520-8.~~
~~Four disinfectants: chlorine, ozone, ultraviolet light, and chlorine dioxide are approved as primary disinfectants of drinking water.~~

~~R309-520-5. Secondary Disinfectants.~~
~~Secondary disinfection provides an adequate disinfectant residual in the distribution system to maintain the quality of treated water by controlling microbiological contamination.~~
~~Secondary chemical disinfection is achieved by maintaining a detectable disinfectant residual throughout the distribution system. Allowable secondary disinfectants are chlorine and chloramine.~~

~~R309-520-6. General.~~
~~(1) Continuous Disinfection.~~
~~(a) Continuous disinfection is required of all ground water sources that do not otherwise continuously meet microbiological standards. Intermittent or batch disinfection, such as adding hypochlorite tablets or concentrated hypochlorite solution to a tank, is not acceptable for ongoing operation if continuous disinfection is required.~~
~~(b) Disinfection is not an acceptable remedy to physical deficiencies or sources susceptible to surface water influence. Disinfection shall not be used to mask ongoing contamination and shall not be used as a substitute for correcting deficiencies.~~
~~(c) Where continuous disinfection is required, the design shall provide a means to isolate or service the disinfection equipment without allowing untreated water to enter the distribution system. If the untreated water is to be discharged, it shall not cause environmental or property damage.~~
~~(2) ANSI/NSF Standard 60 Certification.~~
~~All chemicals added to drinking water, including chlorine (i.e., gas, hypochlorite solution, hypochlorite tablets, granules, and powder), chloramines, and chemicals used to generate hypochlorite solutions and chlorine dioxide, shall be certified as complying with ANSI/NSF Standard 60, Drinking Water Treatment Chemicals.~~
~~(3) Required Disinfection.~~
~~(a) Surface water, or groundwater under the direct influence of surface water, shall be filtered by conventional surface water treatment or alternative surface water treatment methods and disinfected to meet the requirements of R309-200-7.~~
~~(b) Where microbiological treatment is required for a ground water source that is not under the influence of surface water, disinfection without filtration may be considered adequate.~~
~~(4) Point of Application and CT.~~
~~A combination of disinfectant residual and contact time is defined as disinfection CT in R309-110-4. The following requirements apply to disinfectant point of application and CT:~~

(a) Consideration shall be given to the contact time of the disinfectant in water with relation to pH, ammonia, taste-producing substances, temperature, biological quality, and other pertinent factors.

(b) Where possible, the design shall minimize the formation of disinfection byproducts.

(c) Treatment of ground water sources shall provide sufficient CT to achieve a minimum of 4-log virus inactivation and/or removal.

(d) Point of application of disinfectants shall be at a location that will achieve the required disinfection CT prior to the first service connection.

(5) Site Selection.

Disinfection installations shall be sited to permit convenient access during the operation period. These installations shall be sited with due consideration of possible danger to nearby population and of possible jeopardy from seismic fault zones.

R309-520-7. Chlorine.

(1) General Requirements for all Chlorination Installations.

(a) Chemical Types.

Disinfection by chlorination shall be accomplished by gaseous chlorine or hypochlorite solutions. Hypochlorite solutions can be purchased, generated on site, or prepared by dissolving solids.

(b) Feed Equipment.

Solution-feed gas type chlorinators, direct-feed gas type chlorinators or hypochlorite liquid feeders of a positive displacement type shall be provided. Solution-feed gas type chlorinators are preferred. Use caution when selecting direct-feed gas type chlorinators.

(c) Chlorine Feed Capacity.

(i) The capacity of the chlorine feed equipment shall be sized to provide at least 2 mg/L during peak demand.

(ii) The feed equipment shall operate accurately over the design feeding range.

(iii) The feed equipment shall be designed to maintain a detectable residual at all times, at all points within the intended area in the distribution system.

(d) Automatic Proportioning.

Automatic proportioning chlorinators shall be required where the rate of flow of the water to be treated or chlorine demand of the water to be treated is not reasonably constant.

(e) Injector, Eductor, or Diffuser.

(i) Chlorine shall be added at a point that allows rapid and thorough mixing. The center of a pipeline is the preferred application point.

(ii) The selection of equipment shall consider the point of application, the quantity of chlorine to be added, the size and flow of the chlorine solution line, the back pressure of the to-be-treated water flow, and the equipment operating pressure.

(iii) A suitable strainer to prevent small debris from clogging chlorine feed equipment shall be provided. Provision for flushing the strainer is required.

(f) Point of Application for Surface Water.

The design of plants treating surface water or ground water under the direct influence of surface water shall make provisions to add chlorine at various process points as needed.

(g) Minimization of Chlorinated Overflow.

The design shall minimize the release of chlorinated water into the environment, for example, the discharge of chlorinated water from tank overflows. Such releases must comply with rules of Division of Water Quality that pertain to discharge of pollution.

(h) Prevention of Cross Connections.

(i) The design shall prevent contamination of the treated water supply by make-up water of lesser quality.

(ii) All chlorine solution make-up water shall be at least of equal quality to the water receiving the chlorine solution. At surface water treatment facilities, pre-chlorination and post-chlorination processes shall be independent to prevent cross connections where pre-chlorination make-up water is not finished water.

(i) Flow Measurement.

The design of the chlorination system shall provide a means to measure the flow rate of treated water as a basis for dosing.

(j) Residual Testing Equipment.

The water system shall have chlorine residual test equipment capable of measuring residuals to the nearest 0.1 mg/L in the range below 0.5 mg/L, to the nearest 0.3 mg/L between 0.5 mg/L and 1.0 mg/L and to the nearest 0.5 mg/L above 1.0 mg/L.

(k) Standby and Backup Equipment.

(i) A spare parts kit shall be provided and maintained for all chlorinators to repair parts subject to wear and breakage. If there could be a large difference in feed rates between routine and emergency dosages, multiple gas metering tubes shall be provided, at least one for each dose range, to assure accurate control of the chlorine feed under both routine and emergency conditions.

(ii) Where chlorination is required for disinfection of a water supply, standby equipment of sufficient capacity shall be available to replace the largest unit in the event of its failure.

(iii) Standby power shall be available, during power outages, for operation of chlorinators where disinfection of the water supply is required unless operation of the chlorinator does not require power.

(l) Heating, Lighting, Ventilation.

Chlorinator buildings shall be heated, lighted and ventilated as necessary to assure proper operation of the equipment and safety of the operators.

(m) Incompatible Chemicals.

The design shall ensure that incompatible chemicals that may damage or deteriorate chlorination facilities are stored separately from chlorination equipment and chemicals.

(2) Additional Requirements for Gas Chlorinators.

(a) Automatic Switch over.

Automatic Switch over of chlorine cylinders shall be provided if continuous disinfection is required.

(b) Gas Scrubbers.

One-ton chlorine cylinder operating areas shall be equipped with a gas scrubber per the International Fire Code capable of treating the release of chlorine gas from the largest single cylinder at its maximum flow rate. Furthermore, local toxic gas ordinances shall be complied with if they exist.

(c) Heat.

The design of the chlorination room shall assure that the temperature in the room will not fall below 32 degrees F or the temperature required for proper operation of the chlorinator, whichever is greater.

(d) Ventilation.

(i) Chlorination equipment rooms which contain chlorine cylinders, tanks, equipment and gaseous chlorine lines under pressure shall have at least one exhaust fan.

(ii) Chlorine room exhaust fan(s), when operating, shall provide at least one complete room air change per minute.

(iii) Chlorine room exhaust fan(s) shall take suction inside the chlorine room near the floor, as far as practical from the door and air inlet, and discharge air outside of the building away from air inlets.

(iv) Chlorine room air inlets shall be through wall louvers near the ceiling.

(v) Separate switches for the chlorine room fans and lights shall be located near the entrance to the room and shall be protected from vandalism. The switches shall be located outside the chlorine room if housed in a water treatment plant.

(vi) The ventilation system for one-ton chlorine cylinder operating areas shall be designed to operate independently from the ventilation system for the rest of the treatment plant. One-ton chlorine cylinder operating areas shall be designed to maintain negative pressure per the International Fire Code.

(e) Chlorine Vent Line.

The chlorine vent line shall discharge outside, above grade, at a point least susceptible to vandalism, and shall have the end covered with a No. 14 mesh non-corrodible screen.

(f) Housing.

(i) Housing shall be provided for chlorination equipment and storage to ensure proper function and security.

(ii) Chlorine cylinders shall not be stored in direct sunlight or exposed to excessive heat.

(g) Housing at Water Treatment Plants.

A separate chlorine room, for chlorine cylinders and feed equipment, shall be provided at all water treatment plants with multiple processes and operating areas.

(i) The chlorine room shall have shatter resistant inspection window(s) installed in an interior wall preferably located so that an operator may read the weighing scales without entering the chlorine room.

(ii) All openings between the chlorine room and the remainder of the plant shall be sealed.

(iii) Outward-opening doors shall be equipped with panic bars to allow rapid exit.

(iv) Floor drains are discouraged but, where provided, shall discharge to the outside of the building and shall not be connected to other internal or external drain systems.

(v) Chlorine feed lines shall not carry pressurized chlorine gas beyond the chlorine room. Only vacuum lines may be routed to other portions of the building outside the chlorine room. Any openings for these lines must be adequately sealed.

(vi) The design of operating areas for one-ton cylinders shall allow full and empty cylinders to be stored in separate areas.

(h) Cylinder Security.

Chlorine cylinders shall be restrained in position to prevent upset.

(i) Weighing Scales.

Scales shall be provided for determining chlorine cylinder weight. Scales should be of a corrosion resistant material and should be placed in a location remote from any moisture. Scales shall be accurate enough to indicate loss of weight to the nearest one pound for 150 pound cylinders and to the nearest 10 pounds for one ton cylinders.

(j) Pressure Gauges.

Pressure gauges shall be provided on the inlet and outlet of each chlorine eductor.

(k) Gas Masks.

(i) Where chlorine gas in one-ton cylinders is handled, respiratory protection equipment, meeting the requirements of the National Institute for Occupational Safety and Health (NIOSH) shall be available and shall be stored at a convenient location, but not inside any room where chlorine is used or stored. The units shall use compressed air, have at least a 30 minute capacity, and be compatible with units used by the fire department responsible for the plant.

(ii) Where 150 pound chlorine cylinders are used, a respirator recommended by the National Institute for Occupational Safety and Health must be available.

(l) Chlorine Leak Detection and Repair.

(i) A bottle of Ammonium Hydroxide, 56% ammonia solution, shall be available for chlorine leak detection.

(ii) Where one-ton cylinders are used, a leak repair kit approved by the Chlorine Institute shall be provided.

(iii) Continuous chlorine leak detection equipment is required for one-ton cylinders.

(iv) Where a continuous leak detector is provided, it shall be equipped with both an audible alarm and a warning light to ensure operator safety.

(3) Additional Requirements for Hypochlorite Systems.

(a) General Requirements.

(i) Emergency Eyewash and Safety Showers.

Emergency eyewash stations and safety showers shall be provided at all hypochlorite installations where concentrated hypochlorite solutions, containing 5% or greater available chlorine by volume, are handled in containers greater than 55 gallons. Where hypochlorite solutions are used at remote locations or in quantities of 55 gallons or less on site, safety showers are not required and alternative emergency eyewash may be provided.

(ii) Storage of Liquid Hypochlorite to Prevent Decay.

Storage and injection areas shall be designed to minimize the decay in strength of concentrated hypochlorite solutions from excessive heat or direct sunlight.

(iii) Feed Equipment - Chemical Addition.

Hypochlorite feed equipment shall generally conform with R309-525-11, Chemical Addition.

(iv) Feed Equipment - Certification.

The hypochlorite feed equipment for drinking water treatment shall be certified to meet ANSI/NSF Standard 61.

(b) Concentrated Hypochlorite Solutions.

The water system shall provide an operational means to avoid the injection of significantly decayed hypochlorite solutions, for example by keeping records on site of the delivery date of the hypochlorite solution.

(c) On-Site Generation of Hypochlorite Solutions.

(i) The on-site hypochlorite generation systems used for drinking water treatment shall be certified as meeting the NSF/ANSI Standard 61.

(ii) Manufacturer recommendations for safety with respect to equipment and electrical power shall be followed.

(iii) The make-up water used in on-site generation shall be of drinking water quality.

(iv) The hydrogen gas generated in the electrolytic cell of the on-site generation system shall be vented upward to the outside of the building in a dedicated, unobstructed line.

(d) Hypochlorite Tablets.

(i) Before selecting a hypochlorite tablet disinfection process, water hardness, solubility of hypochlorite tablets, water temperature, and other water quality factors shall be taken into consideration.

(ii) The hypochlorite dissolution equipment for drinking water treatment shall be certified as meeting the ANSI/NSF Standard 61.

(iii) The design shall allow the hypochlorite tablets to be stored in accordance with the manufacturer's safety guidelines and in their original containers in a cool, dry, well-ventilated area. The hypochlorite tablets shall not be stored near combustible materials or acids to avoid fire or the release of toxic gases.

R309-520-8. Ultraviolet Light.

(1) General Requirements.

This rule shall apply to the public drinking water systems that use ultraviolet (UV) disinfection for inactivation of Cryptosporidium, Giardia, and virus. The Director may reduce the requirements of monitoring and reporting on a case by case basis for the water systems that use UV as ancillary means of disinfection and do not claim credit for UV disinfection or for water systems using UV without a SCADA system and treating less than 30 gallons per minute.

Terminology used in this rule is based on the definitions in the EPA Ultraviolet Disinfection Guidance Manual for the Final Long Term 2 Enhanced Surface Water Treatment Rule (2006 Final UVDGM).

(a) Water systems using surface water or ground water under the influence of surface water shall not use UV as the sole means of disinfection. For these types of water systems, at least one alternative primary disinfectant must be used for virus disinfection, and a secondary disinfectant shall be provided to maintain a disinfectant residual in the distribution system.

(b) The following requirements apply to the water systems that wish to receive credit for UV disinfection:

(i) The water system shall submit a UV plan which clearly identifies the dose monitoring strategy, such as the UV intensity setpoint approach, the calculated dose approach or an alternative approach.

(ii) The water system shall identify the goals for the UV facility as part of a comprehensive disinfection strategy, including target pathogens, target log inactivation, and corresponding required UV dose per Table 215-5 in R309-215-15(19)(d).

(iii) The water system shall submit a UV reactor validation report in accordance with R309-520-8(2), to the Director for review prior to installation of UV facility.

(iv) The water system must demonstrate that the reactor is delivering the required UV dose using a validated dose monitoring system and continue to comply with the monitoring and reporting requirements specified in R309-215-15(19) and (20).

(2) Validation Testing.

The Director may accept a validation report that was conducted based on the 2003 draft UV Disinfection Guidance Manual on a case-by-case basis.

(a) Each model and specific configuration of UV reactor must undergo off-site, full-scale validation testing by an independent third party test facility prior to being approved for use. The validation testing shall be conducted in qualified test facilities that are deemed acceptable by NSF, EPA, or the Director.

(b) Validation testing results shall provide data, including calculations and tables or graphical plots, on dose delivery by the UV reactor under design conditions of flow rate, UV transmittance (UVT), UV intensity, lamp status, power ballast setting, as well as consideration of lamp aging and lamp fouling. The validation report shall demonstrate that the monitoring algorithm is valid over the range expected with the application. The data is used to define the dose monitoring algorithm for the UV reactor and the operating conditions that can be monitored by a utility to ensure that the UV dose required for a given pathogen inactivation credit is delivered.

(c) The UV reactor validation report shall include:

(i) Description of the reactor and validation test set-up, including general arrangement and layout drawings of the reactor and validation test piping arrangement.

(ii) Description of the methods used to empirically validate the reactor.

(iii) Description of the dose monitoring equation for the reactor to achieve the target pathogen inactivation credit and related graphical plots showing how the equation was derived from measured doses obtained through validation testing under varying test conditions.

(iv) Range of validated conditions for flow, UVT, UV dose, and lamp status.

(v) Description and rationale for selecting the challenge organism used in validation testing, and analysis to define operating dose for pathogen inactivation credit.

(vi) Tabulated data, analysis, and quality assurance/quality control (QA/QC) measures during validation testing.

(vii) A licensed professional engineer's third party oversight certification indicating that the testing and data analyses in the validation report are conducted in a technically sound manner and without bias.

(viii) The validation report shall be accompanied with completed Checklists 5.1 through 5.5 included in the EPA Ultraviolet Disinfection Guidance Manual for the Final Long Term 2 Enhanced Surface Water Treatment Rule (2006 Final UVDGM).

(3) Design Criteria

(a) A water system considering UV disinfection shall gather sufficient water quality data prior to design. The water samples shall be representative of the source water to be treated by the UV facility. Frequent testing may be required if significant variation or seasonal trending in water quality is expected.

(b) The following water quality parameters shall be considered in UV facility planning:

(i) UV Transmittance or UV Absorbance

(ii) Calcium

(iii) Alkalinity

(iv) Hardness

(v) Iron

(vi) Manganese

(vii) Turbidity

(viii) pH

(ix) Oxidation-Reduction Potential (ORP)

(x) Particle content and algae

(c) The design flow rate and UVT used to size the UV system shall be selected to provide the required dose at least 95 percent of the time, accounting for seasonal variations of flow and UVT combinations. Specifying a matrix of flow and UVT conditions for the UV reactors may be necessary.

(d) The water system may consider increasing the delivered dose beyond the required UV dose listed in Table 215-5 in R309-215-15(19)(d) to provide flexibility and conservatism.

(e) UV reactor inlet and outlet configurations shall meet the validated hydraulic distribution of flow conditions or be more hydraulically conservative. This can be achieved using one of the following approaches:

(i) The inlet and outlet configuration shall meet one of the conditions specified in Section 3.6.2 of the 2006 Final UVDGM.

(ii) Computational fluid dynamics (CFD)-based modeling may be used to demonstrate that the given conditions of inlet and outlet piping with the UV installation provides equal or greater dose delivery. The CFD modeling shall be conducted at the minimum and maximum values of the validated range of flow, UVT, and lamp status.

(f) The UV disinfection system shall be capable of applying the required design dose with a failed or out-of-service reactor. The design shall account for an on-line backup UV reactor or an operating scheme to apply the design dose with one reactor out of service.

(g) It shall be possible to isolate each reactor for maintenance.

(h) Signals and alarms shall be provided for the operation of the UV facility for the parameters necessary for dose monitoring algorithm, such as low UV dose, high flow rate, low UVT, UVT monitoring failure, UV sensor failure, off specification event, Ground Fault Interrupt (GFI), high water temperature, and low water level.

(i) All materials used in constructing or coating the UV reactors that come in contact with water shall be certified NSF Standard 61 - Drinking Water System Components - Health Effects.

(j) Any chemicals used in the cleaning of the UV reactor components in contact with the drinking water such as quartz sleeves shall be certified as meeting the ANSI/NSF Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

(k) A flow or time delay shall be provided to permit a sufficient time for tube warm-up, per manufacturer recommendations, before water flows from the unit upon start up. The flow or time delay shall be included in the design so they do not result in excessive off specification conditions.

