

Drinking Water Board Packet

January 15, 2019

Agenda



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of Environmental Quality

Alan Matheson
Executive Director

DIVISION OF DRINKING WATER
Marie E. Owens, P.E.
Director

Drinking Water Board
Betty Naylor, *Chair*
Roger G. Fridal, *Vice-Chair*
Kristi Bell
Brett Chynoweth
Jeff Coombs
Tage Flint
Eric Franson, P.E.
Alan Matheson
David Stevens, Ph.D.
Marie E. Owens, P.E.
Executive Secretary

DRINKING WATER BOARD MEETING
January 15, 2019 – 1:00 pm
Multi Agency State Office Building – Board Room 1015
195 North 1950 West
Salt Lake City, Utah 84116

Marie Owens' Cell Phone #: (801) 505-1973

1. Call to Order
2. Roll Call – Marie Owens
3. Approval of the Minutes:
 - A. [November 13, 2018](#)
4. Financial Assistance Committee Report
 - A. [Status Report – Michael Grange](#)
 - B. [Project Priority List – Michael Grange](#)
 - C. SRF Applications
 - i. STATE:
 - a) [Eastland SSD \(Heather Bobb\)](#)
 - b) [Moroni City \(Heather Bobb\)](#)
 - ii. FEDERAL:
 - a) [Lincoln Culinary Water \(Lisa Nelson\)](#)
 - b) [Tridell Lapoint \(Lisa Nelson\)](#)
 - c) [Canyon Meadows \(Lisa Nelson\)](#)
 - d) [Virgin Town \(Heather Bobb\)](#)
5. Rulemaking Process
 - A. Authorization to Adopt Revised Total Coliform Rule (RTCR) – Jennifer Yee
 - i. [309-100-9: Administration: Drinking Water Program](#)
 - ii. [309-105-4: Administration: General Responsibilities of Public Water Systems](#)
 - iii. [309-110-4: Administration: Definitions](#)
 - iv. [309-200: Monitoring and Water Quality: Drinking Water Standards](#)
 - v. [309-210-8: Monitoring and Water Quality: Distribution System Monitoring Requirements](#)
 - vi. [309-211: Monitoring and Water Quality: Distribution System – Total Coliform Requirements](#)

- vii. [309-215-10&16: Monitoring and Water Quality: Treatment Plant Monitoring Requirements](#)
 - viii. [309-220-4: Monitoring and Water Quality: Public Notification Requirements](#)
 - ix. [309-225-4: Monitoring and Water Quality: Consumer Confidence Reports](#)
- 6. [Rural Water Association Report – Dale Pierson](#)
 - 7. Open Board Discussion – Betty Naylor
 - 8. Directors Report
 - A. 2018 Year in Review
 - B. Legislative Update
 - C. Other
 - 9. Other
 - 10. Public Comment Period
 - 11. Next Board Meeting:
 - Date: Thursday, February 28, 2019
 - Time: 2:00 pm
 - Place: Dixie Convention Center
Garden Room
1835 Convention Center Drive
St. George, Utah 84790
 - 12. Adjourn

In compliance with the American Disabilities Act, individuals with special needs (including auxiliary communicative aids and services) should contact Larene Wyss, Office of Human Resources, at: (801) 297-3828, TDD (801) 903-3978, at least five working days prior to the scheduled meeting.

Agenda Item

3(A)



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DRAFT MINUTES

1. Call to Order

Betty Naylor, Board Chairman called the meeting to order at 1:00 p.m.

2. Roll Call

Board Members present: Betty Naylor, Roger Fridal, Brett Chynoweth, David Stevens, Brad Johnson (filling in for Alan Matheson), and Jeff Coombs via electronic participation.

Tage Flint joined the meeting at 1:05 pm, being present for agenda Items 5 on.

Division Staff present: Marie Owens, Hayley Shaffer, Michael Grange, Jennifer Yee, Gary Rager, and Nathan Lunstad.

3. Election of Board Chairman & Vice Chairman

Marie Owens informed members it is time to take nominations for the Chairman and Vice Chairman, which will be effective as of the January 2019 Board meeting.

- David Stevens made a motion to retain Betty Naylor as Board Chairman and Roger Fridal as Vice Chairman. Brett Chynoweth seconded. The motion was carried unanimously by the Board.

4. Approval of the Minutes:

A. August 28, 2018

- Betty Naylor moved to approve both the August 28, 2018 and October 12, 2018

minutes as presented. Roger Fridal seconded. The motion was carried unanimously by the Board.

B. October 12, 2018

- Minutes were approved during agenda item 4(A).

5. Financial Assistance Committee Report

A. Status Report – Michael Grange

Michael Grange, Technical Assistance Section Manager with the Division of Drinking Water (DDW, the Division) reported there is currently a balance of \$772 thousand in the State SRF fund. Over the course of the next year, the Division is expecting an additional \$2 million to come into the fund, for a total of approximately \$2.8 million for project allocation through October 31, 2019. He reported there are two loans anticipated to close before the end of this year.

Betty Naylor asked why a water system that had previously pulled their application was still showing on the status report. Michael clarified this system will be removed from the report by the next Board meeting.

Michael then reported currently there is approximately \$68.5 million in the Federal SRF fund. Over the course of the next year, the Division is expecting about \$20 million to come into the fund. He reported this amount could however change with the recent congressional approval, resulting in approximately \$1.17 billion for FY19 and increasing to \$1.9 billion by FY21. He reported there are two loans anticipated to close on January 3, 2019, and others in the process.

Michael informed the Board that although there are no current State or Federal projects on today's agenda, it is anticipated there will be requests for several loans at the January meeting.

B. Project Priority List – Michael Grange

Michael Grange reported there are no proposed projects to be added to the project priority list this month.

6. Rulemaking Process

A. Authorization to Adopt Cross Connection Control Rules – Gary Rager

Gary Rager, Environmental Scientist III with DDW reported there were no substantive comments received during the open comment period through the Office of Administrative Rules or through the Cross Control Commission. Division staff recommends adoption of both R309-105-12: Cross Connection Control Rule and R309-305 Cross Connection Control and Backflow Prevention Certification Rule.

Betty Naylor reminded the Board many of these rule changes were grammatical and terminology amendments. Gary also included there is now a specific requirement for a community water system to have a certified Program Administrator.

David Stevens asked how it will be documented and determined if a water system's Administrator is certified and how often this designated person would need to be recertified. Gary replied the Administrator would need to pass the exam once and would then be eligible to remain in compliance through CEUs annually.

Roger Fridal asked how these rule changes will be enforced. Gary replied it would be documented in a system's sanitary survey if they do not have "trained staff", which will now include having a certified Program Administrator.

Kristi Bell asked if DDW would need to know if a water system is using a contracted operator as their Program Administrator. Gary responded that DDW would need to have a record for that water system to prove they are in compliance with the new requirement.

Brett Chynoweth confirmed this requirement is only applicable to community water systems over 500 in population. Gary replied those systems with >500 in population will go into effect in 2020 and those systems with <500 will go into effect in 2022.

Marie Owens clarified if a community water system fails to meet the requirement of having a Program Administrator, points will be added to the system's IPS report and will be identified as a deficiency.

- David Stevens made a motion to adopt R309-105-12 and R309-305 as amended and presented, and to include the phased implementation schedule as proposed. Roger Fridal seconded. The motion was carried unanimously by the Board.

B. Authorization to Begin to Amend Revised Total Coliform Rule (RTCT) – Jennifer Yee

Jennifer Yee, Environmental Coordinator with DDW reported the proposed amendments to R309-100-9, R309-105-4, R309-110-4, R309-200, R309-210-8, R309-211, R309-215-10&16, R309-220-4, R309-225-4 were made to rectify the rule to be in compliance with EPA in order to maintain primacy.

Marie Owens reminded the Board they had previously approved amendments to this rule, however EPA had comments on various items that needed to be corrected and brought back for revision authorization.

Betty Naylor noted a spelling error on R309-110-4. Jennifer replied this will be corrected prior to the final rule adoptions.

- Tage Flint made a motion to authorize to begin rulemaking to amend all of the rules as presented on the agenda under this section, and to file the proposed rule amendment with the Office of Administrative Rules for publication in the Utah State Bulletin. David Stevens seconded. The motion was carried unanimously by the Board.

C. Update of Ongoing Rulemaking Activities

i. Improvement Priority System

Jennifer Yee informed the Board of the upcoming changes to the Division's Improvement Priority System (IPS). The amendments to this rule will allow the point system to be in better alignment with EPA's Enforcement Tracking Tool (ETT), and will more heavily weigh deficiencies that could impact public health. The Division staff has been marketing the changes to stakeholders in an effort to receive informal public comment. It is anticipated this rule will be brought before the Board at the April 2019 meeting for authorization to begin the amendment process.

Marie Owens added the IPS is essentially a report card for a water system and currently, due to inconsistencies, is not alerting Division staff if a water system is in trouble with EPA. The changes will allow staff to assist earlier on and help bring a water system back into compliance before EPA is involved. The rule will also be more concise and condensed from 40-50 pages to 4-5, and will include a reference table of the point values. She informed the Board the technology programming is done and the Division will roll out the current and future points to water systems at the 2019 RWAU conference in February. The implementation of the rule will be delayed to allow time for systems to address deficiencies prior to the January 2020 effective date.

ii. Water Operator Certification

Michael Grange informed the Board the current Water Operator Certification Rule is outdated, incomplete, and may not be in full compliance with EPA. He explained the bulk of the changes will include rearranging sections of the rule, modifying the training and CEU requirements, and altering the complexity criteria for treatment plants and distribution systems. It is anticipated this rule will be brought before the Board at the January 2019 meeting for authorization to begin the amendment process.

David Stevens asked Michael what he meant by saying the rule is "outdated". Michael replied there are many rules referenced that no longer exist.

iii. Public Water System Identification

Marie informed the Board of a taskforce that was put together several years ago to discuss and identify issues from public water systems, and many gaps were noted. One problem in particular is the issue of a land developer placing an entire community behind a master meter. The residents presume that because they pay their water bill to the city, they would not be liable for infrastructure damage, water quality issues, etc. However, because these residents are behind the master meter, they are, in many cases, unknowingly fully responsible. To combat this problem, master meters will be discouraged from use and a designated "parent" must be established at all times. The responsible party will no longer be allowed to relinquish custody without another delegated authority in place.

The rule will include a section on new "prospective water systems" to ensure infrastructure standards are met up front. The Division would have limited authority over these systems until the population designations are met. A second new section that will be added is titled "permit by

rule” for low risk water systems (apartment buildings, hospitals, schools, etc.). This will be applicable to a system so long as they receive their water from an approved public water system and do not treat or store the water onsite. If this designation is not automatic for a water system, it may be applied for and approved or denied at the discretion of the Director. The third addition will include the State having authority over water systems on federal land.

Marie stated the Division has started the process of reaching out to stakeholders to educate them on the proposed changes, and are also accepting informal public comment. Because this rule impacts the Division’s primacy, it will also need to include EPA review.

David Stevens asked what the recourse will be for the many orphaned systems already established. Marie replied it would be determined who the legal authority is for that system and would then be the person legally responsible if an issue were to arise.

Tage Flint asked if generally the likely scenario is the developer of a system leaves the title of the system to the homeowners without designating a parent authority. Marie replied the developer would now need to transfer the title to another legal entity. If that was indeed the homeowners, they would need to incorporate as an HOA and would be considered the legal entity over that water system.

Tage asked if it would be possible to tighten development at the county level in order to avoid these issues altogether. Marie replied that is the goal and we would encourage the county to be aware of these rules and to delay issuing building permits without first verifying the Division has documentation on record. For this to be effective, it would need to be an easily accessible online system with a quick turnaround time to prevent any interruptions to the county’s issuance of building permits.

Tage asked if the problem is being perpetuated by considering and approving SRF loans for private water systems. Marie replied the hope is that by mandating the water system have a legally responsible party, private entities and developers will build up to the respective city’s standards from the beginning in order to eventually have the city take over the system, which could be funded through the SRF programs.

David asked why a developer wouldn’t just create an HOA from the start to avoid the liability issues later. Marie replied the Welcome to the Club letters sent from the Division are intentionally harsh to get the attention of the responsible party in hopes the person or entity absorbing that liability is aware of the full responsibilities of being a public water system.

David reminded the Board and Division staff that care must be given to ensure it is the legally responsible party being held accountable. Marie agreed and added when a system comes on record with the Division, they will be informed of these liabilities at that time.

iv. Minimum Sizing Requirements

Nathan Lunstad, Permitting Section Manager provided a presentation (see attached) and overview of the minimum sizing requirement changes that were based on the 2014 legislative audit, and went into effect July 2018. The new standards will no longer be generalized, will be system specific based on reported data, must be submitted by a certified water operator, and will need to include: 1) peak day source demand, 2) average annual demand, 3) total number

of retail equivalent residential connections (ERCs), and 4) quantity of non-revenue water. A water system will also have the option to submit an engineering study by the effective date in the absence of the data to the Division of Water Rights (DWRi). Possible consequences of not submitting data will include 50 deficiency points added to their IPS report.

Marie added this is an example of why the IPS rule needs to be amended as this is not an imminent public health concern, yet is weighed heavier than other deficiencies that are a public health concern. Nathan continued stating that another factor that will impact water systems that fail to submit their data will have a hold put on requests to the Division for any substantial addition or alteration to their system until the data is received.

Wholesale water suppliers are exempt from having system specific sizing standards, however they must still submit their data to DWRi.

Nathan reviewed the parties involved in these changes as well as the proposed timeline which will include three implementation phases based on the populations served. He advised of the education efforts provided by Division staff to assist water systems including webinars, presentations, guidance documents, and examples of how to accurately collect the data.

Tage Flint thanked Nathan for the great summarization of the changes and asked if a community wanted to require less than the state standard for water demand, would they need to make a case to the Division Director. Nathan responded indeed that is the case, however they can also submit an engineering review or use historical data. Tage followed up by asking if each individual ERC would need to be counted to set the standard to something different. Nathan replied at this time it is based on the source and will be a part of the system's master plan. Since the standards are system specific, there is some flexibility.

7. Rural Water Association Report – Dale Pierson

Dale Pierson with Rural Water Association of Utah (RWAU) reviewed the national apprenticeship program that is underway and will include 4,000 hours of training provided by the employer and 288 additional hours of instruction by RWAU on various trainings and online courses. Two of the four years of instruction will be paid for by the water system and is available to all systems of all sizes. The apprenticeship will also include the water operator certification training and exam. Dale informed the Board the first apprentice is onboard as of last week and they are continuing to take applications.

David Stevens asked what the goal is for the apprenticeship program. Dale replied it offers the candidates a skillset in the water industry, specifically with a given water system. They are able to solicit their water operator certification status on resumes, and it will be helpful to the whole industry for these candidates to gain real world, hands-on knowledge.

David Stevens asked if there are problems with smaller water systems having the ability to offset the costs for a portion of the apprenticeship program. Dale replied that indeed this has been an issue for smaller systems. RWAU is actively seeking both state and federal dollars to assist with these costs.

Marie Owens thanked RWAU staff for their report and for assisting and supporting these water systems in need through the apprenticeship program.

8. Open Board Discussion – Betty Naylor

A. Public Comment Period

Brad Johnson informed the Board that other DEQ Boards have a place saver on their agenda to allow for public comment. All Boards have been asked to follow this protocol and was brought before the Drinking Water Board for discussion. The suggestion was made to add a place saver at the end of the agenda to allow for public comment with a three minute per person time limit, which can be extended at the discretion of the Board chair. The caveat to this is time may still be requested during an agenda item for public comment with prior notification.

B. Board Training Schedule

Marie Owens reviewed the two upcoming Board member training opportunities. The first will be prior to the January 15th meeting onsite at the Multi-Agency State Office Building from 12-1pm. Topics will include the roles, responsibilities, ethics, and code of conduct for Board members. The second training will be prior to the February 28th meeting in St. George at the RWAU annual conference. The topic will be on the State and Federal Revolving Funds.

9. Director's Report

A. Legislative Updates

Marie Owens reviewed the recent meetings of the Natural Resources, Agriculture, and Environment Interim Committee. She informed them of the four working subgroups that were created by the Executive Director of the Division of Natural Resources under the direction of this committee to address issues related to private property, surplus water, constitutional amendments, and extraterritorial jurisdiction. She reported she was asked to chair the extraterritorial jurisdiction workgroup which met close to ten times and had between 40-50 attendees at each meeting to work through issues in an attempt to come to a consensus. Marie informed the Board she would be giving presentations on this topic at the State Capitol that evening as well as the following morning. The following legislators are anticipated to run these bills: Senator Ralph Okerlund – Extraterritorial Jurisdiction, Representative Kim Coleman – Surplus Water, and Representative Keven Stratton – Constitutional Amendments. The property rights issue was not legislatively recommended and will not be run as a bill during the 2019 session.

Marie also informed the Board Representative Stephen Handy has opened a bill file for testing drinking water in schools for lead.

Tage Flint commended Marie on her time and leadership with the extraterritorial jurisdiction workgroup, stating the recommended proposed language will be a big improvement.

B. Enforcement Report

Marie Owens reviewed the report of water systems with a current status of “not approved” for various reasons as well as those systems under formal and informal enforcement. She reported

the last time this report was brought before the Board there were over sixty systems under this umbrella and currently, there are forty-seven. Division staff has been actively working to assist water systems in order to be moved to approved and removed from this list. They are also diligently working with systems to solve the deficiency issues and ultimately prevent them from being added to this list.

Betty Naylor asked why there were both positive and negative IPS point values. Marie explained and continued stating this is another reason the IPS point system is being rewritten and will no longer include negative points to mask deficiencies that could impact public health.

Marie informed the Board the systems that are not approved are now retroactively being asked to provide Tier II public notification, and must continue according to the guidelines until they are moved to an approved status.

C. Enforcement Procedure Discussion

Marie Owens directed Board members to the DDW Enforcement Workflow Chart (see attached) which indicates all of the tools available for enforcement purposes. She informed the Board a public water system can get points added to their IPS report card for a variety of reasons, and the staff then have corresponding enforcement tools to address these issues. Marie explained one of these tools, a Corrective Action Plan (CAP), will allow a water system an extended period of time to address the deficiencies, as well as silence their IPS points while under the CAP.

She continued, informing the Board everything on the left-hand side of the workflow is considered informal enforcement, while the items shown on the right in red font are considered formal and enforceable enforcement. At this point, all documents become “orders” and are sent under the Director’s signature. Two options under this umbrella include a bilateral Compliance Agreement Enforcement Order (CA/EO) and a unilateral Administrative Order (AO). If a water system fails to meet the agreements in either of these orders, they are expected to show cause to the Division why further enforcement steps should not be taken. Failure to comply at this point would cause the case to be turned over to the Attorney General’s office to seek relief through District Court by fines or injunctions.

Copies of the state statutes were provided and referenced to inform the Board of their authority in these processes. It was the opinion and recommendation that due to the burdens of holding a hearing in front of the board, the case be turned directly over to the Attorney General’s office for Division relief.

- Roger Fridal made a motion to approve the proposed enforcement workflow as presented. Tage Flint seconded. The motion was carried unanimously by the Board. (Jeff Coombs was not on the line at the time of this vote).

D. Other

Marie Owens had no other items for discussion.

10. Other

Betty Naylor asked members if they would like to continue to receive the “current news” section in their Board packets. She expressed her appreciation and desire to continue having this item available at the meeting. Other members agreed and the current news will continue to be a part of the packet going forward.

11. Next Board Meeting:

Date: Tuesday, January 15, 2019
Time: 1:00 pm
Place: Multi Agency State Office Building
Board Room - 1015
195 North 1950 West
Salt Lake City, Utah 84116

12. Adjourn

- Betty Naylor moved to adjourn the meeting. The motion was carried unanimously by the Board.

The meeting adjourned at 3:00 p.m.



UTAH DEPARTMENT of
ENVIRONMENTAL QUALITY
**DRINKING
WATER**

Implementing New Drinking Water Sizing Requirements

November 13, 2018



Utah Public Water System (PWS) Design & Construction Minimum Sizing Standards (Utah Administrative Code R309-510)

Current Minimum Sizing Standards:

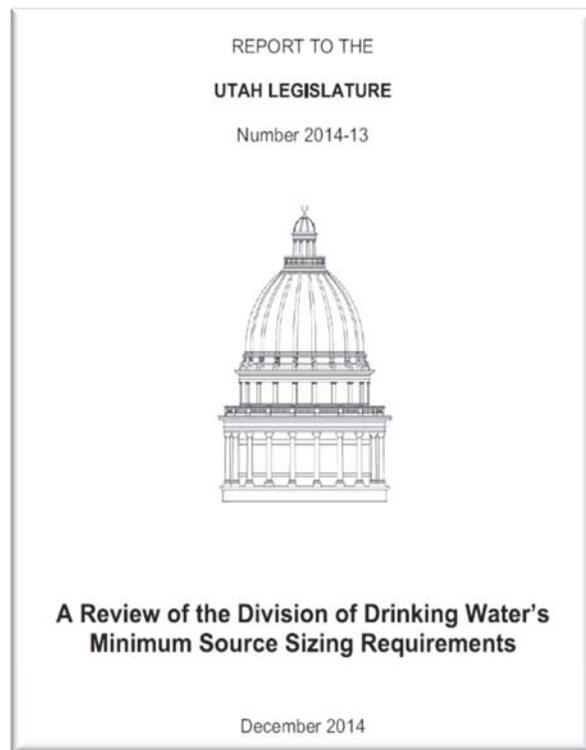
- Source Capacity
- Storage Capacity
- Distribution System Sizing



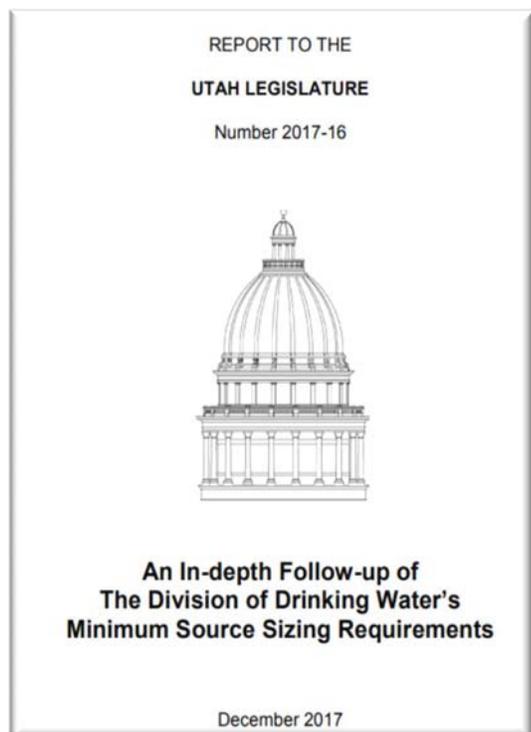
First Audit Report of Minimum Sizing Standards

Legislative Audit Report (2014 December)

- Re-evaluate indoor and outdoor water use standards **based on actual water use data**



Second Audit Report of Minimum Sizing Standards



Legislative Audit Follow-up (2017 December)

- Difficult To develop new statewide standards
- DDW is exploring an alternative approach to regulating minimum sizing
- **New legislation** and rules may be required to enact a new regulatory framework

Legislative Revisions to Utah Code 19-4 in 2018

19-4-104 Water Use Data Reporting

- CWSs serving ≥ 500 people must report water use data to DWRi annually
- Peak Day Source Demand, Average Annual Demand, Total Number of Retail ERCs, and Quantity of Non-Revenue Water

19-4-114 Minimum Sizing

- DDW sets **system-specific** minimum sizing requirements
- System-specific sizing based on **reported water use data, engineering study** or historical data



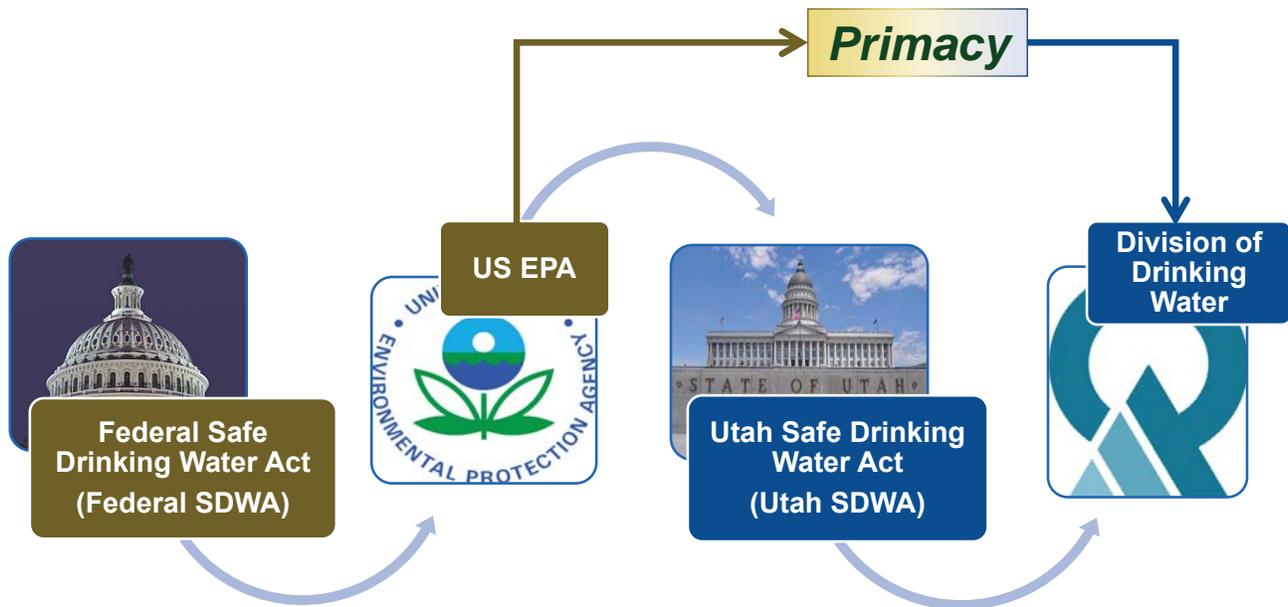
Regulations (Rules)

- Executive agencies carry out laws through the development and enforcement of regulations
- DDW director may grant an exception to rule
- Example: Utah Administrative Code R309-510, Minimum Sizing Requirements

Statutes (Utah Code)

- A law enacted **by a legislative body** of a government
- DDW director does not have the authority to grant an exception to statute
- Example: Title 19, Chapter 4, Sections 104 and 114 (Utah Code 19-4-104 & 114)

Safe Drinking Water Act – Primacy



Legislative Revisions of Utah Code 19-4

Effective July 21, 2018

Water systems affected & implementation phases

Community Water Systems (CWS)



1st Phase: CWSs serving > 3,300 people



2nd Phase: CWSs serving 500 – 3,300



3rd Phase: CWSs serving < 500 people

Legislative Revisions to 19-4-114 System-Specific Minimum Sizing Requirements

How and when CWSs submit & report the data for sizing?