(l) To ensure a continuous supply of power, a backup power supply of sufficient capacity shall be provided for the UV disinfection system. If power quality problems, such as frequent power interruptions or brownouts, or remote location with unknown power quality, are anticipated, power conditioning equipment, such as uninterruptible power supply (UPS), shall be included in the design.

(m) The design shall include a redundant disinfection mechanism that will apply an approved primary disinfectant to achieve the CT or log removal/inactivation required for compliance if a UV facility is off specification or offline within a maximum response time of 15 minutes. One example of such response is to shut down the off- specification UV train and either bring a parallel UV train on line or initiate a back-up primary disinfection system within 15 minutes, so the continuous duration of an off- specification event is limited to no more than 15 minutes.

(n) UV disinfection units rated at 30 gallons per minute or less shall be certified as meeting the ANSI/NSF Standard 55, Class A, or other equivalent or more stringent validation or certification standards that are deemed acceptable by the Director.

(o) The dose monitoring approach used for UV facility must be reviewed and accepted by the Director. Typically the calculated dose approach is suitable for large systems or systems with significant flow variation, and the UV intensity setpoint approach is for small systems or systems with fixed flow rate. The dose monitoring approaches need to be consistent with the guidelines stated in the 2006 Final UVDGM.

(p) If Programmable Logic Controller (PLC) or SCADA interface is used for UV reactor's process control, the programming shall be in accordance with the validated dose monitoring algorithm and the validated conditions. The algorithm shall use inputs of flow, UV intensity sensor readings, lamps status, and/or UVT equal to or more conservative than values measured during the operation of the UV system. If the measured UVT is above the validated range, the maximum validated UVT shall be used as the input to the dose algorithm. If the measured flow rate is below the validated range, the minimum validated flow rate shall be used as the input to the dose algorithm. If the dose algorithm uses relative lamp output determined from the UV intensity sensor readings as an input, the relative lamp output shall be based on the measured UVT, even if it exceeds the maximum validated UVT.

(q) The UV reactor's PLC or microprocessor shall be programmed to record off specification events for the following conditions:

(i) Delivered UV dose less than the required dose;

(ii) Flow greater than the validated range;

(iii) UVT less than the validated range;

(iv) Lamp status outside the validated range;

(v) Failure of UV sensors, flow meters, or on-line UVT monitors used in the dose calculation. Laboratory measurements of UVT may be used temporarily in the program until the on-line UVT monitor is repaired.

(4) Operation and Maintenance

The operation and maintenance tasks and the frequency of performing them can be specific to the UV equipment installed. The water systems with approved UV installations should follow the manufacturer's recommendation or the operation and maintenance guidelines stated in Section 6.2 through 6.5 of the 2006 Final UVDGM.

(a) Startup testing.

(i) The UV reactor manufacturer must provide a site-specific operation and maintenance manual, which shall include the procedure for starting up and shutting down the UV treatment system.

(ii) Provide schedules and performance standards for start-up testing and initial operation. Schedules shall include anticipated start-up date and proposed testing duration. Performance standards shall reference applicable regulations and specific equipment capabilities.

(iii) Operators shall receive site-specific training on the operation of the UV disinfection system.

(b) An incident plan shall be developed to address lamp breakage and release of mercury, response to alarms, power supply interruptions, activation of standby equipment, failure of systems, etc.

(c) To verify that the UV reactors are operated within the validated limits, selected parameters shall be monitored. The routine operation and maintenance shall include the monitoring and calibration requirements listed in R309-215-15(19) and (20) and are in accordance with the monitoring and reporting protocol approved by the Director. For very small UV systems, the Director may consider granting exception to allow reduced monitoring and reporting on a case-by-case basis.

R309-520-9. Ozone.

(1) General Requirements.

(a) Ozone is approved as a primary disinfectant, but is not approved as a secondary disinfectant for the distribution system because of its rapid decomposition in aqueous solution. A different disinfectant approved for secondary disinfection must be used if a minimum disinfection residual is required in the distribution system. Ozone may also be used for taste and odor control, oxidation of inorganic and organic compounds and for enhanced

performance of other water treatment processes such as microfloceculation and filtration. Some of the requirements of this section may not be applicable if ozone is used only for reasons other than primary disinfection.

(b) Pilot studies or bench scale studies shall be conducted for all surface waters unless there is sufficient data available from other studies performed on the same water source. The studies shall determine the initial ozone demand, the rate of ozone decay, the minimum and maximum ozone dosages for the range of water conditions for disinfection "CT" compliance, and the ozone dosage required for other desired benefits. Pilot studies or bench scale studies shall take into account the seasonal and other variations of the source water. Plans for pilot studies or bench scale studies shall be reviewed and accepted by the Director prior to commencement of the studies.

(2) Ozone Generation.

(a) The ozone system should be designed with backup capability such that required inactivation can be achieved with one generator out of service.

(b) The ozone generators shall be housed in an enclosed temperature controlled building for protection. Adequate ventilation shall be provided in the building, and be capable of providing six or more air changes per hour when needed in case of an ozone leak.

(c) The ozone generators shall be of the medium or high frequency type.

(d) The power supply units for the ozone generators shall have a backup electrical power source, normally an emergency generator, or the system shall have an alternate primary disinfection system that may be used in case of an electrical power outage.

(e) The ozone generators shall be water-cooled with a maximum increase in cooling water temperature of 10 degrees F (5.6 degrees C). If necessary, the cooling water should be treated to minimize corrosion, scaling, and microbiological fouling of the water side of the tubes. A closed-loop cooling water system may be used to assure proper water conditions are maintained. The power supply units to the ozone generators may also be water cooled.

(f) The ozone generators shall comply with Section 3705 of Chapter 37, "Ozone Gas Generators," of the 2006 International Fire Code.

(3) Ozone Generator Feed Gas.

(a) Feed gas may be air, vaporized high purity liquid oxygen, or oxygen enriched air. Oxygen may be generated on-site or delivered in bulk. Oxygen-enriched air is typically generated on-site.

(b) The design of the feed gas system must ensure that the maximum dew point of the feed gas of -76 degrees F (-60 degrees C) is not exceeded at any time.

(c) Liquid Oxygen Feed Gas Systems.

(i) Liquid oxygen storage tanks shall be sized to provide a minimum of a 7-day supply to the ozone generators at the maximum operating rate.

(ii) There shall be two or more vaporizers to convert liquid oxygen to the gaseous form. Vaporizers must be capable of maintaining oxygen flow at the minimum design air temperature with one unit on standby.

(iii) Liquid oxygen storage tanks and system shall comply with Chapters 40, "Oxidizers," of the 2006 International Fire Code.

(d) Air or Oxygen Enriched Air Feed Gas Systems.

(i) There shall be two or more air compressors to supply air. The capacity of the compressors shall be such that the demand during maximum ozone production and for other compressed air uses at the treatment plant can be met when the largest compressor is out of service.

(ii) Entrainment separators, refrigeration dryers, desiccant dryers, and filters shall be used as necessary to provide a sufficiently dried, dust-free, and oil-free feed gas to the ozone generators. Multiple units of this equipment shall be used so that the ozone generation is not interrupted in the event of a breakdown.

(4) Ozone Contactors.

(a) An ozone contactor shall consist of two or more chambers to provide for introduction of ozone into the water and contact time. In a water treatment plant, ozone may be introduced in the raw water, or ozone may be introduced later in the process, such as to settled water after solids have been removed. An ozone contactor must be a closed vessel that is kept under less than atmospheric pressure to prevent escape of ozone gas. The materials of construction must be ozone-resistant to prevent premature failure of the contactor.

(b) Ozone gas may be injected into the water under positive pressure through bubble diffusers using porous tube or dome diffusers. Alternatively, ozone gas may be injected into the water using side stream injection. This is where ozone gas is drawn into the side stream using negative pressure, which is generated in a pipe section with a venturi.

(c) An ozone contactor shall be designed to achieve a minimum transfer efficiency of 85 percent.

(d) Multiple sampling points shall be provided in an ozone contactor to enable sampling of treated water for purposes of determining an accurate measure of the concentration to be used in the "CT" disinfection calculation.

(e) A recommended minimum disinfection contact time is ten minutes.

(f) Ozone contactors shall have provision for cleaning, maintenance, and drainage of the contactor. Each contactor chamber shall be equipped with an access hatchway or other means of entry.

(g) An ozone contactor shall have an emergency off-gas pressure/vacuum relief system to prevent damage to the unit.

(h) A system must be provided for worker safety at the end of the ozone contactor for compliance with OSHA standards. Specifically, ozone levels in the gas space above treated water that has exited the contactor must not exceed the established OSHA 8-hour exposure limit of 0.1 ppm. This system may be an ozone residual quenching system where a chemical is used to destroy remaining ozone in the water, or this system may be a monitoring system that provides sufficient time to lower the residual ozone level in the water by natural decay to an acceptable level. Any chemical used to quench residual ozone shall comply with ANSI/NSF Standard 60.

(5) Off-Gas Destruction Units.

(a) A system for treating the final off-gas from each ozone contactor must be provided in order to meet safety standards. Systems using thermal destruction or catalytic destruction may be used. At least two units shall be provided which are each capable of handling the entire off-gas flow.

(b) Exhaust blowers shall be provided in order to draw off-gas from the contactor into the destruction units.

(c) Provisions must be made to drain water from condensation in the off-gas piping and to protect the destruction units and piping from moisture and other impurities that may cause damage.

(d) The maximum allowable ozone concentration in the gas discharge from a destruction unit is 0.1 ppm by volume. Provisions may be made for temporary transient concentration spikes that may exceed this limit.

(6) Piping and Connections.

(a) Because ozone is a strong oxidant, consideration shall be given to piping materials used in ozone service. Generally, only low carbon 304L and 316L stainless steel should be used for ozone gas service.

(b) Connections on piping used for ozone service should be welded where possible. Threaded connections should be avoided for ozone gas piping because of their tendency to leak. Connections with meters, valves, or other equipment should be made with flanged joints with ozone-resistant gaskets.

(c) A positive-closing 90-degree turn isolation valve, or other equivalent means, shall be provided in the piping between an ozone generator and a contactor to prevent moisture from reaching the ozone generator during shutdowns.

(7) Instrumentation and Monitoring.

(a) A flow meter shall be provided to measure the flow rate of the water being treated. A temperature gauge or transmitter shall also be provided to measure the temperature of the water being treated. The pH shall also be measured to indicate changes in the water being treated.

(b) An ozone gas analyzer, a flow meter, and a temperature measurement shall be provided on the gaseous ozone feed line going to the ozone injection point.

(c) Ozone aqueous residual analyzers shall be provided to measure the ozone residual concentration in the water being treated in order to determine "CT" credit.

(d) An ozone gas analyzer shall be provided on the gas discharge of each ozone destruction unit, or combined vent gas discharge, to determine the exiting ozone concentration.

(e) Ambient ozone monitors shall be installed in the vicinity of the ozone generators, the ozone contactors, the ozone destruction units, and other areas where ozone gas may accumulate.

(f) A continuous dew point monitor shall be provided on the feed gas line to the ozone generators.

(g) Instrumentation such as pressure gauges, temperature gauges, flow meters, and power meters shall be provided as necessary to monitor the feed gas system, ozone generators, power supply units, and cooling water to protect the equipment and monitor performance.

(8) Alarms and Shutdowns.

(a) An ambient ozone monitor shall be provided.

(b) The design shall include alarms and shutdowns.

(9) Safety.

(a) Training shall be provided to the operators of ozone systems by the manufacturers of the ozone equipment, or other professionals with experience in ozone treatment, to promote the safe operation of the systems.

(b) Appropriate signs shall be installed around ozone and liquid oxygen equipment to warn operators, emergency responders, and others of the potential dangers.

(c) A means shall be provided, such as portable purge air blowers and portable monitors, to reduce residual ozone levels in an ozone contactor or other equipment to safe levels prior to entry for repair, maintenance, or emergency.

(10) Operation and Maintenance.

(a) An ambient ozone monitor should activate an alarm when the ozone level exceeds 0.1 ppm. Because the natural ozone levels can exceed 0.1 ppm under certain atmospheric conditions, it is permissible to set the alarm level at a slightly higher level to avoid nuisance alarms. Ozone generator shutdown shall occur when ambient levels exceed 0.3 ppm in the vicinity of an ozone generator or a contactor. Operators of the water treatment system may set the alarm level and the shutdown level lower at their discretion. It is required that an ozone ambient monitor activates a local audible alarm and/or flashing light warning, in addition to an alarm at the operator control system panel.

(b) There shall be an alarm/shutdown to prevent the dew point of the feed gas exceeding the maximum of -76 degrees F (-60 degrees C).

(c) Alarms and shutdowns shall be programmed based on the pressure gauges, temperature gauges, flow meters, and power meters, to protect the feed gas system, ozone generators, power supply units, and cooling water system.

R309-520-10. Chlorine Dioxide.

Public water systems must take into consideration that chlorine dioxide and its byproducts may have similar effects as chloramines on sensitive populations. Chlorine dioxide should not be intentionally used as a secondary disinfectant. The water system must monitor the chlorine dioxide residuals and byproducts in the distribution system. If the chlorine dioxide residual in the distribution system may affect sensitive populations, the public water system shall notify the public of the change. Sensitive populations include hospital and kidney dialysis patients. Sensitive industries include fisheries.

(1) Pre-design Proposal.

Proposals for the use of chlorine dioxide shall be discussed with the Division prior to the preparation of final plans and specifications. A water system must submit a detailed written proposal to the Director for review, including:

(a) The make, model, and specifications for proposed chlorine dioxide generator

(b) References of other U.S. potable water installations of the proposed unit

(c) Information on the operational and maintenance training program

(d) The expected total applied dosage of chlorine dioxide and other disinfectants as well as the points of application for all disinfectants and the type and amount of residuals and by-products expected in the distribution system

(2) Chlorine dioxide generators

(a) Chlorine dioxide generation should be designed to be efficient compared to industry standard, and production of excess chlorine shall be minimized.

(b) The generator shall not produce a solution with chlorine dioxide concentration more than 6,000 mg/L to minimize the explosion hazard.

(c) The design shall include capability to measure concentrations of chlorine dioxide, chlorite, chlorate, and free chlorine of the solution leaving the generator.

(d) The chlorine dioxide generator shall be equipped with a chlorine dioxide analyzer to measure the strength of the solution leaving the generator.

(e) Generators which use solid chlorite will not be allowed.

(3) Chlorine Dioxide Feed and Storage System

(a) Chlorine Dioxide Feed system.

(i) Use fiberglass reinforced vinyl ester plastic (FRP) or high density linear polyethylene (HDLPE) tanks with no insulation.

(ii) If centrifugal pumps are used, provide Teflon packing material. Pump motors must be totally enclosed, fan-cooled, equipped with permanently sealed bearings, and equipped with double mechanical seals or other means to prevent leakage.

(iii) Provide chlorinated PVC, vinyl ester or Teflon piping material. Do not use carbon steel or stainless steel piping systems.

(iv) Provide glass view ports for the reactor if it is not made of transparent material.

(v) Provide flow monitoring on all chemical feed lines, dilution water lines, and chlorine dioxide solution lines.

(vi) Provide a means to verify calibrated feed flow to each application feed point.

(vii) Control air contact with chlorine dioxide solution to limit potential for explosive concentrations building up within the feed facility.

(viii) All chlorite solutions shall have concentrations less than 30%. Higher strength solutions are susceptible to crystallization and stratification.

(b) Chlorine Dioxide Storage and Operating Area. The following requirements apply to the chlorite storage and chlorine dioxide day tank area.

(i) The chlorine dioxide facility shall be physically located in a separate room from other water treatment plant operating areas.

(ii) The chlorine dioxide area shall have a ventilation system separate from other operating areas.

(iii) Provision shall be made to ventilate the chlorine dioxide facility area and maintain the ambient air chlorine dioxide concentrations below the Permissible Exposure Limit (PEL).

(A) The ventilating fan(s) 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 air inlets of any rooms or structures.

(B) Air inlets are provided near the ceiling.

(C) Air inlets and outlets shall be louvered.

(D) Separate switches for the fans are outside and near the entrance of the facility.

(iv) The area housing chlorine dioxide facility shall be constructed of non-combustible materials such as concrete.

(v) There shall be an ambient air chlorine dioxide sensor in the vicinity of the chlorine dioxide operating area. The ambient air chlorine dioxide readouts and alarm or warning light shall be audible and visible in the operating area and on the outside of the door to the operating area. The design shall include distinguishing audible alarms that are triggered by the ambient air chlorine dioxide sensor readings.

(vi) There shall be observation windows through which the operating area can be observed from outside the room to ensure operator safety.

(vii) Manual switches to the light in the operating area shall be located outside the door to the room.

(viii) There shall be an emergency shower and eyewash outside and close to the door to the operating area.

(ix) An emergency shutoff control to shut flows to the generator shall be located outside the operating area.

(x) The design shall minimize the possibility of chlorite leaks.

(xi) The chlorite tank and chlorine dioxide solution tank shall be vented to the outdoors away from any operating areas.

(xii) Gaseous chlorine feed to the chlorine dioxide generator shall enter the chlorine dioxide facility area through lines which can only feed to vacuum.

(xiii) The floor of the chlorine dioxide facility area shall slope to a sump.

(xiv) There shall not be any open drains in the chlorine dioxide operating area.

(xv) Provide secondary containments with sumps for chlorine dioxide storage, and chlorine dioxide solutions which can hold the entire volume of these vessels. This containment shall prevent these solutions from entering the rest of the operating area.

(xvi) Provide wash-down water within the operating area.

(xvii) The operating area shall be designed to avoid direct exposure to sunlight, UV light, or excessive heat.

(4) Other Design Criteria.

(a) Provide secondary containment, a sump, wash-down water, and a shower and eyewash at the bulk delivery transfer point.

(b) Finished water shall be used for chlorine dioxide generation.

(c) The finished water line to the chlorine dioxide generator shall be protected with a high hazard assembly.

(d) Provide a water supply near the storage and handling area for cleanup.

(e) The parts of the chlorine dioxide system in contact with the strong oxidizing or acid solutions shall be of inert material.

(f) The design shall provide the capability to shut off the chlorine dioxide operation remotely, i.e., from a location that is outside of the chlorine dioxide operating area.

(5) Operation and Maintenance.

(a) Do not store or handle combustible or reactive materials, such as acids, reduced metals, or organic material, in the chlorine dioxide operating area.

(b) Store chemicals in clean, closed, non-translucent containers.

~~(c) Personal protective equipment and first aid kits shall be stored at a nearby location that is outside the chlorine dioxide facility area.~~

~~(d) The temperature of the chlorine dioxide operating area shall be maintained between 60 and 100 degrees F.~~

~~(e) After delivery allow chlorite solutions to equalize with the ambient temperature of the operating area to avoid stratification.~~

~~(f) The Operating and Maintenance manual shall include operator safety and emergency response procedures. Personnel shall have ongoing training for operator safety and emergency response procedures.~~

~~(g) All wastes should be disposed of in accordance to any existing solid and hazardous waste regulations.~~

~~(h) The operating area should be inspected daily for chlorite spills and solid chlorite buildup. The daily inspections shall be logged.~~

~~(i) Chlorite leaks and solid chlorite buildup should be cleaned up and disposed of immediately.~~

~~(j) Solid chlorite should be washed down before removal.~~

~~(k) The ventilation system in the chlorine dioxide facility area shall be operated to maintain the ambient air chlorine dioxide concentrations below the Permissible Exposure Limit (PEL).~~

~~(l) Audible alarms shall be programmed to alert water treatment plant personnel when the ambient air chlorine dioxide sensor in the vicinity of the chlorine dioxide operating area detects the chlorine dioxide concentration above the Permissible Exposure Limit (PEL) and the Short Term Exposure Limit (STEL).~~

~~R309-520-11. Chloramines.~~

~~Proposals for the use of Chloramines as a disinfectant shall be discussed with the Division prior to the preparation of final plans and specifications.~~

]R309-520-1. Purpose.

This rule specifies requirements for facilities that disinfect public drinking water. A Public Water System (PWS) shall apply this rule in conjunction with Rules R309-500 through R309-550. These rules govern the design, construction, operation, and maintenance of PWS facilities. The intent of these rules is to ensure that PWS facilities reliably supply adequate quantities of water that consistently meet drinking water quality requirements and do no harm to public health.

R309-520-2. Authority.

The Drinking Water Board promulgates Rule R309-520 as authorized by Subsection 19-4-104(1)(a)(ii) and in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act.

R309-520-3. Definitions.

Rule R309-110 provides definitions for certain terms used in this rule but this rule may further clarify them.

(1) Primary disinfection is the means to provide adequate levels of inactivation of pathogenic microorganisms within the treatment process.

(2) Secondary disinfection is the means to provide a disinfectant residual in the distribution system. A supplier achieves secondary disinfection by maintaining a measurable disinfectant residual at every service connection.

R309-520-4. Applicability of Disinfection Requirements.

(1) For surface water and groundwater under the direct influence (GWUDI), a supplier shall:

(a) treat the water using conventional or alternative surface water treatment methods;

(b) disinfect the water to meet the requirements of Section R309-200-7; and

(c) determine disinfection CT based on the treatment technology used.

(2) For groundwater:

(a) where a groundwater source does not continuously meet microbiological standards per Rule R309-215, the supplier shall disinfect the groundwater source;

(b) where the division requires microbiological treatment for a groundwater source that is not GWUDI, a supplier may disinfect without filtration; and

(c) where the division requires primary disinfection of a groundwater source, the supplier shall provide sufficient treatment to achieve a minimum of 4-log virus inactivation.

(3) Primary disinfection requirements are listed in Subsections (a) through (c).

(a) The division allows only chlorine, ozone, ultraviolet (UV) light, and chlorine dioxide as primary disinfectants. A supplier may not use chlorocyanurates species, such as Dichlor or Trichlor dissolution products, as primary disinfectants.

(b) A supplier shall obtain director approval for the baffle factors used in the calculation of CT.

(c) A supplier that is required to achieve primary disinfection shall also achieve secondary disinfection.

(4) Secondary disinfection requirements are listed in Subsections (a) and (b).

(a) The division allows only chlorine and chloramine as secondary disinfectants.

(b) A supplier may not use chlorocyanurates species such as Dichlor or Trichlor dissolution products) as secondary disinfectants.

(5) Point-of-use disinfection is not an acceptable form of disinfection for regulatory compliance.

(6) Suppliers of distribution systems that have multiple sources shall meet the requirements in Subsections (a) and (b).

(a) Distribution systems downstream of a chlorinated source shall meet secondary disinfection requirements.

(b) In a distribution system where chlorinated water is blended with unchlorinated water, the distribution system shall meet secondary disinfection requirements. A supplier may add chlorination to meet secondary disinfection requirements.

(7) Distribution systems with orthophosphate addition shall meet the requirements in Subsections (a) and (b).

(a) Any distribution system downstream of orthophosphate injection shall meet secondary disinfection requirements and achieve disinfection residuals of at least 0.2 mg/L of free chlorine in the distribution system at every service connection.

(b) A distribution system shall meet secondary disinfection requirements where water with orthophosphate injection is blended. A supplier may add chlorination to meet secondary disinfection requirements. A distribution system where water with orthophosphate injection is blended shall maintain disinfection residuals of at least 0.2 mg/L of free chlorine at every service connection.

R309-520-5. Requirements for Disinfection Systems.

(1) Continuous disinfection requirements include Subsections (a) through (i).

(a) Each disinfection process shall operate continuously and may not stop unless the division provides a written approval to the supplier.

(b) A supplier may not use intermittent or batch disinfection, such as adding hypochlorite tablets or concentrated hypochlorite solution to a tank, to achieve primary or secondary disinfection.

(c) A supplier may use intermittent or batch disinfection during seasonal startup or operation and maintenance procedures.

(d) The design shall provide a means to isolate or service the disinfection equipment without allowing untreated water to enter the distribution system.

(e) The design shall provide a means to continuously disinfect or a plan to shut off the source or system in case of equipment or power failure.

(f) A supplier shall have standby power available for the operation of chlorinator systems unless:

(i) the chlorinator system does not require power; or

(ii) the source requires power but does not have standby power.

(g) A supplier may not have bypasses around disinfection processes, except for oxidation processes that are not used as primary disinfection.

(h) A supplier shall maintain a spare parts kit for disinfection equipment to replace parts subject to wear and breakage.

(i) A supplier shall contact the division within eight hours of a malfunction of any disinfection facility such that a detectable residual cannot be maintained at every service connection. Division personnel may be reached at 801-536-4123.

(2) Each disinfection facility shall comply with the requirements in Subsections (a) through (g).

(a) The location of the facility shall provide for convenient access and shall consider risks to nearby populations and from seismic fault zones.

(b) A supplier shall provide a lock and secure a facility to prevent vandalism and unauthorized entry.

(c) Disinfection processes after filters shall be fully enclosed and may not daylight.

(d) The facility shall include heating, lighting, and ventilation as needed to protect and operate the disinfection system.

(e) The facility floors shall be sloped to drain.

(f) Where facilities are located underground, the facility shall include a drain and shall drain to daylight where feasible. Where drainage to daylight is not possible, drainage to an underground gravel-filled absorption pit is permissible if the site has adequate drainage and is not subject to flooding. If a drain to daylight or absorption pit are not feasible, a sump pump is permissible.

(g) The facility design shall be in accordance with the Utah Occupational Safety and Health Act (UOSHA).

(3) A supplier shall obtain prior written approval from the director for any modifications that may affect the water quality or quantity, including changes in chlorine type.

(4) A supplier may not use disinfection:

(a) to mask ongoing contamination;

(b) to remedy a source susceptible to surface water influence; or

(c) as a substitute for correcting physical deficiencies.

(5) Any material that may contact drinking water shall be certified to meet NSF/ANSI 61.

(6) Any chemical added to drinking water, including chlorine gas, hypochlorite solution, hypochlorite tablets, granules, powder, chloramines, chemicals used to generate hypochlorite solution and chlorine dioxide, and chemicals used in the cleaning of components in contact with the drinking water, shall be NSF/ANSI Standard 60 certified.

(7) A supplier shall follow the requirements of the International Plumbing Code and any amendments that the Department of Commerce has adopted.

(8) A supplier shall follow the cross connection control requirements of Rule R309-105.

(9) A supplier shall make provisions for proper disposal of water treatment plant waste discharges and meet the requirements of Title R317.

R309-520-6. Chemical Feed Equipment.

(1) A supplier shall submit the information in Subsections (a) through (d) for division review and director approval:

(a) descriptions of chemical feed equipment, including maximum and minimum feed rates;

(b) location of chemical feeders, piping layout and points of application;

(c) descriptions of chemical storage and handling facilities; and

(d) chemical specifications.

(2) A supplier shall prominently display Safety Data Sheets of chemicals and ensure they are easily accessible.

(3) A supplier shall have a safe handling and leak response Standard Operating Procedure (SOP) for each chemical.

(4) To ensure chemical compatibility, a supplier:

(a) may not feed, store, or handle incompatible chemicals together;

(b) shall conduct each chemical from the chemical feeder to the point of application in a separate conduit;

(c) shall ensure chemical-contact materials and surfaces are compatible with the chemicals;

(d) shall locate the injection point at the center of a pipeline; and

(e) shall ensure chemical feeders are readily accessible for servicing, repair, and observation.

(5) Chemical feed rate controls shall meet the requirements in Subsections (a) through (f).

(a) Chemical feeders shall supply the chemicals at an accurately controlled rate, throughout the anticipated range of feed.

(b) A supplier shall use automatic proportioning chemical feeders where the rate of flow varies.

(c) A supplier shall provide a means of measuring water flow rate.

(d) A supplier shall provide a means of measuring the quantities of chemicals used to prepare chemical feed solutions and quantities of chemicals added in the treatment process.

(e) A supplier shall manually or automatically control chemical feeders. Suppliers with automatic controls shall design automatic controls to allow override by manual controls.

(f) Chemical feeders and pumps shall operate within the manufacturer design feed range.

(6) At surface water and GWUDI treatment facilities, a supplier shall provide at least one active feeder and one standby feeder.

(7) Chemical feed pump requirements are listed in Subsections (a) through (c).

(a) A supplier shall size the pump to match or exceed maximum head conditions found at the point of injection.

(b) Liquid chemical feed pumps shall be positive displacement type solution-feed pumps or other feed pump designs as approved by the director. Liquid chemical feed pumps shall include devices which prevent backpressure, backsiphonage, or siphonage of liquid chemicals through the pump by using:

(i) positive pressure at the point of injection;

(ii) vacuum relief;

(iii) an air gap;

(iv) an anti-siphon device; or

(v) another means to prevent siphoning.

(c) Chemical feed pumps shall have a strainer and a means of flushing the strainer. The strainer shall be located upstream of the chemical feed pumps.

(8) Liquid chemical storage tanks shall adhere to the requirements in Subsections (a) through (f) unless otherwise approved by the director in writing.

(a) A supplier shall keep chemical solutions covered.

(b) A supplier shall label tanks to designate the chemical contained.

(c) A supplier shall provide chemical storage tanks with secondary containment unless otherwise approved by the director in writing. The director may grant approval for an alternative approach if the authority responsible for receiving or regulating the discharge provides a written letter supporting the alternative. A supplier shall submit the letter of support to the director for consideration.

(i) The secondary containment material shall be impermeable and compatible with the stored chemical.

(ii) A supplier shall design secondary containment drainage such that it prevents uncontrolled releases outside the containment area. The drainage shall drain to a containment area designed for compatibility with the stored chemical and shall receive drainage of compatible chemicals only.

(iii) Secondary containment volumes shall be at least the same volume as the largest chemical storage tank.

(iv) A supplier is not required to provide secondary containment for hypochlorite solution tanks with a hypochlorite concentration less than or equal to 1% and volume less than or equal to 350 gallons.

(d) If a supplier provides overflow pipes, the overflow pipes shall:

(i) have a No. 4 mesh, non-corrodible screen;

(ii) have a free-fall discharge to a receiving basin; and

(iii) be readily visible.

(e) If a tank has a drain, the supplier shall provide a shut-off valve for the tank drain.

(f) Tanks equal to or greater than 350 gallons shall have:

(i) a liquid level indicator;

(ii) an overflow; and

(iii) a downturned air vent with a No. 14 mesh, non-corrodible screen.

(g) Bulk chemical delivery transfer points shall include a means of chemical containment, wash-down water, a shower, and an eyewash station.

(9) Weighing scales shall be corrosion resistant and accurate to measure increments of at most 0.5% of scale capacity.

(10) Make-up water is water used for diluting a chemical. Make-up water supply shall be of a quality equal to or better than the water at the point of application. A supplier shall provide a means to measure make-up water when preparing solution concentrations by dilution.

(11) A supplier shall meet cross connection control requirements in Subsections (a) through (d).

(a) Make-up water lines that discharge into solution tanks shall include protection against backpressure or backsiphonage according to the International Plumbing Code and any amendments that the Department of Commerce has adopted.

(b) Chemical feed system drains and overflows may not have a direct connection to any sewer. The drains or overflows shall have an air gap above the receiving vessel of at least six inches or two pipe diameters, whichever is greater.

(c) At surface water and GWUDI treatment facilities, pre- and post-chlorination systems shall have independent pumping systems, unless a vacuum breaker is installed between the pre- and post-chlorination systems to prevent backpressure or backsiphonage of partially treated water into the clear well.

(d) Each eductor shall have a separate shut-off valve on the water supply and not a master shut-off valve.

R309-520-7. Chlorine.

(1) Requirements for each chlorine system are listed in Subsections (a) through (f).

(a) A supplier shall submit a basis of design to the division. The basis of design shall include:

(i) an estimate and justification of breakpoint chlorination dose;

(ii) expected seasonal variation; and

(iii) target chlorine residual above breakpoint chlorination dose.

(b) The director may require a chlorine demand study when the director determines that the proposed disinfection process may not maintain a disinfectant residual throughout the distribution system.

(c) Each chlorinator shall have a designated Point-of-Entry (POE) that:

(i) is located after sufficient mixing to achieve a stable chlorine residual;

(ii) is located before or at the first service connection; and

(iii) has a continuous disinfectant analyzer for suppliers serving populations of 3,300 or more.

(d) Disinfection by chlorination shall be accomplished by gaseous chlorine or hypochlorite solutions. Hypochlorite solutions can be purchased, generated on site, or prepared by dissolving solids.

(e) Chlorine feed equipment requirements are listed in Subsections (i) through (iv).

(i) Chlorine feed equipment shall:

(A) operate accurately over the design feeding range;

(B) be sized to provide at least 2 mg/L free chlorine residual at the POE during peak demand; and

(C) be sized to deliver a chlorine dose sufficient to maintain a measurable residual continuously at each service connection in the distribution system.

(ii) If a supplier uses an eductor, the supplier shall provide a strainer upstream of the eductor and a means of flushing the strainer.

(iii) Chlorine injectors and eductors shall:

(A) inject chlorine at the center of a pipeline where possible;

(B) inject chlorine at a point that allows rapid mixing;

(C) be compatible with;

(I) the point of application;

(II) the flowrate of chlorine;

(III) the size of the chlorine solution line;

(IV) the back pressure from the water line; and

(V) the equipment operating pressure.

(iv) When releasing chlorinated water into the environment, the supplier shall comply with Rule R317-2.

(f) A supplier shall have a digital chlorine residual analyzer capable of measuring residual to the nearest 0.1 mg/L.

(2) Gas chlorinator systems shall:

(a) be a solution-feed type;

(b) have automatic switchover unless at least three cylinders or containers are operational continuously;

(c) have at least two chlorine cylinders unless the gas chlorinator system uses fewer than one per year;

(d) have a gas scrubber in operating areas with a one-ton chlorine cylinder;

(e) include the ventilation requirements in Subsections (e)(i) through (iii);

(i) chlorination equipment rooms that contain chlorine cylinders, tanks, equipment and gaseous chlorine lines under pressure shall have at least one exhaust fan unless power is not available or human entrance to the room is not possible. Chlorine room exhaust fans, when operating, shall provide at least one complete room air change per minute.

(ii) The ventilation system shall include air inlet louvers near the ceiling and discharge venting near the floor, as far as practical from the door.

(iii) The supplier shall design the ventilation system for one-ton chlorine cylinder operating areas to maintain negative pressure and operate independently from the ventilation system for the rest of the facility.

(f) discharge the chlorine vent line outside above grade and screen the end with a No. 14 mesh non-corrodible screen.

(g) Requirements for chlorine cylinder storage are listed in Subsections (g)(i) through (ii).

(i) Chlorine cylinders shall have restraints and be stored in an upright position.

(ii) Chlorine cylinders may not be located in direct sunlight or exposed to excessive heat.

(h) Requirements for gas chlorinator housing at water treatment plants with multiple processes are listed in Subsections (h)(i) through (vi).

(i) The supplier shall provide a separate chlorine room to house chlorine cylinders and feed equipment.

(ii) The supplier shall seal openings between the chlorine room and the rest of the facility.

(iii) The supplier shall design doors to open outward and equip them with panic bars to allow rapid exit.

(iv) Floor drains, though discouraged, shall discharge outside the building and may not connect to other drain systems of the facility.

(v) Chlorine feed lines may not carry pressurized chlorine gas outside the chlorine room. Vacuum lines may be routed to other portions of the building outside the chlorine room. The supplier shall seal any openings for these lines.

(vi) Gas chlorine rooms with doors interior to a facility shall have a shatter resistant inspection window.

(i) The supplier shall provide pressure gauges on the inlet and outlet of each chlorine eductor.

(j) Operator safety requirements are in Subsections (j)(i) through (iv).

(i) The supplier shall make a bottle of Ammonium Hydroxide solution with 56% ammonia available for leak detection.

(ii) Where a supplier provides a continuous leak detector, it shall be equipped with an audible alarm and a readily visible warning light.

(iii) The supplier shall make NIOSH-approved respiratory protection equipment immediately accessible.

(iv) Where one-ton cylinders are used, the supplier shall:

(A) store and make available NIOSH-approved Self Contained Breathing Apparatus (SCBA) outside the chlorine room;

(B) ensure the SCBA has a minimum 30-minute capacity of compressed air;

(C) ensure the SCBA is compatible with units used by the fire department responsible for the plant;

(D) store and make available a leak repair kit approved by the Chlorine Institute; and

(E) provide continuous chlorine leak detection equipment with an audible alarm and a visible warning light.

(3) Requirements for hypochlorite systems are listed in Subsections (a) through (c).

(a) General requirements for each hypochlorite system are in Subsections (i) through (iii).

(i) Emergency Eyewash and Safety Showers. A supplier shall provide an emergency eyewash and safety shower where hypochlorite solutions containing chlorine concentration of at least 5% are handled in containers of at least 55 gallons. For installations using hypochlorite at chlorine concentrations less than 5%, or volumes less than 55 gallons, the supplier shall provide an alternative emergency eyewash. If a supplier provides a shower or eyewash station, they shall be plumbed with drinking water.

(ii) Liquid hypochlorite storage shall prevent decay. The supplier shall design storage and injection areas to minimize the effects of excessive heat or direct sunlight.

(iii) For flow-powered pump systems, the flow through the pump shall meet the minimum pump flow as required by the manufacturer at every flow scenario. A tank with a control valve may follow the pump to ensure manufacturer-required pump flow requirements are met.

(b) On-Site generated hypochlorite system requirements are in Subsections (i) through (iii).

(i) A supplier shall follow manufacturer recommendations for safety with respect to equipment and electrical power.

(ii) The hydrogen gas generated in the electrolytic cell of the on-site generation system shall vent upward to the outside of the building in a dedicated line with a non-corrodible No. 14 mesh screen at the end.

(iii) Hypochlorite tanks shall have a downturned air vent with a non-corrodible No. 14 mesh screen at the end.

(c) Hypochlorite tablet system requirements are in Subsections (i) and (ii).