Water System Type	PWS Submits <u>At Least Most Recent 3 Years</u> Data to DDW	DDW Sets System-Specific Min. Sizing
CWSs Serving > 3,300 People	No later than 3/1/2019	—
CWSs Serving 500 – 3,300	No later than 3/1/2023	No later than 10/1/2023
CWSs Serving < 500 People	<i>“The director shall establish a schedule to transition from statewide sizing standards to system-specific standards”</i>	
Non-CWSs	<i>“The director shall establish minimum sizing standards for PWSs that are not community PWS”</i>	

Utah Code 19-4-104 (Annual Data Reporting)

Consequence of Not Reporting Water Use Data Annually

Community water systems serving 500 people or more:

- Collect accurate water use data, and
- Report the data to Division of Water Rights (DWRi) Annually

Require a **certified operator**, or a **professional engineer** performing the duties of certified water operator, to **verify by certification or license number the accuracy of water use data** reported by a CWS

[Rule R309-400] **50 points for PWS** if failing to:

- submit water use data required by a state agency, or
- verify the accuracy of the data by including a certification by a certified operator or a professional engineer

Utah Code 19-4-114(1) (Minimum Sizing)

Consequences of Not Submitting Information Needed for Sizing

CWSs serving over 3,300 people, by March 1, 2019:

- Submit at least most recent 3 years of water use data, OR
- Submit an engineering study (or historical data)

→ Otherwise DDW will **assess administrative points**

DDW must establish system-specific minimum sizing requirements if a **CWS serving over 3,300 people** submits **plans for “substantial addition or alteration”** after March 1, 2019

→ Review of **the plans for “substantial addition or alteration” projects** will be completed **after** DDW has received the “information necessary to establish system-specific sizing requirements”

Legislative Revision 19-4-114 (Minimum Sizing)

Wholesale Water Suppliers are exempt from 19-4-114

A wholesale water supplier is exempt from this section if the wholesale water supplier serves:

- a) a total population of more than 10,000; and
- b) A wholesale population that is 75% or more of the total population served

Wholesale water suppliers still need to comply with the **water use data reporting** requirement per 19-4-104(1)(c)(iv)

Public Water System (PWS) Minimum Sizing



<u>Current Statewide Standards</u>	Source Sizing (per ERC)		Storage Sizing (per ERC)
Indoor	Peak Day Demand	800 gallons/day	—
	Avg. Yearly Demand	400 gallons/day (146,000 gallons/year)	400 gallons
Outdoor (Zone 4 Example)	Peak Day	3.96 gpm per irrigated acre	—
	Average Yearly	1.87 acre-ft/yr /irr. acre	2,848 gallons
Fire Suppression	—		Determined by fire code official
Emergency	—		Determined by water systems

Will be replaced

Public Water System (PWS) Minimum Sizing

Indoor Use Standard *Outdoor Use Standard*

Current

Future *Combined*

PWS Minimum Sizing – Source

Current

✓ *Peak Day Demand* ✓ *Average Yearly Demand*

Future ✓ *Peak Day Demand* ✓ *Average Annual Demand*

PWS Minimum Sizing – Storage

**Equalization Storage =
One Average Day Demand**

Current

Indoor Use

+

Outdoor Use



Future

**Equalization Storage =
One Average Day Demand**

Combined

<u>Current Statewide Standards</u>	Source Sizing (per ERC)		Storage Sizing (per ERC)
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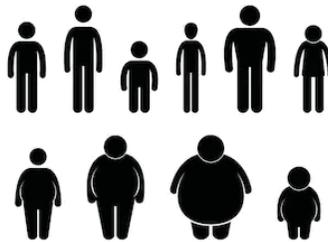
PWS Minimum Sizing

Current



*“Statewide”
Minimum Sizing
Standards*

Future



*“System-Specific”
Minimum Sizing
Requirements*

Annual Water Use Data & Minimum Sizing

Community Water Systems
(CWSs)

Division of Drinking Water
(DDW)



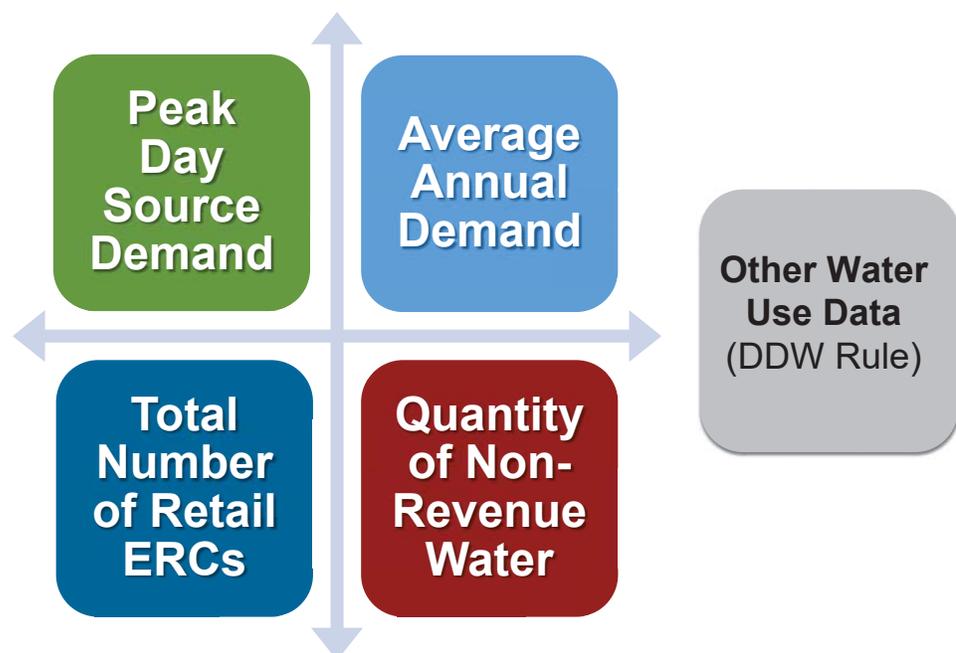
Division of Water Rights
(DWRi)

Division of Water Resources
(DWR_e)

Water Use Data – Anticipated Agency Timeline

When	Action	Who
October – December	Prepare for upcoming year (active systems, system boundaries, population served)	DDW, DWRe, DWRe
January	Send forms requesting previous year's actual water use data	DWRi
January - March	Assist & visit water systems	DWRi
March 1	Deadline for water systems to submit the form to DWRi	DWRi
March	Water systems that have not reported are identified in DDW database	DWRi, DDW
April – July	Continue to assist & visit systems	DWRi
July	50 deficiency points are assessed to water systems that fail to submit the completed form	DDW
July – August	Review and validate data	DWRe
August - December	Contact & visit systems identified by DWRe to validate data	DWRi
December	Publish data	DWRi
Ongoing	Remove assessed points from systems that report	DDW
Ongoing	Analyze data to set system-specific sizing standards	DDW

Utah Code 19-4-104 (Annual Data Reporting)



Utah Code 19-4-114 (System-Specific Minimum Sizing Requirements)

Information necessary for setting system-specific minimum sizing requirements can be based on one of the following:

- Annual Water Use Data** {
 - At least most recent 3 years of actual water use data
- Alternatives** {
 - Engineering Study
 - Historical Data

Utah Code 19-4-104 (Annual Data Reporting)

Average Annual Demand

- Total quantity (in gallons) of drinking water produced for a public water system in a year
- Based on data metered at water sources (not at service meters of retail connections)

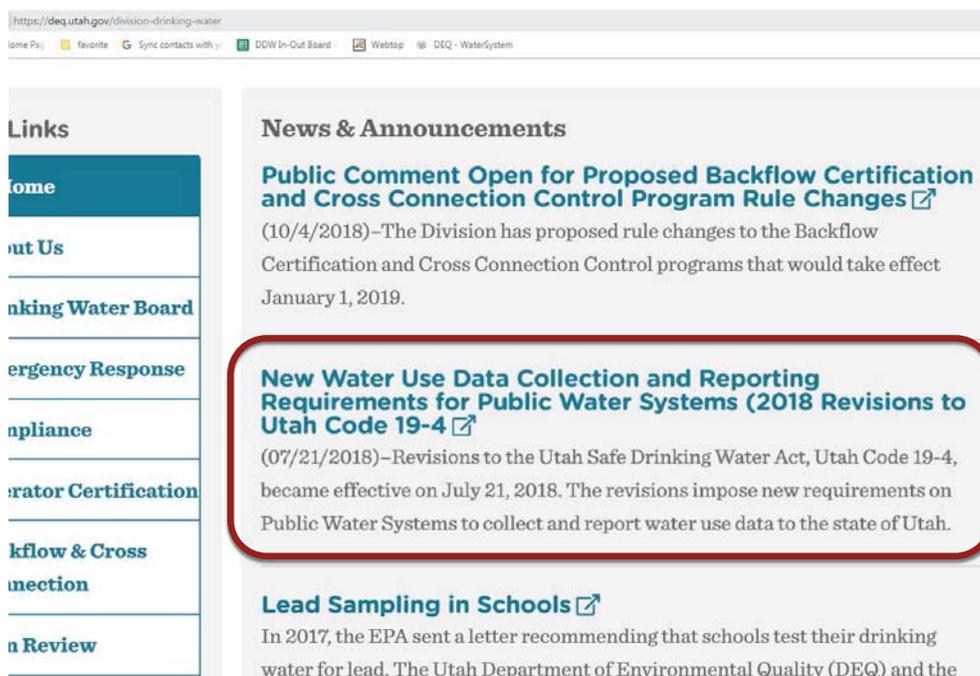


What Can PWS Do to Prepare for New Requirements



Resources

Division of Drinking Water Website



The screenshot shows a web browser window with the URL <https://deq.utah.gov/division-drinking-water>. The browser's address bar and tabs are visible at the top. On the left side, there is a vertical navigation menu with the following items: Home, About Us, Drinking Water Board, Emergency Response, Compliance, Operator Certification, Backflow & Cross Connection, and Annual Review. The main content area is titled "News & Announcements" and features three news items. The second item, "New Water Use Data Collection and Reporting Requirements for Public Water Systems (2018 Revisions to Utah Code 19-4)", is highlighted with a red rounded rectangular border. The third item is "Lead Sampling in Schools".

Links

- Home
- About Us
- Drinking Water Board
- Emergency Response
- Compliance
- Operator Certification
- Backflow & Cross Connection
- Annual Review

News & Announcements

Public Comment Open for Proposed Backflow Certification and Cross Connection Control Program Rule Changes [↗](#)
(10/4/2018)–The Division has proposed rule changes to the Backflow Certification and Cross Connection Control programs that would take effect January 1, 2019.

New Water Use Data Collection and Reporting Requirements for Public Water Systems (2018 Revisions to Utah Code 19-4) [↗](#)
(07/21/2018)–Revisions to the Utah Safe Drinking Water Act, Utah Code 19-4, became effective on July 21, 2018. The revisions impose new requirements on Public Water Systems to collect and report water use data to the state of Utah.

Lead Sampling in Schools [↗](#)
In 2017, the EPA sent a letter recommending that schools test their drinking water for lead. The Utah Department of Environmental Quality (DEQ) and the

Resources

Division of Drinking Water - Guidance Documents

The screenshot shows a web browser window with the URL <https://deq.utah.gov/drinking-water/legislative-revisions-to-utah-code-19-4-in-2018-new-water-use-data-collection-and-reporting-requirements-and-setting-system-specific-sizing-requirements>. The page header features the Utah Department of Environmental Quality logo and the text "UTAH DEPARTMENT of ENVIRONMENTAL QUALITY DRINKING WATER".

Left Navigation Menu (V Links):

- Home
- About Us
- Drinking Water Board
- Emergency Response
- Compliance
- Operator Certification
- Backflow & Cross Connection
- Plan Review

Main Content:

Legislative Revisions to Utah Code 19-4 in 2018 – New Water Use Data Collection and Reporting Requirements and Setting System-Specific Sizing Requirements

Revisions to the *Utah Safe Drinking Water Act*, Utah Code 19-4, enacted by the 2018 Legislature became effective on July 21, 2018. The revisions impose new requirements on public water systems to collect and report water use data to the state of Utah and specify the type of data that are required to be reported. The revisions also require the Division of Drinking Water (DDW) to use the water use data to establish system-specific source and storage minimum sizing requirements. The system-specific requirements will replace current statewide standards in phases. DDW is working on revising the current minimum sizing rule (R309-510) to implement the new requirements accordingly.

Information about new requirements imposed by the revisions to Utah Code 19-4 can be found below:

- [General Guidance for Water Use Data Reporting](#)
- [Detailed Guidance for Water Use Data Reporting and Setting System-Specific Minimum Sizing Requirements \(Draft\)](#)
- [Notice to Community Water Systems Serving Greater than 3,300 Persons – Water Use Data Reporting Due March 1, 2019](#)
- [Summary of New Requirements by Water System Size and Type](#)
- [Division of Water Rights – Water Use Program \(for reporting water use data\)](#)

Division of Drinking Water

Resources

Division of Drinking Water – Monthly Webinars

The screenshot shows a web browser window with the URL <https://deq.utah.gov/drinking-water/monthly-webinars>. The page header features the Utah Department of Environmental Quality logo and the text "UTAH DEPARTMENT of ENVIRONMENTAL QUALITY DRINKING WATER".

Left Navigation Menu (V Links):

- Home
- About Us
- Drinking Water Board
- Emergency Response

Main Content:

Monthly Webinars

Every month, Drinking Water is live with a topic that is important to drinking water professionals. We invite speakers to present about their area of expertise. Watching these 30 minute videos can get you .05 CEUs if you fill out the corresponding form.

[▶ Division of Drinking Water on Youtube](#)

Follow us on [▶ Youtube](#) to get notifications of when we go LIVE.

Scroll down to see past videos.

Utah Division of Drinking Water

Utah Administrative Code R309-510 Minimum Sizing Requirements



- Rule Change Timeline: 2020 approximation

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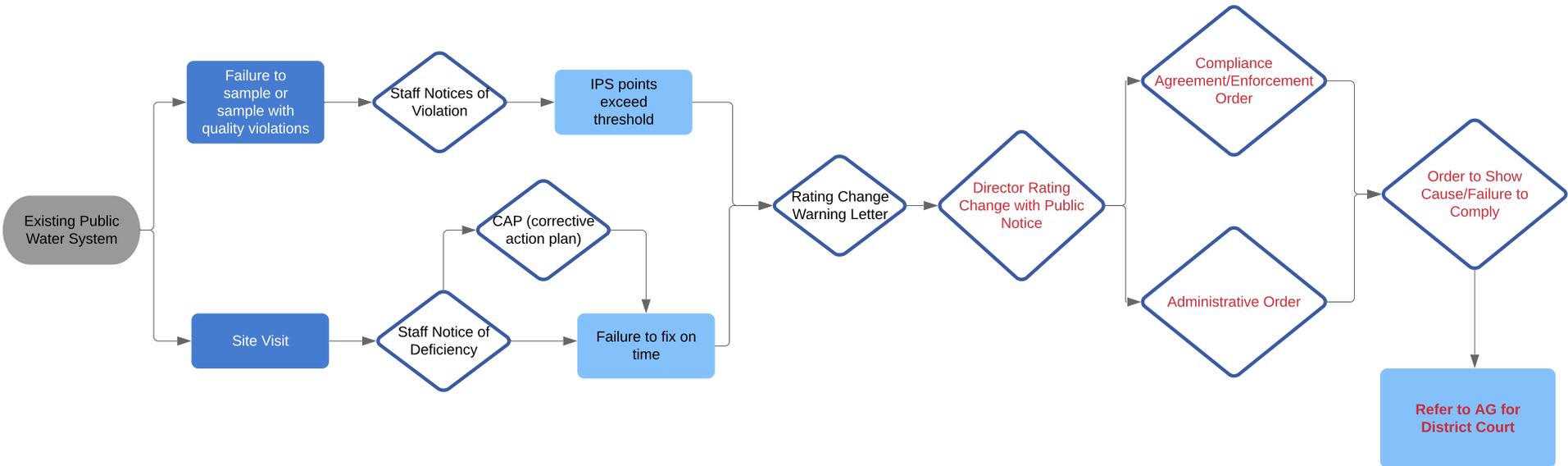
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DDW Enforcement Workflow

November 2018

Informal Enforcement

Formal Enforcement



Agenda Item

4(A)

DIVISION OF DRINKING WATER
STATE LOAN FUNDS
AS OF December 31, 2018

SUMMARY		
	Total State Fund:	\$15,186,513
	Total State Hardship Fund:	\$1,588,642
	Subtotal:	\$16,775,155
LESS AUTHORIZED	Less:	
	Authorized Loans & Closed loans in construction:	\$14,299,000
	Authorized Hardship:	\$807,150
	Subtotal:	\$15,106,150
	Total available after Authorized deducted	\$1,669,005
PROPOSED	Proposed Loan Project(s):	\$0
	Proposed Hardship Project(s):	\$70,469
	Subtotal:	\$70,469
AS OF:		
December 31, 2018	TOTAL REMAINING STATE LOAN FUNDS:	\$887,513
	TOTAL REMAINING STATE HARDSHIP FUNDS:	\$711,023

(see Page 2 for details)

(see Page 2 for details)

Total Balance of ALL Funds: \$1,598,536

Projected Receipts Next Twelve Months: and Sales Tax Revenue	
Annual Maximum Sales Tax Projection	\$3,587,500
Less State Match for 2018 Federal Grant	\$0
Less State Match for 2019 Federal Grant	(\$2,221,400)
	\$0
Less Appropriation to DDW/Board	(\$993,100)
SUBTOTAL Sales Tax Revenue including adjustments:	\$373,000
Payment:	
Interest on Investments (Both Loan and Hardship Accounts)	\$360,000
Principal payments	\$2,908,254
Interest payments	\$713,101
Total Projections:	\$4,354,355

Total Estimated State SRF Funds Available through 12-31-2019	\$5,952,891
---	--------------------

**DIVISION OF DRINKING WATER
STATE LOAN FUNDS
PROJECTS AUTHORIZED BUT NOT YET CLOSED
AS OF December 31, 2018**

Community	Loan #	Cost Estimate	Date Authorized	Date Closed/Anticipated	Authorized Funding		
					Loan	Grant	Total
Ephraim 1% int, 20 yrs	3S251	1,422,905	Mar-18		1,145,000	127,150	1,272,150
Laketown 1.5% int @ 30 yrs	3S248	1,863,636	May-18		1,110,000	0	1,110,000
Pleasant Grove 2% int, 20 yrs	3S255	2,300,000	May-18	Jan-19	2,300,000	0	2,300,000
Mtn Regional-Community Wtr 2% 20 yr	3S254	2,600,000	Jul-18	Jan-19	2,600,000	0	2,600,000
Aurora City 0.75% int 30 yrs	3S258	4,228,000	Aug-18		3,804,000	424,000	4,228,000
Subtotal Loans and Grants Authorized					10,959,000	551,150	11,510,150
PLANNING LOANS / GRANTS IN PROCESS							
							0
Circleville	3S260P	40,000	Aug-18	Sep-18	40,000		40,000
Enoch City	3S256P	27,500	Jul-18	Jul-18		27,500	27,500
Mayfield	3S1693P	13,500	Oct-18	Nov-18		13,500	13,500
Paragonah	3S257P	10,000	Jul-18	Aug-18		10,000	10,000
						0	0
						0	0
					40,000	51,000	91,000
CLOSED LOANS (partially disbursed)							
Daggett Co - Dutch John 0% int 30 yrs	3S216	1,020,000	Jan-15	Feb-16	0	100,000	100,000
Henrieville	3S241	345,000	Aug-16	Nov-16	0	105,000	105,000
Mutton Hollow Imp Dist 2% int 30 yr	3S253	2,060,000	Jul-18	Sep-18	800,000		800,000
Grantsville 1.5% int, 20 yrs	3S249	3,500,000	Mar-18	Dec-18	2,500,000		2,500,000
							0
							0
Subtotal Planning Loans/Grants Auth					3,300,000	205,000	3,505,000
Total authorized or closed but not yet funded					\$14,299,000	\$807,150	\$15,106,150
PROPOSED PROJECTS for JANUARY 2018							
Eastland SSD	3S1697	70,469				70,469	70,469
							0
							0
							0
Total Proposed Projects					0	70,469	70,469

**DIVISION OF DRINKING WATER
STATE LOAN FUNDS
AS OF December 31, 2018**

	5235	5240	
	Loan	Interest	
	Funds	(use for Grants)	Total
Cash:	\$15,186,513	\$1,588,642	\$16,775,155
Less:			
Loans & Grants authorized but not yet closed (schedule attached)	(10,999,000)	(602,150)	(11,601,150)
Loans & Grants closed but not fully disbursed (schedule attached)	(3,300,000)	(205,000)	(3,505,000)
Proposed loans & grants	0	(70,469)	(70,469)
Administrative quarterly charge for entire year	(993,100)		(993,100)
Appropriation to DDW	0		0
FY 2018 Federal SRF 20% match	0		0
FY 2019 Federal SRF 20% match	(2,221,400)		(2,221,400)
	(2,326,987)	711,023	(1,615,964)
Projected repayments during the next twelve months			
Thru 12-31-2019			
Principal	2,908,254		2,908,254
Interest		713,101	713,101
Projected annual investment earnings on invested cash balance		360,000	360,000
Sales Tax allocation thru Dec-31-2019	3,587,500		3,587,500
Total	\$4,168,767	\$1,784,124	\$5,952,891
* All interest is added to the Hardship Fee account.			

DIVISION OF DRINKING WATER
FEDERAL SRF
AS OF December 31, 2018

FIRST ROUND FUND		FEDERAL SECOND ROUND FUND		Hardship Fund
1997 thru 2017 SRF Grants		Principal Repayments	Earnings on Invested Cash Balance	Total:
Net Federal SRF Grants:	\$169,738,751	Principal (P):	\$56,993,657	\$1,193,447
Total State Matches:	\$39,050,300	Interest (I):	\$16,629,127	
Closed Loans:	-\$202,925,651	Total P & I:	\$73,622,784	
Total Grant Dollars:	\$5,863,400			\$1,510,204

SUMMARY								
	Total Federal State Revolving Fund: \$80,679,631							
	Total Federal Hardship Fund: \$1,510,204							
	Subtotal: \$82,189,835							
LESS AUTHORIZED & PARTIALLY DISBURSED	Less: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Authorized & Partially Disbursed Closed Loans:</td> <td style="text-align: right;">\$12,641,336</td> <td rowspan="3" style="vertical-align: middle;">(see Page 2 for details)</td> </tr> <tr> <td>Authorized Federal Hardship:</td> <td style="text-align: right;">\$472,564</td> </tr> <tr> <td style="text-align: right;">Subtotal:</td> <td style="text-align: right;">\$13,113,900</td> </tr> </table>	Authorized & Partially Disbursed Closed Loans:	\$12,641,336	(see Page 2 for details)	Authorized Federal Hardship:	\$472,564	Subtotal:	\$13,113,900
Authorized & Partially Disbursed Closed Loans:	\$12,641,336	(see Page 2 for details)						
Authorized Federal Hardship:	\$472,564							
Subtotal:	\$13,113,900							
PROPOSED	Proposed Federal Project(s): \$6,078,500 Proposed Federal Hardship Project(s): \$0 Subtotal: \$6,078,500 (see Page 2 for details)							

AS OF:	December 31, 2018	TOTAL REMAINING LOAN FUNDS:	\$61,959,795
		TOTAL REMAINING HARDSHIP FUNDS:	\$1,037,640

Total Balance of ALL Funds after deducting proposed actions: \$62,997,435

Projected Receipts thru January 1, 2020	
2019 Fed SRF Grant	\$8,200,000
2019 State Match	\$2,221,400
Interest on Investments	\$1,698,000
Principal Payments	\$6,699,203
Interest	\$1,443,325
Hardship & Technical Assistance fees	\$264,228
	\$0
Total:	\$20,526,156

} Receive 60% in January

Total Estimated Federal SRF Funds Available through: 01/01/2020 **\$83,523,591**

DIVISION OF DRINKING WATER
FEDERAL SRF LOAN FUNDS
AS OF December 31, 2018

	Loan Funds 1st Round	Loan Payments			TOTAL
		2nd Round		Hardship Fund	
		Principal	Interest		
Federal Capitalization Grants and State 20% match thru 2015	\$208,789,051				
Earnings on Invested 1st Round Funds			1,193,447		
Repayments (including interest earnings on 2nd round receipts)		56,993,657	16,629,127	1,510,204	285,115,486
Less:					
Closed loans and grants	-202,925,651				-202,925,651
SUBTOTAL of Funds Available	\$5,863,400	\$56,993,657	\$17,822,574	\$1,510,204	\$82,189,835
Loans & Grants authorized but not yet closed or fully disbursed	-8,957,000	-3,419,500	-264,836	-472,564	-13,113,900
SUBTOTAL of Funds Available less Authorized	-\$3,093,600	\$53,574,157	\$17,557,738	\$1,037,640	\$69,075,935
Future Estimates:					
Proposed Loans/Grants for current board package	-6,078,500			0	-6,078,500
SUBTOTAL of Funds Available less Proposed Loans & Grants	-\$9,172,100	\$53,574,157	\$17,557,738	\$1,037,640	\$62,997,435
PROJECTIONS THRU January-2020					
	0				
2017 SRF Capitalization Grant (Loan Portion)	8,200,000				
2017 SRF Capitalization State Match	2,221,400				
Projected repayments & revenue during the next twelve months		6,699,203	1,443,325	264,228	8,406,756
Projected annual investment earnings on invested cash balance		1,320,000	348,000	30,000	1,698,000
TOTAL	\$1,249,300	\$61,593,360	\$19,349,063	\$1,331,868	\$83,523,591

Agenda Item

4(B)

DRINKING WATER BOARD
PACKET FOR PROJECT PRIORITY LIST
INTRODUCTION TO THE FINANCIAL ASSISTANCE COMMITTEE

There are five new projects being added to the project priority list

M & J Trailer Home is being added to the Project Priority List with 50.2 points. Their project consists of a well, distribution lines, tank and arsenic treatment.

Virgin Town is being added to the Project Priority List with 31.6 points. Their project consists of a new tank and distribution lines.

Canyon Meadows is being added to the Project Priority List with 30.7 points. Their project consists of a transmission line, distribution line, tank and treatment plant.

Tridell Lapoint is being added to the Project Priority List with 24.6 points. Their project consists of a new tank and waterline.

Lincoln Culinary Water is being added to the Project Priority List with 16.6 points. Their project consists of a well development, transmission line and distribution line.

FINANCIAL ASSISTANCE COMMITTEE RECOMMENDATION:

The Drinking Water Board approve the updated Project Priority List.

December 3, 2018

Utah Federal SRF Program

Project Priority List

Authorized

Total Unmet Needs:

\$232,273,730

Total Needs, incl. Recent funding

\$269,895,403

\$271,353,991

	date	type	%Green	Priority Points	System Name	County	Pop.	ProjectTitle	Project Total	Request DWB	Funds Authorized
N				50.2	M & J Trailer Home	Box Elder	17	Well, Tank, Dist ines, treatment			
N				30.7	Canyon Meadows	Wasatch	100	Trans line, Dist line, Tank, treatment plant	\$1,724,068	\$1,724,068	
N				31.6	Virgin Town	washington	596	New tank and distribution lines	\$1,200,000	\$800,000	
N				24.6	Tridell Lapoint	Uintah	1,575	Tank, 2 miles waterline	\$2,120,750	\$2,075,000	
N				20.1	Junction Town	Piute	187	Dist lines, meters, tank hydrants and well building	\$2,449,091	\$2,409,091	
N				16.6	Lincoln Culinary	Tooele	489	Well development, trans line, dist line, supply line	\$2,516,000	\$2,516,000	

A				28.1	Pleasant Grove City		36,329	Spring redevelopment and transmission line replacement	\$2,300,000	\$2,300,000	
A				27	Bridge Hollow	Summit	45	New Well	\$225,000	\$225,000	\$225,000
A				26.3	Hanksville	Wayne	210	Water Line Replacement	\$601,548	\$601,548	\$601,548
A				25.3	San Juan Spanish Valley SSD	San Juan	491	New System: tank, well, distribution	\$5,125,758	\$2,575,758	\$2,550,000
A				24.8	Torrey Town	Wayne	500	New water line and replacement	\$2,230,000	\$1,852,000	\$1,852,000
A				24.3	West Corrine	Box Elder	1,275	Spring redevelopment and transmission line replacement	\$533,075	\$479,767	
A				24.1	Community Water Company	Summit	505	Water line replacement, treatment plant upgrades	\$3,343,000	\$3,343,000	\$3,662,000
A				19.5	Twin Creeks SSD	Wasatch	2,500	Treatment Plant, Storage Tank, Water Lines	\$5,672,650	\$5,400,000	\$5,338,000
A				18.8	Swiss Alpine	Wasatch	300	New Well and transmission line	\$955,152	\$815,152	
A				18.3	Greenwich	Piute	67	Chlorination building	\$131,300	\$131,300	\$131,000
A				17.3	North Valley Ranches	Washington	25	New Well and transmission line	\$450,000	\$450,000	\$450,000
A				12.5	Cove SSD	Sevier	100	New well, storage tank and water lines	\$1,611,000	\$1,085,000	\$1,085,000
A				9.7	Juab Co	Juab	???	Regionalization pipeline	\$24,000,000	\$21,000,000	\$21,210,000
A				N/A	Big Plains Water and Sewer SSD	Washington	720	Regionalization- purchase Canaan Springs Water Co.	\$517,125	\$517,125	\$517,125

N = New Application

A = Authorized

P = Potential Project- no application

E= Energy Efficiency

W= Water Efficiency

G= Green Infrastructure

I= Environmentally Innovative

GREEN PROJECTS

December 3, 2018

Utah Federal SRF Program

Project Priority List

Authorized

Total Unmet Needs:

\$232,273,730

Total Needs, incl. Recent funding

\$269,895,403

\$271,353,991

date	type	%Green	Priority Points	System Name	County	Pop.	ProjectTitle	Project Total	Request DWB	Funds Authorized
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EMERGENCY FUNDING

POTENTIAL PROJECTS

P			125.2	Soldier Summit SSD-2nd home sub	Utah	33	Water line upgrade	\$530,303	\$530,303	
P			36.4	Santa Clara (on hold)	Washington	8,000	Water line upgrades	\$6,419,202	\$6,354,202	
P			35.0	CUWCD-Utah Valley	Utah		Treatment plant upgrades	\$39,369,500	\$36,950,000	
P			51.8	Storm Haven	Wasatch	148	New Well and transmission line	\$2,041,414		
N			29	Woodland Mutual	Summit	186	Spring redevelopment, new tank, water lines, pump station	\$3,257,320	\$3,257,320	
P			20.0	Pinon Forest	Duchesne	n/a	New system- residents haul water	\$21,247,000		
P			17.9	Wendover	Tooele	1,600	Water line upgrades	\$833,000		
P			17.5	Draper City	Salt Lake	15,000	Storage and distribution upgrades	\$35,789,000		
P			17.1	East Zion SSD	Kane	49	Water line	\$128,876	\$128,876	
P			16.4	Eastland SSD	San Juan	60	New well for back up purposes	\$500,000		
P			16.4	Neola	Duchesne	840	Waterline upgrades, storage, source improvements	\$3,607,592	\$3,607,592	
P			15.3	Newton Town	Cache	799	Spring rehabilitation, water line upgrades	\$1,581,500		
P			15.3	South Rim Water	Tooele	264	Well equipment and house, new tank	\$600,000		
P			15.2	Midvalley Estates Water Company	Iron	700	Source, storage, distribution	\$500,000		
P			15.1	Syracuse	Davis	25,200	Water line upgrades	\$1,589,756	\$1,589,756	
P			14.7	Central Waterworks Co.	Sevier	450	Storage and distribution upgrades	\$1,400,000		
P			14.0	Herriman	Salt Lake	18,431	Booster Pump, water line	\$2,050,000		
P			13.7	Cornish Town	Cache	300	Connect to Lewiston, rehab well	\$1,226,263		
P			13.7	Morgan City	Morgan	3,250	Water line upgrades	\$692,026		
P			13.5	Riverdale	Weber	8,200	New well and tank, water line upgrades	\$2,050,000		
P			13.3	Richfield City	Sevier	7,111	System repairs	\$2,722,000		
P			13.0	Uintah City	Weber	1,300	Treatment	\$1,063,000		
P			12.8	Centerfield	Sanpete	1,200	New tank, upgrade water lines	\$3,600,000		
P			12.6	Enterprise	Washington	1,500	New tank, upgrade water lines	\$1,917,100		
P			12.6	Price River	Carbon	7,659	New tank, water lines, treatment	\$2,750,000		
P			11.6	Manila Culinary Water Co.	Utah	2,450	Treatment and water line upgrades	\$700,000		
P			11.6	Jordan Valley WCD	Salt Lake	82,500	Flouride facility, well equipping	\$3,694,000	\$2,000,000	
P			11.4	Pineview West Water Company	Weber	115	Telemetry system	\$25,000		
P			11.4	North Ogden City	Weber	15,000	Water line upgrades	\$746,000	\$746,000	

December 3, 2018

Utah Federal SRF Program

Project Priority List

Authorized

Total Unmet Needs:

\$232,273,730

Total Needs, incl. Recent funding

\$269,895,403

\$271,353,991

	date	type	%Green	Priority Points	System Name	County	Pop.	ProjectTitle	Project Total	Request DWB	Funds Authorized
P				11.3	Farmington	Davis	15,000	New well, new tank, water line replacement	\$2,830,000		
P				10.7	Ogden City	Weber	77,000	Source rehabilitation, treatment plant upgrades	\$26,500,000		
P				10.7	High Valley Water Company	Summit	850	Water line upgrades	\$1,000,000		
P				10.3	City of Monticello	San Juan	2,000	Storage and distribution upgrades	\$1,200,000		
P				9.8	Gorgoza	Summit	4,200	Waterline upgrades	\$1,000,000		
P				9.7	Moutain Regional SSD	Summit	6,700	Transmission line	\$600,000		
P				9.7	Benson Culinary Water District	Cache	743	New tank, water line replacement	\$500,000		
P				9.3	Mapleton City	Utah	7,300	Replace distribution lines	\$15,339,560		
P				9.2	Greendale Water Co.	Daggett	500	Treatment system	\$800,000		
P				9.1	Center Creek	Wasatch	200	Pump house and pump	\$80,000		
P				8.4	Nibley City	Cache	4,300	New tank	\$1,270,355		
P				8.3	Hurricane	Washington	8,000	Water line replacement and new tank	\$5,047,899		
P				7.6	Harmony Farms Water User Assoc.	Washington	300	Water line Replacement	\$3,000		
P				6.8	Hooper Water Improvement District	Weber	16,520	Storage, water lines, treatment	\$2,887,000		
P				6.7	Centerville City	Davis	16,000	Replacement well, water line upgrades	\$2,965,000		
P				6.1	Marble Hill Water Company	Box Elder	250	New storage tank	\$225,000		
P				4.5	Peterson Pipeline Association	Morgan	450	Source, storage, distribution	\$1,700,000		
P				4.5	Perry City	Box Elder	4,603	Source, storage, distribution	\$4,782,220		
P				3.9	Wolf Creek Country Club	Weber	2,000	Water line	\$180,000		
P				3.4	Highland City	Utah	15,066	New well houses	\$650,000		

Agenda Item

4(C)(i)(a)

DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION LOAN
INTRODUCTION TO THE FINANCIAL ASSISTANCE COMMITTEE

APPLICANT'S REQUEST:

Eastland has a project consisting of a pump replacement. The cost of the project is estimated at \$70,469. Eastland SSD is looking to replace the pump within their system as the current pump is showing significant wear and impending failure. The current pump is also undersized for the current static water level during the recent drought.

STAFF COMMENTS:

The local MAGI for Eastland SSD is approximately \$44,350 (97% of the state MAGI), their after project water bill would need to be \$102.29 which is 2.77% of the local MAGI. Therefore they do qualify as a hardship community to receive principal forgiveness.

Option#	Loan	%/fee	P.F.	% of local MAGI	Water bill
Base	\$70,469	3.92%	\$0	2.88%	\$106.62
1 - loan	\$70,469	0%	\$0	2.77%	\$102.29
2 – 20% PF	\$56,000	0%	\$14,469	2.72%	\$100.37
3- 50% PF	\$35,000	0%	\$35,469	2.64%	\$97.57
4 – 100% PF	\$0	0%	\$70,469	2.51%	\$92.92

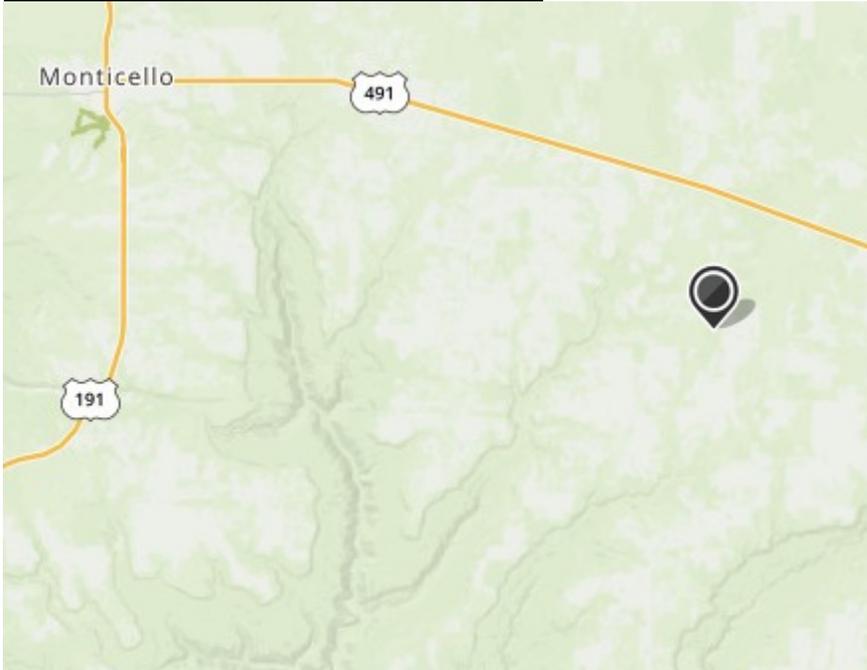
STAFF RECOMMENDATION:

The Financial Assistance Committee recommend the Drinking Water Board authorize a grant of \$70,469. Conditions include that they resolve all issues on their compliance report.

APPLICANT'S LOCATION:

Eastland SSD is located in San Juan County approximately 14 miles South East of Monticello.

MAP OF APPLICANT'S LOCATION:



PROJECT DESCRIPTION:

Eastland SSD is looking to replace the pump within their system as the current pump is showing significant wear and impending failure. The current pump is also undersized for the current static water level during the recent drought.

POPULATION GROWTH:

Projected populations and number of connections are shown in the table below:

Year	Population	Connections
2020	152	45
2025	160	46
2030	168	47
2035	176	49
2040	184	51

IMPLEMENTATION SCHEDULE:

FA Committee Conference Call: Dec 2018
DWB Funding Authorization: Jan 2019
Begin Construction: Feb 2019
Complete Construction: March 2019

COST ESTIMATE:

Legal – Bonding, Admin \$0
Pump \$70,469
DDW Admin Fee \$0
Total Project Cost \$70,469

COST ALLOCATION:

The cost allocation proposed for the project is shown below:

<u>Funding Source</u>	<u>Cost Sharing</u>	<u>Percent of Project</u>
DWB Grant	\$70,469	100%

CONTACT INFORMATION:

APPLICANT:

Eastland SSD
HC 63 Box 84
Monticello, UT 84535
435-459-1115
eastlandwater@gmail.com

PRESIDING OFFICIAL &
CONTACT PERSON:

Janet Ross
Board Chair
HC 63 Box 84
Monticello, UT 84535
435-587-9151
Janetross7777@gmail.com

RECORDER:

Kay Randall
435-45-9742
wilfordkayrandall@hotmail.com

CITY ATTORNEY:

Walter Bird
San Juan County Attorney
PO Box 9
Monticello, UT 84535
435-587-3223x4144
walterbird@sanjuancounty.org

Agenda Item

4(C)(i)(b)

DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION LOAN

APPLICANT'S REQUEST:

Moroni City has an emergency project consisting of a transmission line replacement. The cost of the project is estimated at \$110,000. Moroni City is looking to replace approximately 450 feet of 8", 10", and 12" Transmission Lines. The lines are lying in a rock bed and have broken a few times causing damage to personal property and the City to be out of water. The lines are very close to each other and need to be re-routed to have adequate distance between the lines. Also, some new valving will need to be installed.

STAFF COMMENTS:

The local MAGI for Moroni City is approximately \$36,631 (80% of the state MAGI), which qualifies them for principal forgiveness. The amount of monthly water bill needed for this project is shown in the table below.

Option#	Loan	%/fee	P.F.	% of local MAGI	Water bill
Base	\$110,000	2.34%	\$0	1.55%	\$47.18
1 - loan	\$110,000	0%	\$0	1.54%	\$47.38
2 - 20% PF	\$88,000	0%	\$21,949	1.53%	\$46.71

STAFF RECOMMENDATION:

Due to the emergency nature of this project, this has not been presented to the Financial Assistance Committee.

The Drinking Water Board authorize a loan of \$110,000 at 2.34% interest/Fee for 20 years. Conditions include that they resolve all issues on their compliance report.

APPLICANT'S LOCATION:

Moroni City is located in Sanpete County approximately 8 miles West of Mount Pleasant.

MAP OF APPLICANT'S LOCATION:



PROJECT DESCRIPTION:

Moroni City is looking to replace approximately 450 feet of 8", 10", and 12" Transmission Lines. The lines are lying in a rock bed and have broken a few times causing damage to personal property and the City to be out of water. The lines are very close to each other and need to be re-routed to have adequate distance between the lines. While the lines are not leaking at this time, the City believes they could again at any time and would like to replace them before that happens. The lines are old and brittle and may be compromised easily.

IMPLEMENTATION SCHEDULE:

DWB Funding Authorization:	Jan 2019
Begin Construction:	April 2019
Complete Construction:	April 2019

COST ESTIMATE:

Legal – Bonding, Admin	\$5,000
Engineering – planning & management	\$16,700
Construction	\$88,300
Total Project Cost	\$110,00

COST ALLOCATION:

The cost allocation proposed for the project is shown below:

<u>Funding Source</u>	<u>Cost Sharing</u>	<u>Percent of Project</u>
DWB Loan	\$110,000	100%

CONTACT INFORMATION:

APPLICANT:

Moroni City
80 South 200 West
Moroni, UT 84646
435-436-8359
recorder@cut.net

PRESIDING OFFICIAL &
CONTACT PERSON:

Paul Bailey
Mayor
80 South 200 West
Moroni, UT 84646
435-436-8359
recorder@cut.net

RECORDER:

Carol Haskins
435-436-8359
recorder@cut.net

CONSULTING ENGINEER:

Robert Worley
Sunrise Engineering
25 East 500 North
Fillmore, UT 84631
435-743-6151
rworley@sunrise-eng.com

DRINKING WATER BOARD FINANCIAL ASSISTANCE EVALUATION

SYSTEM NAME: Moroni City
 COUNTY: Sanpete
 PROJECT DESCRIPTION: Transmission line

FUNDING SOURCE: State SRF

100 % Loan & 0 % Grant

ESTIMATED POPULATION:	1,500	NO. OF CONNECTIONS:	520 *	SYSTEM RATING:	APPROVED
CURRENT AVG WATER BILL:	\$57.02 *			PROJECT TOTAL:	\$110,000
CURRENT % OF AGI:	1.87%	FINANCIAL PTS:	56	LOAN AMOUNT:	\$110,000
ESTIMATED MEDIAN AGI:	\$36,631			GRANT AMOUNT:	\$0
STATE AGI:	\$45,895			TOTAL REQUEST:	\$110,000
SYSTEM % OF STATE AGI:	80%				

	@ ZERO % RATE 0%	@ RBBI MKT RATE 3.92%		AFTER REPAYMENT PENALTY & POINTS 2.02%
<u>SYSTEM</u>				
ASSUMED LENGTH OF DEBT, YRS:	20	20		20
ASSUMED NET EFFECTIVE INT. RATE:	0.00%	3.92%		2.02%
REQUIRED DEBT SERVICE:	\$5,500.00	\$8,036.76		\$6,740.23
*PARTIAL COVERAGE (15%):	\$0.00	\$0.00		\$0.00
*ADD. COVERAGE AND RESERVE (10%):	\$550.00	\$803.68		\$674.02
ANNUAL NEW DEBT PER CONNECTION:	\$11.63	\$17.00		\$14.26
O & M + FUNDED DEPRECIATION:	\$116,760.00	\$116,760.00		\$116,760.00
OTHER DEBT + COVERAGE:	\$37,500.00	\$37,500.00		\$37,500.00
REPLACEMENT RESERVE ACCOUNT:	\$7,613.00	\$7,739.84		\$7,675.01
ANNUAL EXPENSES PER CONNECTION:	\$311.29	\$311.54		\$311.41
TOTAL SYSTEM EXPENSES	\$167,923.00	\$170,840.27		\$169,349.26
TAX REVENUE:	\$0.00	\$0.00		\$0.00
<u>RESIDENCE</u>				
MONTHLY NEEDED WATER BILL:	\$46.91	\$47.38		\$47.14
% OF ADJUSTED GROSS INCOME:	1.54%	1.55%		1.54%

* Equivalent Residential Connections

Agenda Item

4(C)(ii)(a)

DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION LOAN
AUTHORIZATION

APPLICANT’S REQUEST:

Lincoln Culinary Water Association (LCWA) is a private water company requesting \$2,516,000 in financial assistance for a new well and the installation of approximately 28,000-ft of 8-inch and 10-inch PVC water lines.

STAFF COMMENTS:

The local MAGI for LCWA is \$49,910 which is 109% of the State MAGI \$45,895. The current average water bill is \$50.80 per month, which is 1.22% of the local MAGI. The water system income consists of revenue from monthly shares. The base rate for one monthly share was recently increased to \$70 for use up to 18,000 gallons. The proposed project will increase the monthly water rate to greater than 1.75% of MAGI so this system does qualify for subsidy.

Option #	Description	Repayable Loan Amount	Interest Rate	Term	Principal Forgiveness	Monthly Water Rate	% Local MAGI
1	Base Eval.	\$ 2,516,000	3.51%	20 yrs	0	\$156.28	3.76%
2	60/40	\$ 1,510,000	1.25%	30 yrs	\$ 1,006,000	\$78.97	1.90%

FINANCIAL ASSISTANCE COMMITTEE RECOMMENDATION:

The Drinking Water Board authorize a loan of \$2,516,000 at 1.25% hardship grant assessment fee for 30 years with \$1,006,000 in Principal Forgiveness. The repayable amount will be \$1,510,000.

POPULATION GROWTH:

	<u>Year</u>	<u>Population</u>	<u>Connections</u>
Current:	2018	489	173
Projected:	2040	769	240

COST ESTIMATE:

Legal/Bonding	\$ 28,000	} 15%
Engineering - Environmental	\$ 25,000	
Engineering – well exploration	\$ 20,000	
Engineering - Design	\$ 253,000	
Engineering - CMS	\$ 80,000	
Construction	\$ 1,884,000	
Contingency (~ 12%)	\$ 226,000	
Total	\$ 2,516,000	

COST ALLOCATION:

The cost allocation proposed for the project is shown below.

<u>Funding Source</u>	<u>Cost Sharing</u>	<u>Percent of Project</u>
DWB	\$ 2,516,000	100%
Local Contribution	\$ 0	0%
	\$ 2,516,000	100%

FINANCIAL SUMMARY:

2017 Lincoln MAGI:	\$ 49,910 (109% of Statewide MAGI)
2017 Statewide MAGI	\$ 45,895
DWB “Affordable” Water Bill (1.75% MAGI)	\$72.78/month
Total Equivalent Connections:	157
Current bill (based on share collections)	\$50.80/month (1.22% of MAGI)
Req’d Water Bill for recommended funding	\$78.97/month (1.90% of MAGI)
Existing Annual Debt Payment w/coverage	\$21,250
2017 Annual O&M Expenses	\$36,000
2017 Annual Income from Shares	\$80,000

IMPLEMENTATION SCHEDULE:

Apply to DWB for Funds:	November 2018
DWB Funding Authorization:	January 2019
Plan Approval	March 2019
Advertise for Bids:	April 2019
Bid Opening	April 2019
Loan Closing	May 2019
Begin Construction	June 2019
Complete Construction	December 2019
Receive Operating Permit:	December 2019

APPLICANT:	Lincoln Culinary Water Association 1631 Pine Canyon Road Tooele, UT 84074 435-870-7669
PRESIDING OFFICIAL & CONTACT PERSON:	Shayne Robinson, President 1631 Pine Canyon Road Tooele, UT 84074 435-870-7667
TREASURER/RECORDER:	Staci Peterson 435-840-5932 stacipeterson@gmail.com
CONSULTING ENGINEER:	Kelly Chappell Ensign Engineering and Land Surveying 225 North 100 East Richfield, UT 84701 435-869-2983 kchappell@ensignutah.com
BOND ATTORNEY:	Richard Chamberlain Chamberlain Law 225 North 100 East Richfield, UT 84701 435-896-4461 rchamberlain13@gmail.com

DRINKING WATER BOARD FINANCIAL ASSISTANCE EVALUATION

SYSTEM NAME: Lincoln Culinary Water Association (#23009)
 COUNTY: Tooele
 PROJECT DESCRIPTION: Develop new well, install ~28,000-ft waterline

FUNDING SOURCE: Federal SRF

60 % Loan & 40 % P.F.

ESTIMATED POPULATION:	489	NO. OF CONNECTIONS:	157 *	SYSTEM RATING:	APPROVED
CURRENT AVG WATER BILL:	\$50.80 *			PROJECT TOTAL:	\$2,516,000
CURRENT % OF AGI:	1.22%	FINANCIAL PTS:	23	LOAN AMOUNT:	\$1,510,000
ESTIMATED MEDIAN AGI:	\$49,910			PRINC. FORGIVE.:	\$1,006,000
STATE AGI:	\$45,895			TOTAL REQUEST:	\$2,516,000
SYSTEM % OF STATE AGI:	109%				

	@ ZERO % RATE	\$2,516,000 FULL LOAN		AFTER REPAYMENT PENALTY & POINTS
SYSTEM	0%	3.51%		1.25%
ASSUMED LENGTH OF DEBT, YRS:	30	20		30
ASSUMED NET EFFECTIVE INT. RATE:	0.00%	3.51%		1.25%
REQUIRED DEBT SERVICE:	\$50,333.33	\$177,188.69		\$60,669.60
*PARTIAL COVERAGE (15%):	\$7,550.00	\$26,578.30		\$9,100.44
*ADD. COVERAGE AND RESERVE (10%):	\$5,033.33	\$17,718.87		\$6,066.96
ANNUAL NEW DEBT PER CONNECTION:	\$400.74	\$1,410.74		\$483.04
O & M + FUNDED DEPRECIATION:	\$36,000.00	\$36,000.00		\$36,000.00
OTHER DEBT + COVERAGE:	\$21,250.00	\$21,250.00		\$21,250.00
REPLACEMENT RESERVE ACCOUNT:	\$0.00	\$0.00		\$0.00
ANNUAL EXPENSES PER CONNECTION:	\$364.65	\$364.65		\$364.65
TOTAL SYSTEM EXPENSES	\$120,166.67	\$278,735.86		\$133,087.00
TAX REVENUE:	\$0.00	\$0.00		\$0.00
RESIDENCE				
MONTHLY NEEDED WATER BILL:	\$72.12	\$156.28		\$78.97
% OF ADJUSTED GROSS INCOME:	1.73%	3.76%		1.90%

* Equivalent Residential Connections

Agenda Item

4(C)(ii)(b)

**DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION LOAN
AUTHORIZATION**

APPLICANT'S REQUEST:

Tridell Lapoint Water Improvement District (TLWID) is requesting \$1,037,500 in financial assistance for construction of a new 500,000 gallon concrete storage tank and the replacement of approximately 5,300 linear feet of undersized water line (from 3-inch and 4-inch to 8-inch).

STAFF COMMENTS:

The weighted MAGI for TLWID is \$47,689 which is 104% of the State MAGI \$45,895. The current average water bill is \$77.21 per month, which is 1.94% of the weighted MAGI. The current water rate exceeds 1.75% of the weighted MAGI so this system does qualify for subsidy. Staff's recommendation for subsidy is for an extended term, principal forgiveness of 25%, and a reduction of the interest rate.

Option #	Description	Repayable Loan Amount	Interest Rate	Term	Principal Forgiveness	Monthly Water Rate	% Local MAGI
1	Base Eval.	\$ 1,037,500	3.50%	30 yrs	0	\$81.14	2.04%
2	75/25	\$ 777,000	1.75%	30 yrs	\$ 260,500	\$79.44	2.00%
3	75/25	\$ 777,000	3.92%	30 yrs	\$ 260,500	\$81.59	2.05%

STAFF RECOMMENDATION:

The Drinking Water Board authorize a loan of \$1,037,500 at 1.75% hardship grant assessment fee for 30 years with \$260,500 in Principal Forgiveness. The repayable amount will be \$777,000. This authorization is conditioned on Tridell Lapoint Water Improvement District being authorized the balance of project funding (\$1,037,500) from the Permanent Community Impact Board (CIB).

APPLICANT’S LOCATION:

Tridell Lapoint Water Improvement District (TLWID) is located in Uintah County, approximately 165 miles south east of Salt Lake City.

MAP OF APPLICANT’S LOCATION:



PROJECT DESCRIPTION:

The Community Impact Board funded an update to Tridell Lapoint’s Drinking Water Master Plan in August of 2017. That Master Plan is complete and it has identified and prioritized an upgrade to the water system which includes replacement of approximately 5,300-linear feet of undersized pipes (from 3” and 4” to 8”) to facilitate higher flows and maintain pressure above 30 psi to the south end of the system. The project will also include construction of a new 500,000-gallon concrete storage tank to be located just south of the existing treatment plant to serve the entire distribution system.

POPULATION GROWTH:

	<u>Year</u>	<u>Population</u>	<u>Connections</u>
Current:	2018	1,575	528
Projected:	2040	1,900	628

COST ESTIMATE:

Legal/Bonding		\$ 15,000
Engineering – Planning, Design	} 15%	\$ 106,000
Engineering – Env, Geotech		\$ 21,000
Engineering - CMS		\$ 186,000
Construction		\$ 1,551,000
Contingency (~ 14%)		\$ 221,000
Total		\$ 2,100,000

COST ALLOCATION:

Tridell Lapoint is also applying to the Community Impact Board for funding of this project. The financial analysis prepared is based on a 50/50 funding split between the Drinking Water Board and the Community Impact Board.

Funding Source	Cost Sharing	Percent of Project
DWB	\$ 1,037,500	49.4%
CIB	\$ 1,037,500	49.4%
Local Contribution	\$ 25,000	1.2%
	\$ 2,100,000	100%

FINANCIAL SUMMARY:

Tridell LaPoint provides water to all of Tridell and Lapoint and approximately 10% of Fort Duchesne.

Weighted MAGI

Community Name	Equivalent Residential Connections	2017 MAGI	
Tridell	120	\$ 63,315	\$ 7,597,800
LaPoint	328	\$ 47,023	\$ 15,423,544
Fort Duchesne	80	\$ 26,980	\$ 2,158,400
Total	528		\$ 25,179,744
Weighted MAGI		\$ 47,689	

2017 Weighted MAGI:	\$ 47,689 (104% of Statewide MAGI)
2017 Statewide MAGI	\$ 45,895
DWB “Affordable” Water Bill (1.75% MAGI)	\$69.55/month
Total Equivalent Connections:	528
Current Bill (based on billings and taxes)	\$77.21/month (1.94% of MAGI)
Req’d Water Bill (for proposed funding package)	\$79.44/month (2.0% of MAGI)
Existing Annual Debt Payment	\$61,000
Current Annual O&M Expenses	\$354,196
Current Annual Income from Billings and Taxes	\$489,000

IMPLEMENTATION SCHEDULE:

Apply to DWB for Funds:	November 2018
DWB Funding Authorization:	January 2019
Plan Approval	May 2019
Advertise for Bids:	May 2019
Bid Opening	June 2019
Loan Closing	June 2019
Begin Construction	July 2019
Complete Construction	October 2019
Receive Operating Permit:	October 2019

APPLICANT: Tridell Lapoint Water Improvement District
PO Box 760061
Tridell, UT 84076
435-247-2475

PRESIDING OFFICIAL &
CONTACT PERSON: Jared McKee, Manager
PO Box 760061
Tridell, UT 84076
435-247-2475
tlwid@ubtanet.com

TREASURER/RECORDER: Loidene Natani
435-247-2475
tlwid@ubtanet.com

CONSULTING ENGINEER: Aaron Averett
Sunrise Engineering
363 East Main Street, Suite 201
Vernal, UT 84078
435-789-7364
aaverett@sunrise-eng.com

BOND ATTORNEY: TBD

DRINKING WATER BOARD FINANCIAL ASSISTANCE EVALUATION

SYSTEM NAME: Tridell Lapoint
 COUNTY: Uintah
 PROJECT DESCRIPTION: New 500,000 gallon tank and waterline

FUNDING SOURCE: Federal SRF

75 % Loan & 25 % P.F.

ESTIMATED POPULATION:	1,742	NO. OF CONNECTIONS:	528 *	SYSTEM RATING:	APPROVED
CURRENT AVG WATER BILL:	\$77.21 *	FINANCIAL PTS:	27	PROJECT TOTAL:	\$2,100,000
CURRENT % OF AGI:	1.94%			LOAN AMOUNT:	\$777,000
ESTIMATED MEDIAN AGI:	\$47,689			PRINC. FORGIVE.:	\$260,500
STATE AGI:	\$45,895			TOTAL REQUEST:	\$1,037,500
SYSTEM % OF STATE AGI:	104%				

	BASE EVAL	@ RBBI MKT RATE		AFTER REPAYMENT PENALTY & POINTS
SYSTEM	\$1,037,500 3.50%	3.92%		1.75%
ASSUMED LENGTH OF DEBT, YRS:	30	30		30
ASSUMED NET EFFECTIVE INT. RATE:	3.50%	3.92%		1.75%
REQUIRED DEBT SERVICE:	\$42,246.52	\$44,498.55		\$33,511.82
*PARTIAL COVERAGE (15%):	\$6,336.98	\$6,674.78		\$5,187.50
*ADD. COVERAGE AND RESERVE (10%):	\$4,224.65	\$4,449.85		\$3,351.18
ANNUAL NEW DEBT PER CONNECTION:	\$100.02	\$105.35		\$79.64
O & M + FUNDED DEPRECIATION:	\$354,196.00	\$354,196.00		\$354,196.00
OTHER DEBT + COVERAGE:	\$107,113.00	\$107,113.00		\$107,113.00
REPLACEMENT RESERVE ACCOUNT:	\$0.00	\$0.00		\$0.00
ANNUAL EXPENSES PER CONNECTION:	\$873.69	\$873.69		\$873.69
TOTAL SYSTEM EXPENSES	\$514,117.16	\$516,932.19		\$503,359.50
TAX REVENUE:	\$39,966.00	\$39,966.00		\$39,966.00
RESIDENCE				
MONTHLY NEEDED WATER BILL:	\$81.14	\$81.59		\$79.44
% OF ADJUSTED GROSS INCOME:	2.04%	2.05%		2.00%

* Equivalent Residential Connections

Agenda Item

4(C)(ii)(c)

**DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION ASSISTANCE
AUTHORIZATION**

APPLICANT’S REQUEST:

Canyon Meadows Mutual Water Company (CMMWC) is requesting \$1,925,000 in financial assistance to replace their existing treatment system with a closed media filtration system, construct a new 300,000 gallon concrete storage tank, and to replace ~15,000 linear feet of existing water line.

STAFF COMMENTS:

Canyon Meadows Mutual Water Company is a private water system. The local MAGI for CMMWC is \$82,699 which is 180% of the State MAGI of \$45,895. The current average water bill is \$82.77 per month, which is 1.20% of the local MAGI. The water system income consists of revenue from residential customers (32) and non-connected lots (54). The recommended funding package would raise the average monthly water rate to \$144.95/month. This monthly rate is 2.10% of the local MAGI and exceeds 1.75% of MAGI, so this system would qualify for subsidy. Staff recommends a subsidy in the form of an extended loan term, reduced interest rate and 10% principal forgiveness.

Option #	Description	Repayable Loan Amount	Interest Rate	Term	Principal Forgiveness	Monthly Water Rate	% Local MAGI
1	Base Eval.	\$ 1,925,000	3.87%	30 yrs	0	\$205.39	2.98%
2	80/20	\$ 1,540,000	1.0%	30 yrs	\$ 385,000	\$144.95	2.10%

The project scope and requested funding amount has changed from what was presented to the Financial Assistance Committee. The project originally called for a new 150,000 gallon storage tank and the system intended to continue to use the old 150,000 gallon tank. At the request of the Financial Assistance Committee, staff consulted with the system and their engineer to explore the feasibility of building a new 300,000 gallon tank and no longer using the old tank. This option added \$200,000 to the project cost. Given the poor condition of the existing tank, staff is recommending the project scope include the 300,000 gallon tank.

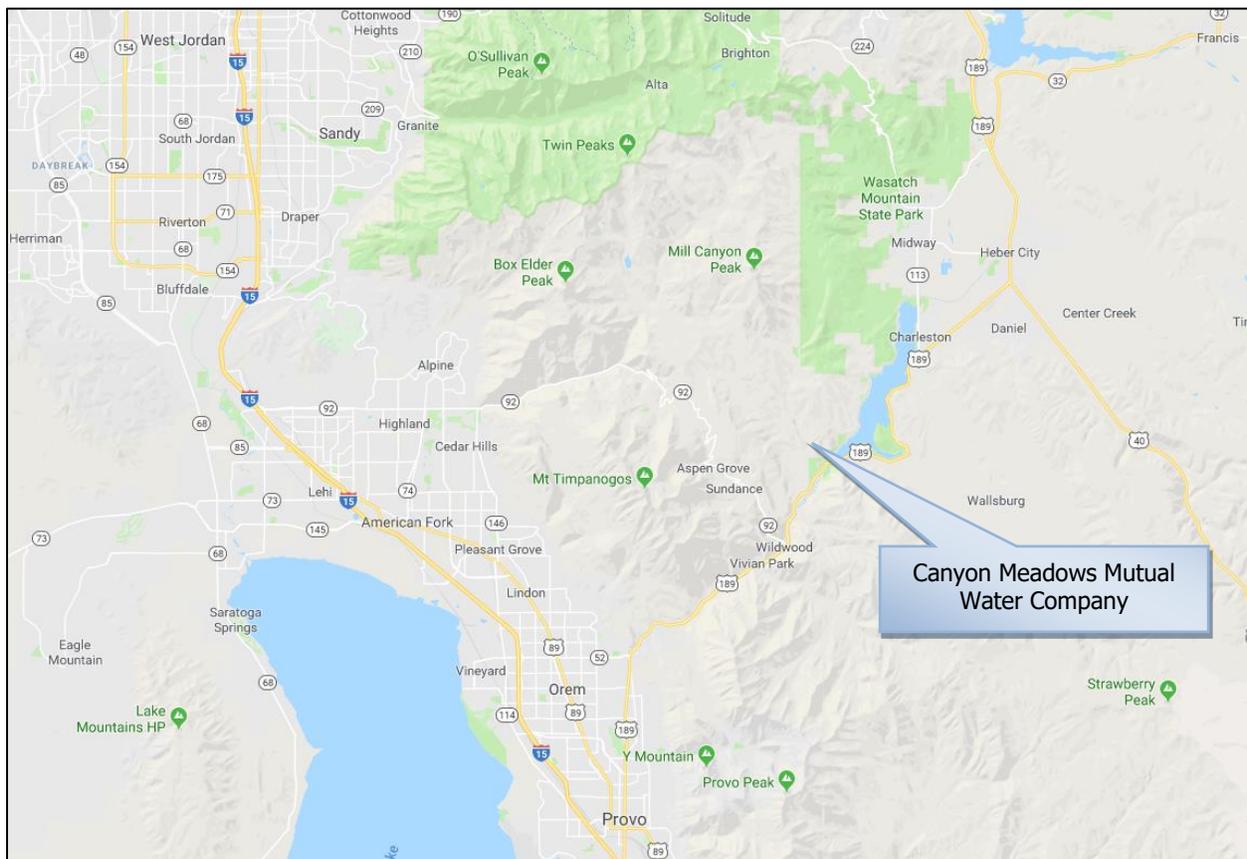
STAFF RECOMMENDATION:

The Drinking Water Board authorize a loan of \$1,925,000 at 1.0% hardship grant assessment fee for 30 years with \$385,000 in Principal Forgiveness. The repayable amount will be \$1,540,000.

APPLICANT'S LOCATION:

Canyon Meadows Mutual Water Company is located in Provo Canyon in the unincorporated area of Wasatch County.

MAP OF APPLICANT'S LOCATION:



PROJECT DESCRIPTION:

The Canyon Meadows drinking water system was initially constructed in the early 1980s. The system consists of a 150,000 gallon concrete storage tank and a surface water treatment plant that treats intake water from Little Deer Creek. These facilities are deteriorating and the system proposes to replace them.

The existing treatment facility is sand filtration style which is out of date and requires a great deal of maintenance. The new treatment facility will be a closed media filter system. The system also has inadequate storage capacity and plans to build a new 300,000 gallon tank and no longer use the existing 150,000 gallon tank.

The existing transmission and distribution system is also deteriorating due to age. The system plans to replace the roadways in the near future, and replacing the aging distribution system prior to replacing the roadways would be the most cost effective and beneficial.

POPULATION GROWTH:

There are currently 86 total lots, 32 with residences on them. The system collects rates from both residences and lot owners.