(i) Hypochlorite tablet disinfection processes shall be compatible with the water hardness, solubility of hypochlorite tablets, water temperature, and other water quality factors.

(ii) A supplier shall store the hypochlorite tablets in accordance with the manufacturer's safety guidelines and in their original containers in a cool, dry, well-ventilated area. A supplier may not store hypochlorite tablets near combustible materials or acids.

R309-520-8. Ultraviolet Light.

(1) This rule shall apply to the use of ultraviolet (UV) disinfection for inactivation of Cryptosporidium, Giardia, and viruses. The director may reduce the requirements of monitoring and reporting on a case-by-case basis for water systems that use UV for other reasons.

(a) Suppliers using surface water or GWUDI may not use UV as the sole means of achieving primary disinfection and shall provide a backup primary disinfectant. The backup primary disinfectant shall be approved to achieve the CT, log removal, or inactivation required for compliance. The backup primary disinfectant shall be able to achieve treatment requirements within 15 minutes so that the continuous duration of an off- specification event is limited to no more than 15 minutes.

(b) A supplier that wishes to receive Log Removal or Inactivation Credit for UV disinfection shall:

(i) submit a UV plan which identifies the dose monitoring strategy, such as the UV intensity setpoint approach, the calculated dose approach, or an alternative approach;

(ii) identify the goals for the UV facility as part of a comprehensive disinfection strategy, including target pathogens, target log removal or inactivation, and corresponding required UV dose per Rule R309-215;

(iii) submit a UV reactor validation report; and

(iv) monitor and report per Rule R309-215 after installation.

(2) Validation Testing. The director may accept a validation report that was conducted based on the 2006 Final Ultraviolet Disinfection Guidance Manual For The Long Term 2 Enhanced Surface Water Treatment Rule (UVDGM), 2020 Innovative Approaches of Ultraviolet Disinfection Reactors for Drinking Water Systems (IAUDRDWS), or on a case-by-case basis. The supplier shall ensure UV disinfection units rated at 30 gallons per minute or less meet ANSI/NSF Standard 55, Class A, or other equivalent standards that the director considers acceptable in lieu of a validation report.

(a) Each model and configuration of UV reactor must undergo off-site, full-scale validation testing by an independent third party test facility. The validation testing shall be conducted in qualified test facilities that are deemed acceptable by NSF, EPA, or the director.

(b) The UV reactor validation report shall include:

(i) description of the reactor and validation test setup, including general arrangement and layout drawings of the reactor and validation test piping arrangement;

(ii) description of the methods used to empirically validate the reactor;

(iii) description of the dose monitoring equation for the reactor to achieve the target pathogen inactivation credit and related graphical plots showing how the equation was derived from measured doses obtained through validation testing under varying test conditions;

(iv) range of validated conditions for flow, UV Transmittance (UVT), UV dose, and lamp status;

(v) description and rationale for selecting the challenge organism used in validation testing, and analysis to define operating dose for pathogen inactivation credit.

(vi) tabulated data, analysis, quality assurance and quality control, and measures during validation testing;

(vii) a licensed professional engineer's third party oversight certification indicating that the testing and data analyses in the validation report are conducted in a technically sound manner and without bias; and

(viii) the validation report shall be accompanied with completed Checklists 5.1 through 5.5 included in the 2006 Final UVDGM.

(3) Design criteria requirements are listed in Subsections (a) through (j).

(a) A supplier shall gather water quality data representative of the water to be treated by the UV facility. The director may prescribe a testing frequency to characterize variation or seasonal trends in water quality. The

supplier shall submit and consider the following water quality results in UV facility planning as determined by the director:

(i) UVT or UV absorbance;

(ii) calcium;

(iii) alkalinity;

(iv) hardness;

(v) iron;

(vi) manganese;

(vii) turbidity;

(viii) pH;

(ix) Oxidation-Reduction Potential (ORP); and

(x) particle content and algae.

(b) UV systems shall provide the required dose to at least 95% of the water delivered, accounting for seasonal variations of flow and UVT combinations. The director may require the supplier to submit a matrix of flow and UVT conditions for the UV reactors.

(c) UV reactor inlet and outlet configurations shall meet the validated hydraulic distribution of flow conditions. The supplier can achieve this using one of the following approaches:

(i) The inlet and outlet configuration meets one of the conditions specified in Section 3.6.2 of the 2006 Final UVDGM.

(ii) Computational fluid dynamics, CFD-based modeling demonstrates that the given conditions of inlet and outlet piping with the UV installation provides equal or greater dose delivery. The CFD modeling shall be conducted at the minimum and maximum values of the validated range of flow, UVT, and lamp status.

(d) The UV system shall be capable of applying the required design dose with one out-of-service reactor or otherwise provide redundant treatment for target pathogens.

(e) The design shall allow isolation of each reactor for maintenance.

(f) The UV system shall include signals and alarms for the operation of the UV facility for the parameters necessary for dose monitoring algorithm, such as low UV dose, high flow rate, low UVT, UVT monitoring failure, UV sensor failure, off-specification event, Ground Fault Interrupt GFI, high water temperature, and low water level.

(g) Any chemicals used in the cleaning of the UV reactor components in contact with the drinking water such as quartz sleeves shall be certified as meeting the ANSI/NSF Standard 60 - Drinking Water Treatment Chemicals - Health Effects.

(h) The control system shall include a flow or time delay to permit a sufficient time for lamp warm-up, per manufacturer recommendations, before water flows from the unit upon startup.

(i) The supplier shall submit the dose monitoring approach of the UV system to the director for review and approval. The dose monitoring approaches shall meet the guidelines stated in the 2006 Final UVDGM or the 2020 IAUDRDWS.

(j) If the supplier uses a Programmable Logic Controller (PLC) or SCADA interface for a UV reactor's process control, the programming shall be in accordance with the validated dose monitoring algorithm and the validated conditions. The algorithm shall use inputs of flow, UV intensity sensor readings, lamps status, and UVT equal to or more conservative than values measured during the operation of the UV system.

(i) If the measured UVT is above the validated range, the dose algorithm shall use the maximum validated UVT as the input. If the measured flow rate is below the validated range, the dose algorithm shall use the minimum validated flow rate as the input.

(ii) If the dose algorithm uses relative lamp output determined from the UV intensity sensor readings as an input, the supplier shall base the relative lamp output on the measured UVT, even if it exceeds the maximum validated UVT.

(iii) A supplier shall program the UV reactor's PLC or microprocessor to record off-specification events for the following conditions:

(A) delivered UV dose less than the required dose;

(B) flow greater than the validated range;

(C) UVT less than the validated range;

(D) lamp status outside the validated range; and

(E) failure of UV sensors, flow meters, or on-line UVT monitors used in the dose calculation. Laboratory measurements of UVT may be used in the program until the on-line UVT monitor is repaired for a maximum of 30 days.

(4) A supplier shall have an operation and maintenance manual that follows the manufacturer's recommendation or the operation and maintenance guidelines stated in Sections 6.2 through 6.5 of the 2006 Final UVDGM.

R309-520-9. Ozone.

(1) Section R309-520-8 applies to ozone used for primary disinfection only.

(2) A supplier using surface water or GWUDI may not use ozone as the sole means of disinfection. A supplier shall provide an approved primary disinfectant as an alternative primary disinfectant to achieve the CT, log removal, or inactivation required for compliance. The alternative primary disinfectant shall be able to achieve the treatment requirements within 15 minutes so that the continuous duration of an off- specification event is limited to no more than 15 minutes.

(3) A supplier shall conduct a pilot study or bench scale study for surface water or GWUDI unless the director determines sufficient data is available from other studies performed on the same water source.

(a) The study shall determine the initial ozone demand, the rate of ozone decay, the minimum and maximum ozone dosages for the range of water conditions for disinfection "CT" compliance, and the ozone dosage required for other desired benefits.

(b) Pilot studies or bench scale studies shall consider the seasonal and other variations of the source water. A supplier shall ensure plans for pilot studies or bench scale studies are reviewed and approved by the director before starting the study.

(4) Ozone installations shall comply with the Utah Fire Code.

(5) Ozone generation systems shall meet the requirements in Subsections (a) through (d).

(a) The ozone system shall be designed with backup capability such that required inactivation can be achieved with one generator out of service.

(b) The ozone generators shall be housed:

(i) in an enclosed temperature-controlled building for protection; and

(ii) with ventilation capable of providing six or more air changes per hour in case of an ozone leak.

(c) The ozone generators shall be of the medium or high frequency type.

(d) Water-cooled ozone generators and water-cooled power supply units shall meet the requirements in Subsections (i) through (v).

(i) A supplier shall water-cool ozone generators and power supply units to manufacturer specifications. A supplier shall submit documentation demonstrating compliance with these specifications including water flow rate, pressure, and temperature to the division.

(ii) The design shall include appropriate cross connection control measures for the heat exchanger to prevent the contamination of the drinking water supply. Where cooling water is treated, a supplier shall provide cross connection control to prevent contamination of the drinking water supply. Steam condensation, engine jacket cooling water, or water used by heat exchange dryers may not return to the drinking water supply.

(iii) The design engineer shall specify the allowable maximum increase in cooling water temperature, which may not exceed 10 degrees Fahrenheit unless otherwise justified by manufacturer specifications and approved by the reviewing authority.

(iv) Where necessary, the design shall include provisions for cooling water treatment to minimize corrosion, scaling, and microbiological fouling of the water side of the tubes. The selection of any treatment method shall be justified and submitted for review.

(v) The director may require a supplier to use a closed-loop cooling water system to ensure proper water conditions are maintained.

(6) Ozone generator feed gas shall meet the requirements in Subsections (a) through (e).

(a) A supplier may use feed gas that is air, vaporized high purity liquid oxygen, or oxygen-enriched air.

(b) A supplier shall use oxygen that is generated on site or delivered in bulk.

(c) The design of the feed gas system shall ensure feed gas does not exceed the maximum dew point of -76 degrees F.

(d) Liquid oxygen feed gas system shall meet the requirements in Subsections (i) through (iii).

(i) A supplier shall size liquid oxygen storage tanks to provide a minimum of a 7-day supply to the ozone generators at the maximum operating rate.

(ii) A supplier shall provide two or more vaporizers to convert liquid oxygen to the gaseous form.

(iii) Vaporizers shall be capable of maintaining oxygen flow at the minimum design air temperature with one unit on standby.

(e) Air- or Oxygen-enriched air feed gas system shall meet the requirements in Subsections (i) though (iv).

(i) A supplier shall provide two or more air compressors to supply air.

(ii) The capacity of the compressors shall meet the demand during maximum ozone production and compressed air usage with the largest compressor out of service.

(iii) A supplier shall provide entrainment separators, refrigeration dryers, desiccant dryers, and filters as necessary to ensure a dried, dust-free, and oil-free feed gas to the ozone generators.

(iv) A supplier shall provide redundant equipment to ensure continuous operation when the largest equipment is out of service.

(7) Ozone contactors shall meet the requirements in Subsections (a) through (n).

(a) An ozone contactor shall consist of two or more chambers to introduce ozone into the water and achieve contact time.

(b) A supplier shall seal and maintain an ozone contactor at less than atmospheric pressure to prevent escape of ozone gas.

(c) The materials of construction shall be ozone-resistant.

(d) A supplier may inject ozone gas into the water by using positive pressure through bubble diffusers using porous-tube or dome diffusers. Alternatively, a supplier may inject ozone gas into the water by using side stream injection using negative pressure generated with a venturi.

(e) A supplier shall design ozone contactors to achieve a minimum transfer efficiency of 85%.

(f) A supplier shall provide sampling points in an ozone contactor to demonstrate CT.

(g) A supplier shall have provision for cleaning, maintenance, and drainage of the ozone contactor.

(h) A supplier shall equip each contactor chamber with an access hatchway or other means of entry.

(i) An ozone contactor shall have an emergency off-gas pressure-vacuum relief system to prevent damage to the unit.

(j) A supplier shall provide a system for worker safety at the end of the ozone contactor for compliance with OSHA standards. Ozone levels in the gas space above treated water that has exited the contactor may not exceed the established OSHA 8-hour exposure limit of 0.1 ppm.

(k) A supplier shall provide a system for treating the final off-gas from each ozone contactor. The off-gas treatment system shall have at least two units which are each capable of handling the entire off-gas flow. A supplier shall use a system using thermal destruction or catalytic destruction.

(l) A supplier shall provide exhaust blowers to draw off-gas from the contactor into the destruction units.

(m) A supplier shall provide a means of protecting the destruction units and piping from moisture and other impurities that may cause damage. The system shall include a means of draining condensation from the off-gas piping.

(n) The maximum allowable ozone concentration in the gas discharge from a destruction unit is 0.1 ppm by volume.

(8) For piping and connections, a supplier shall:

(a) use low carbon 304L and 316L stainless steel for ozone gas service;

(b) provide welded piping connections for ozone service;

(c) provide connections with meters, valves, or other equipment with flanged joints with ozone-resistant gaskets; and

(d) provide a positive-closing 90-degree turn isolation valve or other equivalent means in the piping between an ozone generator and a contactor for use when the contactor is not operating.

(9) Instrumentation and monitoring equipment shall include:

(a) a flow meter, temperature sensor, and pH sensor to monitor the influent water parameters of the ozone system;

(b) an ozone gas analyzer, a flow meter, and a temperature sensor on the gaseous ozone feed line going to the ozone injection point;

(c) dissolved ozone analyzers to measure the ozone residual concentration throughout the ozone contactor as needed to determine CT credit;

(d) an ozone gas analyzer on the gas discharge of each ozone destruction unit or combined vent gas discharge to determine the discharge ozone concentration;

(e) ambient ozone monitors in the vicinity of the ozone generators, the ozone contactors, the ozone destruction units, and other areas where ozone gas may accumulate;

(f) a dew point monitor on the feed gas line to the ozone generators; and

(g) instrumentation such as pressure gauges, temperature gauges, flow meters, and power meters as needed to monitor the feed gas system, ozone generators, power supply units, and cooling water to protect the equipment and monitor performance.

(10) Alarms and shutdowns requirements are in Subsections (a) through (c).

(a) An ambient ozone monitor shall activate an alarm when the ozone level exceeds 0.1 ppm. If atmospheric conditions cause nuisance alarms, the director may approve a higher alarm trigger level.

(b) Ozone generator shutdown shall occur when ambient levels exceed 0.3 ppm or lower in the vicinity of an ozone generator or a contactor. An ozone ambient monitor shall activate a local audible alarm or flashing light warning, in addition to an alarm at the operator control system panel.

(c) An alarm or shutdown shall prevent the dew point of the feed gas from exceeding -76 degrees F.

(11) Safety requirements are in Subsections (a) through (d).

(a) An operator of an ozone system shall receive site-specific training from the manufacturers of the ozone equipment or other professionals with experience in ozone treatment.

(b) A supplier shall receive an operations and maintenance manual from the manufacturer.

(c) A supplier shall install signs around ozone and liquid oxygen equipment to warn operators and emergency responders of the potential dangers.

(d) A supplier shall provide a means to reduce residual ozone levels in an ozone contactor or other equipment to safe levels before entry for repair, maintenance, or emergency.

R309-520-10. Chlorine Dioxide.

(1) A supplier shall use chlorine dioxide only as a primary disinfectant. A supplier shall obtain the director's approval for the storage and use of sodium chlorite before the preparation of final plans and specifications.

(2) A supplier shall submit a pre-design proposal for the use of chlorine dioxide to the division before the preparation of final plans and specifications. The proposal shall include:

(a) rationale for implementation of chlorine dioxide;

(b) chemicals to be used in the generation of chlorine dioxide;

(c) the make, model, and specifications for proposed chlorine dioxide generator;

(d) references of other drinking water installations of the proposed unit in the US;

(e) information on the operational and maintenance training program;

(f) the expected total applied dosage of chlorine dioxide and other disinfectants;

(g) points of application for disinfectants;

(h) type and quantity of residuals and byproducts expected in the distribution system; and

(i) strategy to limit potential for explosion.

(3) Chlorine dioxide generation requirements are in Subsections (a) through (f).

(a) A supplier shall use finished water for chlorine dioxide generation. A supplier shall protect the finished water line to the chlorine dioxide generator with a high hazard backflow prevention assembly.

(b) A supplier shall design chlorine dioxide generation to minimize excess production.

(c) The generator may not produce a solution with chlorine dioxide concentration more than 6,000 mg/L to minimize the explosion hazard.

(d) A supplier shall provide a means to measure concentrations of chlorite, chlorate, and free chlorine of the solution leaving the generator.

(e) A supplier shall equip the chlorine dioxide generator with a continuous chlorine dioxide analyzer to measure the strength of the solution leaving the generator.

(f) A supplier may not use generators which use solid chlorite.

(4) Chlorine Dioxide Feed system requirements are in Subsections (a) through (h).

(a) The system shall store sodium chlorite and hydrochloric acid in fiberglass reinforced vinyl ester plastic (FRP) or high density linear polyethylene (HDLPE) tanks without insulation.

(b) The system shall use positive displacement feeders where possible. If a supplier uses centrifugal pumps, the pump shall have Teflon packing material. Pump motors shall be totally enclosed, fan-cooled, have permanently sealed bearings, and have double mechanical seals or other means to prevent leakage.

(c) Tubing for conveying sodium chlorite or chlorine dioxide solutions shall be Type 1 PVC, polyethylene, or materials recommended by the manufacturer. Piping material shall be chlorinated PVC, vinyl ester, or Teflon. A supplier may not use carbon steel or stainless steel piping systems.

(d) The system shall include check valves to prevent the backflow of chlorine into the sodium chlorite line.

(e) The system shall include glass view ports for the reactor if it is not made of transparent material.

(f) The system shall include a calibration tube for each chemical feed line, dilution water line, and chlorine dioxide solution line.

(g) The maximum concentration of chlorite solutions shall be 30%.

(5) The chlorine dioxide operating area, which includes the chlorite storage and chlorine dioxide day tank area, requirements are in Subsections (a) through (p).

(a) A supplier shall properly store and handle sodium chlorite to eliminate any danger of explosion. The chlorine dioxide facility shall be in an independent room separated from other chemicals and treatment equipment.

(b) The chlorine dioxide facility shall be constructed of non-combustible materials.

(c) A supplier may not store or handle combustible or reactive materials, such as acids, reduced metals, or organic material in the chlorine dioxide operating area.

(d) The facility shall include observation windows to allow the operating area to be viewed from outside the room.

(e) Switches to the light in the operating area shall be outside the room.

(f) An emergency shower and eyewash shall be outside and close to the door of the operating area.

(g) An emergency shut-off control for flows to the generator shall be outside the operating area. Additionally, the capability to shut off the chlorine dioxide operation remotely shall be available.

(h) The chlorite tank and chlorine dioxide solution tank shall include vents. The vent shall discharge outside, discharge above grade, and have a No. 14 mesh non-corrodible screen cover at the end.

(i) Gaseous chlorine feed to the chlorine dioxide generator shall enter the chlorine dioxide facility area through lines which can only feed to vacuum.

(j) The operating area shall have wash-down water.