	<u>Year</u>	<u>Population</u>	<u>Connections</u>
Current:	2018	100	86
Projected:	2040	125	86

COST ESTIMATE:

Legal/Bonding		\$	12,000
Engineering – Design	} 9%	\$	115,000
Engineering – CMS		\$	55,000
Construction		\$	1,573,000
Contingency (~ 11%)		\$	170,000
Total		\$	1,925,000

COST ALLOCATION:

<u>Funding Source</u>	<u>Cost Sharing</u>	<u>Percent of Project</u>
DWB	\$ 1,925,000	100%
Local Contribution	\$ 0	0%
	\$ 1,925,000	100%

FINANCIAL SUMMARY:

2017 Local MAGI:	\$ 82,699 (180% of Statewide MAGI)
2017 Statewide MAGI	\$ 45,895
DWB “Affordable” Water Bill	\$120.60/month (1.75% of local MAGI)
Total Equivalent Connections:	86
Current Bill (based on billings and taxes)	\$82.77/month (1.20% of MAGI)
Req’d Water Bill (for proposed funding)	\$144.95/month (2.10% of MAGI)
Current Annual O&M Expenses	\$75,000
Current Annual Income from Billings and Taxes	\$85,416

IMPLEMENTATION SCHEDULE:

FA Committee Conference Call:	Dec 2018
DWB Funding Authorization:	Jan 2019
Complete Design:	Feb 2019
Plan Approval:	Apr 2019
Advertise for Bids:	Apr 2019
Begin Construction:	May 2019
Complete Construction:	Aug 2019

CONTACT INFORMATION:

APPLICANT:	Canyon Meadows Mutual Water Co 8827 Lupine Drive Provo, Utah 84604 928-243-0038 Coachk53@hotmail.com
PRESIDING OFFICIAL & CONTACT PERSON:	Rick Kartchner President 8827 Lupine Drive Provo, Utah 84604 928-243-0038 Coachk53@hotmail.com
CONSULTING ENGINEER:	Bradey Wilde Jones and Demille Engineering 775 West 1200 North ste 200A&200D Springville, Utah 84663 801-692-0219 ext. 606 bwilde@jonesanddemille.com
RECORDER:	Barbara Quittner 801-361-6695 canyonmeadowshoa@gmail.com
BOND ATTORNEY:	Eric Johnson Balisdell Church & Johnson 5995 South Redwood Road Salt Lake City, UT 84123 801-261-3407 eric@bcjlaw.net

DRINKING WATER BOARD FINANCIAL ASSISTANCE EVALUATION

SYSTEM NAME: Canyon Meadows
 COUNTY: Wasatch
 PROJECT DESCRIPTION: New Treatment System, New Storage Tank and Replacement of Water Line

FUNDING SOURCE: Federal SRF

80 % Loan & 20 % P.F.

ESTIMATED POPULATION:	100	NO. OF CONNECTIONS:	86 *	SYSTEM RATING:	APPROVED
CURRENT AVG WATER BILL:	\$82.77 *			PROJECT TOTAL:	\$1,925,000
CURRENT % OF AGI:	1.20%	FINANCIAL PTS:	18	LOAN AMOUNT:	\$1,540,000
ESTIMATED MEDIAN AGI:	\$82,699			PRINC. FORGIVE.:	\$385,000
STATE AGI:	\$45,895			TOTAL REQUEST:	\$1,925,000
SYSTEM % OF STATE AGI:	180%				

	BASE EVAL	@ RBBI		
	\$1,925,000	\$1,925,000		\$1,540,000
	3.87%	3.92%		1.00%
SYSTEM				
ASSUMED LENGTH OF DEBT, YRS:	30	30		30
ASSUMED NET EFFECTIVE INT. RATE:	3.87%	3.92%		1.00%
REQUIRED DEBT SERVICE:	\$109,572.49	\$110,244.15		\$59,672.09
*PARTIAL COVERAGE (15%):	\$16,435.87	\$16,536.62		\$8,950.81
*ADD. COVERAGE AND RESERVE (10%):	\$10,957.25	\$11,024.42		\$5,967.21
ANNUAL NEW DEBT PER CONNECTION:	\$1,592.62	\$1,602.39		\$867.33
O & M + FUNDED DEPRECIATION:	\$75,000.00	\$75,000.00		\$75,000.00
OTHER DEBT + COVERAGE:	\$0.00	\$0.00		\$0.00
REPLACEMENT RESERVE ACCOUNT:	\$0.00	\$0.00		\$0.00
ANNUAL EXPENSES PER CONNECTION:	\$872.09	\$872.09		\$872.09
TOTAL SYSTEM EXPENSES	\$211,965.62	\$212,805.19		\$149,590.12
TAX REVENUE:	\$0.00	\$0.00		\$0.00
RESIDENCE				
MONTHLY NEEDED WATER BILL:	\$205.39	\$206.21		\$144.95
% OF ADJUSTED GROSS INCOME:	2.98%	2.99%		2.10%

* Equivalent Residential Connections

Agenda Item

4(C)(ii)(d)

**DRINKING WATER BOARD
BOARD PACKET FOR CONSTRUCTION LOAN**

APPLICANT'S REQUEST:

Virgin Town has a project consisting of a new tank and distribution lines. The cost of the project is estimated at \$1,200,000. They scored 31.6 points on the project priority list. They plan to contribute \$400,000 toward the project.

STAFF COMMENTS:

The local MAGI for Virgin is approximately \$43,261 (98% of the state MAGI), but their after project water bill is 2.62% of the local MAGI. Therefore they do qualify as a hardship community to receive principal forgiveness. The existing tank is deteriorating and subject to contamination and also suffers from low static pressures. The distribution system is also deteriorating and inadequate for the existing system.

Option#	Loan	Length	%/fee	P.F.	% of local MAGI	Water bill
1 - loan	\$800,000	20 years	0%	\$0	2.51%	\$90.38
2 - 20% PF	\$640,000	20 years	0%	\$160,000	2.42%	\$87.31
3- 50% PF	\$400,000	20 years	0%	\$400,000	2.29%	\$82.71
4- 50% PF	\$400,000	30 years	0%	\$400,000	2.22%	\$80.16

STAFF RECOMMENDATION:

The Drinking Water Board authorize an \$800,000 loan with \$400,000 in principal forgiveness at 0% interest/fee for 20 years. The repayable amount would be \$400,000. Conditions include that they resolve all issues on their compliance report.

APPLICANT'S LOCATION:

Virgin Town is located in Washington County 27 miles Northeast of St. George.

MAP OF APPLICANT'S LOCATION:



PROJECT DESCRIPTION:

Virgin Town's project consists of a new 500,000 gallon tank to replace an old system that is subject to impending failure and subject to contamination. This project also consists of installing a connection from the new tank into the existing system and replacing deteriorating distribution lines.

POPULATION GROWTH:

Projected populations and number of connections are shown in the table below:

Year	Population	Connections
2020	750	258
2025	765	273
2030	781	288
2035	796	303
2040	812	318

IMPLEMENTATION SCHEDULE:

FA Committee Conference Call:	Dec 2018
DWB Funding Authorization:	Jan 2019
Complete Design:	Jan 2019
Plan Approval:	Feb 2019
Advertise for Bids:	Apr 2019
Begin Construction:	June 2019
Complete Construction:	March 2020

COST ESTIMATE:

Legal – Bonding, Admin	\$20,000
Engineering- Plan, Design, CMS	\$110,000
Construction – transmission line	\$570,000
Construction – storage tank	\$500,000
Contingency	\$0
DDW Admin Fee	\$0
Total Project Cost	\$1,200,000

COST ALLOCATION:

The cost allocation proposed for the project is shown below:

<u>Funding Source</u>	<u>Cost Sharing</u>	<u>Percent of Project</u>
DWB Loan	\$400,000	33%
DWB Principal Forgiveness	\$400,000	33%
Self-Contribution	\$400,000	33%

CONTACT INFORMATION:

APPLICANT:

Virgin Town
114 Mill Road
Virgin, UT 84779
435-635-4696
clerk@virgin.utah.gov

PRESIDING OFFICIAL &
CONTACT PERSON:

Matthew Spendlove
Mayor
114 Mill Road
Virgin, UT 84779
435-635-4696
clerk@virgin.utah.gov

CONSULTING ENGINEER:

Rod Mills
RM2 Consulting Engineering
750 N Sky Mountain Blvd
Hurricane, UT 84737
801-918-7203
millsengineering@gmail.com

RECORDER:

Marie Bowcutt
435-635-4696
clerk@virgin.utah.gov

DRINKING WATER BOARD FINANCIAL ASSISTANCE EVALUATION

SYSTEM NAME: Virgin Town
 COUNTY: Washington
 PROJECT DESCRIPTION: Tank, Dist lines

FUNDING SOURCE: Federal SRF

50 % Loan & 50 % P.F.

ESTIMATED POPULATION:	750	NO. OF CONNECTIONS:	250 *	SYSTEM RATING:	APPROVED
CURRENT AVG WATER BILL:	\$71.48 *			PROJECT TOTAL:	\$1,200,000
CURRENT % OF AGI:	1.98%	FINANCIAL PTS:	44	LOAN AMOUNT:	\$400,000
ESTIMATED MEDIAN AGI:	\$43,261			PRINC. FORGIVE.:	\$400,000
STATE AGI:	\$44,268			TOTAL REQUEST:	\$800,000
SYSTEM % OF STATE AGI:	98%				

	@ ZERO % RATE 0%	@ RBBI MKT RATE 3.92%		AFTER REPAYMENT PENALTY & POINTS 0.00%
<u>SYSTEM</u>				
ASSUMED LENGTH OF DEBT, YRS:	20	20		20
ASSUMED NET EFFECTIVE INT. RATE:	0.00%	3.92%		0.00%
REQUIRED DEBT SERVICE:	\$20,000.00	\$29,224.58		\$20,000.00
*PARTIAL COVERAGE (15%):	\$0.00	\$0.00		\$0.00
*ADD. COVERAGE AND RESERVE (10%):	\$2,000.00	\$2,922.46		\$2,000.00
ANNUAL NEW DEBT PER CONNECTION:	\$88.00	\$128.59		\$88.00
O & M + FUNDED DEPRECIATION:	\$208,001.00	\$208,001.00		\$208,001.00
OTHER DEBT + COVERAGE:	\$6,477.50	\$6,477.50		\$6,477.50
REPLACEMENT RESERVE ACCOUNT:	\$11,659.15	\$12,120.38		\$11,659.15
ANNUAL EXPENSES PER CONNECTION:	\$904.55	\$906.40		\$904.55
TOTAL SYSTEM EXPENSES	\$248,137.65	\$258,745.92		\$248,137.65
TAX REVENUE:	\$0.00	\$0.00		\$0.00
<u>RESIDENCE</u>				
MONTHLY NEEDED WATER BILL:	\$82.71	\$86.25		\$82.71
% OF ADJUSTED GROSS INCOME:	2.29%	2.39%		2.29%

* Equivalent Residential Connections

Agenda Item

5(A)(i)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-100-9. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-100-9 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-100. Administration: Drinking Water Program.

R309-100-9. Variances.

(1) Variances to the requirements of R309-200 of these rules may be granted by the Board to water systems which, because of characteristics of their raw water sources, cannot meet the required maximum contaminant levels despite the application of best technology and treatment techniques available as listed in Title 40 CFR Part 141, as published on July 1, 2018 (taking costs into consideration).

(2) The variance will be granted only if doing so will not result in an unreasonable risk to health.

(3) No variance from the maximum contaminant level for total coliforms are permitted.

(4) No variance from the minimum filtration and disinfection requirements of R309-525 and R309-530 will be permitted for sources classified by the Director as directly influenced by surface water.

(6) Within one year of the date any variance is granted, the Board shall prescribe a schedule by which the water system will come into compliance with the maximum contaminant level in question. The requirements of Section 1415 of the Federal Safe Drinking Water Act, PL 104-182, are hereby incorporated by reference. The Board shall provide notice and opportunity for public hearing prior to granting any variance or determining the compliance schedule. Procedures for giving notice and opportunity for hearing will be as outlined in 40 CFR Section 142.44.

(7) Variances or exemptions from certain provisions of these regulations may be granted pursuant to Sections 1415 and 1416 of the Federal Safe Drinking Water Act and Subpart K of Part 142 (for small system variances) by the entity with primary enforcement responsibility, except that variances or exemptions from the MCLs for total coliforms and E. coli and variances from any of the treatment technique requirements of Subpart H of Part 141 may not be granted.

(a) As provided in 40 CFR 142.304(a), small system variances are not available for rules addressing microbial contaminants, which would include Subparts H, P, S, T, W, and Y of Part 141.

Agenda Item

5(A)(ii)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-105-4. The proposed amendment deleted and moved language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-105-4 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-105. Administration: General Responsibilities of Public Water Systems.

R309-105-4. General.

(1) Water suppliers are responsible for the quality of water delivered to their customers. In order to give the public reasonable assurance that the water which they are consuming is satisfactory, the Board has established rules for the design, construction, water quality, water treatment, contaminant monitoring, source protection, operation and maintenance of public water supplies.

~~[(2) For compliance monitoring required by R309-200 through 215, public water systems must use a laboratory certified by the Utah Public Health Department in accordance with R444-14-4. The Federal Safe Drinking Water Act requires each analyte to be analyzed by a specific method. These methods are described in the July 1, 1992 through 2015, editions of 40 CFR Parts 141, 142, and 143 (Safe Drinking Water Act).]~~

Agenda Item

5(A)(iii)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-110-4. The proposed amendment deleted language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no substantive comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-110-4 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

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 (0.015 mg/l for lead and 1.3 mg/l for copper) which determines, in some cases, the corrosion treatment, public education and lead line replacement requirements that a water system is required to complete.

"AF" means acre foot and is the volume of water required to cover an acre to a depth of one foot (one AF is equivalent to 325,851 gallons).

"Air gap" The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, catch basin, plumbing fixture or other device and the flood level rim of the receptacle. This distance shall be two times the diameter of the effective opening for openings greater than one inch in diameter where walls or obstructions are spaced from the nearest inside edge of the pipe opening a distance greater than three times the diameter of the effective openings for a single wall, or a distance greater than four times the diameter of the effective opening for two intersecting walls. This distance shall be three times the diameter of the effective opening where walls or obstructions are closer than the distances indicated above.

"ANSI/NSF" refers to the American National Standards Institute and NSF International. NSF International has prepared at least two health effect standards dealing with treatment chemicals added to drinking water and system components that will come into contact with drinking water, these being Standard 60 and Standard 61. The American National Standards Institute acts as a certifying agency, and determines which laboratories may certify to these standards.

"Approval" unless indicated otherwise, shall be taken to mean a written statement of acceptance from the Director.

"Approved" refers to a rating placed on a system by the Division and means that the public water system is operating in substantial compliance with all the Rules of R309.

"Average Yearly Demand" means the amount of water delivered to consumers by a public water system during a typical year, generally expressed in MG or AF.

"AWWA" refers to the American Water Works Association located at 6666 West Quincy Avenue, Denver, Colorado 80235. Reference within these rules is generally to a particular Standard prepared by AWWA and which has completed the ANSI approval process such as ANSI/AWWA Standard C651-92 (AWWA Standard for Disinfecting Water Mains).

"Backflow" means the undesirable reversal of flow of water or mixtures of water and other liquids, gases, or other substances into

the distribution pipes of the potable water supply from any source. Also see backsiphonage, backpressure and cross-connection.

"Backpressure" means the phenomena that occurs when the customer's pressure is higher than the supply pressure, This could be caused by an unprotected cross connection between a drinking water supply and a pressurized irrigation system, a boiler, a pressurized industrial process, elevation differences, air or steam pressure, use of booster pumps or any other source of pressure. Also see backflow, backsiphonage and cross connection.

"Backsiphonage" means a form of backflow due to a reduction in system pressure which causes a subatmospheric or negative pressure to exist at a site or point in the water system. Also see backflow and cross-connection.

"Bag Filters" are pressure-driven separation devices that remove particle matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to outside.

"Bank Filtration" is a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

"Best Available Technology" (BAT) means the best technology, treatment techniques, or other means which the Director finds, after examination under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon for all these chemicals except vinyl chloride. Central treatment using packed tower aeration is also identified as BAT for synthetic organic chemicals.

"Board" means the Drinking Water Board.

"Body Politic" means the State or its agencies or any political subdivision of the State to include a county, city, town, improvement district, taxing district or any other governmental subdivision or public corporation fo the State.

"Breakpoint Chlorination" means addition of chlorine to water until the chlorine demand has been satisfied. At this point, further addition of chlorine will result in a free residual chlorine that is directly proportional to the amount of chlorine added beyond the breakpoint.

"C" is short for "Residual Disinfectant Concentration."

"Capacity Development" means technical, managerial, and financial capabilities of the water system to plan for, achieve, and maintain compliance with applicable drinking water standards.

"Cartridge filters" are pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

"cfs" means cubic feet per second and is one way of expressing flowrate (one cfs is equivalent to 448.8 gpm).

"Class" means the level of certification of Backflow Prevention Technician (Class I, II or III).

~~["Clean compliance history" means a record of no MCL violations; and no coliform treatment technique trigger exceedances or treatment technique violations.]~~

"Coagulation" is the process of destabilization of the charge (predominantly negative) on particulates and colloids suspended in water. Destabilization lessens the repelling character of particulates and colloids and allows them to become attached to other particles so that they may be removed in subsequent processes. The particulates in raw waters (which contribute to color and turbidity) are mainly clays, silt, viruses, bacteria, fulvic and humic acids, minerals (including asbestos, silicates, silica, and radioactive particles), and organic particulate.

"Collection area" means the area surrounding a ground-water source which is underlain by collection pipes, tile, tunnels, infiltration boxes, or other ground-water collection devices.

"Combined distribution system" is the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

"Commission" means the Operator Certification Commission.

"Community Water System" (CWS) means a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Compliance cycle" means the nine-year calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle began January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third begins January 1, 2011 and ends December 31, 2019.

"Compliance period" means a three-year calendar year period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period ran from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; and the third is from January 1, 1999 to December 31, 2001.

"Comprehensive Performance Evaluation" (CPE) is a thorough review and analysis of a treatment plant's performance-based

capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with these rules, the comprehensive performance evaluation must consist of at least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.

"Confirmed SOC contamination area" means an area surrounding and including a plume of SOC contamination of the soil or water which previous monitoring results have confirmed. The area boundaries may be determined by measuring 3,000 feet horizontally from the outermost edges of the confirmed plume. The area includes deeper aquifers even though only the shallow aquifer is the one contaminated.

"Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion of the filtration area in which discrete bacterial colonies can not be distinguished.

"Consecutive system" is a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system or one or more consecutive systems.

"Contaminant" means any physical, chemical biological, or radiological substance or matter in water.

"Continuing Education Unit" (CEU) means ten contact hours of participation in, and successful completion of, an organized and approved continuing education experience under responsible sponsorship, capable direction, and qualified instruction. College credit in approved courses may be substituted for CEUs on an equivalency basis.

"Conventional Surface Water Treatment" means a series of processes including coagulation, flocculation, sedimentation, filtration and disinfection resulting in substantial particulate removal and inactivation of pathogens.

"Controls" means any codes, ordinances, rules, and regulations that a public water system can cite as currently in effect to regulate potential contamination sources; any physical conditions which may prevent contaminants from migrating off of a site and into surface or ground water; and any site with negligible quantities of contaminants.

"Corrective Action" refers to a rating placed on a system by the Division and means a provisional rating for a public water system not in compliance with the Rules of R309, but making all the necessary changes outlined by the Director to bring them into compliance.

"Corrosion inhibitor" means a substance capable of reducing the corrosiveness of water toward metal plumbing materials, especially

lead and copper, by forming a protective film on the interior surface of those materials.

"Credit Enhancement Agreement" means any agreement entered into between the Board, on behalf of the State, and an eligible water system for the purpose of providing methods and assistance to eligible water systems to improve the security for and marketability of drinking water project obligations.

"Criteria" means the conceptual standards that form the basis for DWSP area delineation to include distance, ground-water time of travel, aquifer boundaries, and ground-water divides.

"Criteria threshold" means a value or set of values selected to represent the limits above or below which a given criterion will cease to provide the desired degree of protection.

"Cross-Connection" means any actual or potential connection between a drinking (potable) water system and any other source or system through which it is possible to introduce into the public drinking water system any used water, industrial fluid, gas or substance other than the intended potable water. For example, if you have a pump moving non-potable water and hook into the drinking water system to supply water for the pump seal, a cross-connection or mixing may lead to contamination of the drinking water. Also see backsiphonage, backpressure and backflow.

"Cross Connection Control Program" means the program administered by the public water system in which cross connections are either eliminated or controlled.

"Cross Connection Control Commission" means the duly constituted advisory subcommittee appointed by the Board to advise the Board on Backflow Technician Certification and the Cross Connection Control Program of Utah.

"CT" or "CT_{calc}" is the product of "residual disinfectant concentration" (C) in mg/l determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes, i.e., "C" x "T." If a public water system applies disinfectant at more than one point prior to the first customer, the summation of each CT value for each disinfectant sequence before or at the first customer determines the total percent inactivation or "Total Inactivation Ratio." In determining the Total Inactivation Ratio, the public water system must determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point(s).

"CT_{req'd}" is the CT value required when the log reduction credit given the filter is subtracted from the (3-log) inactivation requirement for Giardia lamblia or the (4-log) inactivation requirement for viruses.

"CT_{99.9}" is the CT value required for 99.9 percent (3-log) inactivation of Giardia lamblia cysts. CT_{99.9} for a variety of disinfectants and conditions appear in Tables 1.1-1.6, 2.1, and 3.1

of Section 141.74(b)(3) in the code of Federal Regulations (also available from the Division).

"Designated person" means the person appointed by a public water system to ensure that the requirements of their Drinking Water Source Protection Plan(s) for ground water sources and/or surface water sources are met.

"Desired Design Discharge Rate" means the discharge rate selected for the permanent pump installed in a public drinking water well source. This pumping rate is selected by the water system owner or engineer and can match or be the same rate utilized during the constant rate pump test required by R309-515 and R309-600 to determine delineated protection zones. For consideration of the number of permanent residential connections or ERC's that a well source can support (see Safe Yield) the Director will consider 2/3 of the test pumping rate as the safe yield.

"Detectable residual" means the minimum level of free chlorine in the water that the analysis method is capable of detecting and indicating positive confirmation.

"Direct Employment" means that the operator is directly compensated by the drinking water system to operate that drinking water system.

"Direct Filtration" means a series of processes including coagulation and filtration, but excluding sedimentation, resulting in substantial particulate removal.

"Direct Responsible Charge" means active on-site control and management of routine maintenance and operation duties. A person in direct responsible charge is generally an operator of a water treatment plant or distribution system who independently makes decisions during normal operation which can affect the sanitary quality, safety, and adequacy of water delivered to customers. In cases where only one operator is employed by the system, this operator shall be considered to be in direct responsible charge.

"Director" means the Director of the Division of Drinking Water.

"Disadvantaged Communities" are defined as those communities located in an area which has a median adjusted gross income which is less than or equal to 80% of the State's median adjusted gross income, as determined by the Utah State Tax commission from federal individual income tax returns excluding zero exemptions returns.

"Discipline" means type of certification (Distribution or Treatment).

"Disinfectant Contact Time" ("T" in CT calculations) means the time in minutes that it takes water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured. Where only one "C" is measured, "T" is the time in minutes that it takes water to move from the point of disinfectant application to a point before or at where

residual disinfectant concentration ("C") is measured. Where more than one "C" is measured, "T" is (a) for the first measurement of "C," the time in minutes that it takes water to move from the first or only point of disinfectant application to a point before or at the point where the first "C" is measured and (b) for subsequent measurements of "C," the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the particular "T" is being calculated. Disinfectant contact time in pipelines must be calculated by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

"Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents (see also Primary Disinfection and Secondary Disinfection).

"Disinfection profile" is a summary of daily *Giardia lamblia* inactivation through the treatment plant.

"Distribution System" means the use of any spring or well source, distribution pipelines, appurtenances, and facilities which carry water for potable use to consumers through a public water supply. Systems which chlorinate groundwater are in this discipline.

"Distribution System Manager" means the individual responsible for all operations of a distribution system.

"Division" means the Utah Division of Drinking Water, who acts as staff to the Director and is also part of the Utah Department of Environmental Quality.

"Dose-monitoring Strategy" is the method by which a UV reactor maintains the required dose at or near some specified value by monitoring UV dose delivery. Such strategies must include, at a minimum, flow rate and UV intensity (measured via duty UV sensor) and lamp status. They sometimes include UVT and lamp power. Two common Dose-monitoring Strategies are the UV Intensity Setpoint Approach and the Calculated Dose Approach.

(1) The "UV Intensity Setpoint Approach" relies on one or more "setpoints" for UV intensity that are established during validation testing to determine UV dose. During operations, the UV intensity as measured by the UV sensors must meet or exceed the setpoint(s) to ensure delivery of the required dose. Reactors must also be operated within validated operation conditions for flow rates and lamp status. In the UV Intensity Setpoint Approach, UVT does not need to be monitored separately. Instead, the intensity readings by the sensors account for changes in UVT. The operating strategy can be with either a single setpoint (one UV intensity setpoint is used for all validated flow rates) or a variable setpoint (the UV intensity setpoint is determined using a lookup table or equation for a range of flow rates).

(2) The "Calculated Dose Approach" uses a dose-monitoring equation to estimate the UV dose based on operating conditions

(typically flow rate, UV intensity, and UVT). The dose-monitoring equation may be developed by the UV manufacturers using numerical methods; or the systems use an empirical dose-monitoring equation developed through validation testing. During reactor operations, the UV reactor control system inputs the measured parameters into the dose-monitoring equation to produce a calculated dose. The system operator divides the calculated dose by the Validation Factor (see the 2006 Final UV Guidance Manual Chapter 5 for more details on the Validation Factor) and compares the resulting value to the required dose for the target pathogen and log inactivation level.

"Dose Equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission of Radiological Units and Measurements (ICRU).

"Drinking Water" means water that is fit for human consumption and meets the quality standards of R309-200. Common usage of terms such as culinary water, potable water or finished water are synonymous with drinking water.

"Drinking Water Project" means any work or facility necessary or desirable to provide water for human consumption and other domestic uses which has at least fifteen service connections or serves an average of twenty-five individuals daily for at least sixty days of the year and includes collection, treatment, storage, and distribution facilities under the control of the operator and used primarily with the system and collection, pretreatment or storage facilities used primarily in connection with the system but not under such control.

"Drinking Water Project Obligation" means any bond, note or other obligation issued to finance all or part of the cost of acquiring, constructing, expanding, upgrading or improving a drinking water project.

"Drinking Water Regional Planning" means a county wide water plan, administered locally by a coordinator, who facilitates the input of representatives of each public water system in the county with a selected consultant, to determine how each public water system will either collectively or individually comply with source protection, operator certification, monitoring (including consumer confidence reports), capacity development (including technical, financial and managerial aspects), environmental issues, available funding and related studies.

"Dual sample set" is a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purposes of conducting an IDSE under R309-210-9 and determining compliance with the TTHM and HAA5 MCLs under R309-210-10.

"Duty UV Sensors (or Duty Sensors)" are on-line sensors installed in the UV reactor and continuously monitor UV intensity during UV equipment operations.

"DWSP Program" means the program to protect drinking water source protection zones and management areas from contaminants that may have an adverse effect on the health of persons.

"DWSP Zone" means the surface and subsurface area surrounding a ground-water or surface water source of drinking water supplying a PWS, over which or through which contaminants are reasonably likely to move toward and reach such water source.

"Emergency Storage" means that storage tank volume which provides water during emergency situations, such as pipeline failures, major trunk main failures, equipment failures, electrical power outages, water treatment facility failures, source water supply contamination, or natural disasters.

"Engineer" means a person licensed under the Professional Engineers and Land Surveyors Licensing Act, 58-22 of the Utah Code, as a "professional engineer" as defined therein.

"Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

"Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.

"Equalization Storage" means that storage tank volume which stores water during periods of low demand and releases the water under periods of high demand. Equalization storage provides a buffer between the sources and distribution for the varying daily water demands. Typically, water demands are high in the early morning or evening and relatively low in the middle of the night. A rule-of-thumb for equalization storage volume is that it should be equal to one average day's use.

"Equivalent Residential Connection" (ERC) is a term used to evaluate service connections to consumers other than the typical residential domicile. Public water system management is expected to review annual metered drinking water volumes delivered to non-residential connections and estimate the equivalent number of residential connections that these represent based upon the average of annual metered drinking water volumes delivered to true single family residential connections. This information is utilized in evaluation of the system's source and storage capacities (refer to R309-510).

"Existing ground-water source of drinking water" means a public supply ground-water source for which plans and specifications were submitted to the Division on or before July 26, 1993.

"Existing surface water source of drinking water" means a public supply surface water source for which plans and specifications were submitted to the Division on or before June 12, 2000.

"Filtration" means a process for removing particulate matter from water by passage through porous media.

"Filter profile" is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

"Financial Assistance" means a drinking water project loan, credit enhancement agreement, interest buy-down agreement or hardship grant.

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

"Fire Suppression Storage" means that storage tank volume allocated to fire suppression activities. It is generally determined by the requirements of the local fire marshal, expressed in gallons, and determined by the product of a minimum flowrate in gpm and required time expressed in minutes.

"First draw sample" means a one-liter sample of tap water, collected in accordance with an approved lead and copper sampling site plan, that has been standing in plumbing pipes at least 6 hours and is collected without flushing the tap.

"Flash Mix" is the physical process of blending or dispersing a chemical additive into an unblended stream. Flash Mixing is used where an additive needs to be dispersed rapidly (within a period of one to ten seconds). Common usage of terms such as "rapid mix" or "initial mix" are synonymous with flash mix.

"Floc" means flocculated particles or agglomerated particles formed during the flocculation process. Flocculation enhances the agglomeration of destabilized particles and colloids toward settleable (or filterable) particles (flocs). Flocculated particles may be small (less than 0.1 mm diameter) micro flocs or large, visible flocs (0.1 to 3.0 mm diameter).

"Flocculation" means a process to enhance agglomeration of destabilized particles and colloids toward settleable (or filterable) particles (flocs). Flocculation begins immediately after destabilization in the zone of decaying mixing energy (downstream from the mixer) or as a result of the turbulence of transporting flow. Such incidental flocculation may be an adequate flocculation process in some instances. Normally flocculation involves an intentional and defined process of gentle stirring to enhance contact of destabilized particles and to build floc particles of optimum size, density, and strength to be subsequently removed by settling or filtration.

"Flowing stream" is a course of running water flowing in a definite channel.

"fps" means feet per second and is one way of expressing the velocity of water.

"G" is used to express the energy required for mixing and for flocculation. It is a term which is used to compare velocity gradients or the relative number of contacts per unit volume per second made by suspended particles during the flocculation process. Velocity gradients G may be calculated from the following equation: $G = \text{square root of the value}(550 \text{ times } P \text{ divided by } u \text{ times } V)$. Where: P = applied horsepower, u = viscosity, and V = effective volume.

"GAC10" means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with R309-210-10 MCLs under R309-200-5(3)(i)(A) shall be 120 days.

"GAC20" means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

"Geologist" means a person licensed under the Professional Geologist Licensing Act, 58-76 of the Utah Code, as a "professional geologist" as defined therein.

"Geometric Mean" the geometric mean of a set of N numbers $X_1, X_2, X_3, \dots, X_N$ is the Nth root of the product of the numbers.

"gpd" means gallons per day and is one way of expressing average daily water demands experienced by public water systems.

"gpm" means gallons per minute and is one way of expressing flowrate.

"gpm/sf" means gallons per minute per square foot and is one way of expressing flowrate through a surface area.

"Grade" means any one of four possible steps within a certification discipline of either water distribution or water treatment. Grade I indicates knowledge and experience requirements for the smallest type of public water supply. Grade IV indicates knowledge and experience levels appropriate for the largest, most complex type of public water supply.

"Gross Alpha Particle Activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

"Gross Beta Particle Activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

"ground water of high quality" means a well or spring producing water deemed by the Director to be of sufficiently high quality that no treatment is required. Such sources shall have been designed and constructed in conformance with these rules, have been tested to

establish that all applicable drinking water quality standards (as given in rule R309-200) are reliably and consistently met, have been deemed not vulnerable to natural or man-caused contamination, and the public water system management have established adequate protection zones and management policies in accordance with rule R309-600.

"ground water of low quality" means a well or spring which, as determined by the Director, cannot reliably and consistently meet the drinking water quality standards described in R309-200. Such sources shall be deemed to be a low quality ground water source if any of the conditions outlined in subsection R309-505-8(1) exist. Ground water that is classified "UDI" is a subset of this definition and requires "conventional surface water treatment" or an acceptable alternative.

"Ground Water Source" means any well, spring, tunnel, adit, or other underground opening from or through which ground water flows or is pumped from subsurface water-bearing formations.

"Ground Water Under the Direct Influence of Surface Water" or "UDI" or "GWUDI" means any water beneath the surface of the ground with significant occurrence of insects or other macro organisms, algae, or large-diameter pathogens such as Giardia lamblia, or Cryptosporidium, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence will be determined for individual sources in accordance with criteria established by the Director. The determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well or spring construction and geology with field evaluation.

"Haloacetic acids"(five) (HAA5) mean the sum of the concentrations in mg/L of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

"Hardship Grant" means a grant of monies to a political subdivision that meets the drinking water project loan considerations whose project is determined by the Board to not be economically feasible unless grant assistance is provided. A hardship grant may be authorized in the following forms:

(1) a Planning Advance which will be required to be repaid at a later date, to help meet project costs incident to planning to determine the economic, engineering and financial feasibility of a proposed project;

(2) a Design Advance which will be required to be repaid at a later date, to help meet project costs incident to design including, but not limited to, surveys, preparation of plans, working drawings, specifications, investigations and studies; or

(3) a Project Grant which will not be required to be repaid.

"Hardship Grant Assessment" means an assessment applied to loan recipients. The assessment shall be calculated as a percentage of principal. Hardship grant assessment funds shall be subject to the requirements of UAC R309-700 for hardship grants.

"Hotel, Motel or Resort" shall include tourist courts, motor hotels, resort camps, hostels, lodges, dormitories and similar facilities, and shall mean every building, or structure with all buildings and facilities in connection, kept, used, maintained as, advertised as, or held out to the public to be, a place where living accommodations are furnished to transient guests or to groups normally occupying such facilities on a seasonal or short term basis.

"Hydrogeologic methods" means the techniques used to translate selected criteria and criteria thresholds into mappable delineation boundaries. These methods include, but are not limited to, arbitrary fixed radii, analytical calculations and models, hydrogeologic mapping, and numerical flow models.

"Inactivation" means, in the context of UV disinfection, a process by which a microorganism is rendered unable to reproduce, thereby rendering it unable to infect a host.

"Initial compliance period" means the first full three-year compliance period which begins at least 18 months after promulgation, except for contaminants listed in R309-200-5(3)(a), Table 200-2 numbers 19 to 33; R309-200-5(3)(b), Table 200-3 numbers 19 to 21; and R309-200-5(1)(c), Table 200-1 numbers 1, 5, 8, 11 and 18, initial compliance period means the first full three-year compliance after promulgation for systems with 150 or more service connections (January 1993-December 1995), and first full three-year compliance period after the effective date of the regulation (January 1996-December 1998) for systems having fewer than 150 service connections.

"Intake", for the purposes of surface water drinking water source protection, means the device used to divert surface water and also the conveyance to the point immediately preceding treatment, or, if no treatment is provided, at the entry point to the distribution system.

"Interest Buy-Down Agreement" means any agreement entered into between the Board, on behalf of the State, and a political subdivision, for the purpose of reducing the cost of financing incurred by a political subdivision on bonds issued by the subdivision for drinking water project costs.

"Labor Camp" shall mean one or more buildings, structures, or grounds set aside for use as living quarters for groups of migrant laborers or temporary housing facilities intended to accommodate construction, industrial, mining or demolition workers.

"Lake / reservoir" refers to a natural or man made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

"Land management strategies" means zoning and non-zoning controls which include, but are not limited to, the following: zoning

and subdivision ordinances, site plan reviews, design and operating standards, source prohibitions, purchase of property and development rights, public education programs, ground water monitoring, household hazardous waste collection programs, water conservation programs, memoranda of understanding, written contracts and agreements, and so forth.

"Land use agreement" means a written agreement, memoranda or contract wherein the owner(s) agrees not to locate or allow the location of uncontrolled potential contamination sources or pollution sources within zone one of new wells in protected aquifers or zone one of surface water sources. The owner(s) must also agree not to locate or allow the location of pollution sources within zone two of new wells in unprotected aquifers and new springs unless the pollution source agrees to install design standards which prevent contaminated discharges to ground water. This restriction must be binding on all heirs, successors, and assigns. Land use agreements must be recorded with the property description in the local county recorder's office. Refer to R309-600-13(2)(d).

Land use agreements for protection areas on publicly owned lands need not be recorded in the local county recorder office. However, a letter must be obtained from the Administrator of the land in question and meet the requirements described above.

"Large water system" for the purposes of R309-210-6 only, means a water system that serves more than 50,000 persons.

"Lead free" means, for the purposes of R309-210-6, when used with respect to solders and flux refers to solders and flux containing not more than 0.2 percent lead; when used with respect to pipes and pipe fittings refers to pipes and pipe fittings containing not more than 8.0 percent lead; and when used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300 g-6(e).

"Lead service line" means a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck or other fitting which is connected to such lead line.

"Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

"Level 1 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where

appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any State directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

"Level 2 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the State, which may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any State directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the State in the case of an E. coli MCL violation.

"Locational running annual average (LRAA)" is the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

"Major Bacteriological Routine Monitoring Violation" means that no routine bacteriological sample was taken as required by R309-210-5(1).

"Major Bacteriological Repeat Monitoring Violation" - means that no repeat bacteriological sample was taken as required by R309-210-5(2).

"Major Chemical Monitoring Violation" - means that no initial background chemical sample was taken as required in R309-515-4(5).

"Management area" means the area outside of zone one and within a two-mile radius where the Optional Two-mile Radius Delineation Procedure has been used to identify a protection area.

For wells, land may be excluded from the DWSP management area at locations where it is more than 100 feet lower in elevation than the total drilled depth of the well.

For springs and tunnels, the DWSP management area is all land at elevation equal to or higher than, and within a two-mile radius, of the spring or tunnel collection area. The DWSP management area also includes all land lower in elevation than, and within 100 horizontal feet, of the spring or tunnel collection area. The elevation datum to be used is the point of water collection. Land may also be excluded from the DWSP management area at locations where it is separated from the ground water source by a surface drainage which is lower in elevation than the spring or tunnel collection area.

"Man-Made Beta Particle and Photon Emitters" means all radionuclides emitting beta particles and/or photons listed in Maximum Permissible Body Burdens and maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, "NBS Handbook 69," except the daughter products of thorium-232, uranium-235 and uranium-238.

"Master Plan" (or "System Capacity and Expansion Report") means a organized plan addressing the present and future demands that will be placed on a public drinking water system by expanding into undeveloped areas or accepting additional service contracts. As a minimum a satisfactory master plan must contain the following elements:

(a) A listing of sources including: the source name, the source type (i.e., well, spring, reservoir, stream etc.) for both existing sources and additional sources identified as needed for system expansion, the minimum reliable flow of the source in gallons per minute, the status of the water right and the flow capacity of the water right.

(b) A listing of storage facilities including: the storage tank name, the type of material (i.e., steel, concrete etc.), the diameter, the total volume in gallons, and the elevation of the overflow, the lowest level (elevation) of the equalization volume, the fire suppression volume, and the emergency volume or the outlet.

(c) A listing of pump stations including: the pump station name and the pumping capacity in gallons per minute. Under this requirement one does not need to list well pump stations as they are provided in requirement (a) above.

(d) A listing of the various pipeline sizes within the distribution system with their associated pipe materials and, if readily available, the approximate length of pipe in each size and material category. A schematic of the distribution piping showing node points, elevations, length and size of lines, pressure zones, demands, and coefficients used for the hydraulic analysis required by (h) below will suffice.

(e) A listing by customer type (i.e., single family residence, 40 unit condominium complex, elementary school, junior high school, high school, hospital, post office, industry, commercial etc.) along with an assessment of their associated number of ERC'S.

(f) The number of connections along with their associated ERC value that the public drinking water system is committed to serve, but has not yet physically connected to the infrastructure.

(g) A description of the nature and extent of the area currently served by the water system and a plan of action to control addition of new service connections or expansion of the public drinking water system to serve new development(s). The plan shall include current number of service connections and water usage as well as land use projections and forecasts of future water usage.

(h) A hydraulic analysis of the existing distribution system along with any proposed distribution system expansion identified in (g) above.

(i) A description of potential alternatives to manage system growth, including interconnections with other existing public drinking water systems, developer responsibilities and requirements, water rights issues, source and storage capacity issues and distribution issues.

"Maximum Contaminant Level" (MCL) means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

"Maximum residual disinfectant level" (MRDL) means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as MCLs pursuant to UT Code S 19-4-104. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in R309-200-5(3), operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

"Maximum residual disinfectant level goal" (MRDLG) means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are

non-enforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

"Medium-size water system" for the purposes of R309-210-6 only, means a water system that serves greater than 3,300 and less than or equal to 50,000 persons.

"Membrane filtration" is a pressure or vacuum driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes that common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

"Metropolitan area sources" means all sources within a metropolitan area. A metropolitan area is further defined to contain at least 3,300 year round residents. A small water system which has sources within a metropolitan system's service area, may have those sources classified as a metropolitan area source.

"MG" means million gallons and is one way of expressing a volume of water.

"MGD" means million gallons per day and is one way of expressing average daily water demands experienced by public water systems or the capacity of a water treatment plant.

"mg/L" means milligrams per liter and is one way of expressing the concentration of a chemical in water. At small concentrations, mg/L is synonymous with "ppm" (parts per million).

"Minor Bacteriological Routine Monitoring Violation" means that not all of the routine bacteriological samples were taken as required by R309-210-5(1).

"Minor Bacteriological Repeat Monitoring Violation" means that not all of the repeat bacteriological samples were taken as required by R309-210-5(2).

"Minor Chemical Monitoring Violation" means that the required chemical sample(s) was not taken in accordance with R309-205 and R309-210.

"Modern Recreation Camp" means a campground accessible by any type of vehicular traffic. The camp is used wholly or in part for recreation, training or instruction, social, religious, or physical education activities or whose primary purpose is to provide an outdoor group living experience. The site is equipped with permanent buildings for the purpose of sleeping, a drinking water supply under pressure, food service facilities, and may be operated on a seasonal or short term basis. These types of camps shall include but are not limited to privately owned campgrounds such as youth camps, church camps, boy or girl scout camps, mixed age groups, family group camps, etc.

"Near the first service connection" means one of the service connections within the first 20 percent of all service connections that are nearest to the treatment facilities.

"Negative Interest" means a loan having loan terms with an interest rate at less than zero percent. The repayment schedule for loans having a negative interest rate will be prepared by the Board.

"New ground water source of drinking water" means a public supply ground water source of drinking water for which plans and specifications are submitted to the Division after July 26, 1993.

"New surface water source of drinking water" means a public supply surface water source of drinking water for which plans and specifications are submitted to the Division after June 12, 2000.

"New Water System" means a system that will become a community water system or non-transient, non-community water system on or after October 1, 1999.

"Non-Community Water System" (NCWS) means a public water system that is not a community water system. There are two types of NCWS's: transient and non-transient.

"Non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which a coliform-positive sample was taken.

"Nonpoint source" means any diffuse source of contaminants or pollutants not otherwise defined as a point source.

"Non-Transient Non-Community Water System" (NTNCWS) means a public water system that regularly serves at least 25 of the same nonresident persons per day for more than six months per year. Examples of such systems are those serving the same individuals (industrial workers, school children, church members) by means of a separate system.

"Not Approved" refers to a rating placed on a system by the Division and means the water system does not fully comply with all the Rules of R309 as measured by R309-400.

"NTU" means Nephelometric Turbidity Units and is an acceptable method for measuring the clarity of water utilizing an electronic nephelometer (see "Standard Methods for Examination of Water and Wastewater").

"Off-specification" means a UV facility is operating outside of the validated operating conditions, for example, at a flow rate higher than the validated range or a UVT below the validated range).

"Operator" means a person who operates, repairs, maintains, and is directly employed by a public drinking water system.

"Operator Certification Commission" means the Commission appointed by the Board as an advisory Commission on public water system operator certification.

"Operating Permit" means written authorization from the Director to actually start utilizing a facility constructed as part of a public water system.

"Optimal corrosion control treatment" for the purposes of R309-210-6 only, means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations.

"Package Plants" refers to water treatment plants manufactured and supplied generally by one company which are reportedly complete and ready to hook to a raw water supply line. Caution, some plants do not completely comply with all requirements of these rules and will generally require additional equipment.

"PCBs" means a group of chemicals that contain polychlorinated biphenyl.

"Peak Day Demand" means the amount of water delivered to consumers by a public water system on the day of highest consumption, generally expressed in gpd or MGD. This peak day will likely occur during a particularly hot spell in the summer. In contrast, some systems associated with the skiing industry may experience their "Peak Day Demand" in the winter.

"Peak Hourly Flow" means the maximum hourly flow rate from a water treatment plant and utilized when the plant is preparing disinfection profiling as called for in R309-215-14(2).

"Peak Instantaneous Demand" means calculated or estimated highest flowrate that can be expected through any water mains of the distribution network of a public water system at any instant in time, generally expressed in gpm or cfs (refer to section R309-510-9).

"Person" means an individual, corporation, company, association, partnership; municipality; or State, Federal, or tribal agency.

"Picocurie" (pCi) means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

"Plan Approval" means written approval of contract plans and specifications for any public drinking water project which have been submitted for review prior to the start of construction pursuant to R309-105-6 and R309-500-6.

"Plant intake" refers to the works or structures at the head of a conduit through which water is diverted from a source (e.g., river or lake) into the treatment plant.

"Plug Flow" is a term to describe when water flowing through a tank, basin or reactors moves as a plug of water without ever dispersing or mixing with the rest of the water flowing through the tank.

"Point of Disinfectant Application" is the point where the disinfectant is applied and water downstream of that point is not subject to re-contamination by surface water runoff.

"Point of Diversion"(POD) is the point at which water from a surface source enters a piped conveyance, storage tank, or is otherwise removed from open exposure prior to treatment.

"Point-of-Entry Treatment Device" means a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

"Point-of-Use Treatment Device" means a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

"Point source" means any discernible, confined, and discrete source of pollutants or contaminants, including but not limited to any site, pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, animal feeding operation with more than ten animal units, landfill, or vessel or other floating craft, from which pollutants are or may be discharged.

"Political Subdivision" means any county, city, town, improvement district, metropolitan water district, water conservancy district, special service district, drainage district, irrigation district, separate legal or administrative entity created under Title 11, Chapter 13, Interlocal Cooperation Act, or any other entity constituting a political subdivision under the laws of Utah.

"Pollution source" means point source discharges of contaminants to ground or surface water or potential discharges of the liquid forms of "extremely hazardous substances" which are stored in containers in excess of "applicable threshold planning quantities" as specified in SARA Title III. Examples of possible pollution sources include, but are not limited to, the following: storage facilities that store the liquid forms of extremely hazardous substances, septic tanks, drain fields, class V underground injection wells, landfills, open dumps, landfilling of sludge and septage, manure piles, salt piles, pit privies, drain lines, and animal feeding operations with more than ten animal units.

The following definitions are part of R309-600 and clarify the meaning of "pollution source:"

(1) "Animal feeding operation" means a lot or facility where the following conditions are met: animals have been or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period, and crops, vegetation forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. Two or more animal feeding operations under common ownership are considered to be a single feeding operation if they adjoin each other, if they use a common area, or if they use a common system for the disposal of wastes.

(2) "Animal unit" means a unit of measurement for any animal feeding operation calculated by adding the following numbers; the number of slaughter and feeder cattle multiplied by 1.0, plus the

number of mature dairy cattle multiplied by 1.4, plus the number of swine weighing over 55 pounds multiplied by 0.4, plus the number of sheep multiplied by 0.1, plus the number of horses multiplied by 2.0.

(3) "Extremely hazardous substances" means those substances which are identified in the Sec. 302(EHS) column of the "TITLE III LIST OF LISTS - Consolidated List of Chemicals Subject to Reporting Under SARA Title III," (EPA 550-B-96-015). A copy of this document may be obtained from: NCEPI, PO Box 42419, Cincinnati, OH 45202. Online ordering is also available at <http://www.epa.gov/ncepihom/orderpub.html>.

"Potential contamination source" means any facility or site which employs an activity or procedure which may potentially contaminate ground or surface water. A pollution source is also a potential contamination source.

"ppm" means parts per million and is one way of expressing the concentration of a chemical in water. At small concentrations generally used, ppm is synonymous with "mg/l" (milligrams per liter).

"Practical Quantitation Level" (PQL) means the required analysis standard for laboratory certification to perform lead and copper analyses. The PQL for lead is .005 milligrams per liter and the PQL for copper is 0.050 milligrams per liter.

"Presedimentation" is a preliminary treatment process used to remove gravel, sand and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

"Primary Disinfection" means the adding of an acceptable primary disinfectant or ultraviolet light irradiation during the treatment process to provide adequate levels of inactivation of bacteria and pathogens. The effectiveness is measured through "CT" values, and the "Total Inactivation Ratio," and the ultraviolet light dose. Acceptable primary disinfectants are, chlorine, ozone, ultraviolet light, and chlorine dioxide (see also "CT" and "CT_{99.9}").

"Principal Forgiveness" means a loan wherein a portion of the loan amount is "forgiven" upon closing the loan. The terms for principal forgiveness will be as directed by R309-705-8, and by the Board.

"Project Costs" include the cost of acquiring and constructing any drinking water project including, without limitation: the cost of acquisition and construction of any facility or any modification, improvement, or extension of such facility; any cost incident to the acquisition of any necessary property, easement or right of way; engineering or architectural fees, legal fees, fiscal agent's and financial advisors' fees; any cost incurred for any preliminary planning to determine the economic and engineering feasibility of a proposed project; costs of economic investigations and studies, surveys, preparation of designs, plans, working drawings, specifications and the inspection and supervision of the construction of any facility; interest accruing on loans made under this program

during acquisition and construction of the project; and any other cost incurred by the political subdivision, the Board or the Department of Environmental Quality, in connection with the issuance of obligation of the political subdivision to evidence any loan made to it under the law.

"Protected aquifer" means a producing aquifer in which the following conditions are met:

(1) A naturally protective layer of clay, at least 30 feet in thickness, is present above the aquifer;

(2) the PWS provides data to indicate the lateral continuity of the clay layer to the extent of zone two; and

(3) the public supply well is grouted with a grout seal that extends from the ground surface down to at least 100 feet below the surface, and for a thickness of at least 30 feet through the protective clay layer.

"Public Drinking Water Project" means construction, addition to, or modification of any facility of a public water system which may affect the quality or quantity of the drinking water (see also section R309-500-6).

"Public Water System" (PWS) means a system, either publicly or privately owned, providing water through constructed conveyances for human consumption and other domestic uses, which has at least 15 service connections or serves an average of at least 25 individuals daily at least 60 days out of the year and includes collection, treatment, storage, or distribution facilities under the control of the operator and used primarily in connection with the system, or collection, pretreatment or storage facilities used primarily in connection with the system but not under his control (see 19-4-102 of the Utah Code Annotated). All public water systems are further categorized into three different types, community (CWS), non-transient non-community (NTNCWS), and transient non-community (TNCWS). These categories are important with respect to required monitoring and water quality testing found in R309-205 and R309-210 (see also definition of "water system").

"Raw Water" means water that is destined for some treatment process that will make it acceptable as drinking water. Common usage of terms such as lake or stream water, surface water or irrigation water are synonymous with raw water.

"Recreational Home Developments" are subdivision type developments wherein the dwellings are not intended as permanent domiciles.

"Recreational Vehicle Park" means any site, tract or parcel of land on which facilities have been developed to provide temporary living quarters for individuals utilizing recreational vehicles. Such a park may be developed or owned by a private, public or non-profit organization catering to the general public or restricted to the organizational or institutional member and their guests only.

"Reference UV Sensors (or Reference Sensors)" are off-line calibrated UV sensors that are used to assess the duty UV sensors' performance and to determine UV sensor uncertainty.

"Regional Operator" means a certified operator who is in direct responsible charge of more than one public drinking water system.

"Regionalized Water System" means any combination of water systems which are physically connected or operated or managed as a single unit.

"Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem" (mrem) is 1/1000 of a rem.

"Renewal Course" means a course of instruction, approved by the Subcommittee, which is a prerequisite to the renewal of a Backflow Technician's Certificate.

"Repeat compliance period" means any subsequent compliance period after the initial compliance period.

"Replacement well" means a public supply well drilled for the sole purpose of replacing an existing public supply well which is impaired or made useless by structural difficulties and in which the following conditions are met:

(1) the proposed well location shall be within a radius of 150 feet from an existing ground water supply well; and

(2) the PWS provides a copy of the replacement application approved by the State Engineer (refer to Section 73-3-28 of the Utah Code).

"Required Dose" is the UV dose required for a certain level of log inactivation. Required doses are set forth by the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and R309-215-15(19)(d)(i) Table 215-5 the UV Dose Table.

"Required reserve" means funds set aside to meet requirements set forth in a loan covenant/bond indenture.

"Residual Disinfectant Concentration" ("C" in CT calculations) means the concentration of disinfectant, measured in mg/L, in a representative sample of water.

"Restricted Certificate" means that the operator has qualified by passing an examination but is in a restricted certification status due to lack of experience as an operator.

"Roadway Rest Stop" shall mean any building, or buildings, or grounds, parking areas, including the necessary toilet, hand washing, water supply and wastewater facilities intended for the accommodation of people using such facilities while traveling on public roadways. It does not include scenic view or roadside picnic areas or other parking areas if these are properly identified

"Routine Chemical Monitoring Violation" means no routine chemical sample(s) was taken as required in R309-205, R309-210 and R309-215.

"Safe Yield" means the annual quantity of water that can be taken from a source of supply over a period of years without depleting the source beyond its ability to be replenished naturally in "wet years".

"Sanitary defect" means a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

"Sanitary Seal" means a cap that prevents contaminants from entering a well through the top of the casing.

"scfm/sf" means standard cubic foot per minute per square foot and is one way of expressing flowrate of air at standard density through a filter or duct area.

"Seasonal system" means a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

"Secondary Disinfection" means the adding of an acceptable secondary disinfectant to assure that the quality of the water is maintained throughout the distribution system. The effectiveness is measured by maintaining detectable disinfectant residuals throughout the distribution system. Acceptable secondary disinfectants are chlorine, chloramine, and chlorine dioxide.

"Secondary Maximum Contaminant Level" means the advisable maximum level of contaminant in water which is delivered to any user of a public water system.

"Secretary to the Subcommittee" means that individual appointed by the Director to conduct the business of the Subcommittee.

"Sedimentation" means a process for removal of solids before filtration by gravity or separation.

"Semi-Developed Camp" means a campground accessible by any type of vehicular traffic. Facilities are provided for both protection of site and comfort of users. Roads, trails and campsites are defined and basic facilities (water, flush toilets and/or vault toilets, tables, fireplaces or tent pads) are provided. These camps include but are not limited to National Forest campgrounds, Bureau of Reclamation campgrounds, and youth camps.

"Service Connection" means the constructed conveyance by which a dwelling, commercial or industrial establishment, or other water user obtains water from the supplier's distribution system. Multiple dwelling units such as condominiums or apartments, shall be considered to have a single service connection, if fed by a single line, for the purpose of microbiological repeat sampling; but shall be evaluated by the supplier as multiple "equivalent residential connections" for the purpose of source and storage capacities.

"Service Factor" means a rating on a motor to indicate an increased horsepower capacity beyond nominal nameplate capacity for occasional overload conditions.

"Service line sample" means a one-liter sample of water collected in accordance with R309-210-6(3)(b)(iii), that has been standing for at least 6 hours in a service line.

"Significant deficiencies" means defects in design, operation, or maintenance, or a failure or defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Director determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

"Single family structure" for the purposes of R309-210-6 only, means a building constructed as a single-family residence that is currently used as either a residence or a place of business.

"Small water system" means a public water system that serves 3,300 persons or fewer.

"Specialist" means a person who has successfully passed the written certification exam and meets the required experience, but who is not in direct employment with a Utah public drinking water system.

"Stabilized drawdown" means that there is less than 0.5 foot of change in water level measurements in a pumped well for a minimum period of six hours.

"Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

"SOCs" means synthetic organic chemicals.

"Stabilized Drawdown" means the drawdown measurements taken during a constant-rate yield and drawdown test as outlined in subsection R309-515-14(10)(b) are constant (no change).

"Stock Tight" means a type of fence that can prevent the passage of grazing livestock through its boundary. An example of such fencing is provided by design drawing 02838-3 titled "Cattle Enclosure" designed by the U.S. Department of the Interior, Bureau of Land Management, Division of Technical Services (copies available from the Division).

"Subcommittee" means the Cross Connection Control Subcommittee.

"Supplier of water" means any person who owns or operates a public water system.

"Surface Water" means all water which is open to the atmosphere and subject to surface runoff (see also section R309-515-5(1)). This includes conveyances such as ditches, canals and aqueducts, as well as natural features.

"Surface Water Systems" means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to filtration and disinfection (Federal SWTR subpart H) and the requirements of R309-215 "Monitoring and Water Quality: Treatment Plant Monitoring Requirements."

"Surface Water Systems (Large)" means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to filtration and disinfection and

serve a population of 10,000 or greater (Federal SWTR subpart P and L) and the requirements of R309-215 "Monitoring and Water Quality: Treatment Plant Monitoring Requirements."

"Surface Water Systems (Small)" means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to filtration and disinfection and serve a population less than 10,000 (Federal SWTR subpart L, T and P (sanitary survey requirements)) and the requirements of R309-215 "Monitoring and Water Quality: Treatment Plant Monitoring Requirements."

"Susceptibility" means the potential for a PWS (as determined at the point immediately preceding treatment, or if no treatment is provided, at the entry point to the distribution system) to draw water contaminated above a demonstrated background water quality concentration through any overland or subsurface pathway. Such pathways may include cracks or fissures in or open areas of the surface water intake, and/or the wellhead, and/or the pipe/conveyance between the intake and the water distribution system or treatment.

"SUVA" means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV_{254}) (in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in mg/L).

"System with a single service connection" means a system which supplies drinking water to consumers via a single service line.

"T" is short for "Contact Time" and is generally used in conjunction with either the residual disinfectant concentration (C) in determining CT or the velocity gradient (G) in determining mixing energy GT.

"Target Log Inactivation" means the specific log inactivation the PWS wants to achieve for the target pathogen using UV disinfection. The target log inactivation is driven by requirements of the Surface Water Treatment Rule (SWTR), Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), Interim Enhanced Surface Water Treatment Rule (IESWTR), Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), and the log removal/inactivation requirements in R309-215-15, and the Groundwater Rule.

"Ten State Standards" refers to the Recommended Standards For Water Works, 1997 by the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers available from Health Education Services, A Division of Health Research Inc., P.O. Box 7126, Albany, New York 12224, (518)439-7286.

"Time of travel" means the time required for a particle of water to move in the producing aquifer from a specific point to a ground water source of drinking water. It also means the time required for a particle of water to travel from a specific point along a surface water body to an intake.

"Total Inactivation Ratio" is the sum of all the inactivation ratios calculated for a series of disinfection sequences, and is indicated or shown as: "Summation sign $(CT_{calc})/(CT_{req'd})$." A total inactivation ratio equal to or greater than 1.0 is assumed to provide the required inactivation of Giardia lamblia cysts. $CT_{calc}/CT_{99.9}$ equal to 1.0 provides 99.9 percent (3-log) inactivation, whereas CT_{calc}/CT_{90} equal to 1.0 only provides 90 percent (1-log) inactivation.

"Too numerous to count" (TNTC) means that the total number of bacterial colonies exceeds 200 on a 47 mm diameter membrane filter used for coliform detection.

"Total Organic Carbon" (TOC) means total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

"Total Trihalomethanes" (TTHM) means the MCL for trihalomethanes. This is the sum of four of ten possible isomers of chlorine/bromine/methane compounds, all known as trihalomethanes (THM). TTHM is defined as the arithmetic sum of the concentrations in micro grams per liter of only four of these (chloroform, bromodichloromethane, dibromochloromethane, and bromoform) rounded to two significant figures. This measurement is made by samples which are "quenched," meaning that a chlorine neutralizing agent has been added, preventing further THM formation in the samples.

"Training Coordinating Committee" means the voluntary association of individuals responsible for environmental training in the state of Utah.

"Transient Non-Community Water System" (TNCWS) means a non-community public water system that does not serve 25 of the same nonresident persons per day for more than six months per year. Examples of such systems are those, RV park, diner or convenience store where the permanent nonresident staff number less than 25, but the number of people served exceeds 25.

"Treatment Plant" means those facilities capable of providing any treatment to any waterserving a public drinking water system. (Examples would include but not be limited to disinfection, conventional surface water treatment, alternative surface water treatment methods, corrosion control methods, aeration, softening, etc.).

"Treatment Plant Manager" means the individual responsible for all operations of a treatment plant.

"Trihalomethanes" (THM) means any one or all members of this class of organic compounds.

"Trihalomethane Formation Potential" (THMFP) - these samples are collected just following disinfection and measure the highest possible TTHM value to be expected in the water distribution system. The formation potential is measured by not neutralizing the disinfecting agent at the time of collection, but storing the sample seven days at

25 degrees C prior to analysis. A chlorine residual must be present in these samples at the end of the seven day period prior to analysis for the samples to be considered valid for this test. Samples without a residual at the end of this period must be resampled if this test is desired.

"Turbidity Unit" refers to NTU or Nephelometric Turbidity Unit.

"Two-stage lime softening" is a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

"UDI" means under direct influence (see also "Ground Water Under the Direct Influence of Surface Water").

"Uncovered finished water storage facility" is a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere.

"Unprotected aquifer" means any aquifer that does not meet the definition of a protected aquifer.

"Unregulated Contaminant" means a known or suspected disease causing contaminant for which no maximum contaminant level has been established.

"Unrestricted Certificate" means that a certificate of competency issued by the Director when the operator has passed the appropriate level written examination and has met all certification requirements at the discipline and grade stated on the certificate.

"UV Dose" means the UV energy per unit area incident on a surface, typically reported in units of mJ/cm^2 or J/m^2 . The UV dose received by a waterborne microorganism in a reactor vessel accounts for the effects on UV intensity of the absorbance of the water, absorbance of the quartz sleeves, reflection and refraction of light from the water surface and reactor walls, and the germicidal effectiveness of the UV wavelengths transmitted. The following terms are related to UV dose:

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

(2) "Required Dose" means the UV dose in units of mJ/cm^2 needed to achieve the target log inactivation for the target pathogen. The required dose is specified in the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR).

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

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

"UV Facility" means all of the components of the UV disinfection process, including (but not limited to) UV reactors, control systems, piping, valves, and building (if applicable).

"UV Intensity" means the UV power passing through a unit area perpendicular to the direction of propagation. UV intensity is used to describe the magnitude of UV light measured by UV sensors in a reactor or with a radiometer in bench-scale UV experiments.

"UV Reactor" means the vessel or chamber where exposure to UV light takes place, consisting of UV lamps, quartz sleeves, UV sensors, quartz sleeve cleaning systems, and baffles or other hydraulic controls. The UV reactor also includes additional hardware for monitoring UV dose delivery; typically comprised of (but not limited to): UV sensors and UVT monitors.

"UV Reactor Validation" is experimental testing to determine the operating conditions under which a UV reactor delivers the dose required for inactivation credit of *Cryptosporidium*, *Giardia lamblia*, and viruses.