(k) The floor of the chlorine dioxide facility area shall slope to a sump. A chlorine dioxide operating area may not have a drain.

(l) Chlorine dioxide storage and chlorine dioxide solutions shall have secondary contaminants which can hold the entire volume of the vessel. The secondary containment shall have concrete curbs and a sump.

(m) A supplier shall store personal protective equipment and first aid kits at a nearby location that is outside the chlorine dioxide facility area.

(n) The chlorine dioxide area shall have a separation ventilation system from other operating areas to maintain the ambient air chlorine dioxide concentrations below the Permissible Exposure Limit (PEL).

(i) The ventilating fan shall take suction near the floor, as far as practical from the door and air inlet, with the point of discharge located to prevent contamination of air inlets to any rooms or structures.

(ii) Air inlets shall be provided near the ceiling.

(iii) Air inlets and outlets shall be louvered.

(iv) Switches for the fans shall be outside and near the entrance of the facility.

(o) The chlorine dioxide operating area shall have an ambient air chlorine dioxide sensor. The sensor shall trigger audible and visible alarms in the operating area and outside the door to the operating area.

(p) A supplier shall maintain the temperature of the chlorine dioxide operating area between 60 and 100 degrees F.

R309-520-11. Chloramines.

If a supplier desires to use chloramines as a disinfectant, the supplier shall submit a proposal to the director for review and approval. The director may determine the acceptability of chloramines as a disinfectant.

KEY: drinking water, primary disinfectants, secondary disinfectants, operation and maintenance
Date of Last Change: [~~November 16, 2015~~]2026
Notice of Continuation: February 10, 2025
Authorizing, and Implemented or Interpreted Law: 19-4-104

State of Utah
Administrative Rule Analysis
Revised May 2026

NOTICE OF SUBSTANTIVE CHANGE	
TYPE OF FILING: Repeal and Readopt	**Filing ID: OFFICE USE ONLY**
Rule or section number:	**R309-520**
Date of previous publication (only for CPRs):	Click or tap to enter a date.

1. Agency Information

Title catchline:	Department of Environmental Quality, Division of Drinking Water
Building:	Multi Agency State Building
Street address:	195 North 1950 West
City, state:	Salt Lake City, Utah 84116
Mailing address:	PO Box 144830
City, state and zip:	Salt Lake City, Utah 84114-4830

2. Contact Persons

Name:	Phone:	Email:
Rebecca Yoo	801-388-3594	ryoo@utah.gov
Dani Zebelean	385-278-5110	dzebelean@utah.gov
Sarah Page	385-272-5778	sepage@utah.gov

Please address questions regarding information on this notice to the persons listed above.

3. General Information

A. Rule or section catchline:

R309-520. Facility Design and Operation: Disinfection.

B. Purpose of the new rule or reason for the change:

The Division of Drinking Water proposes to make changes to Rule R309-520 to make it easier to navigate, consolidate related sections from other rules, reflect current standard practices, clarify ambiguous language, and strengthen requirements to better protect public health.

C. Summary of the new rule or change:

The proposed amendments to Rule 309-520 reorganizes requirements by application scenario, consolidates relevant chemical addition provisions from R309-525, and eliminates regulatory ambiguity by establishing explicit standards for submittals, pilot studies, and flow-powered pumps. Additionally, it strengthens public health protections by requiring backup power for uninterruptible disinfection systems, continuous chlorination throughout the distribution system, and the use of digital chlorine analyzers over subjective color strips to achieve accurate water quality monitoring.

The following changes have financial implications.

1. Digital analyzers: Public Water Systems (PWS) currently relying on visual color-matching testing methods will incur a one-time capital expense to purchase digital chlorine analyzers to satisfy the updated rule.
2. Backup power for uninterruptible systems: PWS using non-gaseous chlorination systems to treat spring sources will incur capital costs for backup power systems. These financial impacts include the purchase of a generator, auxiliary equipment, and electrical labor for installation.
3. Secondary containment: PWS whose current secondary containment capacity is insufficient to hold the full volume of their chemical storage totes will incur costs to retrofit or purchase larger secondary containment.
4. Organization and explicit requirements: Clarifying and restructuring the rule requirements will streamline the project permitting process, reducing the time and administrative resources needed for communication between PWS staff, consultants, and regulatory staff. Additionally, clearer standards will decrease compliance violations resulting from improper disinfection practices, ultimately yielding cost savings for water systems.

4. Legislative Action Information

A. Are any changes in this filing because of state legislative action?	Changes are not because of legislative action.
B. If yes, any bill number and session:	NA

5. Fiscal Information

Provide an estimate and written explanation of the aggregate anticipated cost or savings to:

A. State budget:

The proposed rule revisions are estimated to yield $38,700 in annual savings through reduced enforcement, permitting, and technical consultation workloads. Because regulatory efficiencies cannot always be precisely measured in advance, the following cost savings reflect conservative estimates based on available workload data.

1. Prevented Level 2 (L2) Violations: $32,000 annually. Issuing a L2 Violation requires significant staff resources, due to field work, data review, team meetings, communications with the PWS, and administrative costs for preparing the letter. Each L2 costs DDW an estimated $3,200. Assuming the new rule prevents 10% of these incidents, staff time savings are estimated at $32,000 per year.
2. Prevented Boil Orders: $1,400 annually. Preparing and issuing a Boil Order incurs approximately $1,400 in staff administrative and technical assistance costs per order. Preventing one Boil Order per year, which is a 10% reduction, yields an annual savings of $1,400.
3. Streamlined Permitting Process: $2,000 annually. Standardized submittal requirements reduce staff review time for approximately 35 chlorinator projects per year, saving an initial $2,000 annually. As the total number of installed chlorinators grows each year, DDW staff time savings will increase over time.
4. Reduced Technical Assistance: $3,300 annually. Eliminating regulatory ambiguities reduces the back-and-forth communication required between DDW staff, PWS, and engineering consultants regarding compliance and disinfection remedies, saving an estimated $3,300 in staff time each year.

B. Local governments:

$0. Although many PWS are managed by local governments, they were categorized as small or non-small businesses below.

C. Small businesses ("small business" means a business employing 1-49 persons)**:**

PWS serving less than 10,000 people were considered “small businesses”.

Costs: The costs are largely capital costs and were normalized with an anticipated equipment lifespan of 25 years.

1. Chlorine analyzers: $16,200 to $32,400 capital cost; normalized cost of $30 per year per system for 22-43 systems (based on assumption of 5-10% of systems lacking chlorine analyzers)
2. Backup power for uninterruptible systems: $38,000 to $152,000 capital cost; normalized cost of $20 to $80 per year per system for 76 systems; average cost of $48 per year per system for 76 systems
3. Secondary containment: $34,300 capital cost; normalized cost of $6 per year per system for 165 systems that use liquid chlorine

Savings: While the overall savings to Public Water Systems are unquantifiable, the rule updates provide direct financial benefits by preventing costly compliance violations, emergency boil orders, and project review delays. Streamlining permitting submittals and eliminating regulatory confusion lowers overall administrative and consultant overhead for PWS.

D. Non-small businesses ("non-small business" means a business employing 50 or more persons)**:**

PWS serving 10,000 or more people were considered “non-small businesses”.

Costs: The costs are largely capital costs and were normalized with an anticipated equipment lifespan of 25 years.

1. Chlorine analyzers: $0, based on assumption that all systems that lack chlorine analyzers are small systems
2. Backup power for uninterruptible systems: $8,300 to $33,000 capital cost; normalized cost of $20 to $80 per year per system for 17 systems; average cost of $48 per year per system for 17 systems
3. Secondary containment: $101,000 capital cost; normalized cost of $60 per year for 48 systems that use liquid chlorine

Savings: While the overall savings to Public Water Systems are unquantifiable, the rule updates provide direct financial benefits by preventing costly compliance violations, emergency boil orders, and project review delays. Streamlining permitting submittals and eliminating regulatory confusion lowers overall administrative and consultant overhead for PWS.

E. Persons other than small businesses, non-small businesses, state, or local government entities ("person" means any individual, partnership, corporation, association, governmental entity, or public or private organization of any character other than an ***agency***)**:**

While the overall economic value to the population served by the PWS is unquantifiable, ensuring a safe and continuous drinking water supply provides significant financial benefits. Reliable disinfection prevents waterborne illnesses and the associated healthcare costs, missed workdays, and lost household income. Furthermore, protecting public health ensures business continuity, safeguarding individual livelihoods and driving the long-term economic stability and viability of local communities.

F. Compliance costs for affected persons:

None.

6. Regulatory Impact Summary Table

Enter the cost or savings in the relevant cell. If there is no cost or savings, enter, "$0." If a cost or savings is inestimable, enter, "inestimable."

Fiscal Cost	FY2027	FY2028	FY2029	FY2030	FY2031
State Budget	$0	$0	$0	$0	$0
Local Governments	$0	$0	$0	$0	$0
Small Businesses	$88,500 to 218,700	$0	$0	$0	$0
Non-Small Businesses	$109,300 to 134,000	$0	$0	$0	$0
Other Persons	$0	$0	$0	$0	$0
Total Fiscal Cost	**$197,800 to 352,700**	**$**	**$**	**$**	**$**
Fiscal Benefits	**FY2027**	**FY2028**	**FY2029**	**FY2030**	**FY2031**
State Budget	$38,700	$38,700	$38,700	$38,700	$38,700
Local Governments	$0	$0	$0	$0	$0
Small Businesses	Inestimable	Inestimable	Inestimable	Inestimable	Inestimable
Non-Small Businesses	Inestimable	Inestimable	Inestimable	Inestimable	Inestimable
Other Persons	Inestimable	Inestimable	Inestimable	Inestimable	Inestimable
Total Fiscal Benefits	**Inestimable**	**Inestimable**	**Inestimable**	**Inestimable**	**Inestimable**
Net Fiscal Benefits	**Inestimable**	**Inestimable**	**Inestimable**	**Inestimable**	**Inestimable**

7. Regulatory Impact Analysis Approval

The Commissioner of the Department of Environmental Quality, Tim Davis, has reviewed and approved this regulatory impact analysis.

8. Family Impact Information

A. The agency has considered this rule's impact on family health, stability, and formation:	☒

B. Summary of reasonable alternatives or modifications:
If there is a negative impact, summarize considered alternatives here. (Subsection 63G-3-301(6)(b))

9. Citation Information

Provide citations to the statutory authority for the rule. If there is also a federal requirement for the rule, provide a citation to that requirement:

Section 19-4-104	Subsection 63G-3-403(3)	

10. Incorporation by Reference Information

Incorporation by Reference (if this rule incorporates more than two items by reference, please include additional tables)**:**	
A. This rule adds or updates the following title of material incorporated by reference (a copy of the material incorporated by reference must be submitted to the Office of Administrative Rules. *If none, leave blank*)**:**	
Official Title of Materials Incorporated (from title page)	NA
Publisher	NA
Issue Date	NA
Issue or Version	NA

B. This rule adds or updates the following title of material incorporated by reference (a copy of the material incorporated by reference must be submitted to the Office of Administrative Rules. *If none, leave blank*)**:**	
Official Title of Materials Incorporated (from title page)	NA
Publisher	NA
Issue Date	NA
Issue or Version	NA

11. Public Notice Information

The public may submit written or oral comments to the agency identified in box 1.	
A. Comments will be accepted until:	10/15/2026

B. A public hearing (optional) will be held (The public may request a hearing by submitting a written request to the agency, as outlined in Section 63G-3-302 and Rule R15-1.)**:**		
Date:	**Time** (hh:mm AM/PM)**:**	**Place** (physical address or URL)**:**
Click or tap to enter a date.		

To the agency: If more than one hearing is planned to take place, continue to add rows.

12. Effective Date Information

This rule change MAY become effective on: (NOTE: This is the date the agency anticipates making the filing effective. It is NOT the effective date)	11/03/2026

13. Agency Authorization Information

To the agency: Information requested on this form is required by Sections 63G-3-301, 63G-3-302, 63G-3-303, and 63G-3-402. The office may return incomplete forms to the agency, possibly delaying publication in the *Utah State Bulletin* and delaying the first possible effective date.			
Agency head or designee and title:	Nathan Lunstad	**Date:**	08/11/2026

DRINKING WATER BOARD PACKET

Request to Begin Rulemaking for Rule R309-520

Rule R309-520. Facility Design and Operation: Disinfection.
Presented to the Drinking Water Board
August 25, 2026

PROPOSAL:
The Division of Drinking Water proposes to make changes to Rule R309-520 to make it easier to navigate, consolidate related sections from other rules, reflect current standard practices, clarify ambiguous language, and strengthen requirements to better protect public health.

HISTORY/CONTEXT:
The proposed amendments to Rule 309-520 reorganizes requirements by application scenario, consolidates relevant chemical addition provisions from R309-525, and eliminates regulatory ambiguity by establishing explicit standards for submittals, pilot studies, and flow-powered pumps. Additionally, it strengthens public health protections by requiring backup power for uninterruptible disinfection systems, continuous chlorination throughout the distribution system, and the use of digital chlorine analyzers over subjective color strips to achieve accurate water quality monitoring.

The proposed rule has been distributed within the Division and to public water systems, consultants, and other stakeholders for review. The Division has considered all comments received in the revision process. The proposed rule has also been pre-filed with the Office of Administrative Rules for review to ensure the rule is consistent with the current edition of the Office of Administrative Rules' Rule Writing Manual for Utah.

DIVISION STAFF/DIRECTOR RECOMMENDATION:
The Division recommends that the Drinking Water Board approve filing the amendment to Rule R309-520 with the Office of Administrative Rules (OAR) to begin the rulemaking process and make the reenacted rule effective on November 3, 2026, if no comments are received during the comment period.

IMPLEMENTATION SCHEDULE:

Request Drinking Water Board Approval to File Proposed Rule:	8/25/2026
Deadline to File Proposed Rule with OAR:	9/1/2026
Publication of Proposed Rule in Utah State Bulletin:	9/15/2026
End of 30-Day Comment Period:	10/15/2026
File Notice of Effective Date with OAR (if no comments received):	11/3/2026
Anticipated Effective Date of Proposed Rule (if no comments received):	11/3/2026
Return to Request Board Approval to Adopt Rule (if no comments received):	11/3/2026

COST ESTIMATE:

The Division estimates the proposed rule amendment will have a total one-time capital cost to water systems of $197,800 to $ 352,700. Additionally the Division estimates the proposed rule amendment will yield $38,700 in annual savings through reduced enforcement, permitting, and technical consultation workloads. For an in-depth explanation of how the Division estimated these costs and savings please refer to the cost implications on the Substantial Changes form. explain any costs or lack of costs and why. (example: will have no aggregate cost or savings to the state budget and no aggregate costs to local governments, small businesses, non-small businesses, or other persons. Aggregate savings to local governments, small businesses, non-small businesses, or other persons are possible but unknown and unquantifiable. Any savings are expected to be minimal because water suppliers have generally been unable to comply with the special construction requirements for sewers and have instead requested exceptions to the rule requirements.)

Agenda Item
7(B)

DRINKING WATER BOARD PACKET
(Request for Rule Adoption)

PROPOSAL:

Staff are proposing that the Board approve adoption of the amendments to Rule Sections R309-210-1 through R309-210-6 of R309-210. Monitoring and Water Quality: Distribution System Monitoring Requirements; R309-110-4. Administration: Definitions. Definitions; and R309-200-5. Monitoring and Water Quality: Drinking Water Standards. Primacy Drinking Water Standards.

HISTORY/CONTEXT:

On October 8, 2024, the U.S. Environmental Protection Agency (EPA) issued a final rule, the Lead and Copper Rule Improvements (LCRI), requiring drinking water systems nationwide to identify and replace lead service lines by 2037. The LCRI also strengthens drinking water testing requirements and lowers action thresholds that trigger protective measures to reduce lead exposure. In addition, the rule requires PWS to implement additional public communication measures so communities are better informed about the presence of lead service lines, associated risks, and replacement plans.

The deadline for Utah to apply for primacy over the LCRI is October 30, 2026. In order to be granted primacy, one thing Utah must do is adopt state rules that are at least as stringent as the federal requirements.

DDW is proposing amendments to the following rules to implement the LCRI and qualify for State primacy:

- **R309-210-1 through R309-210-6:** Some non-substantial amendments and adoption by reference of the LCRI CFR rule.
- **R309-110-4:** Update the definition of Action Level with the new Lead Action Levels
- **R309-200-5:** Update the definition of Action Level with the new Lead Action Levels

On April 28, 2026, the Drinking Water Board approved the proposed amendments to R309-210-1 through R309-210-6; R309-110-4; and R309-200-5 for a 30-day public comment period.

On June 15, 2026, the proposed amendments were published in the Utah State *Bulletin* for a 30-day formal public comment period. The Division received four comments to the proposed amendments. A summary of those comments and the Division's response is provided below:

Comment 1: Two commenters pointed out the same typo in the proposed rule.

Division Response: The typo was corrected.

Comment 2: One comment questioned whether the requirement in R309-210-4(5) to require samples to be analyzed by the “State of Utah primacy laboratory or a laboratory certified by the Utah State Health Laboratory" would meet the stringency requirement for primacy.

Division Response: This requirement has long been in Utah Drinking Water rules and is not a new amendment that was part of the proposed changes to these rules. The EPA has concluded that the requirement meets the stringency requirement in past primacy approvals and when they reviewed the proposed amendments to these rules.

Comment 3: One comment raised concerns about many of the requirements of the federal regulation and questioned whether the Board should incorporate by reference the federal rule.

Division Response: The Lead and Copper Rule Improvements (LCRI) was promulgated at the federal level, establishing revised national standards. To maintain primacy and authority over State drinking water programs, the State must adopt regulations that are at least as stringent as federal requirements. The Division determined that incorporating the federal LCRI by reference is the most effective approach to ensure full compliance without creating unintended regulatory discrepancies or unintentionally imposing state-specific requirements that exceed federal standards.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

The Division recommends that the Drinking Water Board approve adoption of the amendments to R309-210-1 through R309-210-6, R309-110-4, and R309-200-5.

R309. Environmental Quality, Drinking Water.
R309-110. Administration: Definitions.
R309-110-4. Definitions.

As used in R309:

"Action level" means the concentration of lead or copper in drinking water tap samples which determines requirements under Section R309-210-6. The copper action level is 1.3 mg/l. Until October 31, 2027, the lead action level is 0.015 mg/l, and starting November 1, 2027, the lead action level is 0.010 mg/L

R309. Environmental Quality, Drinking Water.
R309-200. Monitoring and Water Quality: Drinking Water Standards.
R309-200-5. Primary Drinking Water Standards.

(1) Inorganic Contaminants.

(a) The maximum contaminant levels (MCLs) for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, sodium, thallium and total dissolved solids are applicable to community and non-transient non-community water systems.

(b) The MCLs for nitrate, nitrite, and total nitrate, nitrite and sulfate are applicable to community, non-transient non-community, and transient non-community water systems.

(c) The maximum contaminant levels for inorganic chemicals are listed in Table 200-1.