"UV Transmittance (UVT)" is a measure of the fraction of incident light transmitted through a material (e.g., water sample or quartz). The UVT is usually reported for a wavelength of 254 nm and a pathlength of 1-cm. If an alternate pathlength is used, it should be specified or converted to units of cm^{-1} .

"Validation Factor" - an uncertainty term that accounts for the bias and uncertainty associated with UV validation testing.

"Validated Operating Conditions" - the operating conditions under which the UV reactor is confirmed as delivering the dose required for LT2ESWTR inactivation credit. These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status. The term "Validated Operating Conditions" is also commonly referred to as the "validated range" or the "validated limits."

"Virus" means a virus of fecal origin which is infectious to humans.

"Waterborne Disease Outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system, as determined by the appropriate local or State agency.

"Watershed" means the topographic boundary that is the perimeter of the catchment basin that contributes water through a surface source to the intake structure. For the purposes of surface water DWSP, if the topographic boundary intersects the state boundary, the state boundary becomes the boundary of the watershed.

"Water Supplier" means a person who owns or operates a public drinking water system.

"Water System" means all lands, property, rights, rights-of-way, easements and related facilities owned by a single entity, which are deemed necessary or convenient to deliver drinking water from source to the service connection of a consumer(s). This includes all water rights acquired in connection with the system, all means of conserving, controlling and distributing drinking water, including, but not limited to, diversion or collection works, springs, wells, treatment plants, pumps, lift stations, service meters, mains, hydrants, reservoirs, tanks and associated appurtenances within the property or easement boundaries under the control of or controlled by the entity owning the system.

In accordance with R309, certain water systems may be exempted from monitoring requirements, but such exemption does not extend to submittal of plans and specifications for any modifications considered a public drinking water project.

"Wellhead" means the physical structure, facility, or device at the land surface from or through which ground water flows or is pumped from subsurface, water-bearing formations.

"Wholesale system" is a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

"Zone of Influence" corresponds to area of the upper portion of the cone of depression as described in "Groundwater and Wells," second edition, by Fletcher G. Driscoll, Ph.D., and published by Johnson Division, St. Paul, Minnesota.

Agenda Item

5(A)(iv)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-200. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-200 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-200. Monitoring and Water Quality: Drinking Water Standards.

R309-200-1. Purpose.

The purpose of this rule is to set forth the water quality and drinking water standards for public water systems.

R309-200-2 Authority.

R309-200-3 Definitions.

R309-200-4 General.

R309-200-5 Primary Drinking Water Standards

- (1) Inorganic Contaminants
- (2) Lead and Copper
- (3) Organic Monitoring.
- (4) Radiological Chemicals.
- (5) Turbidity.
- (6) Microbiological quality
- (7) Disinfection

R309-200-6 Secondary Drinking Water Standards.

R309-200-7 Treatment Techniques and Unregulated Contamiants.

R309-200-8 Approved Laboratories.

R309-200-2. 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 of the Utah Code and in accordance with 63G-3 of the same, known as the Administrative Rulemaking Act.

R309-200-3. Definitions.

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

R309-200-4. General.

(1) Maximum contaminant levels (MCLs) and treatment techniques are herein established for those routinely measurable substances which may be found in water supplies. "Primary" standards and treatment techniques are established for the protection of human health. "Secondary" regulations are established to provide guidance in evaluating the aesthetic qualities of drinking water.

(2) The applicable "Primary" standards and treatment techniques shall be met by all public drinking water systems. The "Secondary" standards are recommended levels which should be met in order to avoid consumer complaint.

(3) The methods used to determine compliance with these maximum contaminant levels and treatment techniques are given in R309-205 through R309-215. ~~[Analytical techniques which shall be followed in making the required determinations shall be as given in 40 CFR 141 as published on July 1, 2008 by the Office of the Federal Register.]~~ Utah Division of Drinking Water adopts by reference the analytical methods

incorporated in 40 CFR Parts 141, 142, and 143 as published on July 1, 2018.

~~[(4) Unless otherwise required by the Director, the effective dates on which new analytical methods shall be initiated are identical to the dates published in 40 CFR 141 on July 1, 2008 by the Office of the Federal Register.]~~

~~[(5)](4)~~ If the water fails to meet these minimum standards, then certain public notification procedures shall be carried out, as outlined in R309-220. Water suppliers shall also keep analytical records in their possession, for a required length of time, as outlined in R309-105-17.

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) Lead and copper.

(a) The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with R309-210-6(3) is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

(b) The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with R309-210-6(3) is

greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(c) The 90th percentile lead and copper levels shall be computed as follows:

(i) The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

(ii) The number of samples taken during the monitoring period shall be multiplied by 0.9.

(iii) The contaminant concentration in the numbered sample yielded by the calculation in paragraph (c)(ii) above is the 90th percentile contaminant level.

(iv) For water systems serving fewer than 100 people that collect 5 samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

(v) For a public water system that has been allowed by the Director to collect fewer than five samples in accordance with R309-210-6(3)(c), the sample result with the highest concentration is considered the 90th percentile value.

(3) Organic Contaminants.

The following are the maximum contaminant levels for organic chemicals. For the purposes of R309-100 through R309-R309-605, organic chemicals are divided into three categories: Pesticides/PCBs/SOCs, volatile organic contaminants (VOCs) and total trihalomethanes.

(a) Pesticides/PCBs/SOCs - The MCLs for organic contaminants listed in Table 200-2 are applicable to community water systems and non-transient, non-community water systems.

TABLE 200-2
PESTICIDE/PCB/SOC CONTAMINANTS

Contaminant	Maximum Contaminant Level
1. Alachlor	0.002 mg/L
2. Aldicarb	(see Note 1 below)
3. Aldicarb sulfoxide	(see Note 1 below)
4. Aldicarb sulfone	(see Note 1 below)
5. Atrazine	0.003 mg/L
6. Carbofuran	0.04 mg/L
7. Chlordane	0.002 mg/L

8. Dibromochloropropane	0.0002 mg/L
9. 2,4-D	0.07 mg/L
10. Ethylene dibromide	0.00005 mg/L
11. Heptachlor	0.0004 mg/L
12. Heptachlor epoxide	0.0002 mg/L
13. Lindane	0.0002 mg/L
14. Methoxychlor	0.04 mg/L
15. Polychlorinated biphenyls	0.0005 mg/L
16. Pentachlorophenol	0.001 mg/L
17. Toxaphene	0.003 mg/L
18. 2,4,5-TP	0.05 mg/L
19. Benzo(a)pyrene	0.0002 mg/L
20. Dalapon	0.2 mg/L
21. Di(2-ethylhexyl)adipate	0.4 mg/L
22. Di(2-ethylhexyl)phthalate	0.006 mg/L
23. Dinoseb	0.007 mg/L
24. Diquat	0.02 mg/L
25. Endothall	0.1 mg/L
26. Endrin	0.002 mg/L
27. Glyphosate	0.7 mg/L
28. Hexachlorobenzene	0.001 mg/L
29. Hexachlorocyclopentadiene	0.05 mg/L
30. Oxamyl (Vydate)	0.2 mg/L
31. Picloram	0.5 mg/L
32. Simazine	0.004 mg/L
33. 2,3,7,8-TCDD (Dioxin)	0.00000003 mg/L

Note 1: The MCL for this contaminant is under further review, however, this contaminant shall be monitored in accordance with R309-205-6(1).

(b) Volatile organic contaminants - The maximum contaminant levels for organic contaminants listed in Table 200-3 apply to community and non-transient non-community water systems.

TABLE 200-3
VOLATILE ORGANIC CONTAMINANTS

Contaminant	Maximum Contaminant Level
1. Vinyl chloride	0.002 mg/L
2. Benzene	0.005 mg/L
3. Carbon tetrachloride	0.005 mg/L
4. 1,2-Dichloroethane	0.005 mg/L
5. Trichloroethylene	0.005 mg/L
6. para-Dichlorobenzene	0.075 mg/L
7. 1,1-Dichloroethylene	0.007 mg/L

8.	1,1,1-Trichloroethane	0.2 mg/L
9.	cis-1,2-Dichloroethylene	0.07 mg/L
10.	1,2-Dichloropropane	0.005 mg/L
11.	Ethylbenzene	0.7 mg/L
12.	Monochlorobenzene	0.1 mg/L
13.	o-Dichlorobenzene	0.6 mg/L
14.	Styrene	0.1 mg/L
15.	Tetrachloroethylene	0.005 mg/L
16.	Toluene	1 mg/L
17.	trans-1,2-Dichloroethylene	0.1 mg/L
18.	Xylenes (total)	10 mg/L
19.	Dichloromethane	0.005 mg/L
20.	1,2,4-Trichlorobenzene	0.07 mg/L
21.	1,1,2-Trichloroethane	0.005 mg/L

(c) Disinfection Byproducts and Disinfectant Residuals:

(i) Community and Non-transient non-community water systems. Surface Water systems serving 10,000 or more persons shall comply with this section beginning January 1, 2002. Surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water shall comply with this section beginning January 1, 2004.

(A) Compliance with the disinfection byproduct MCLs listed in Table 200-4 shall be determined by the procedures listed in R309-210-8(6) until the date specified by system size listed in R309-210-10(1)(c) at which time compliance shall be determined utilizing LRAA as specified in R309-210-10(1)(d).

(ii) Transient non-community water systems. Surface water systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning January 1, 2002. Surface water systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning January 1, 2004.

(iii) The maximum contaminant levels (MCLs) for disinfection byproducts are listed in Table 200-4.

TABLE 200-4
DISINFECTION BYPRODUCTS

DISINFECTION BYPRODUCT	MCL (mg/L)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060
Bromate	0.010
Chlorite	1.0

(iv) The maximum residual disinfectant levels (MRDLs) are listed in Table 200-5.

TABLE 200-5
MAXIMUM RESIDUAL DISINFECTANT LEVELS

DISINFECTANT RESIDUAL	MRDL (mg/L)
Chlorine	4.0 (as Cl ₂)
Chloramines	4.0 (as Cl ₂)
Chlorine dioxide	0.8 (as ClO ₂)

(v) Control of Disinfectant Residuals. Notwithstanding the MRDLs listed in Table 200-5, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(vi) A system that is installing GAC or membrane technology to comply with this section may apply to the Director for an extension of up to 24 months past the dates in paragraph (c)(i) of this section, but not beyond December 31, 2003. In granting the extension, the Director shall set a schedule for compliance and may specify any interim measures that the system shall take. Failure to meet the schedule or interim treatment requirements constitutes a violation of Utah Public Drinking Water Rules.

(4) Radiologic Chemicals.

(a) Compliance dates. Compliance dates for combined radium-226 and -228, gross alpha particle activity, gross beta particle and photon radioactivity, and uranium: Community water systems shall comply with the MCLs listed in paragraphs (b), (c), (d), and (e) of this section beginning December 8, 2003 and compliance shall be determined in accordance with the requirements of this sub-section (4) and R309-205-7. Compliance with reporting requirements for the radionuclides under R309-220 and R309-225 is required on December 8, 2003.

(b) Combined radium-226 and -228. The maximum contaminant level for combined radium-226 and radium-228 is 5 pCi/L. The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

(c) Gross alpha particle activity (excluding radon and uranium). The maximum contaminant level for gross alpha particle activity (including radium-226 but excluding radon and uranium) is 15 pCi/L.

(d) The MCL for beta particle and photon radioactivity.

(i) The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year (mrem/year).

(ii) Except for the radionuclides listed in Table 200-6, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents shall be calculated on the basis of 2 liters per day drinking water intake using the 168 hour data list in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," NBS (National Bureau of Standards) Handbook 69 as amended August 1963, U.S. Department of Commerce. Copies of this document are available from the National Technical Information Service, NTIS ADA 280 282, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. The toll-free number is 800-553-6847. Copies may be inspected at the Division of Drinking Water offices. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 mrem/year.

TABLE 200-6
MAN-MADE RADIONUCLIDE CONTAMINANTS

Average Annual Concentrations Assumed to Produce:
A Total Body or Organ Dose of 4 mrem/yr

Radionuclide	Critical organ	pCi per liter
Tritium	Total body	20,000
Strontium-90	Bone Marrow	8

(e) The MCL for uranium. The maximum contaminant level for uranium is 30 ug/L.

(5) TURBIDITY

(a) All public water systems using surface water or ground water under the direct influence of surface water shall provide treatment consisting of both disinfection, as specified in R309-200-5(7)(a), and filtration treatment which complies with the requirements of paragraph (i), (ii) or (iii) of this section.

(i) Conventional filtration treatment or direct filtration.

(A) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's combined filtered effluent water shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in R309-200-4(3) and R309-215-9.

(B) The turbidity level of representative samples of a system's combined filtered effluent water shall at no time exceed 1 NTU, measured as specified in R309-200-4(3) and R309-215-9.

(C) A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the Director.

(ii) Filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration. A public water system may use a filtration technology not listed in paragraph (i) or (iii) of this section if it demonstrates to the Director, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of R309-200-7, consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts, and the Director approves the use of the filtration technology. For each approval, the Director will set turbidity performance requirements that the system shall meet at least 95 percent of the time and that the system may not exceed at any time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts. The turbidity level of representative samples shall at no time exceed 5.0 NTU for any treatment technique, measured as specified in R309-215-9(1)(c) and (d)

(iii) The turbidity limit for slow sand filtration and diatomaceous earth filtration shall be less than or equal to 1.0 NTU in at least 95 percent of the measurements taken each month, measured as specified in R309-215-9(1)(c) and (d). For slow sand filtration only, if the Director determines that the system is capable of achieving 99.9 percent removal and inactivation of *Giardia lamblia* cysts at some turbidity level higher than 1.0 NTU in at least 95 percent of the measurements, the Director may substitute this higher turbidity limit for that system. The turbidity level of representative samples shall at no time exceed 5.0 NTU for any treatment technique, measured as specified in R309-215-9(1)(c) and (d).

(c) Ground water sources not under the direct influence of surface water:

(i) The following turbidity limit applies to community water systems only.

(ii) The limit for turbidity in drinking water from ground water sources not under the direct influence of surface sources is 5.0 NTU based on an average for two consecutive days pursuant to R309-205-8(3).

(6) MICROBIOLOGICAL QUALITY

(a) The maximum contaminant level (MCL) for microbiological contaminants for all public water systems is:

(i) For a system that collects at least 40 samples per month, if no more than 5.0 percent of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms.

(ii) For a system that collects fewer than 40 samples per month, if no more than one sample collected during a month is total coliform-positive, the system is in compliance with the MCL for total coliforms.

(b) A system is in compliance with the MCL for E. coli for samples taken under the provisions of R309-211 unless any of the conditions identified in paragraphs (b)(i) through (b)(iv) of this section occur. For purposes of the public notification requirements in R309-220, violation of the MCL may pose an acute risk to health.

(i) The system has an E. coli-positive repeat sample following a total coliform-positive routine sample.

(ii) The system has a total coliform-positive repeat sample following an E. coli-positive routine sample.

(iii) The system fails to take all required repeat samples following an E. coli-positive routine sample.

(iv) The system fails to test for E. coli when any repeat sample tests positive for total coliform.

(c) A public water system must determine compliance with the MCL for E. coli in paragraph (b) of this section for each month in which it is required to monitor for total coliforms.

(7) DISINFECTION

Continuous disinfection is recommended for all water sources. It shall be required of all ground water sources which do not consistently meet standards of bacteriologic quality. Surface water sources or ground water sources under direct influence of surface water shall be disinfected and continuously monitored for disinfection residual during the course of required conventional complete treatment for systems serving greater than 3,300 people. Disinfection shall not be considered a substitute for inadequate collection or filtration facilities.

Successful disinfection assures 99.9 percent inactivation of Giardia lamblia cysts and 99.99 percent inactivation of enteric viruses. Both filtration and disinfection are considered treatment techniques to protect against the potential adverse health effects of exposure to Giardia lamblia, viruses, Legionella, and heterotrophic bacteria in water. Minimum disinfection levels are set by "CT" values as defined in R309-110.

(a) Each public water system that provides filtration treatment shall provide disinfection treatment as follows:

(i) The disinfection treatment shall be sufficient to ensure that the total treatment processes of the system achieve at least 99.9 percent (3-log) inactivation and/or removal of Giardia lamblia cysts and at least 99.99 percent (4-log) inactivation and/or removal of viruses, as determined by the Director.

(ii) The residual disinfectant concentration in the water entering the distribution system cannot be less than 0.2 mg/L for more than 4 hours.

(iii) The residual disinfectant concentration in the distribution system, measured as combined chlorine or chlorine dioxide, cannot be undetectable in more than 5 percent of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count (HPC) is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5 percent in one month, for any two consecutive months.

$V = ((c + d + e) / (a + b)) \times 100$ where:

a = number of instances where the residual disinfectant concentration is measured;

b = number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;

c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

d = number of instances where no residual disinfectant concentration is detected and where HPC is greater than 500/ml;

e = number of instances where the residual disinfectant concentration is not measured and HPC is greater than 500/ml.

(b) If the Director determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in ~~[Heterotrophic Plate Count (Pour Plate Method) as set forth in the latest edition of Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al. (Method 907A in the 16th edition) and that the system is providing adequate disinfection]~~ R309-200-4(3) and that the system is providing adequate disinfection in the distribution system, the requirements of R309-200-5(7)(a)(iii) do not apply.

(c) If a system utilizes a combination of sources, some surface water influenced (requiring filtration and disinfection treatment) and others deemed ground water (not requiring any treatment, even disinfection), the Director may, based on site-specific considerations, allow sampling for residual disinfectant or HPC at locations other than those specified by total coliform monitoring required by R309-211.

R309-200-6. Secondary Drinking Water Standards for Community, Non-Transient Non-Community and Transient Non-Community Water.

The Secondary Maximum Contaminant Levels for public water systems deals with substances which affect the aesthetic quality of drinking water. They are presented here as recommended limits or ranges and are not grounds for rejection. The taste of water may be unpleasant

and the usefulness of the water may be impaired if these standards are significantly exceeded.

TABLE 200-7
SECONDARY INORGANIC CONTAMINANTS

Contaminant	Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 Color Units
Copper	1 mg/L
Corrosivity	Non-corrosive
Fluoride	2.0 mg/L (see Note below)
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 Threshold Odor Number
pH	6.5-8.5
Silver	0.1 mg/L
Sulfate	250 mg/L (see Note below)
TDS	500 mg/L (see Note below)
Zinc	5 mg/L

Note: Maximum allowable Fluoride, TDS and Sulfate levels are given in the Primary Drinking Water Standards, R309-200-5(1). They are listed as secondary standards because levels in excess of these recommended levels will likely cause consumer complaint.

R309-200-7. Treatment Techniques and Unregulated Contaminants.

(1) The Board has determined that the minimum level of treatment as described in R309-525 and R309-530 herein or its equivalent is required for surface water sources and ground water contaminated by surface sources.

(2) For all public water systems which use surface water or ground water under the direct influence of surface water, R309-200, 215, 505, 510, 520, 525 and 530 establish or extend treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: Giardia lamblia, viruses, heterotrophic plate count bacteria, Legionella, Cryptosporidium, and turbidity. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(a) at least 99.9 percent (3-log) removal and/or inactivation of Giardia lamblia cysts between a point where the raw water is not subject to re-contamination by surface water runoff and a point downstream before or at the first customer;

(b) at least 99.99 percent (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to re-contamination by surface water runoff and a point downstream before or at the first customer.

(c) At least 99 percent (2-log) removal of Cryptosporidium between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

(d) Compliance with the profiling and benchmark requirements under the provisions of R309-215-14.

(3) No MCLs are established herein for unregulated contaminants; viruses, protozoans and other chemical and biological substances. Some unregulated contaminants shall be monitored for in accordance with 40 CFR 141.40.

R309-200-8. Approved Laboratories.

(1) For the purpose of determining compliance, samples may be considered only if they have been analyzed by the State of Utah primacy laboratory or a laboratory certified by the Utah State Health Laboratory. However, measurements for pH, temperature, turbidity and disinfectant residual, daily chlorite, TOC, UV254, DOC and SUVA may, under the direction of the direct responsible charge operator, be performed by any water supplier or their representative.

(2) All samples shall be marked either: routine, repeat, check or investigative before submission of such samples to a certified lab. Routine, repeat, and check samples shall be considered compliance purposes samples.

(3) All public water systems shall either: contract with a certified laboratory to have the laboratory send all compliance purposes sample results, with the exception of Lead/Copper data, to the Division of Drinking Water, or shall inform the Division of Drinking Water that they intend to forward all compliance purposes samples to the Division. Each public water system shall furnish the Division of Drinking Water a copy of the contract with their certified laboratory or inform the Division in writing of the public water system's intent to forward the data to the Division.

(4) All sample results can be sent either electronically or in hard copy form.

KEY: drinking water, quality standards, regulated contaminants

Date of Enactment or Last Substantive Amendment: May 1, 2016

Notice of Continuation: March 13, 2015

Authorizing, and Implemented or Interpreted Law: 19-4-104

Agenda Item

5(A)(v)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-210-8. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-210-8 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-210. Monitoring and Water Quality: Distribution System Monitoring Requirements.

R309-210-8. Disinfection Byproducts - Stage 1 Requirements.

(1) General requirements. The requirements in this sub-section establish criteria under which community and non-transient non-community water systems that add a chemical disinfectant to the water in any part of the drinking water treatment process, shall modify their practices to meet MCLs and MRDLs in R309-200-5(3)(c) and meet treatment technique requirements in R309-215-12 and 13. The requirements of this sub-section also establish criteria under which transient non-community water systems that use chlorine dioxide shall modify their practices to meet MRDLs for chlorine dioxide in R309-200-5(3)(c).

(a) Compliance dates.

(i) Community and Non-transient non-community water systems. Surface water systems serving 10,000 or more persons must comply with this section beginning January 1, 2002. Surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this section beginning January 1, 2004.

(ii) Transient non-community water systems. Surface water systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this section beginning January 1, 2002. Surface water systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this section beginning January 1, 2004.

(b) Systems must take all samples during normal operating conditions.

(c) Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with approval from the Director.

(d) Failure to monitor in accordance with the monitoring plan required under paragraph (5) of this section is a monitoring violation.

(e) Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(f) Systems may use only data collected under the provisions of this section or the federal Information Collection Rule, (40 CFR, Part 141, Subpart M) to qualify for reduced monitoring.

(2) Monitoring requirements for disinfection byproducts.

(a) TTHMs and HAA5s

(i) Routine monitoring. Systems must monitor at the frequency indicated in the following:

(A) If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

(B) Surface water systems serving at least 10,000 persons shall take four water samples per quarter per treatment plant. At least 25 percent of all samples collected each quarter shall be at locations representing maximum residence time. The remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods.

(C) Surface water systems serving from 500 to 9,999 persons shall take one water sample per quarter per treatment plant at a locations representing maximum residence time.

(D) Surface water systems serving fewer than 500 persons shall take one sample per year per treatment plant during month of warmest water temperature at a location representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets reduced monitoring criteria in paragraph (2)(a)(v) of this section.

(E) Systems using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons shall take one water sample per quarter per treatment plant at a locations representing maximum residence time.

(F) Systems using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons shall take one sample per year per treatment plant during month of warmest water temperature at a location representing maximum residence time. If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the

distribution system, until the system meets criteria in paragraph (2)(a)(v) of this section for reduced monitoring.

(ii) Systems may reduce monitoring, except as otherwise provided, if the system has monitored for at least one year and is in accordance with the following paragraphs. Any Surface water system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.

(A) A surface water system serving at least 10,000 persons which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/L and has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L may reduce monitoring to one sample per treatment plant per quarter at a distribution system location reflecting maximum residence time.

(B) A surface water system serving from 500 to 9,999 persons which has a source water annual average TOC level, before any treatment, of less than or equal to 4.0 mg/L and has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L may reduce monitoring to one sample per treatment plant per year at a distribution system location reflecting maximum residence time during the month of warmest water temperature.

(C) A system using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons that has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L may reduce monitoring to one sample per treatment plant per year at a distribution system location reflecting maximum residence time during the month of warmest water temperature.

(D) A system using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons that has a TTHM annual average of less than or equal to 0.040 mg/L and has a HAA5 annual average of less than or equal to 0.030 mg/L for two consecutive years or has a TTHM annual average of less than or equal to 0.020 mg/L and has a HAA5 annual average of less than or equal to 0.015mg/L for one year may reduce monitoring to one sample per treatment plant per three year monitoring cycle at a distribution system location reflecting maximum residence time during the month of warmest water temperature, with the three-year cycle beginning on January 1 following the quarter in which the system qualifies for reduced monitoring.

(iii) Monitoring requirements for source water TOC in order to qualify for reduced monitoring for TTHM and HAA5 under paragraph (2)(a)(ii) of this section, surface water systems not monitoring under the provisions of paragraph (d) of this section must take monthly TOC samples every 30 days at a location prior to any treatment, beginning April 1, 2008 or earlier, if specified by the Director. In addition

to meeting other criteria for reduced monitoring in paragraph (2)(a)(ii) of this section, the source water TOC running annual average must be equal to or less than 4.0 mg/L (based on the most recent four quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under paragraph (2)(a)(ii) of this section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(iv) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (2)(a)(i) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L or 0.045 mg/L for TTHM or HAA5, respectively. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is greater than 0.080 mg/L or the HAA5 annual average is greater than 0.060 mg/L, the system must go to the increased monitoring identified in paragraph (2)(a)(i) of this section in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.

(v) Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring their TTHM annual average is less than or equal to 0.060 mg/L and their HAA5 annual average is less than or equal to 0.045 mg/L.

(vi) The Director may return a system to routine monitoring when appropriate to protect public health.

(b) Chlorite. Community and non-transient non-community water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

(i) Routine monitoring.

(A) Daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by paragraph (2)(b)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

(B) Monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any

additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under paragraph (2)(b)(ii) of this section to meet the requirement for monitoring in this paragraph.

(ii) Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) Reduced monitoring.

(A) Chlorite monitoring at the entrance to the distribution system required by paragraph (2)(b)(i)(A) of this section may not be reduced.

(B) Chlorite monitoring in the distribution system required by paragraph (2)(b)(i)(B) of this section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under paragraph (2)(b)(i)(B) of this section has exceeded the chlorite MCL and the system has not been required to conduct monitoring under paragraph (2)(b)(ii) of this section. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken monthly in the distribution system under paragraph (2)(b)(i)(B) of this section exceeds the chlorite MCL or the system is required to conduct monitoring under paragraph (2)(b)(ii) of this section, at which time the system must revert to routine monitoring.

(c) Bromate.

(i) Routine monitoring. Community and nontransient noncommunity systems using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(ii) Reduced monitoring.

(A) Until March 31, 2009, systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is greater

than or equal to 0.05 mg/L, the system must resume routine monitoring required by paragraph (2)(c)(i) of this section in the following month.

(B) Beginning April 1, 2009, systems may no longer use the provisions of paragraph (2)(c)(ii)(A) of this section to qualify for reduced monitoring. A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is equal to or less than 0.0025 mg/L based on monthly bromate measurements under paragraph (2)(c)(i) of this section for the most recent four quarters, with samples analyzed using Method 317.0 Revision 2.0, 326.0 or 321.8. If a system has qualified for reduced bromate monitoring under paragraph (2)(c)(ii)(A) of this section, that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L based on samples analyzed using Method 317.0 Revision 2.0, 326.0 or 321.8. If the running annual average bromate concentration is greater than 0.0025 mg/L, the system must resume routine monitoring required by (2)(c)(i) of this section.

(3) Monitoring requirements for disinfectant residuals.

(a) Chlorine and chloramines.

(i) Routine monitoring. Community and ~~[nontransient]~~non-transient ~~[nonecommunity]~~non-community water systems that use chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in R309-211. Systems that use surface water may use the results of residual disinfectant concentration sampling conducted in R309-215-10(4), in lieu of taking separate samples. [The Director may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source, to take disinfectant residual samples at points other than the total coliform sampling points if the State determines that such points are more representative of treated (disinfected) water quality within the distribution system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in paragraph (a)(1) of this section, may be measured in lieu of residual disinfectant concentration.]

(ii) In addition, ground water systems shall take the following readings at each facility a minimum of three times a week: the total volume of water treated; the type and amount of disinfectant used in treating the water (clearly indicating the weight if gas feeders are used, or the percent solution and volume fed if liquid feeders are used); and the setting of the rotometer valve or injector pump. Surface water systems may use the results of residual disinfectant concentration sampling conducted under R309-215-10(3) for systems which filter, in lieu of taking separate samples.

(iii) Reduced monitoring. Monitoring may not be reduced.

(b) Chlorine Dioxide.

(i) Routine monitoring. Community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by paragraph (3)(b)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

(ii) Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

(iii) Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

(4) Bromide. Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(5) Monitoring plans. Each system required to monitor under this section must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the Director and the general public no later than 30 days following the applicable compliance dates in R309-210-8(1)(a). All Surface water systems serving more than 3300 people must submit a copy of the monitoring plan to the Director no later than the date of the first report required under R309-105-16(2). The Director may also require the plan to be submitted by any other system. After review, the Director may require changes in any plan elements. The plan must include at least the following elements.

(a) Specific locations and schedules for collecting samples for any parameters included in this subpart.

(b) How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

(c) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, the Director may modify the monitoring requirements treating the systems as a single distribution system, however, the sampling plan shall reflect the entire distribution system of all interconnected systems.

(6) Compliance requirements.

(a) General requirements.

(i) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(ii) All samples taken and analyzed under the provisions of this section shall be included in determining compliance, even if that number is greater than the minimum required.

(iii) If, during the first year of monitoring under R309-210-8, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(b) Disinfection byproducts.

(i) TTHMs and HAA5.

(A) For systems monitoring quarterly, compliance with MCLs in R309-200-5(3)(c) shall be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by R309-210-8(2)(a).

(B) For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of R309-210-8(2)(a) does not exceed the MCLs in R309-200-5(3)(c). If the average of these samples exceeds the MCL, the system shall increase monitoring to once per quarter per treatment plant and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring shall calculate compliance by including the sample which triggered the increased monitoring plus the following three quarters of monitoring.

(C) If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL,

the system is in violation of the MCL and shall notify the public pursuant to R309-220, in addition to reporting to the Director pursuant to R309-105-16.

(D) If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(ii) Chlorite. Compliance shall be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by R309-210-8(2)(b)(i)(B) and (2)(b)(ii). If the arithmetic average of any three sample sets exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to R309-220, in addition to reporting to the Director pursuant to R309-105-16.

(iii) Bromate. Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by R309-210-8(2)(c). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to R309-220, in addition to reporting to the Director pursuant to R309-105-16. If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(c) Disinfectant residuals.

(i) Chlorine and chloramines.

(A) Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under R309-210-8(3)(a). If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and shall notify the public pursuant to R309-220, in addition to reporting to the Director pursuant to R309-105-16.

(B) In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance shall be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to R309-105-16 shall clearly indicate which residual disinfectant was analyzed for each sample.

(ii) Chlorine dioxide.

(A) Acute violations. Compliance shall be based on consecutive daily samples collected by the system under R309-210-8(3)(b). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify

the public pursuant to the procedures for acute health risks in R309-220-5. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system shall notify the public of the violation in accordance with the provisions for acute violations under R309-220-5 in addition to reporting the Director pursuant to R309-105-16.

(B) Nonacute violations. Compliance shall be based on consecutive daily samples collected by the system under R309-210-8(3)(b). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and shall take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for nonacute health risks in R309-220-6 in addition to reporting to the Director pursuant to R309-105-16. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system shall notify the public of the violation in accordance with the provisions for nonacute violations under R309-220-6 in addition to reporting to the Director pursuant to R309-105-16.