TABLE 200-1
PRIMARY INORGANIC CONTAMINANTS

Contaminant	Maximum Contaminant Level
1. Antimony	0.006 mg/L
2. Arsenic	0.010 mg/L (see Note 5 below)
3. Asbestos	7 Million Fibers/liter (longer than 10 um)
4. Barium	2 mg/L

5. Beryllium	0.004 mg/L
6. Cadmium	0.005 mg/L
7. Chromium	0.1 mg/L
8. Cyanide (as free Cyanide)	0.2 mg/L
9. Fluoride	4.0 mg/L
10. Mercury	0.002 mg/L
11. Nickel	--- (see Note 1 below)
12. Nitrate	10 mg/l (as Nitrogen) (see Note 4 below)
13. Nitrite	1 mg/L (as Nitrogen)
14. Total Nitrate and Nitrite	10 mg/L (as Nitrogen)
15. Selenium	0.05 mg/L
16. Sodium	--- (see Note 1 below)
17. Sulfate	1000 mg/L (see Note 2 below)
18. Thallium	0.002 mg/L
19. Total Dissolved Solids	2000 mg/L (see Note 3 below)

NOTE:

(1) No maximum contaminant level has been established for nickel and sodium. However, these contaminant shall be monitored and reported in accordance with the requirements of R309-205-5(3).

(2) If the sulfate level of a public (community, NTNC and non-community) water system is greater than 500 mg/L, the supplier shall satisfactorily demonstrate that:

(a) No better quality water is available, and

(b) The water shall not be available for human consumption from commercial establishments.

In no case shall the Director allow the use of water having a sulfate level greater than 1000 mg/L.

(3) If TDS is greater than 1000 mg/L, the supplier shall satisfactorily demonstrate to the Director that no better water is available. The Director shall not allow the use of an inferior source of water if a better source of water (i.e. lower in TDS) is available.

(4) In the case of a non-community water systems which exceed the MCL for nitrate, the Director may allow, on a case-by-case basis, a nitrate level not to exceed 20 mg/L if the supplier can adequately demonstrate that:

(a) such water will not be available to children under 6 months of age as may be the case in hospitals, schools and day care centers; and

(b) there will be continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effect of exposure in accordance with R309-220-12; and

(c) the water is analyzed in conformance to R309-205-5(4); and

(d) that no adverse health effects will result.

(5) The maximum contaminant level for arsenic is 0.05 mg/L until January 23, 2006. The MCL of 0.010 mg/L is effective for the purposes of compliance on January 23, 2006.

(2) The lead and copper action levels are defined as follows:

(a) Until October 31, 2027, the lead action level is exceeded if the concentration of lead in more than 10% of tap water samples collected during any monitoring period conducted in accordance with Section R309-210-6 is greater than 0.015 mg/L, as an example, if the "90th percentile" lead level is greater than 0.015~~[0]~~ mg/L.

(b) Starting on November 1, 2027, the lead action level is exceeded if the concentration of lead in more than 10% of tap water samples collected during any monitoring period conducted in accordance with Section R309-210-6 is greater than 0.010 mg/L, as an example, if the "90th percentile" lead level is greater than 0.010 mg/L.

(c) The copper action level is exceeded if the concentration of copper in more than 10% of tap water samples collected during any monitoring period conducted in accordance with Section R309-210-6 is greater than 1.3 mg/L, as an example, if the "90th percentile" copper level is greater than 1.3 mg/L.

(d) The 90th percentile lead and copper levels shall be computed per Section R309-210-6.

R309. Environmental Quality, Drinking Water.
R309-210. Monitoring and Water Quality: Distribution System Monitoring Requirements.
R309-210-1. Purpose.

The purpose of this rule is to outline the monitoring, public education, inventory, replacement, and treatment requirements for each supplier with regard to its distribution systems.

R309-210-2. Authority.

This rule is promulgated by the Drinking Water Board as authorized by Section 19-4-104 and in accordance with Title 63G, Chapter 3, Rulemaking Act.

R309-210-3. Definitions.

Until October 31, 2027, definitions for Section R309-210-6 are defined in Rule R309-110. Beginning on November 1, 2027, definitions for Section R309-210-6 are defined in 40 CFR 141.2 (2025). Definitions for all other sections in Rule R309-210 are defined in Rule R309-110.

R309-210-4. General.

(1) Each supplier shall monitor its water to determine compliance with water quality requirements according to Rule R309-200. In exceptional circumstances the director may modify the monitoring requirements in Rule R309-210 as is deemed appropriate.

(2) The director may determine compliance or initiate compliance actions based upon analytical results and other information compiled by authorized representatives, and a supplier must keep analytical records in their possession for a required length of time outlined in Section R309-105-17.

(3) If a supplier fails to meet minimum standards, it shall carry out certain public notification procedures outlined in Rule R309-220.

(4) A supplier shall take samples at representative sites as specified in Rule R309-210 for each contaminant or group of contaminants.

(5) To determine compliance, the division may only consider samples if they have been analyzed by the State of Utah primacy laboratory or a laboratory certified by the Utah State Health Laboratory.

(6) Measurements for pH, temperature, turbidity and disinfectant residual may, under the direction of the direct responsible operator, be performed by any water supplier or representative.

(7) Each supplier must mark either: routine, repeat, check or investigative before submission of such samples to a certified laboratory. Each supplier shall consider routine, repeat, and check samples as compliance purpose samples.

(8) Suppliers may send each sample result to the division either electronically or in hard copy form.

(9) Unless otherwise required by the director, each supplier shall initiate required monitoring identical to the dates published in 40 CFR 141 on July 1, 2025.

(10) The division may grant an exemption from monitoring requirements only in accordance with Section R309-105-5.

R309-210-5. Bacteriological Monitoring.

Refer to Rule R309-211 for bacteriological monitoring requirements.

R309-210-6. Lead and Copper Monitoring and Service Line Inventory and Replacement.

(1) The requirements of Section R309-210-6 and the lead and copper requirements of 40 CFR 141 Subpart I (2025), unless otherwise indicated, apply to community water systems and non-transient non-community water systems.

(2) This section incorporates by reference 40 CFR 141 Subpart I (2025), with the following modifications:

(a) the phrases "the State, States, State, or the applicable State," are replaced with "the Division".

(b) the following sections are exempted from the changes listed in Subsection (a):

(i) 40 CFR 141.85(a)(1)(iv)(G);

(ii) 40 CFR 141.85(i);

(iii) 40 CFR 141.86(a)(4)(iv);

(iv) 40 CFR 141.87(b)(4)(iv);

(v) 40 CFR 141.90(i)(3)(vi);

(vi) 40 CFR 141.92(a)(1)(i);

(vii) 40 CFR 141.92(g)(1)(ii); and

(viii) wherever the term "State health agency", "State health agencies", "State or local law" or "a State" is used.

(c) The phrase "State-approved" is replaced with "Division-approved".

(d) the Division does not incorporate by reference the lead and copper analysis requirement under 40 CFR 141.89(a)(1).

(3) Each supplier shall complete tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results shall be completed in compliance with Section R309-200-8.

Agenda Item
8(A)

Division of Drinking Water

Project Funding Types & Uses

Federal Funds:

SRF grant

Any community & non-profit non-community water system following specific requirements (eg, Buy America, fair wages & EEO, environmental review, audited financials)

Supplemental grant*

Same as SRF grant

Lead Service Line grant*

Lead removal projects, same requirements as SRF

Emerging Contaminant grant*

Contaminant(s) removal projects, same requirements as SRF

"2nd round" (loans repaid)

Same as SRF, with fewer requirements (only American iron & steel required)

Hardship (interest rate reduction fees)

For disadvantaged systems…no requirements

State Funds:

Water Development Security Fund/WDSF (taxes)

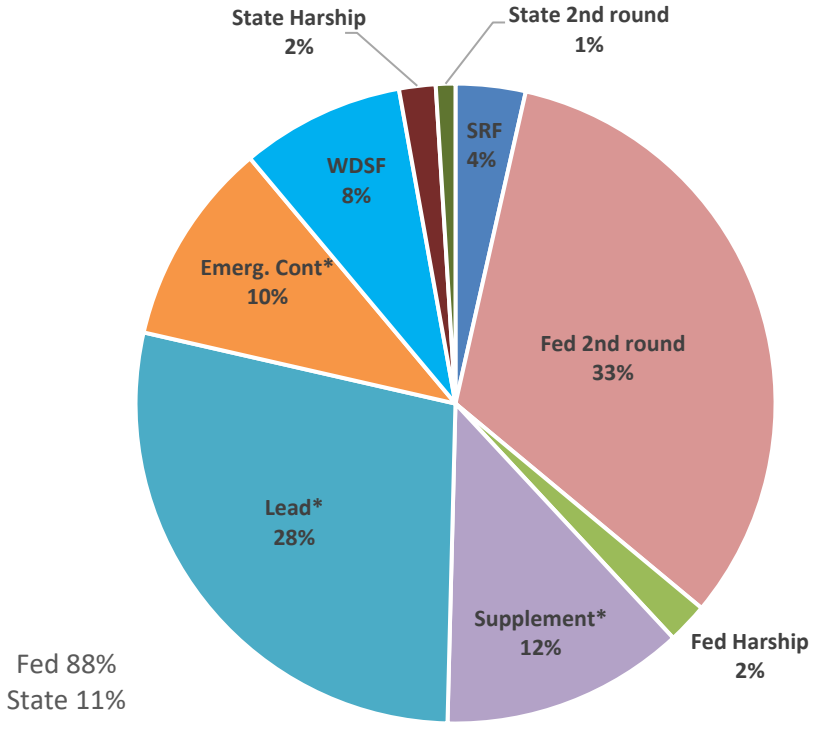
A political subdivision. No Buy America, fair wage & EEO, nor audited financials

"2nd round" (loans repaid)

For disadvantaged political subdivisions

Hardship (interest rate reduction fees)

For disadvantaged political subdivisions…no repayment required



**funding ends in 2027*

DIVISION OF DRINKING WATER

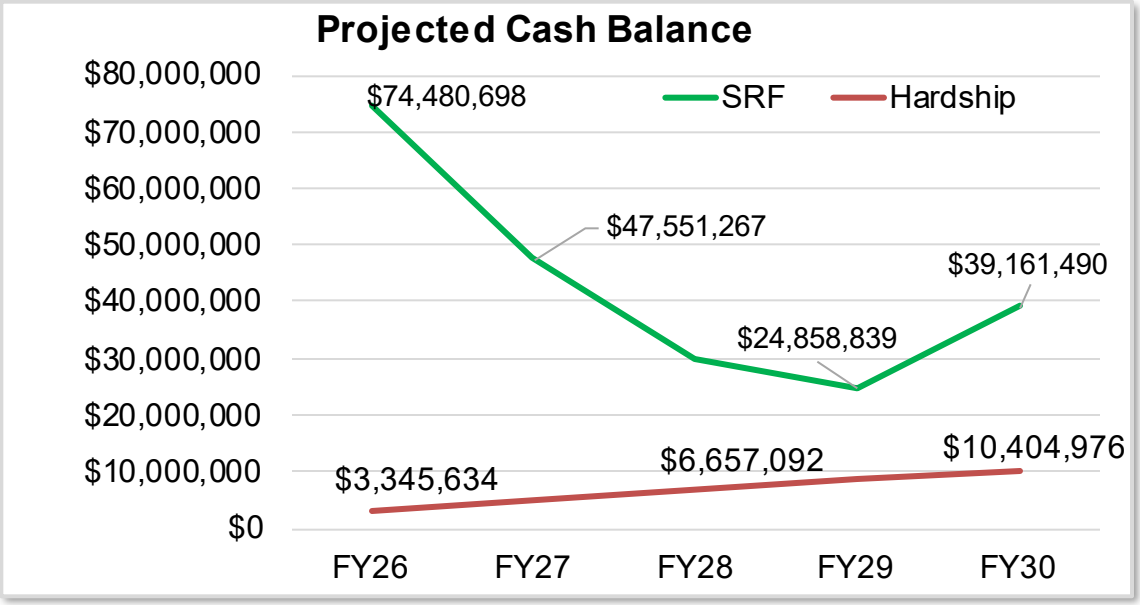
FEDERAL SRF SUMMARY

Funding Status | As of July 31, 2026

FISCAL YEAR FUNDING (estimate)		
Beginning Cash (Regular)	$	74,480,698
Beginning Cash (Harship)		3,345,634
Fed Grants & State Match		53,287,880
Interest Earnings (cash on-hand)		1,556,527
Loan Repayments & Fees (147 loans)		12,580,933
FY Funding	$	145,251,672

FISCAL YEAR SPENDING (estimate)		
Contractors (Rural Water Assoc)	$	(153,920)
Project Disbursements		(92,750,542)
FY Spending	$	(92,904,462)
Current FY-end Balance (6/30)	$	52,347,210

FUTURE YEARS ESTIMATE (to 6/30/30)		
Regular Fund	$	48,189,930
Hardship Fund		5,916,873
Contractors		(307,840)
Project Disbursements		(56,579,707)
Proposed Projects		-
Future Funding(Spending)	$	(2,780,744)
Regular Available	**$**	**39,161,490**
Hardship Available	**$**	**10,404,976**



FEDERAL SRF DETAIL

Authorizations | As of July 31, 2026

Water System	Project #	Terms	Aurhorize Date	Contract Date	Authorized $	Undisbursed
CONSTRUCTION IN-PROGRESS						
Ballard WID	3F1896	0% 40 yr	Aug-22	Mar-26	$ 1,620,626	$ 760,626
Blanding - West Water	3F1897A	100% PF	Jan-22	Jul-22	$ 457,000	$ 457,000
Brian Head	3F1910	0% 40 yr	Mar-23	Nov-24	$ 5,483,748	$ 775,000
Cornish	3F1812	0% 30 yr	Nov-21	Aug-24	$ 1,504,922	$ 837,922
Holiday Hills	3F2025	0% 40 yr	Nov-23	Jun-26	$ 855,830	$ 455,830
Irontown	3F3032	0% 40 yr	Jan-25	Jul-26	$ 883,000	$ 883,000
Leeds Domestic Users	3F1892	0% 40 yr	May-23	May-24	$ 7,792,500	$ 5,400,000
Ogden City	3F1908	1% 30 yr	Jan-23	Oct-24	$ 34,370,000	$ 34,320,000
Salt Lake City DPU	3F2028	1.5% 39 yr	Feb-24	Dec-24	$ 19,762,500	$ 19,762,500
Virgin Town	3F1909	0% 40 yr	May-23	Jan-26	$ 3,070,489	$ 1,940,489
Wallsburg	3F1889	0% 40 yr	Aug-22	Apr-24	$ 6,933,000	$ 500,000
Planning (<$100k)	12	varies	varies		$ 1,328,491	$ 613,468
				TOTAL Under Construction	**$ 84,062,105**	**$ 66,705,835**

AUTHORIZED, Contract Not Signed						
Fremont Waterworks Co	3F2016	1% 30 yr	Aug-23		$ 1,425,000	$ 1,425,000
Hi-Country Estates	3F3758	1% 39 yr	Oct-25		$ 1,270,000	$ 1,270,000
Holden (less advance)	3F1847	0% 40 yr	Aug-24		$ 8,291,000	$ 8,291,000
Hooper ID	3F3899	2% 30 yr	Nov-25		$ 12,000,000	$ 12,000,000
Huntsville	3F3898	1.5% 30 yr	Nov-25		$ 1,698,000	$ 1,698,000
Kane-Johnson (less advance)	3F3299	0% 30 yr	Jun-25		$ 3,059,000	$ 2,896,000
Mutton Hollow	3F2438	0% 30 yr	Aug-24		$ 1,300,000	$ 1,300,000
Nibley City	3F3362	0% 20 yr	Jun-25		$ 3,500,000	$ 3,500,000
Paragonah (less advance)	3F1913	0% 40 yr	May-23		$ 7,300,000	$ 7,000,000
Parowan Town	3F3297	0% 30 yr	Jun-25		$ 10,750,000	$ 10,750,000
Price (less advance)	3F3329	0% 40 yr	Jun-25		$ 15,197,000	$ 15,197,000
Roosevelt City	3F1854	100% PF	Jun-22		$ 2,841,000	$ 2,841,000
Sigurd	3F2867	0% 40 yr	Nov-24		$ 1,460,000	$ 1,460,000
Summit Service Area #3	3F2075	0.5% 39 yr	May-24		$ 6,771,000	$ 6,771,414
Wanship	3F2108	0% 40 yr	Jun-24		$ 6,165,000	$ 6,165,000
				TOTAL Contract Not Signed	**$ 83,027,000**	**$ 82,564,414**

PROPOSED PROJECTS			
Water System	Points	Terms	$
		TOTAL Proposed	**$ -**

Federal SRF Cash Flow

Fiscal Year Forecast (as of July 31, 2026)

Federal SRF (Regular)	FY27	FY28	FY29	FY30
Funding				
Fund 5210 Cash Balance	$ 74,480,698	$ 47,551,267	$ 29,986,925	$ 24,858,839
Interest - cash on-hand	1,489,614	951,025	599,739	497,177
Loan Repayments	11,010,171	11,577,840	11,508,675	11,805,474
Current projects entering repayment	-	-	-	-
Prior grants (unspent)	45,733,080	-	-	-
Potential Funding				
2026 EPA grants	-	-	-	-
State Match	7,160,800	7,250,000	2,000,000	2,000,000
Fed SRF Funding	139,874,363	67,330,132	44,095,339	39,161,490
Contract - none	-	-	-	-
UNDER CONSTRUCTION				
Ballard WID - 3F1896	(760,626)	-	-	-
Blanding - West Water - 3F1897A	(457,000)	-	-	-
Brian Head - 3F1910	(775,000)	-	-	-
Cedar Valley/Central Iron - 3F2966P	(40,000)	-	-	-
Cornish - #3F1812	(837,922)	-	-	-
Holiday Hills - 3F2025 (advance)	(455,830)	-	-	-
Irontown - 3F3032	(883,000)	-	-	-
Leeds DWUA - 3F1892	(2,700,000)	(2,700,000)	-	-
Ogden - 3F1908	(33,027,000)	(1,293,000)	-	-
Salt Lake City DPU - 3F2028	(6,587,500)	(6,587,500)	(6,587,500)	-
San Juan - La Sal 3F1871P	(60,000)	-	-	-
Scofield Mtn Estates - 3F3230P	(28,000)	-	-	-
Virgin Town - 3F1909	(1,940,489)	-	-	-
Wallsburg - 3F1889	(500,000)	-	-	-
Wanship - 3F1916P	(27,600)	-	-	-
Whispering Pines 3F2504P	(90,423)	-	-	-
AUTHORIZED, No Contract				
Fremont Waterworks - 3F2016	(1,425,000)	-	-	-
Hi-Country Estates - 3F3758	(1,270,000)	-	-	-
Holden (less planning $) - 3F1847	(4,145,500)	(4,145,500)	-	-
Hooper - 3F3899	(4,000,000)	(4,000,000)	(4,000,000)	-
Huntsville - 3F3898	(1,698,000)	-		-
KCWCD Johnson Canyon - 3F3299	(2,896,000)	-	-	-
Mutton Hollow - 3F2438	(1,300,000)	-	-	-
Nibley City - 3F3362	(3,500,000)	-	-	-
Paragonah Town - 3F1913	(3,500,000)	(3,500,000)	-	-
Parowan Town - 3F3297	(3,583,333)	(3,583,333)	(3,583,333)	-
Price Municipal - 3F3329	(5,065,667)	(5,065,667)	(5,065,667)	-
Roosevelt City - 3F1854	(2,841,000)	-	-	-
Sigurd - 3F2867	(1,460,000)	-	-	-
Summit Area #3 - 3F2075	(3,385,707)	(3,385,707)	-	-
Wanship - 3F2108	(3,082,500)	(3,082,500)	-	-
PROPOSED	-	-	-	-
Fed SRF Outflow	(92,323,096)	(37,343,207)	(19,236,500)	-
Fed SRF FY-End Balance	$ 47,551,267	$ 29,986,925	$ 24,858,839	$ 39,161,490

Federal Hardship Cash Flow

Federal SRF (Hardship)	FY27	FY28	FY29	FY30
Funding				
Fund 5215 Cash Balance	$ 3,345,634	$ 4,795,943	$ 6,657,092	$ 8,485,102
Interest - cash on-hand	66,913	95,919	133,142	169,702
Loan Repayments	1,570,762	1,919,150	1,848,788	1,750,172
Current projects entering repayment	-	-	-	-
Unreimbursed ARPA disbursements	394,000	-	-	-
Potential Funding				-
Hardship Fees	-	-	-	-
Hardship Funding	5,377,309	6,811,012	8,639,022	10,404,976
Contract - Rural Water Assoc	(153,920)	(153,920)	(153,920)	-
UNDER CONSTRUCTION				
Greenwich 3F3892P	(40,000)	-	-	-
Hi-Country 3F2240P	(78,000)	-	-	-
High Valley - 3F3263P	(94,600)	-	-	-
Johnson - 3F3461P	(73,000)	-	-	-
New Castle - 3F3826P	(40,000)	-	-	-
Piute-Sevier - 3F2178P	(18,866)	-	-	-
Rockville Pipeline - 3F3824P	(31,980)	-	-	-
Tridell Lapoint - 3F3527P	(51,000)	-	-	-
AUTHORIZED, No Contract				
none	-	-	-	-
PROPOSED	-	-	-	-
Hardship Outflow	(581,366)	(153,920)	(153,920)	-
Hardship FY-End Balance	$ 4,795,943	$ 6,657,092	$ 8,485,102	$ 10,404,976
TOTAL FED SRF & HARDSHIP	$ 52,347,210	$ 36,644,017	$ 33,343,940	$ 49,566,466

DIVISION OF DRINKING WATER

Fed - ARPA Summary

Funding Status | As of July 31, 2026

Funding	
ARPA Appropriation - Rural	46,500,000
ARPA Appropriation - Schools	3,500,000
LESS: returned to Treasurer	(300,000)
LESS: authorized projects	(49,671,553)
LESS: proposed projects	-
Unobligated*	$ 28,447

Spending	
Disbursed To-Date	(45,620,849)
Unspent*	$ 4,079,151

**Funding must be fully spent by 12/31/26*

DIVISION OF DRINKING WATER

Fed - ARPA Detail

Authorizations | As of July 31, 2026

Project	Contract	Author. Date	Contract Date	Authorized $	Remainder $
School Projects					
Alpine District	205879	Oct-24	Oct-24	$ 135,243	$ 3,872
Cache District	241873	Mar-24	Mar-24	30,000	30,000
Canyons District	242390	May-24	May-24	55,000	55,000
Carbon District	250588	Sep-24	Sep-24	6,000	6,000
Granite District	251026	Nov-24	Nov-24	79,096	14,040
Weber District	242542	Jun-24	Jun-24	139,292	76,285
Fully spent				575,543	-
			TOTAL Schools	**$ 1,020,174**	**$ 185,196**
Rural Projects					
Antimony	3S3131A	Dec-24	Dec-24	$ 140,000	$ 78,785
Axtell Community	3F1845A	Jun-22	Oct-22	3,255,110	1,338,730
Ballard	3F1896A	Aug-22	Jul-26	594,374	362,374
Big Plains/Apple Valley	3F2032	Feb-24	Jun-26	118,000	118,000
Blanding - West Water	3F1897A	Aug-22	Sep-23	3,500,000	681,290
Cannonville	3S1838A	Jul-22	Sep-25	26,152	17,452
Daggett Co - Dutch John	3F1857A	Mar-23	Nov-23	3,500,000	143,178
Eureka (Rural)	3F4121A	Feb-26		158,000	158,000
Kane Co WCD - Clark Bench	3F1853A	Jun-22	Nov-22	3,009,828	109,305
Kane Co WCD - New Paria	3F1852A	Jun-22	Oct-22	4,171,007	149,228
Manderfield (Rural)	3F4187A	Feb-26		200,000	200,000
Orderville	3F2038A	Apr-24	May-24	479,384	342,723
Rockville Pipeline Co	3F3894A	Nov-25	Jan-26	92,000	9,712
South Duchesne	3F1879A	Jul-24	Sep-24	1,500,500	131,857
Trenton	3F4055A	Feb-26	Apr-26	127,000	24,875
Fully spent				27,780,024	-
			TOTAL Rural	**$ 48,651,379**	**$ 3,865,508**
Proposed Projects					
			TOTAL Proposed	**$ -**	

DIVISION OF DRINKING WATER

Fed Lead Service Line Summary

Funding Status | As of July 31, 2026

FUNDING		
FY22 Grant unspent		5,649,878
FY23 Grant unspent		21,201,000
FY25 Grant unspent		19,768,500
FY26 Grant available		27,456,000
AVAILABLE Funding	$	74,075,378

SPENDING		
Authorized Projects		(57,173,174)
Proposed Projects		-
TOTAL Spending	$	(57,173,174)

AVAILABLE TO AUTHORIZE	**$**	**16,902,204**

DIVISION OF DRINKING WATER

Fed Lead Service Line Detail

Authorizations | As of July 31, 2026

Water System	Project #	Terms	Author. Date	Contract Date	Total $	Undisbursed
CONSTRUCTION IN-PROGRESS						
Magna	3F3164	2% 20 yr	Feb-25	Feb-26	$ 2,000,000	$ 1,750,000
Salt Lake City	3F2028	1.5% 39 yr	Apr-24	Dec-24	$ 19,762,500	$ 19,062,500
				TOTAL Under Construction	$ 21,762,500	$ 20,812,500
PLANNING IN-PROCESS						
Cedar City	3F1961PL	100% PF	Apr-23	Jul-23	$ 100,000	$ 100,000
Cedarview Montwell	3F1979PL	100% PF	Jul-23	Aug-23	$ 100,000	$ 75,934
Charleston WC	3F1967P	100% PF	Jul-23	Feb-24	$ 25,000	$ 25,000
Corinne	3F1939PL	100% PF	Jul-23	Aug-23	$ 100,000	$ 17,509
Daggett Co-Dutch John	3F1959PL	100% PF	Jul-23	Jul-23	$ 80,000	$ 17,230
Elsinore	3F2029PL	100% PF	Jan-24	Jul-24	$ 35,000	$ 5,120
Green River	3F1978PL	100% PF	May-23	Jul-23	$ 96,000	$ 96,000
Helper	3F1935P	100% PF	Apr-23	Jan-24	$ 100,000	$ 13,139
Jensen WID	3F1988PL	100% PF	Jul-23	Sep-23	$ 96,000	$ 50,864
Johnson WID	3F1956P	100% PF	Jul-23	Apr-24	$ 100,000	$ 73,342
Jordanelle	3F1954P	100% PF	Jul-23	Jan-24	$ 15,500	$ 15,500
Manti City	3F1952P	100% PF	Aug-23	Jan-24	$ 100,000	$ 100,000
Moab	3F1977PL	100% PF	May-23	Jun-23	$ 100,000	$ 100,000
Moroni	3F1990P	100% PF	May-23	Jan-24	$ 100,000	$ 56,451
North Fork SSD	3F2372PL	100% PF	Oct-24	Nov-24	$ 100,000	$ 52,744
North Village	3F1953P	100% PF	Jul-23	Jan-24	$ 8,300	$ 8,300
Ogden	3F2405PL	100% PF	Oct-24	Oct-24	$ 100,000	$ 100,000
Ouray Park	3F1969P	100% PF	Jul-23	Jan-24	$ 93,000	$ 77,061
Panguitch	3F1962P	100% PF	Jul-23	Dec-23	$ 86,000	$ 59,444
Price	3F1996PL	100% PF	Jul-23	Aug-23	$ 100,000	$ 86,112
Roosevelt	3F2037PL	100% PF	Apr-24	Jun-24	$ 100,000	$ 36,986
Rubys Inn	3F2034PL	100% PF	Mar-24	May-24	$ 100,000	$ 64,496
Salina	3F1971P	100% PF	Aug-23	Mar-24	$ 100,000	$ 60,701
Springdale	3F1965PL	100% PF	Jul-23	Oct-23	$ 94,000	$ 82,042
Springville	3F2022PL	100% PF	Mar-24	Jul-24	$ 100,000	$ 22,700
Storm Haven-Daniel Town	3F2036PL	100% PF	Feb-24	Apr-25	$ 40,000	$ 40,000
Tridell Lapoint	3F1957PL	100% PF	Apr-23	Jul-23	$ 100,000	$ 81,392
Wasatch/Twin Creeks	3F1955P	100% PF	Jul-23	Jan-24	$ 17,500	$ 17,500
Wellington	3F1981PL	100% PF	May-23	Aug-23	$ 100,000	$ 46,817
West Corinne	3F1983PL	100% PF	Jul-23	Jul-23	$ 60,000	$ 6,892
				TOTAL Planning	$ 2,446,300	$ 1,589,274
AUTHORIZED, Contract Not Signed						
Antimony	3F3765L	100% PF	Oct-25		$ 41,200	$ 41,200
Austin SSD	3F3759L	100% PF	Oct-25		$ 106,000	$ 106,000
Boulder Farmstead	3F3763L	100% PF	Oct-25		$ 330,000	$ 330,000
Brooklyn Tapline	3F2999P	100% PF	Nov-24		$ 20,000	$ 20,000
Coalville	3F4022L	100% PF	Feb-26		$ 83,000	$ 83,000
Junction Town	3F3766L	100% PF	Oct-25		$ 41,200	$ 41,200
La Verkin City	3F3560L	2.5% 20 yr	Nov-25		$ 2,228,000	$ 2,228,000
Ogden City	3F3897L	1% 39 yr	Oct-25		$ 27,285,000	$ 27,285,000

Paragonah	3F3895L	1% 39 yr	Oct-25	$ 2,925,000	$ 2,925,000
Wellington City	3F3762L	100% PF	Oct-25	$ 1,712,000	$ 1,712,000
			TOTAL Contract Not Signed	$ 34,771,400	$ 34,771,400

PROPOSED PROJECTS		
Water System	Terms	Total $
	TOTAL Proposed	$ -

DIVISION OF DRINKING WATER

Fed Emerging Contaminants Summary

Funding Status | As of July 31, 2026

FUNDING		
FY22 Grant unspent	$	22,882
FY23 Grant unspent		7,341,500
FY24 Grant unspent		6,417,600
FY25 Grant unspent		5,737,640
FY26 Grant available		7,640,000
AVAILABLE Funding	$	27,159,622

SPENDING	
Authorized Projects	(3,563,240)
Proposed Projects	-
TOTAL Spending	$ (3,563,240)

AVAILABLE TO AUTHORIZE	**$**	**23,596,382**

DIVISION OF DRINKING WATER

Fed Emerging Contaminants Detail

Authorizations | As of July 31, 2026

Water System	Project #	Authorize Date	Contract Date	Total $	Undisbursed
CONSTRUCTION IN-PROGRESS					
Escalante	3F3956PE	Oct-25	Dec-25	$ 21,700	$ 940
Salt Lake City	3F2900P	Nov-24	Jul-26	800,000	800,000
			TOTAL Under Construction	$ 821,700	$ 800,940

AUTHORIZED, Contract Not Signed					
Cottonwood Mutual	3F2868E	Nov-24		$ 762,300	$ 762,300
Mountain Regional	3F3298E	Jun-25		2,000,000	2,000,000
			Total Contract Not Signed:	$ 2,762,300	$ 2,762,300

PROPOSED PROJECTS			
System	**Points**	**Terms**	**Total $**
		Total Proposed	$ -

DIVISION OF DRINKING WATER

STATE DRINKING WATER FUNDING

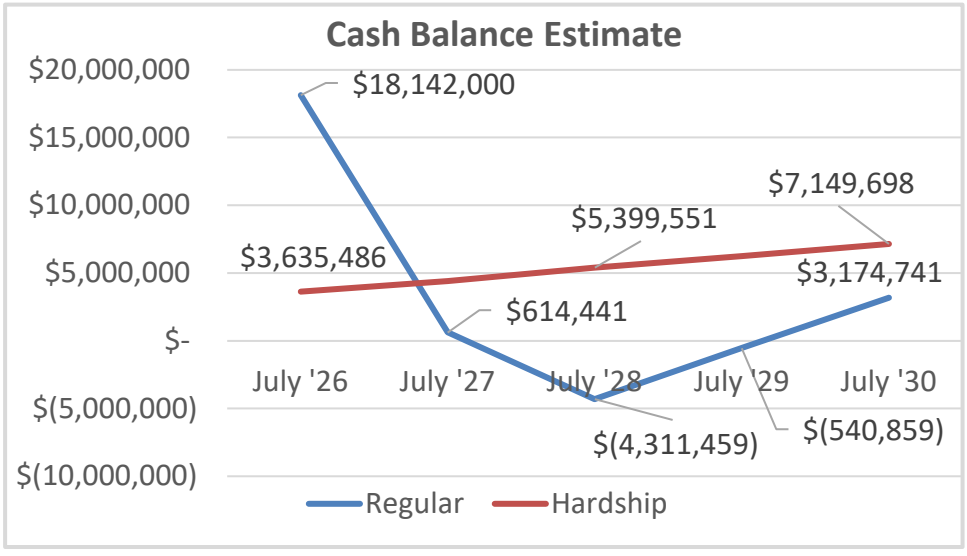
Projection | As of July 31, 2026

FISCAL YEAR FUNDING (estimate)		
Cash Balance (State SRF)	$	18,142,000
Cash Balance (Hardship)		3,635,486
Water Development Security Fund (sales tax)		3,587,500
Interest Earnings (cash on-hand)		435,550
Loan Repayments (76 loans)		3,381,415
Hardship Fees (loans < market %)		-
FY Funding	$	29,181,951

FISCAL YEAR SPENDING (estimate)		
Project Disbursements	$	(15,486,751)
Fed Grants Required Match		(7,160,800)
Division Operating Budget		(1,512,900)
FY Spending	$	(24,160,451)
Current FY-end Balance (6/30)	$	5,021,500

FUTURE ESTIMATE (thru 6/30/30)		
Loan Repayments	$	13,797,639
Water Dev Security Fund (sales tax)		10,762,500
Fed Grants Match		(11,250,000)
Project Disbursements		(3,272,500)
Division Operating Budget		(4,538,700)
Proposed Projects (1)		(196,000)
Future Funding(Spending)	$	5,302,939

State Available*	**$**	**3,174,741**
Hardship Available	**$**	**7,149,698**



**State cash flow likely to go negative temporarily to match Fed grants*

STATE DRINKING WATER FUNDS

Authorizations | As of July 31, 2026

Water System	Project #	Terms	Authorize Date	Contract Date	Total $	Undisbursed
CONSTRUCTION IN-PROGRESS						
Bear River	3S1849	1%, 20 yrs	Jun-22	Aug-24	$ 2,840,000	$ 1,817,000
Cannonville	3S1838A	100% grant	Feb-22	Aug-25	86,291	$ 50,000
Fairfield	3S2768P	100% grant	Sep-23	Oct-23	38,600	$ 11,892
Manti	3S1924	0%, 40 yrs	May-23	Feb-25	7,687,000	$ 6,937,000
North Logan	3S2174	2.25%, 20 yr	Jun-24	Oct-25	8,030,000	$ 3,230,000
Snowville	3S3692P	100% grant	Sep-25	Sep-25	17,500	$ 17,500
Trenton	3S2273P	100% grant	Jul-25	Nov-25	40,000	$ 40,000
Wellsville	3S2040	2.4%, 20 yr	Apr-24	Dec-24	3,200,000	$ 1,468,000
				TOTAL Under Construction	$ 21,939,391	$ 13,571,392

AUTHORIZED, Contract Not Signed						
Apple Valley	3S4286	0%, 30 yr	Jun-26		$ 200,000	$ 200,000
Angell Springs	3S2801	0%, 40 yr	Nov-24		1,445,859	$ 1,445,859
Deseret Oasis	3S2176	2.61%, 20 yr	Jun-24		155,000	$ 155,000
Hanksville	3S2702P	100% grant	Dec-24		40,000	$ 40,000
Hildale City	3S2669	0.5% 39 yr	Aug-24		1,411,000	$ 1,411,000
Oak City	3S1902	2.62% 20 yr	Feb-26		1,263,000	$ 1,263,000
Soldier Summit	3S3395	3% 20 yr	Jun-25		585,000	$ 585,000
Vernon	3S3296	100% grant	Jun-25		88,000	$ 88,000
				TOTAL Contract Not Signed	$ 5,187,859	$ 5,187,859

PROPOSED PROJECTS			
Water System	Points	Terms	Total $
Beaver City		Hardship grant	$ 196,000
		TOTAL Proposed	**$ 196,000**

State Drinking Water Cash Flow

	FY27	FY28	FY29	FY30
STATE (Fund 5235)				
FUNDING				
Cash On-Hand	$ 18,142,000	$ 614,441	$ (4,311,459)	$ (540,859)
Sales Tax (Water Dev Security Fund)	3,587,500	3,587,500	3,587,500	3,587,500
Interest (deposited in Hardship fund)	-	-	-	-
Loan repayment - principal only	2,602,000	3,718,000	3,696,000	3,641,000
Current Construction entering repayment		-	-	-
State Funding	24,331,500	7,919,941	2,972,041	6,687,641
State Match for Fed grants	(7,160,800)	(7,250,000)	(2,000,000)	(2,000,000)
Appropriation to DDW Oper. Budget	(1,512,900)	(1,512,900)	(1,512,900)	(1,512,900)
UNDER CONSTRUCTION				
Bear River - 3S1849	(1,817,000)	-	-	-
Manti City - 3S1924	(3,468,500)	(3,468,500)	-	-
North Logan - 3S2174	(3,230,000)	-	-	-
Wellsville City - #3S2040	(1,468,000)	-	-	-
AUTHORIZED, No Contract				
Apple Valley - 3S4286	(200,000)	-	-	-
Angell Springs - 3S2801	(1,445,859)	-	-	-
Deseret Oasis - 3S2176	(155,000)	-	-	-
Hildale City - 3S2669	(1,411,000)	-	-	-
Oak City - 3S1902	(1,263,000)	-	-	-
Soldier Summit - 3S3395	(585,000)	-	-	-
PROPOSED		-	-	-
State Outflow	(23,717,059)	(12,231,400)	(3,512,900)	(3,512,900)
State FY-End Balance	$ 614,441	$ (4,311,459)	$ (540,859)	$ 3,174,741
STATE Hardship (Fund 5240)				
FUNDING				
Cash On-Hand	$ 3,635,486	$ 4,407,059	$ 5,399,551	$ 6,256,356
Interest - cash on-hand	435,550	100,430	21,762	114,310
Loan interest (fund 5235 loans)	779,415	892,062	835,043	779,031
Current Construction entering repaymer	-	-	-	-
Hardship Fees	-	-	-	-
Hardship Funding	4,850,451	5,399,551	6,256,356	7,149,698
UNDER CONSTRUCTION				
Cannonville - 3S1838A	(50,000)	-	-	-
Fairfield - 3S2768P	(11,892)	-	-	-
Snowville - 3S3692P	(17,500)	-	-	-
Trenton - 3S2273P	(40,000)	-	-	-
AUTHORIZED, No Contract				
Hanksville - 3S2702P	(40,000)	-	-	-
Vernon Waterworks SSD - 3S3296	(88,000)	-	-	-
PROPOSED	(196,000)	-	-	-
Hardship Outflow	(443,392)	-	-	-
Hardship FY-End Balance	$ 4,407,059	$ 5,399,551	$ 6,256,356	$ 7,149,698

Agenda Item
8(B)

DRINKING WATER BOARD
BOARD PACKET FOR PROJECT PRIORITY LIST

There are no new projects added to the project priority list:

FINANCIAL ASSISTANCE COMMITTEE RECOMMENDATION:

The Drinking Water Board approve the updated Project Priority List.