Agenda Item

5(A)(vi)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-211. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-211 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-211. Monitoring and Water Quality: Distribution System -- Total Coliform Requirements.

R309-211-1. Purpose.

The purpose of this rule is to outline the total coliform monitoring, MCL, and treatment technique requirements for public water systems. This rule applies to all public drinking water systems as specified herein.

R309-211-2. 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 of the Utah Code and in accordance with 63G-3 of the same, known as the Administrative Rulemaking Act.

R309-211-3. Definitions.

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

R309-211-4. General Monitoring Requirements for All Public Water Systems.

(1) Sample siting plans.

(a) Systems must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution system. These plans are subject to Director review and revision. Systems must collect total coliform samples according to the written sample siting plan. Monitoring required by R309-211-5, 6 and 7 may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of R309-215-16 must be reflected in the sampling plan.

(b) Systems must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.

(c) Systems must take at least the minimum number of required samples even if the system has had an E. coli MCL violation or has exceeded the coliform treatment technique triggers in R309-211-8(1).

(d) A system may conduct more compliance monitoring than is required by this rule to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in R309-211-8(1)(a)(i) and (ii) has been exceeded only if the samples are

taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

(e) Systems must identify repeat monitoring locations in the sample siting plan. Unless the provisions of paragraphs (1)(e)(i) or (1)(e)(ii) of this section are met, the system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the system must still take all required repeat samples. However, the Director may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in paragraph (1)(e)(ii) of this section, systems required to conduct triggered source water monitoring under R309-215-16(2) must take ground water source sample(s) in addition to repeat samples required under ~~[this]~~ this rule.

(i) Systems may propose repeat monitoring locations to the Director that the system believes to be representative of a pathway for contamination of the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Director may modify the SOP or require alternative monitoring locations as needed.

(ii) Ground water systems serving 1,000 or fewer people may propose repeat sampling locations to the Director that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A ground water system with a single well required to conduct triggered source water monitoring may, with written Director approval, take one of its repeat samples at the monitoring location required for triggered source water monitoring under R309-215-16(2)(a) if the system demonstrates to the Director's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the Director, the system may use that sample result to meet the monitoring requirements in both R309-215-16(2)(a) and this section.

(A) If a repeat sample taken at the monitoring location required for triggered source water monitoring is E. coli-positive, the system has violated the E. coli MCL and must also comply with R309-215-16(2)(a)(iii). If a system takes more than one repeat sample at the monitoring location required for triggered source water

monitoring, the system may reduce the number of additional source water samples required under R309-215-16(2)(a)(iii) by the number of repeat samples taken at that location that were not E. coli-positive.

(B) If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring under R309-215-16(2)(a), and more than one repeat sample is E. coli-positive, the system has violated the E. coli MCL and must also comply with R309-215-16(3)(a)(i).

(C) If all repeat samples taken at the monitoring location required for triggered source water monitoring are E. coli-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is E. coli-positive, the system has violated the E. coli MCL, but is not required to comply with R309-215-16(2)(a)(iii).

(f) The Director may review, revise, and approve, as appropriate, repeat sampling proposed by systems under paragraphs (1)(e)(i) and (ii) of this section. The system must demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The Director may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

(2) Special purpose samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to R309-211-7 are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

(3) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this paragraph (3) of this section does not count toward meeting the minimum monitoring requirements of this subpart.

(a) The Director may invalidate a total coliform-positive sample only if the conditions of paragraph (3)(a)(i), (ii), or (iii) of this section are met.

(i) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(ii) The Director, on the basis of the results of repeat samples collected as required under R309-211-7(1), determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The Director cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (e.g., a Director cannot invalidate a total

coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the system has only one service connection).

(iii) The Director has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under R309-211-7(1), and use them to determine whether a coliform treatment technique trigger in R309-211-8 has been exceeded. To invalidate a total coliform-positive sample under this paragraph, the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the Director who recommended the decision. The Director must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Director may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

(b) A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Director may waive the 24-hour time limit on a case-by-case basis. Alternatively, the Director may implement criteria for waiving the 24-hour sampling time limit to use in lieu of case-by-case extensions.

(4) A public water system that uses inadequately treated surface water or inadequately treated ground water under the direct influence of surface water (R309-200 and R309-215) shall collect and analyze for total coliforms at least one sample each day the turbidity level of the source water, measured as specified in R309-200-4(3), exceeds 1 NTU. This sample shall be collected near the first service connection from the source. The system shall collect the sample within 24 hours of the time when the turbidity level was first exceeded. The sample shall be analyzed within 30 hours of collection. Sample results from this coliform monitoring shall be included in determining total coliform compliance for that month. The Director may extend the 24 hour limitation if the system has a logistical problem that is beyond

the system's control. In the case of an extension the Director shall specify how much time the system has to collect the sample.

R309-211-5. Routine Monitoring Requirements for Water Systems Serving 1,000 or Fewer People.

(1) General.

(a) The provisions of this section apply to water systems serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R309-211-7.

(c) Once all monitoring required by this section and R309-211-7 for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R309-211-8 have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R309-211-8.

(2) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is one sample/month.

(3) Seasonal systems.

(a) All seasonal systems must demonstrate completion of a Director-approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

(b) A seasonal system must monitor every month that it is in operation.

(c) The Director may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

~~[(4) Additional routine monitoring the month following a total coliform positive sample. Systems must collect at least three routine samples during the next month, except that the Director may waive this requirement if the conditions of paragraph 5(4)(a), (b), or (c) of this section are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations under R309-211-8(1).~~

~~(a) The Director may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Director, or an agent approved by the Director, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Director to determine whether additional monitoring and/or any corrective action is needed. The Director cannot approve an employee~~

~~of the system to perform this site visit, even if the employee is an agent approved by the Director to perform sanitary surveys.~~

~~(b) The Director may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Director has determined why the sample was total coliform positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the Director must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Director who recommends such a decision, and make this document available to the EPA and public. The written documentation must describe the specific cause of the total coliform positive sample and what action the system has taken and/or will take to correct this problem.~~

~~(c) The Director may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform negative. If the Director determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in R309-211-7, and all repeat samples were total coliform negative, the Director may waive the requirement for additional routine monitoring the next month.]~~

R309-211-6. Routine Monitoring Requirements for Public Water Systems Serving More Than 1,000 People.

(1) General.

(a) The provisions of this section apply to public water systems serving more than 1,000 persons.

(b) Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and E. coli analytical requirements in R309-211-7.

(c) Once all monitoring required by this section and R309-211-7 for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in R309-211-8 have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by R309-211-8.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems must demonstrate completion of a Director-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Director may exempt any seasonal system from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

(2) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is based on the population served by the system, as follows:

TABLE 211-1

Total Coliform Monitoring Frequency for Public Water Systems

Population served	Minimum number of samples per month
25 to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

R309-211-7. Repeat Monitoring and E. coli Requirements.

(1) Repeat monitoring.

(a) If a sample taken under R309-211-5 though R309-211-6 is total coliform-positive, the system must collect a set of repeat samples within 24 hours of being notified of the positive result. The system must collect no fewer than three repeat samples for each total coliform-positive sample found. The Director may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. Alternatively, the Director may implement criteria for the system to use in lieu of case-by-case extensions. In the case of an extension, the Director must specify how much time the system has to collect the repeat samples. The Director cannot waive the requirement for a system to collect repeat samples in paragraphs (1)(a) through (1)(c) of this section.

(b) The system must collect all repeat samples on the same day, except that the Director may allow a system with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 300 ml.

(c) The system must collect an additional set of repeat samples in the manner specified in paragraphs (1)(a) through (1)(c) of this section if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the Director extends the limit as provided in paragraph (1)(a) of this section. The system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in R309-211-8(1) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the Director. If a trigger identified in R309-211-8 is exceeded as a result of a routine sample being total coliform-positive, systems are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(d) After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

(e) Results of all routine and repeat samples taken under R309-211-5 through R309-211-7 not invalidated by the Director must be used to determine whether a coliform treatment technique trigger specified in R309-211-8 has been exceeded.

(2) *Escherichia coli* (*E. coli*) testing.

(a) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if E. coli are present. If E. coli are present, the system must notify the Director by the end of the day when the system is notified of the test result, unless the system is notified of the result after the Director office is closed and the Director does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Director before the end of the next business day.

(b) The Director has the discretion to allow a system, on a case-by-case basis, to forgo E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is E. coli-positive. Accordingly, the system must notify the Director as specified in paragraph (2)(a) of this section and the provisions of R309-200-5(6)(b) apply.

R309-211-8. Coliform Treatment Technique Triggers and Assessment Requirements for Protection Against Potential Fecal Contamination.

(1) Treatment technique triggers. Systems must conduct assessments in accordance with paragraph (2) of this section after exceeding treatment technique triggers in paragraphs (1)(a) and (1)(b) of this section.

(a) Level 1 treatment technique triggers.

(i) For systems taking 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month.

(ii) For systems taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

(iii) The system fails to take every required repeat sample after any single total coliform-positive sample.

(b) Level 2 treatment technique triggers.

(i) An E. coli MCL violation, as specified in R309-211-9(1).

(ii) A second Level 1 trigger as defined in paragraph (1)(a) of this section, within a rolling 12-month period, unless the Director has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

(2) Requirements for assessments.

(a) Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Director.

(b) When conducting assessments, systems must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water

quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any Director directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(c) Level 1 Assessments. A system must conduct a Level 1 assessment consistent with Director requirements if the system exceeds one of the treatment technique triggers in paragraph (1)(a) of this section.

(i) The system must complete a Level 1 assessment as soon as practical after any trigger in paragraph (1)(a) of this section. In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the Director within 30 days after the system learns that it has exceeded a trigger.

(ii) If the Director reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Director must consult with the system. If the Director requires revisions after consultation, the system must submit a revised assessment form to the Director on an agreed-upon schedule not to exceed 30 days from the date of the consultation.

(iii) Upon completion and submission of the assessment form by the system, the Director must determine if the system has identified a likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem, or has included a schedule acceptable to the Director for correcting the problem.

(d) Level 2 Assessments. A system must ensure that a Level 2 assessment consistent with Director requirements is conducted if the system exceeds one of the treatment technique triggers in paragraph (1)(b) of this section. The system must comply with any expedited actions or additional actions required by the Director in the case of an E. coli MCL violation.

(i) The system must ensure that a Level 2 assessment is completed by the Director or by a party approved by the Director as soon as practical after any trigger in paragraph (1)(b) of this section. The system must submit a completed Level 2 assessment form to the Director within 30 days after the system learns that it has exceeded a trigger. The assessment form must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any

corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

(ii) The system may conduct Level 2 assessments if the system has staff or management with the certification or qualifications specified by the Director unless otherwise directed by the Director.

(iii) If the Director reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Director must consult with the system. If the Director requires revisions after consultation, the system must submit a revised assessment form to the Director on an agreed-upon schedule not to exceed 30 days.

(iv) Upon completion and submission of the assessment form by the system, the Director must determine if the system has identified a likely cause for the Level 2 trigger and determine whether the system has corrected the problem, or has included a schedule acceptable to the Director for correcting the problem.

(3) Corrective Action. Systems must correct sanitary defects found through either Level 1 or 2 assessments conducted under paragraph (2) of this section. For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the Director in consultation with the system. The system must notify the Director when each scheduled corrective action is completed.

(4) Consultation. At any time during the assessment or corrective action phase, either the water system or the Director may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the Director on all relevant information that may impact on its ability to comply with a requirement of this subpart, including the method of accomplishment, an appropriate timeframe, and other relevant information.

R309-211-9. Violations.

(1) E. coli MCL Violation. A system is in violation of the MCL for E. coli when any of the conditions identified in paragraphs (1)(a) through (1)(d) of this section occur.

(a) The system has an E. coli-positive repeat sample following a total coliform-positive routine sample.

(b) The system has a total coliform-positive repeat sample following an E. coli-positive routine sample.

(c) The system fails to take all required repeat samples following an E. coli-positive routine sample.

(d) The system fails to test for E. coli when any repeat sample tests positive for total coliform.

(2) Treatment technique violation.

(a) A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in R309-211-8(1) and then fails to conduct the required assessment or corrective actions within the timeframe specified in R309-211-8(2) and (3).

(b) A treatment technique violation occurs when a seasonal system fails to complete a Director-approved start-up procedure prior to serving water to the public.

(3) Monitoring violations.

(a) Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

(b) Failure to analyze for E. coli following a total coliform-positive routine sample is a monitoring violation.

(4) Reporting violations.

(a) Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner is a reporting violation.

(b) Failure to notify the Director following an E. coli-positive sample as required by R309-211-7(2)(a) in a timely manner is a reporting violation.

(c) Failure to submit certification of completion of Director-approved start-up procedure by a seasonal system is a reporting violation.

R309-211-10. Invalidation of a Total Coliform Sample.

The invalidation of a total coliform sample result can be made only by the Administrator in accordance with Section 141.21(c)(1)(i), (ii), or (iii) or by the certified laboratory in accordance with R309-211-4(3), with the Administrator acting as the Director.

R309-211-11. Reporting and Recordkeeping.

(1) Reporting.

(a) E. coli.

(i) A system must notify the Director by the end of the day when the system learns of an E. coli MCL violation, unless the system learns of the violation after the Director's office is closed and the Director does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Director before the end of the next business day, and notify the public in accordance with R309-220.

(ii) A system must notify the Director by the end of the day when the system is notified of an E. coli-positive routine sample, unless the system is notified of the result after the Director's office is closed and the Director does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Director before the end of the next business day.

(b) A system that has violated the treatment technique for coliforms in R309-211-8 must report the violation to the Director no

later than the end of the next business day after it learns of the violation, and notify the public in accordance with R309-220.

(c) A system required to conduct an assessment under the provisions of R309-211-8 of this part must submit the assessment report within 30 days. The system must notify the Director in accordance with R309-211-8(3) when each scheduled corrective action is completed for corrections not completed by the time of submission of the assessment form.

(d) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the Director within 10 days after the system discovers the violation, and notify the public in accordance with R309-220.

(e) A seasonal system must certify, prior to serving water to the public, that it has complied with the Director-approved start-up procedure.

(2) Recordkeeping.

(a) The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under R309-211-8 for Director review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.

(b) The system must maintain a record of any repeat sample taken that meets Director's criteria for an extension of the 24-hour period for collecting repeat samples as provided for under R309-211-7(1)(a).

KEY: drinking water, distribution system monitoring, total coliform, compliance determinations

Date of Enactment or Last Substantive Amendment: May 1, 2016

Authorizing, and Implemented or Interpreted Law: 19-4-104

Agenda Item

5(A)(vii)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-215 10 & 16. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-215-10 & 16 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-215. Monitoring and Water Quality: Treatment Plant Monitoring Requirements.

R309-215-10. Residual Disinfectant.

Treatment plant management shall continuously monitor disinfectant residuals and report the following to the Division within ten days after the end of each month that the system serves water to the public, except as otherwise noted:

(1) For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system, except that if there is a failure in the continuous monitoring equipment, grab sampling every 4 hours may be conducted in lieu of continuous monitoring, but for no more than 5 working days following the failure of the equipment. Systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies listed in Table 215.2 below:

TABLE 215-2

RESIDUAL GRAB SAMPLE FREQUENCY	
System size by population	Samples/day
Less than 500	1
501 to 1,000	2
1,001 to 2,500	3
2,501 to 3,300	4

Note: The day's samples cannot be taken at the same time. The sampling intervals are subject to Director's review and approval.

(2) The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/L and when the Division was notified of the occurrence. The system shall notify the Division as soon as possible, but no later than by the end of the next business day. The system also shall notify the Division by the end of the next business day whether or not the residual was restored to at least 0.2 mg/L within four hours.

(3) The following information on the samples taken in the distribution system in conjunction with total coliform monitoring pursuant to R309-211 and R309-210-8(3)(a)(i):

(a) number of instances where the residual disinfectant concentration is measured;

(b) number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;

(c) number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

(d) number of instances where no residual disinfectant concentration is detected and where HPC is greater than 500/ml;

(e) number of instances where the residual disinfectant concentration is not measured and HPC is greater than 500/ml;

(f) for the current and previous month the system serves water to the public, the value of "V" in the formula, $V = ((c+d+e)/(a+b)) \times 100$, where a = the value in sub-section (a) above, b = the value in sub-section (b) above, c = the value in sub-section (c) above, d = the value in sub-section (d) above, and e = the value in sub-section (e) above.

(4) The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as the total coliforms are sampled as specified in R309-211. The State may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source, to take disinfectant residual samples at points other than the total coliform sampling points if the Director determines that such points are more representative of treated (disinfected) water quality within the distributions system. Heterotrophic bacteria, measured as heterotrophic plate count (HPC) as specified in paragraph R309-200-4(3), may be measured in lieu of residual disinfectant concentration.

R309-215-16. Groundwater Rule.

(1) Applicability: This subpart applies to all public water systems that use ground water except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment. For the purposes of this subpart, "ground water system" is defined as any public water system meeting this applicability, including consecutive systems receiving finished ground water.

(a) General requirements: Systems subject to this subpart must comply with the following requirements:

(i) Sanitary survey information requirements for all ground water systems as described in R309-100-7.

(ii) Microbial source water monitoring requirements for ground water systems that do not treat all of their ground water to at least 99.99 percent (4-log) treatment of viruses (using inactivation, removal, or an Director-approved combination of 4-log virus inactivation and removal) before or at the first customer as described in R309-215-16(2).

(iii) Treatment technique requirements, described in R309-215-16(3), that apply to ground water systems that have fecally contaminated source waters, as determined by source water monitoring conducted under R309-215-16(2), or that have significant deficiencies

that are identified by the Director or that are identified by EPA under SDWA section 1445. A ground water system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this subpart must implement one or more of the following corrective action options: correct all significant deficiencies; provide an alternate source of water; eliminate the source of contamination; or provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer.

(b) Ground water systems that provide at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in R309-215-16(3)(b).

(c) If requested by the Director, ground water systems must provide the Director with any existing information that will enable the Director to perform a hydrogeologic sensitivity assessment. For the purposes of this subpart, "hydrogeologic sensitivity assessment" is a determination of whether ground water systems obtain water from hydrogeologically sensitive settings.

(d) Compliance date: Ground water systems must comply, unless otherwise noted, with the requirements of this subpart beginning December 1, 2009.

(2) Ground water source microbial monitoring and analytical methods.

(a) Triggered source water monitoring.

(i) General requirements. A ground water system must conduct triggered source water monitoring if the conditions identified in paragraphs (a)(i)(A) and (a)(i)(B) of this section exist.

(A) The system does not provide at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for each ground water source; and

(B) The system is notified that a sample collected under R309-211 is total coliform-positive and the sample is not invalidated under R309-211-10.

(ii) Sampling Requirements. A ground water system must collect, within 24 hours of notification of the total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time the total coliform-positive sample was collected under R309-211, except as provided in paragraph (a)(ii)(B) of this section.

(A) The Director may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the ground water source water sample within 24 hours due to circumstances beyond its control.

In the case of an extension, the Director must specify how much time the system has to collect the sample.

(B) If approved by the Director, systems with more than one ground water source may meet the requirements of this paragraph (a)(ii) by sampling a representative ground water source or sources. Systems must submit for Director approval a triggered source water monitoring plan that identifies one or more ground water sources that are representative of each monitoring site in the system's sample site plan under R309-211- 4(1) and that the system intends to use for representative sampling under this paragraph.

(C) A ground water system serving 1,000 or fewer people may use a repeat sample collected from a ground water source to meet both the requirements of ~~[R309-211-7(1)]~~R309-211 and to satisfy the monitoring requirements of paragraph (a)(ii) of this section for that ground water source only if the Director approves the use of E. coli as a fecal indicator for source water monitoring under this paragraph (a) and approves the use of a single sample for meeting both the triggered source water monitoring requirements in this paragraph (a) and the repeat monitoring requirements in R309-211-7. If the repeat sample collected from the ground water source is E.coli positive, the system must comply with paragraph (a)(iii) of this section.

(iii) Additional Requirements. If the Director does not require corrective action under R309-215-16(3)(a)(ii) for a fecal indicator-positive source water sample collected under paragraph (a)(ii) of this section that is not invalidated under paragraph (c) of this section, the system must collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

(iv) Consecutive and Wholesale Systems.

(A) In addition to the other requirements of this paragraph (a), a consecutive ground water system that has a total coliform-positive sample collected under R309-211 must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

(B) In addition to the other requirements of this paragraph (a), a wholesale ground water system must comply with paragraphs (a)(iv)(B)(I) and (a)(iv)(B)(II) of this section.

(I) A wholesale ground water system that receives notice from a consecutive system it serves that a sample collected under R309-211-5 and 6 is total coliform-positive must, within 24 hours of being notified, collect a sample from its ground water source(s) under paragraph (a)(ii) of this section and analyze it for a fecal indicator under paragraph ~~[+e)]~~(b) of this section.

(II) If the sample collected under paragraph (a)(iv)(B)(I) of this section is fecal indicator-positive, the wholesale ground water system must notify all consecutive systems served by that ground water source of the fecal indicator source water positive within 24 hours

of being notified of the ground water source sample monitoring result and must meet the requirements of paragraph (a)(iii) of this section.

(v) Exceptions to the Triggered Source Water Monitoring Requirements. A ground water system is not required to comply with the source water monitoring requirements of paragraph (2)(a) of this section if either of the following conditions exists:

(A) The Director determines, and documents in writing, that the total coliform-positive sample collected under R309-211-5 and 6 is caused by a distribution system deficiency; or

(B) The total coliform-positive sample collected under R309-211-5 and 6 is collected at a location that meets Director criteria for distribution system conditions that will cause total coliform-positive samples.

(b) Assessment Source Water Monitoring. If directed by the Director, ground water systems must conduct assessment source water monitoring that meets Director-determined requirements for such monitoring. A ground water system conducting assessment source water monitoring may use a triggered source water sample collected under paragraph (a)(ii) of this section to meet the requirements of paragraph (b) of this section. Director-determined assessment source water monitoring requirements may include:

(i) collection of a total of 12 ground water source samples that represent each month the system provides ground water to the public,

(ii) collection of samples from each well unless the system obtains written Director approval to conduct monitoring at one or more wells within the ground water system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting,

(iii) collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used,

(iv) analysis of all ground water source samples in accordance with R309-210-4(1) and R309-200-4(3) for the presence of E. coli, enterococci, or coliphage,

(v) collection of ground water source samples at a location prior to any treatment of the ground water source unless the Director approves a sampling location after treatment, and

(vi) collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the Director approves an alternate sampling location that is representative of the water quality of that well.

(c) Invalidation of a fecal indicator-positive ground water source sample.

(i) A ground water system may obtain Director invalidation of a fecal indicator-positive ground water source sample collected under paragraph (a) of this section only under the conditions specified in paragraphs (c)(i)(A) and (B) of this section.

(A) The system provides the Director with written notice from the laboratory that improper sample analysis occurred; or

(B) The Director determines and documents in writing that there is substantial evidence that a fecal indicator-positive ground water source sample is not related to source water quality.

(ii) If the Director invalidates a fecal indicator-positive ground water source sample, the ground water system must collect another source water sample under paragraph (a) of this section within 24 hours of being notified by the Director of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods in paragraph (c) of this section. The Director may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Director must specify how much time the system has to collect the sample.

(d) Sampling location.

(i) Any ground water source sample required under paragraph (a) of this section must be collected at a location prior to any treatment of the ground water source unless the Director approves a sampling location after treatment.

(ii) If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a Director-approved location to meet the requirements of paragraph (a) of this section if the sample is representative of the water quality of that well.

(e) New Sources. If directed by the Director, a ground water system that places a new ground water source into service after November 30, 2009, must conduct assessment source water monitoring under paragraph (b) of this section. If directed by the Director, the system must begin monitoring before the ground water source is used to provide water to the public.

(f) Public Notification. A ground water system with a ground water source sample collected under paragraph (a) or (b) of this section that is fecal indicator-positive and that is not invalidated under paragraph (d) of this section, including consecutive systems served by the ground water source, must conduct public notification under R309-220-5.

(g) Monitoring Violations. Failure to meet the requirements of paragraphs (a)-(f) of this section is a monitoring violation and requires the ground water system to provide public notification under R309-220-7.

(3) Treatment technique requirements for ground water systems.

(a) Ground water systems with significant deficiencies or source water fecal contamination.

(i) The treatment technique requirements of this section must be met by ground water systems when a significant deficiency is

identified or when a ground water source sample collected under R309-215-16(2)(a)(iii) is fecal indicator-positive.

(ii) If directed by the Director, a ground water system with a ground water source sample collected under R309-215-16(2)(a)(ii), R309-215-16(2)(a)(iv), or R309-215-16(2)(b) that is fecal indicator-positive must comply with the treatment technique requirements of this section.

(iii) When a significant deficiency is identified at a public water system that uses both ground water and surface water or ground water under the direct influence of surface water, the system must comply with provisions of this paragraph except in cases where the Director determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or ground water under the direct influence of surface water.

(iv) Unless the Director directs the ground water system to implement a specific corrective action, the ground water system must consult with the Director regarding the appropriate corrective action within 30 days of receiving written notice from the Director of a significant deficiency, written notice from a laboratory that a ground water source sample collected under R309-215-16(2)(a)(iii) was found to be fecal indicator-positive, or direction from the Director that a fecal indicator-positive collected under R309-215-16(2)(a)(ii), R309-215-16(2)(a)(iv), or R309-215-16(2)(b) requires corrective action. For the purposes of this subpart, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the Director determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

(v) Within 120 days (or earlier if directed by the Director) of receiving written notification from the Director of a significant deficiency, written notice from a laboratory that a ground water source sample collected under R309-215-16(2)(a)(iii) was found to be fecal indicator-positive, or direction from the Director that a fecal indicator-positive sample collected under R309-215-16(2)(a)(ii), R309-215-16(2)(a)(iv), or R309-215-16(2)(b) requires corrective action, the ground water system must either:

(A) have completed corrective action in accordance with applicable Director plan review processes or other Director guidance or direction, if any, including Director-specified interim measures; or

(B) be in compliance with a Director-approved corrective action plan and schedule subject to the conditions specified in paragraphs (a)(v)(B)(I) and (a)(v)(B)(II) of this section.

(I) Any subsequent modifications to a Director-approved corrective action plan and schedule must also be approved by the Director.

(II) If the Director specifies interim measures for protection of the public health pending Director approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the Director.

(vi) Corrective Action Alternatives. Ground water systems that meet the conditions of paragraph (a)(i) or (a)(ii) of this section must implement one or more of the following corrective action alternatives:

(A) correct all significant deficiencies;

(B) provide an alternate source of water;

(C) eliminate the source of contamination; or

(D) provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.

(vii) Special notice to the public of significant deficiencies or source water fecal contamination.

(A) In addition to the applicable public notification requirements of R309-220-5, a community ground water system that receives notice from the Director of a significant deficiency or notification of a fecal indicator-positive ground water source sample that is not invalidated by the Director under R309-215-16(2)(d) must inform the public served by the water system under R309-225-5(8) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the ground water source is determined by the Director to be corrected under paragraph (a)(v) of this section.

(B) In addition to the applicable public notification requirements of R309-220-5, a non-community ground water system that receives notice from the Director of a significant deficiency must inform the public served by the water system in a manner approved by the Director of any significant deficiency that has not been corrected within 12 months of being notified by the Director, or earlier if directed by the Director. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

(I) The nature of the significant deficiency and the date the significant deficiency was identified by the Director;

(II) The Director-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

(III) For systems with a large proportion of non-English speaking consumers, as determined by the Director, information in the appropriate language(s) regarding the importance of the notice or a

telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(C) If directed by the Director, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under paragraph (a)(vii)(B) of this section.

(b) Compliance monitoring.

(i) Existing ground water sources. A ground water system that is not required to meet the source water monitoring requirements of this subpart for any ground water source because it provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for any ground water source before December 1, 2009, must notify the Director in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the specified ground water source and begin compliance monitoring in accordance with paragraph (b)(iii) of this section by December 1, 2009. Notification to the Director must include engineering, operational, or other information that the Director requests to evaluate the submission. If the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source, the system must conduct ground water source monitoring as required under R309-215-16(2).

(ii) New ground water sources. A ground water system that places a ground water in service after November 30, 2009, that is not required to meet the source water monitoring requirements of this subpart because the system provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source must comply with the requirements of paragraphs (b)(ii)(A), (b)(ii)(B) and (b)(ii)(C) of this section.

(A) The system must notify the Director in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source. Notification to the Director must include engineering, operational, or other information that the Director requests to evaluate the submission.

(B) The system must conduct compliance monitoring as required under R309-215-16(3)(b)(iii) of this subpart within 30 days of placing the source in service.

(C) The system must conduct ground water source monitoring under R309-215-16(2) if the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the ground water source.

(iii) Monitoring requirements. A ground water system subject to the requirements of paragraph (b)(i) or (b)(ii) of this section must monitor the effectiveness and reliability of treatment for that ground water source before or at the first customer as follows:

(A) Chemical disinfection.

(I) Ground water systems serving greater than 3,300 people. A ground water system that serves greater than 3,300 people must continuously monitor the residual disinfectant concentration using analytical methods specified in R444-14-4 at a location approved by the Director and must record the lowest residual disinfectant concentration each day that water from the ground water source is served to the public. The ground water system must maintain the Director-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. If there is a failure in the continuous monitoring equipment, the ground water system must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.

(II) Ground water systems serving 3,300 or fewer people. A ground water system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in R444-14-4 at a location approved by the Director and record the residual disinfection concentration each day that water from the ground water source is served to the public. The ground water system must maintain the Director-determined residual disinfectant concentration every day the ground water system serves water from the ground water source to the public. The ground water system must take a daily grab sample during the hour of peak flow or at another time specified by the Director. If any daily grab sample measurement falls below the Director-determined residual disinfectant concentration, the ground water system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the Director-determined level. Alternatively, a ground water system that serves 3,300 or fewer people may monitor continuously and meet the requirements of paragraph (b)(iii)(A)(I) of this section.

(B) Membrane filtration. A ground water system that uses membrane filtration to meet the requirements of this subpart must monitor the membrane filtration process in accordance with all Director-specified monitoring requirements and must operate the membrane filtration in accordance with all Director-specified compliance requirements. A ground water system that uses membrane

filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when:

(I) The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

(II) The membrane process is operated in accordance with Director-specified compliance requirements; and

(III) The integrity of the membrane is intact.

(C) Alternative treatment. A ground water system that uses a Director-approved alternative treatment to meet the requirements of this subpart by providing at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer must:

(I) Monitor the alternative treatment in accordance with all Director-specified monitoring requirements; and

(II) Operate the alternative treatment in accordance with all compliance requirements that the Director determines to be necessary to achieve at least 4-log treatment of viruses.

(c) Discontinuing treatment. A ground water system may discontinue 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source if the Director determines and documents in writing that 4-log treatment of viruses is no longer necessary for that ground water source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of R309-215-16(2) of this subpart.

(d) Failure to meet the monitoring requirements of paragraph (b) of this section is a monitoring violation and requires the ground water system to provide public notification under R309-220-7.

(4) Treatment technique violations for ground water systems.

(a) A ground water system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Director) of receiving written notice from the Director of the significant deficiency, the system:

(i) Does not complete corrective action in accordance with any applicable Director plan review processes or other Director guidance and direction, including Director specified interim actions and measures, or

(ii) Is not in compliance with a Director-approved corrective action plan and schedule.