Agenda Item
8(C)(ii)(a)

Helper City
Presented to the Drinking Water Board
August 25, 2026

DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION ASSISTANCE

APPLICANT'S REQUEST:

On August 31, 2022, the Drinking Water Board authorized an American Rescue Plan Act (ARPA) Grant of $3,416,000 to Helper City for replacing a transmission line, well and storage tank rehabilitation, meter replacement, and a new SCADA system.

On September 24, 2024, the Drinking Water Board authorized a construction grant of $300,000 and a loan of $700,000 at 0% interest for 39 years to Helper to cover additional project expenses.

As the construction project wraps up, Helper would like to use approximately $443,000 in remaining project funds and construction PTIF Escrow Account interest for the following items:

- Meter tower equipment, the meter set up fee and the first-year meter software fee for Helper's recently installed AMI meters, paid for separate from the DWSRF project.
- Equipment for adding Helper's chlorinator to the SCADA system installed during the DWSRF project.
- Install flow meters on the overflow pipes from two of Helper's storage tanks.
- Install a security fence around the perimeter of Helper's Main Storage Tank, refurbished during the DWSRF project.

STAFF RECOMMENDATION:

The Drinking Water Board authorize the use of $443,000 in remaining DWSRF construction project funding related to Helper's AMI meters, SCADA system, flow meters and tank security fencing.

Agenda Item
8(C)(ii)(b)

Beaver City
Presented to the Drinking Water Board
August 25, 2026

DRINKING WATER BOARD
BOARD PACKET FOR AUTHORIZATION

APPLICANT'S REQUEST:

On July 20, 2026, staff received a phone call from Parker Vercimak, consulting engineer for Beaver City, requesting help from the Board for emergency funding to repair their spring line that was damaged due to flooding from the burn scar of the Cottonwood fire. The spring line was running over the river, so the flooded river damaged the line severely requiring it to be replaced.

City officials and their engineers did a site visit to the springs to observe the damage to the spring line, and come up with a plan to get the line repaired. Several meetings were held with division staff to discuss the damage and come up with a plan to get it repaired as quickly as possible, as well as moving forward to make additional repairs as needed.

There will be phases to the project, the first phase is emergency funds to repair the spring line and change its alignment to go under the river instead of over the river, protecting it from future damage. There are also 3 other sections of buried spring line further up the canyon that was washed out. They were not compromised, but have sustained some damage. The emergency funding will also replace the damaged sections, stabilize and re-bury those 3 sections. Immediate funding is needed for the $196,000 repair.

A second phase is a request for advance funding to establish a project scope that will encompass not only the spring line, but any additional infrastructure that has been damaged by the flood. This will include an evaluation and project scope of alternatives for a permanent spring line river crossing, preliminary engineering and cost estimate defining the recommended improvements, assisting the city to secure funding, assisting with obtaining any required permits and providing construction management services for the emergency repair.

Beaver City will also be submitting a full application for funds to construct additional spring/waterline protections and adding a booster pump. This application will also include any additional repairs that need to be done to address any additional damage from the flood and maintain the water system.

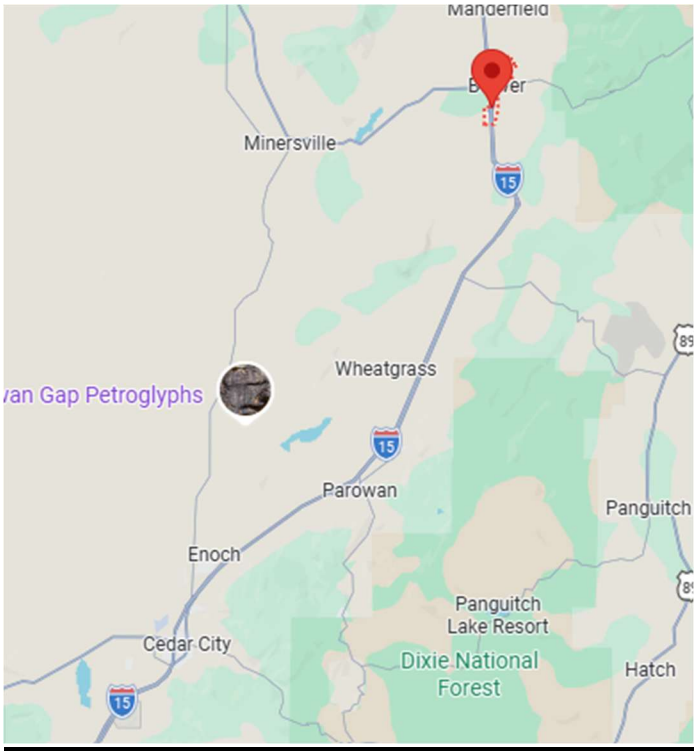
FINANCIAL ASSISTANCE COMMITTEE RECOMMENDATION:

The Drinking water Board authorize a grant of $196,000 from the state hardship grant fund to Beaver City.

APPLICANT'S LOCATION:

Beaver City is located in Beaver County approximately 53 miles north of Cedar City.

MAP OF APPLICANT'S LOCATION:



PROJECT DESCRIPTION:

Beaver City needs to repair/replace the spring line at the river crossing where it was severely damaged from a flood due to the burn scar. They have it temporarily fixed to get by until a more permanent solution can be made. They will be moving the spring line to go under the river instead of over the river to protect it from getting washed out again.

COST ESTIMATE:

Legal/Bonding/Admin	
Engineering - Design	$15,000
Engineering – obtain permits	$10,000
Construction -	$150,000
Other (land	
Contingency (~10%)	$21,000
1% Loan Origination Fee	
Total	**$196,000**

IMPLEMENTATION SCHEDULE:

DWB Funding Authorization:	Aug, 2026
Completed Plan:	Dec 31, 2026

COST ALLOCATION:

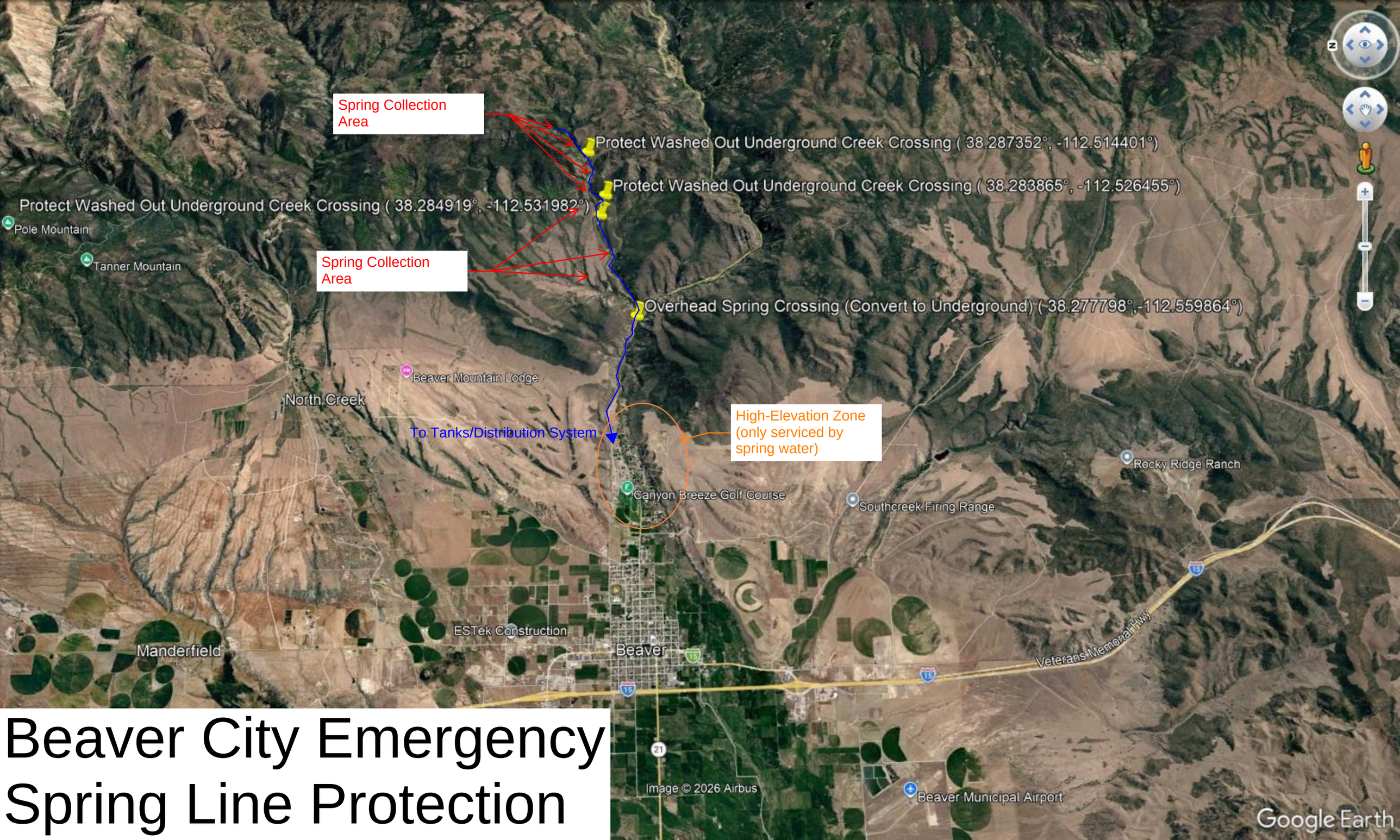
Funding Source	Cost Sharing	Percent of Project
DWB Grant	$196,000	100%
USDA Grant		
CIB Grant		
Local Contribution		
Total	**$196,000**	**100%**

IPS SUMMARY:

Beaver City has 15 IPS points for a monitoring violation. Monitoring violations points stay on their record for one year.

CONTACT INFORMATION:

APPLICANT:	Beaver City 30 West 300 North Beaver, Utah 84713
PRESIDING OFFICIAL & CONTACT PERSON:	Monte Hawkins 30 West 300 North Beaver, Utah 84713
TREASURER/RECORDER:	
CONSULTING ENGINEER:	Parker Vercimak Jones and Demille Engineering Telephone: 435-896-8266 Email: parker.v@jonesanddemille.com



Beaver City Emergency Spring Line Protection

Agenda Item 8(C)(iii)(a)

the EC-SDC fund. They also contributed $20,000 toward the project. The project consisted of a new pump house, treatment to remove manganese, and SCADA upgrades.

The project for Green Hills is nearly complete. Their staff and engineers have been very helpful in clarifying project costs, making sure specific items were accounted for accurately for the different funds, and they also made sure the project progressed accordingly. Since they qualify as a disadvantaged community, staff recommend they receive 25% of reallocated ARPA funding.

Leeds Domestic Water Users Association

The project total for Leeds Domestic Water Users Association was $7,524,5000. They were authorized a loan of $4,020,000 with 0% interest for 40 years with $3,499,500 in principal forgiveness. They contributed $5,000 toward the project. The project consisted of drilling a new well, chlorinator, altitude valve and vault installation, new water main and transmission lines.

Construction on the first phase of the project is complete. The consulting engineer and staff have been very responsive and provided all required documentation quickly. They also coordinated with the District on the first phase of the project, saving the association approximately $500,000. Since they qualify as a disadvantaged community, staff recommend they receive 25% of the reallocated ARPA funding.

Levan Town

The project total for Levan Town was $2,895,000. They were authorized a loan of $1,433,000 with 2% interest for 30 years with $1,433,050 in principal forgiveness. They contributed $28,950 toward the project. The project consisted of water line replacement.

Throughout the project staff and their consulting engineers have been excellent to work with, responsive, and provided accurate documentation. Since they qualify as a disadvantaged community, staff recommend they receive 25% of the reallocated ARPA funding.

Pine Valley Mountain Farms

The Pine Valley Mountain Farms project was $1,587,544. They are a private system and qualified as a disadvantaged community. They were authorized a loan of $150,000 with 0% interest for 30 years with $680,009 in principal forgiveness, and $687,550 in ARPA funding. They also contributed $69,985 toward the project. The project consisted of tank refurbishment, new waterline, removal of dead-end loops, and new meters.

The project for Pine Valley is complete. Their staff and engineers have been very responsive with the project, made all efforts to be sure things progressed timely, and complied with all federal requirements. Staff recommend they receive 25% of the reallocated ARPA funding.

STAFF RECOMMENDATION:

Staff recommends the Drinking Water Board: **motion the Executive Secretary or Assistant Executive Secretary may deauthorize unspent ARPA funds on October 1, 2026 and reallocate these ARPA funds under the special conditions noted in the Board packet.**

Special Conditions

1. Reallocated ARPA funds may only be utilized for early repayment of the Water Systems previously closed DWSRF loan,
2. Green Hills Water & Sewer District shall be authorized for 25% of reallocated funds,
2. Levan Town shall be authorized for 25% of reallocated funds,
3. Leeds Domestic Water Users Association shall be authorized for 25% of reallocated funds, and
4. Pine Valley Mountain Farms shall be authorized for 25% of reallocated funds.

Agenda Item
9

Drinking Water Board Packet Addition

Item 9 to be presented by Nathan Lunstad and representatives from the Cyber Center (include the PDFs - Local Water Cybersecurity Grant Program and list of PWS that have applied)

Cyber Center Funding:

Background:

During the 2026 Legislative Session, House Bill 3 (Appropriations Adjustments, Line 3026) appropriated $1,500,000 to establish a matching grant program focused on strengthening the cybersecurity resiliency of public drinking water and wastewater's Supervisory Control and Data Acquisition (SCADA) and automated water systems. The program is a collaborative effort between the Utah Cyber Center and the Department of Environmental Quality/Division of Drinking Water.

Intent: Board approval of the Utah Cyber Center's review process, eligibility criteria, and the list of public water systems that have applied for funding under this program. Additional public water systems are expected to apply for grant funding until the funding is fully obligated.

Program Overview:

- **Match Requirements:** Eligibility for hardship status is determined using the Division of Drinking Water's Modified Adjusted Gross Income (MAGI) process. An entity qualifies as a hardship case if its MAGI is 80% or less of the state MAGI ($48,000) or if its expenditures exceed its revenues.
- **Hardship Funding:** Entities qualifying for hardship status require a 1–5% match and may receive up to $20,000.
- **Standard Funding:** Entities not qualifying for hardship status require a 50% match and may receive up to $20,000.
- **MOU Requirements & Disbursement:** Entities must sign a Memorandum of Understanding (MOU). Grants are disbursed directly based on invoice submission rather than traditional reimbursement.

STAFF RECOMMENDATION:

The Drinking Water Board authorize the Utah Cyber Center and the Division of Drinking Water's grant application process, hardship determination criteria, and the current list of public water systems applying for funding under the Local Water Cybersecurity Grant Program. Additionally, the Drinking Water Board authorize Division and Cyber Center staff to execute the necessary Memorandums of Understanding (MOUs) and disburse funds to eligible entities in accordance with the program guidelines.

Public Water Systems Applying for Cyber Center Funding

Hardship Per MAGI	System #	System Name	MAGI	Revenue	Expenditures	Budget Balance (if negative, eligible for hardship)
Yes			$34,000			$0
Yes			$42,000	$200,000	$20,000	$180,000
Yes			$46,000	$532,389	$480,000	$52,389
Yes			$48,000	$28,704,000	$28,888,000	-$184,000
Yes			$49,000	$136,102	$38,359	$97,743
Yes			$49,000	$557,790	$563,932	-$6,142
Yes			$50,000	$368,160	$307,015	$61,145
Yes			$51,000	$220,000	$225,000	-$5,000
Yes			$52,000			$0
Yes			$52,000	$920,930	$1,247,221	-$326,291
Yes			$54,000	$263,003	$232,531	$30,473
Yes			$54,000	$115,807,528	$91,558,752	$24,248,776
Yes			$55,000	$90,700	$90,700	$0
Yes			$55,000	$200,000	$20,000	$180,000
Yes			$55,000	$2,074,570	$2,280,777	-$206,207
Yes			$56,000	$510,950	$591,950	-$81,000
Yes			$57,000	$780,000	$750,000	$30,000
Yes			$57,000	$668,000	$563,238	$104,762
Yes			$58,000	$541,107	$301,000	$240,107
Yes			$58,000	$12,869,773	$11,546,159	$1,323,614
No			$62,000	$246,821	$304,699	-$57,878
No			$64,000	$453,781	$483,779	-$29,998
No			$69,000	$1,495,921	$1,512,589	-$16,668
No			$84,000	$688,831	$752,712	-$63,881
No			$94,000	$117,172	$128,292	-$11,120
No			$94,000	$129,000	$160,000	-$31,000
No			$60,000	$3,052,600	$3,002,193	$50,407
No			$61,000	$1,253,950	$748,752	$505,198
No			$67,000	$6,037,664	$5,961,706	$75,958
No			$70,000	$137,631	$113,574	$24,057
No			$71,000	$9,383,740	$9,383,740	$0
No			$74,000	$72,000	< $72,000	
No			$79,000	$756,000	$756,000	$0
No			$80,000			$0
No			$81,000	$20,000,000	$19,000,000	$1,000,000
No			$89,000	$4,000,000	$3,800,000	$200,000

	Public Water System information redacted for security purposes
	If highlighted in green - the system is under State MAGI for income
	If only column G is in Yellow, the city falls under hardship based on expenditures being less than revenue