(b) Unless the Director invalidates a fecal indicator-positive ground water source sample under R309-215-16(2)(d), a ground water system is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the Director) of meeting

the conditions of R309-215-16(3)(a)(i) or R309-215-16(3)(a)(ii), the system:

(i) Does not complete corrective action in accordance with any applicable Director plan review processes or other Director guidance and direction, including Director-specified interim measures, or

(ii) Is not in compliance with a Director-approved corrective action plan and schedule.

(c) A ground water system subject to the requirements of R309-215-16(3)(b)(iii) that fails to maintain at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for a ground water source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

(d) Ground water system must give public notification under R309-220-6 for the treatment technique violations specified in paragraphs (a), (b) and (c) of this section.

(5) Reporting and recordkeeping for ground water systems.

(a) Reporting. In addition to the requirements of R309-105-16, a ground water system regulated under this subpart must provide the following information to the Director:

(i) A ground water system conducting compliance monitoring under R309-215-16(3)(b) must notify the Director any time the system fails to meet any Director-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The ground water system must notify the Director as soon as possible, but in no case later than the end of the next business day.

(ii) After completing any corrective action under R309-215-16(3)(a), a ground water system must notify the Director within 30 days of completion of the corrective action.

(iii) If a ground water system subject to the requirements of R309-215-16(2)(a) does not conduct source water monitoring under R309-215-16(2)(a)(v)(B), the system must provide documentation to the Director within 30 days of the total coliform positive sample that it met the Director criteria.

(b) Recordkeeping. In addition to the requirements of R309-105-17, a ground water system regulated under this subpart must maintain the following information in its records:

(i) Documentation of corrective actions. Documentation shall be kept for a period of not less than ten years.

(ii) Documentation of notice to the public as required under R309-215-16(3)(a)(vii). Documentation shall be kept for a period of not less than three years.

(iii) Records of decisions under R309-215-16(2)(a)(v)(B) and records of invalidation of fecal indicator-positive ground water source samples under R309-215-16(2)(d). Documentation shall be kept for a period of not less than five years.

(iv) For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under R309-211-10. Documentation shall be kept for a period of not less than five years.

(v) For systems, including wholesale systems, that are required to perform compliance monitoring under R309-215-16(3)(b):

(A) Records of the Director-specified minimum disinfectant residual. Documentation shall be kept for a period of not less than ten years.

(B) Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Director-prescribed minimum residual disinfectant concentration for a period of more than four hours. Documentation shall be kept for a period of not less than five years.

(C) Records of Director-specified compliance requirements for membrane filtration and of parameters specified by the Director for Director-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours. Documentation shall be kept for a period of not less than five years.

KEY: drinking water, surface water treatment plant monitoring, disinfection monitoring, compliance determinations

Date of Enactment or Last Substantive Amendment: May 1, 2016

Notice of Continuation: March 13, 2015

Authorizing, and Implemented or Interpreted Law: 19-4-104

Agenda Item

5(A)(viii)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-220-4. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-220-4 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-220. Monitoring and Water Quality: Public Notification Requirements.

R309-220-4. General Public Notification Requirements.

(1) Violation Categories and Other Situations Requiring a Public Notice:

Each owner or operator of a public water system (community water systems, non-transient non-community water systems, and transient non-community water systems) must give notice for all violations of these rules and for other situations, as listed below. The term "UPDWR violations" is used in this subpart to include violations of the maximum contaminant level (MCL), maximum residual disinfection level (MRDL), treatment technique (TT), monitoring requirements, and testing procedures contained in R309-100 through R309-215.

(a) UPDWR Violations:

(i) Failure to comply with an applicable maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL).

(ii) Failure to comply with a prescribed treatment technique (TT).

(iii) Failure to perform water quality monitoring, as required by the drinking water regulations.

(iv) Failure to comply with testing procedures as prescribed by a drinking water regulation.

(b) Variance and Exemptions Under R309-10 and R309-11.

(i) Operation under a variance or an exemption.

(ii) Failure to comply with the requirements of any schedule that has been set under a variance or exemption.

(c) Special Public Notices

(i) Occurrence of a waterborne disease outbreak or other waterborne emergency.

(ii) Exceedance of the nitrate MCL by non-community water systems (NCWS), where granted permission by the Director under R309-200-5(1)(c), Table 200-1, note (4)(b).

(iii) Exceedance of the secondary maximum contaminant level (SMCL) for fluoride.

(iv) Availability of unregulated contaminant monitoring data.

(v) Other violations and situations determined by the Director to require a public notice under this subpart.

(2) Definition of Public Notice Tiers:

Public notice requirements are divided into three tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation listed in paragraph (1) of this section are determined by the tier to which it is assigned. Each tier is defined below:

(a) Tier 1 public notice -- required for UPDWR violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

(b) Tier 2 public notice -- required for all other UPDWR violations and situations with potential to have serious adverse effects on human health.

(c) Tier 3 public notice -- required for all other UPDWR violations and situations not included in Tier 1 and Tier 2.

(3) Required Distribution of Notice

(a) Each public water system must provide public notice to persons served by the water system, in accordance with this rule. Public water systems that sell or otherwise provide drinking water to other public water systems (i.e., to consecutive systems) are required to give public notice to the owner or operator of the consecutive system; the consecutive system is responsible for providing public notice to the persons it serves.

(b) If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the Director may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. Permission by the Director for limiting distribution of the notice must be granted in writing.

(c) A copy of the notice must also be sent to the Director, in accordance with the requirements under R309-105-16.

(4) Utah Division of Drinking Water adopts 40 CFR, Part 141, Subpart Q, Appendix A and B as published on July 1, 2018.

Agenda Item

5(A)(ix)

DRINKING WATER BOARD PACKET
(Final adoption of rule amendment)

HISTORY/CONTEXT:

On November 13, 2018, the Drinking Water Board authorized the Utah Division of Drinking Water staff to begin rule making for amendment to 309-225-4. The proposed amendment added clarifying language missed during the Revised Total Coliform Rule (RTCR) adoption in 2016. This is a federal rule Utah is required to adopt per the primacy agreement with US EPA and has no additional requirements.

The proposed rule amendment was filed with the Office of Administrative Rules on November 14, 2018. The rule amendment was published in the Utah Bulletin and open to 30 day public comment beginning December 1, 2018. This public comment period was also announced on the Division of Drinking Water website. As of December 27, 2018, no comments have been received.

DIVISION STAFF/DIRECTOR RECOMMENDATION:

Division of Drinking Water staff recommends that the Drinking Water Board adopt the amendments to 309-225-4 and authorize the Division of Drinking Water to make the amended rule effective.

IMPLEMENTATION SCHEDULE:

The Division anticipates making the amendments effective immediately after the rule has been made effective.

R309. Environmental Quality, Drinking Water.

R309-225. Monitoring and Water Quality: Consumer Confidence Reports.

R309-225-4. General Requirements.

(1) This rule applies only to community water systems.

(2) Effective dates.

(a) Each existing community water system must deliver its first report by October 19, 1999, its second report by July 1, 2000, and subsequent reports by July 1 annually thereafter. The first report must contain data collected during, or prior to, calendar year 1998 as prescribed in R309-225-5(4)(c). Each report thereafter must contain data collected during, or prior to, the previous calendar year.

(b) A new community water system must deliver its first report by July 1 of the year after its first full calendar year in operation and annually thereafter.

(c) A community water system that sells water to another community water system must deliver the applicable information required in R309-225-5 to the buyer system:

(i) no later than April 19, 1999, by April 1, 2000, and by April 1 annually thereafter or

(ii) on a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

(3) Utah Division of Drinking Water adopts 40 CFR, Part 141, Subpart O, Appendix A as published on July 1, 2018.

Agenda Item

6

DRINKING WATER BOARD PACKET
Rural Water Association Report

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Rural Water Association of Utah

January 15th Drinking Water Board Report - Activities Overview

Employee/Position: Terry Smith - Management Technician

Report Date Range: 10/27/2018 - 12/20/2018

October

Offsite:

- 10/31, Assisted operator with the town of Kanosh in setting up an online flushing and hydrant maintenance tracking program.
- 10/31 - Working on source water capacity analysis for Teasdale SSD

November

Onsite: Proctored

- 11/1 - Worked with Paragonah Town in system capacity assessment as it pertains to future growth planning
- Proctored 4 operator certification tests during the month

Offsite:

- 11/15 - worked with Angell Springs to assess their storage capacity sufficiency
- 11/16 - 11/20 - during this period, as I had time, I created two presentations for water system personnel training related to safety (OSHA rules) and computer data backup, storage, protection

December

Onsite:

- 12/10 - New Harmony town - instructed new operator on repair, maintenance & operation of gas chlorination system
- 12/13 - Leeds Water Company - worked with operator going over the source water supply system (springs, tanks, wells) to explain how they functioned and determine if they were set up correctly.
-

Offsite:

- Working on budget/revenue analysis for the town of Manila. In particular, analysis of the impact of commercial customers vs residential.
- Assisting Old Meadows Water Company in bringing system into compliance (AO).

Rural Water Association of Utah

Drinking Water Board Report - Activities Overview

Employee/Position: BRIAN PATTEE, Compliance Circuit Rider

Report Date Range: October 29th 2018—December 21st 2018

October 29th thru October 31st

Onsite/or Direct contact with Operator:

- 10-30 Eagle Mountain – Cross Connection Control Program Instruction

Offsite:

- 10-29,30 Lake Rockport Estates – Compliance IPS Corrections , DDW correspondence

November 1st thru November 30th

Onsite/or direct Contact with Operator:

- 11- 5 Bristlecone - Conducted CCC Hazard assessment with system operator for compliance requirements.
- 11-7 West Point – Facility assessment for upcoming CCC class
- 11-12th thru 15th West Point – Instruct Cross Connection Control Certification for Water Systems , (9 systems Represented 15 attendees)
- 11-19 Cornish – met with Mayor and reviewed their IPS compliance Issues and came up with a plan to help correct them
- 11-20 Hyde Park – attended CCC Training assisted with questions.
- 11-27 Saratoga Springs – Disinfection Best Practices DDW Training
- 11-28 Cottonwood Coves – Met with system to assist and instruct on all compliance requirements.

Offsite:

- 11-1 Lake Rockport Estates – Helped submit Items to clean up their IPS
- 11- 6 Daniels Summit Sub. - CCC submissions , correct violations
- 11-28 Logan City - Helped with Presenter for Safety Trainings
- 11- 30 Lakeview Water – Request to Review sanitary Survey

December 1st thru December 21st

Onsite/or direct Contact with Operator.

- 12-5 West Bountiful – Training , Operator
- 12- 6 Lehi – Operator Training
- 12- 10th thru 14th – Lehi Cross Connection Control Administrator Certification Instruct and teach. (34 Attendee's , 21 system's represented)
- 12-17 Stockton Loan review for NRWA
- 12 – 18 Cottonwood Coves Sample collecting assisting and Instruction.

Offsite:

- 12- 11 Lakeview Water – review and correspond with operator on sanitary survey issues.

- 12-13 Weber Basin Job Corp -- review letter from operator for public Notice on missed BAC t sampling violation.

In addition to the above activities during this time frame, I have been reviewing by request of DDW, Operator Certification Rule Change, Cross Connection Control Rule Change, and asked to focus on IPS Rule Change.



RURAL WATER ASSOCIATION OF UTAH

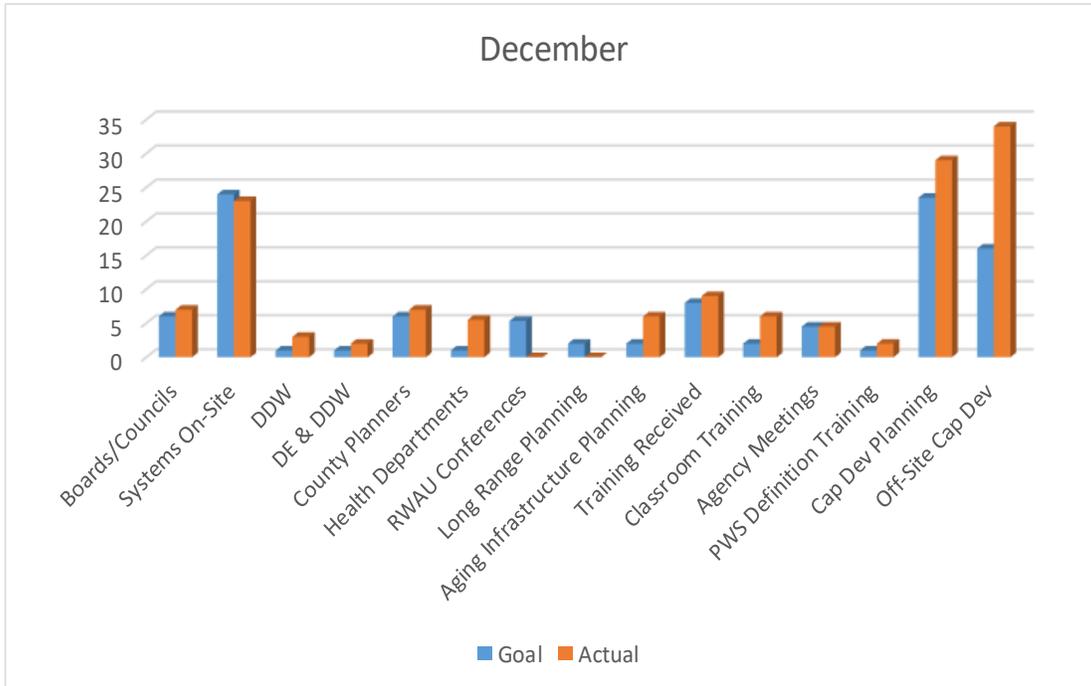
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Drinking Water Board Report

Development Contract

June 2018 – May 2023

RWAU Employee: Curtis Ludvigson



Work Performed	Goal	Actual
Boards/Councils	6	7
Systems On-Site	24	23
DDW	1	3
DE & DDW	1	2
County Planners	6	7
Health Departments	1	5.5
RWAU Conferences	5.33	0
Long Range Planning	2	0
Aging Infrastructure Planning	2	6
Training Received	8	9
Classroom Training	2	6
Agency Meetings	4.5	4.5
PWS Definition Training	1	2
Cap Dev Planning	23.5	29
Off-Site Cap Dev	16	34
Total	103.33	138



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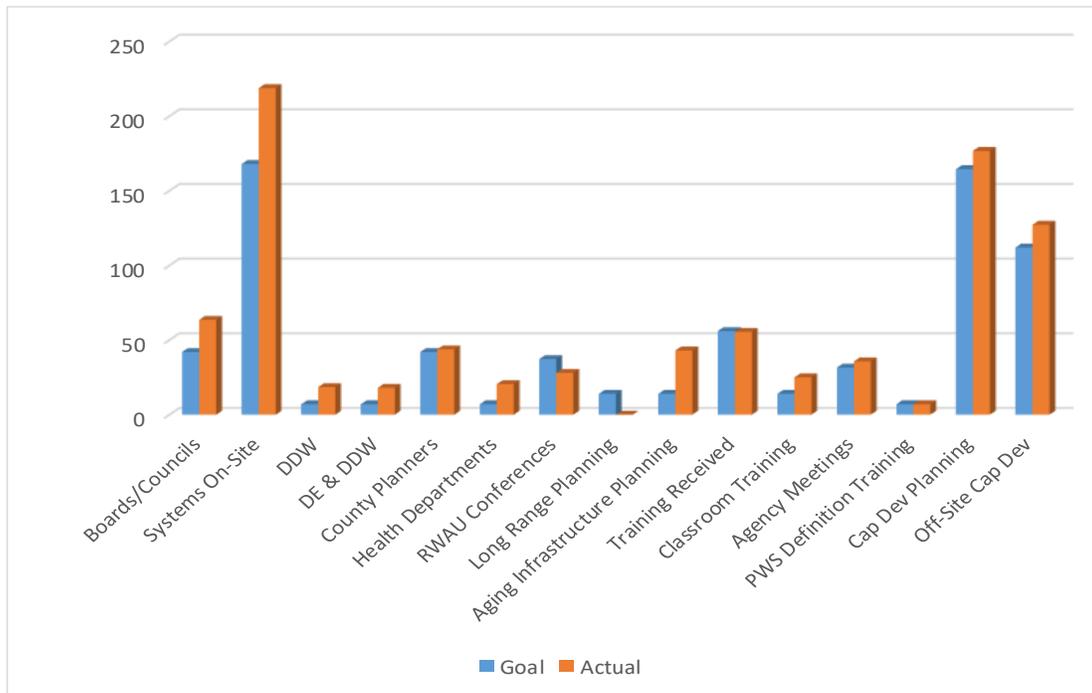
Drinking Water Board Report

Development Contract

June 2018 – May 2023

RWAU Employee: Curtis Ludvigson

Total 2018 June—December



Work Performed	Goal	Actual
Boards/Councils	42	63.5
Systems On-Site	168	218.75
DDW	7	18.5
DE & DDW	7	18
County Planners	42	43.75
Health Departments	7	20.5
RWAU Conferences	37.31	28
Long Range Planning	14	0
Aging Infrastructure Planning	14	43
Training Received	56	55.5
Classroom Training	14	25
Agency Meetings	31.5	35.75
PWS Definition Training	7	7
Cap Dev Planning	164.5	176.75
Off-Site Cap Dev	112	127.25
Total	723.31	881.25



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On-Site Assistance & Work Performed

Genola	Tour System, RFP Preparation, Capacity Development Training of Council
Wellington	Review of system needs, Council Training on Aging Infrastructure
Salina	Training on Aging Infrastructure, Financial Assistance for Planning Application
Tabiona	Training on Water Rights, Spring Development and Financial Assistance, Prepare RFP
Tropic	Work on Income Survey
Henrieville	Work on Income Survey
Fairview	Assist and training on Engineering Selection, Training on Aging Infrastructure
Uintah	Working on Income Survey Qualifications
Axtell SSD	Working on applications for planning and engineering
Gunnison	Training Council on Public Relations and Employee Relations
Ephraim	Review of their budget and funding qualifications for Spring re-development
Austin SSD	Training on PWS definition and possible merge with Lizard Bench
Loa	Rates Review, Budget Review, Revenue Audit, Application for Planning
Mt Pleasant	Training new City Manager on the need for Master Planning, Discuss System needs
Moroni	Work on Financial Assistance Application for DDW, Training on MAGI and Rates

Agency & Other Meetings

Entity	Hours
Division of Drinking Water	3
Rural Development	1.5

Current News

DRINKING WATER BOARD PACKET
Current News

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Utahns Conserve Water And It's Making A Difference: A Hopeful Conservation Story

By: Ashley Rohde, Utah Public Radio; November 24, 2018; upr.org

<http://www.upr.org/post/utahns-conserve-water-and-its-making-difference-hopeful-conservation-story>

Efforts to reduce water use by farmers, homeowners and cities have worked, according to state water managers who say wise water use has delayed a controversial plan to divert up to 72 billion gallons of water from the Bear River in northern Utah for municipal and agricultural use.

For more than 30 years, the proposed project has been opposed by some industry and environmental professionals. The river is the largest contributor to the Great Salt Lake and diversion of the water would lower the level of the lake an estimated 11 feet, where it would be maintained until the diversion was removed. This change could negatively affect habitat for migratory birds and brine shrimp.

The reduced water level would also have a negative impact for mineral extraction industries who built infrastructure around the Great Salt Lake at its current level. Some farmers in the area could face intermittent flooding of crop and grazing lands because of fluctuating levels of water around newly built reservoirs. However, growing populations across Utah, and especially in metropolitan Salt Lake City, necessitate increased water resources in the near future.

Todd Adams is the deputy director of the Utah Division of Water Resources. He says water meters that measure the use of secondary water, water that is piped into a property for outdoor use but is not used for drinking or bathing, has contributed greatly to improving water conservation in the state.

"In the Weber Basin Water Conservancy District area they've installed 5000 to 7000 meters that weren't developed ten years ago," he said. "These meters are new, and what they've seen so far is a 36 percent reduction in the water use on landscapes, outdoor landscapes, and all they're doing is sending an information component to the homeowner, they're not changing their billing right now, it's just becoming more efficient with the existing resources that we have."

As of 2016, the US Geological Survey water-use report indicates that Utah residents are among the highest per-capita consumers of water in the country, at an average of 187 gallons per person. Over 78 percent of that water is applied to irrigation uses. Only two states, Idaho and Nevada, have higher per capita water use.

Migratory birds on the Great Salt Lake. Photo by Chris Luecke Local water shortages in Cache County are an unpleasant reality for some Utah residents, according to Nathan Dausg, the manager of the newly established Cache Water Conservancy District.

“The Bear River development has been put off because of conservation, but in the interim, there will be shortages in the valley, smaller shortages. Certain areas of the valley will run out of water as development happens in the next five to ten years. So if we don’t do something to supply them with water, they can’t do any building out there.”

The consequences of one such water shortage were felt in Mendon, Utah, a small town of 1,400 residents where a moratorium on development and annexation of new buildings lasted for 9 years. It was lifted in October. The city has been searching for a new source of water since 2009, when the city well tested high in nitrates, a potential carcinogen.

“We grew up here in Mendon.”

Colten Lindsay recently started looking for a home to purchase for his family. I met him at his parents’ home in Mendon, where he’s living with his wife and two children while his parents are away on a two-year mission for their church. He recently put an offer on a home in Mendon, but he didn’t get it.

“There were five offers on the property. The thing that was most intriguing about the property is that it came with three water shares.”

The Mendon City Council designates shares of water to each property in Mendon, about 447 gallons per day. Some larger properties are provided more shares of secondary water.

“Most people who move here, not a lot of people move away. And if they do their house is sold the next day.”

Lindsay recently decided to purchase a home in Logan, a larger town near Mendon.

“It’s not my preferred place to live in Logan, I would like to be in a rural area. But we’re just debating our options as first-time home buyers where originally we were kind of looking on the outskirts, like I said, but then thinking about it we decided we’re not going to live in this house forever, and so we kind of started looking into Logan, and we found the one that we did like and we just kind of talked ourselves into it.”

One possible solution to water shortages in places like Mendon is water banking.

“This is where water rights can be held in a bank, very similar to money in a regular bank. So that people who aren’t maybe using all of their water can put it in the bank, and people who need water can borrow it out of the bank.”

That’s Jack Drexler of North Logan, who served in the Utah house of representatives.

“In my time in the legislature, I sponsored a bill to allow for water banking, which is a concept whose time has come but has not passed the legislature yet, including with my efforts.”

Proponents of water banking are hopeful that the formation of the Cache Water Conservancy District will inspire the political will to pass legislation legalizing water banks in Cache County within the next few years.

“I think water banking in the state as a whole and especially Cache County has a great future.”

That’s Nathan Daus again with the Cache Water Conservancy District.

“Now that we’re a district, hopefully, the legislature can get a bill passed in the next few years to make it so it is legal to do so. That’ll be a way that we can move water from water-rich areas of the valley to areas that need it in a manner that benefits the water user that owns that water now. That, hopefully in my mind, can extend agriculture in Cache County for another generation, maybe.”

The need for more water to meet the demands of a growing population means plans for the Bear River Project are ongoing. Where and when it will be implemented is still being discussed. When a final site is eventually chosen, environmental impact studies and public hearings will begin. In the meantime, we conserve, we debate, and we wait. Colten Lindsay and his family continue to make plans.

“My plan, in the future is I want to build a house in a rural area like Mendon, or Paradise, or Richmond or anywhere like that.”

Please, Pick Up Your Dog's Poop To Protect Our Watersheds

By: Ashley Rohde, Utah Public Radio; November 28, 2018; upr.org

<http://www.upr.org/post/please-pick-your-dogs-poop-protect-our-watersheds>

Americans love dogs. We love them to the tune of \$61 billion a year, according to the US Labor Department. Despite all the love, our four-legged friends can be hard on parks and on the environment, particularly when their humans don't manage them properly.

Proper management of dog waste is crucial for maintaining healthy water systems, and contamination has been shown to increase levels of harmful bacteria in some cases.

Water that is used for drinking and bathing is tested regularly in all Utah cities for potentially harmful contaminants, including e. coli, which is found in human and dog waste. Reports are released annually and are available from city public works departments.

Paul Lindhardt, public works director for Logan City explains that the source of water plays an important role in how sensitive it is to contamination.

“For Logan City all of our sources of [drinking] water are ground-water. We have a spring and we have deep wells. The only process it really goes through is we pump it or collect it, and then we treat it with chlorine and then it goes into the distribution system,” he said.

However, some municipal water sources in Utah, including Salt Lake City, come from surface water which is more vulnerable to contamination.

“We have very robust watershed protections in place for these watersheds and that is our first approach is just keeping that pollutant out of the water,”

Here's Marion Rice, the Salt Lake City Water Quality Treatment Administrator.

Laura Briefer, the director of public works in Salt Lake City, explained further how water is protected from contamination in the city.

“We restrict domestic animals within some of our key watersheds. Dogs are one item that we do restrict more vigorously just because there are so many of them and they could easily overwhelm the system if they were permitted,”

Snowmelt water feeds this system, and the water is cleaned and monitored for contamination.

However, storm-water and secondary water are not always monitored for contamination. These are the water sources used for lawns and agriculture. They are composed of snow-melt and rainwater that runs across the ground into streams and canals. In Cache County, this water is directed, untested and untreated, into the Cutler Reservoir, though this will change soon.

Paul Lindhardt again.

“We have a storm-water management plan. We are starting, as part of our management plan and our permit with the state, a testing of the storm-water because we want to know how its influence will test before Logan City and after Logan City,”

Marrion Rice explained that storm-water testing has been conducted regularly in Salt Lake City for some time.

“The EPA has different regulations for different sizes of cities. We’re a big city of over 100,000, so we’re considered a phase-one. So the city has been doing this since the 90s, starting to look at stormwater.”

The storm-water management plans for Logan and Salt Lake City are available on the city public works websites. Most other cities in Utah also have storm-water management plans available, or will soon.

The ultimate solution to dog feces in natural water systems, says Laura Briefer, is simple. Pet owners need to clean up after their dogs.

“About four out of 10 US households have at least one dog, and about four out of 10 of those owners don’t pick up after their dogs. There is a cumulative impact.”

Mistreatment of water sources can actually get so bad that the water has to be rejected for use by humans. This is especially dangerous in Utah, where water shortages are a concern.

Marrion Rice again.

“In Parley’s Nature Preserve, it became a de-facto dog park, and we noticed as soon as you got past that point of the protected watershed the e. coli levels increased significantly throughout the park as you went downstream. It really affected that waterbody, that watershed, so much so that it became impaired on the EPA’s 303-D list of impaired water bodies. Since that time the city parks and public lands fenced off some of the areas along the creek to give that part of the creek a chance, and it’s definitely helped out quite a bit.”

Dogs are permitted in some capacity in many city parks and public trail systems across Utah, but there are some exceptions, especially where city workers would bear the brunt of abandoned dog messes and where water quality is a concern.

Logan is one of only five cities in the Wasatch Front that does not regularly allow dogs in its parks, according to research done by the Logan Mayor’s Office this year. Leashed dogs are, however, allowed on the trail system around the city.

Logan mayor Holly Daines is currently considering asking the city council to change an ordinance and allow dogs in city parks.

“People love their pets, and if you look at the statistics on the number of people that have pets, that number is really pretty high and is growing all the time,” said Mayor Daines.

The city of Layton had similarly strict laws restricting dogs in parks until recently when they relaxed their laws on a one-year trial basis,

“What they found is that the situation of finding dog messes in the park actually got better because responsible pet owners that were now in the park would tell other people, ‘hey, take care of your mess, here’s a bag or get the bag at the entrance to the park.’”

The conclusion is clear. Pick up the poop to protect our watersheds.

“The population across the state is growing and our economy is doing well,” Marrion Rice said. “Water supply is an underpinning to, not only the public health of our population but also to our economy. It makes a lot of sense for us to protect that resource and steward that resource as much as we possibly can to make sure we have a prosperous future.”

Late November storms bring Utah snowpack to above average; too soon to predict 2019 supply

By: Jessica Kokesh, Standard Examiner; December 7, 2018; standard.net

https://www.standard.net/news/environment/late-november-storms-bring-utah-snowpack-to-above-average-too/article_72a4697c-4b31-5bd1-ac65-ef3dfefbb82b.html

Storms at the end of November beefed up the snowpack in the Utah's mountains, but experts say it's too soon to tell what 2019's water supply will look like.

The National Resource Conservation Service reports that the state's seasonal precipitation accumulation is 135 percent above average, according to December's Utah Climate and Water Report.

Several water basins are off to a "particularly good start" to the year and the snowpack is also above average, the report said.

Precipitation in November in the Weber and Ogden Basin was above average at 121 percent, while the Bear River Basin saw near average levels at 108 percent.

"The recent storms increased Utah's snow water equivalent by several inches in some areas. However, it's still very early in the snow accumulation season and way too soon to know whether this winter will provide boom, bust, or average snow totals," the report said.

The NRCS reports that the state's soil moisture conditions are "near normal and generally better than last year, which would have been unthinkable just three months ago."

Reservoir storage at Weber and Ogden River Basin is at 47 percent of capacity, compared to 71 percent last year. Meanwhile, the Bear River storage is at 60 percent of capacity, compared to 81 percent capacity last year.

Statewide, reservoir storage levels are at 55 percent compared to 71 percent last year.

"Water managers have reason to be hopeful about this winter's snowpack, but it will take above-average precipitation totals to start to replenish water storage levels," the NCRS said.

Utah among 7 states to meet at deadline on Colorado River drought plan

By: Ken Ritter, Deseret News; December 9, 2018; deseretnews.com

<https://www.deseretnews.com/article/900045780/utah-among-7-states-to-meet-at-deadline-on-colorado-river-drought-plan.html>

LAS VEGAS — With drought entering a second decade and reservoirs continuing to shrink, Utah and six other states that depend on the overtaxed Colorado River for crop irrigation and drinking water had been expected to ink a crucial share-the-pain contingency plan by the end of 2018.

They're not going to make it — at least not in time for upcoming meetings in Las Vegas involving representatives from Arizona, California, Colorado, Nevada, New Mexico, Utah, Wyoming and the U.S. government, officials say.

Arizona has been the holdout, with farmers, cities, Indian tribes and lawmakers in the state set to be first to feel the pinch still negotiating how to deal with water cutbacks when a shortage is declared, probably in 2020.

"There will be cuts. We all know the clock is ticking. That's what a lot of the difficult negotiations have been around," said Kim Mitchell, Western Resource Advocates water policy adviser and a delegate to ongoing meetings involving the Arizona Department of Water Resources, Central Arizona Project, agricultural, industrial and business interests, the governor, state lawmakers and cities including Tucson and Phoenix.

In Arizona, unlike other states, a final drought contingency plan must pass the state Legislature when it convenes in January.

Federal water managers wanted a deal to sign at the annual Colorado River Water Users Association conference beginning Wednesday in Las Vegas, and threatened earlier this year to impose unspecified measures from Washington if a voluntary drought contingency plan wasn't reached.

However, Bureau of Reclamation Commissioner Brenda Burman is signaling that the agency that controls the levers on the river is willing to wait. She is scheduled to talk to the conference on Thursday.

"Reclamation remains cautiously optimistic that the parties will find a path forward," the bureau said in a statement on Friday, "because finding a consensus deal recognizing the risks of continuing drought and the benefits of a drought contingency plan is in each state's best interest." Colorado River water supports about 40 million people and millions of acres of farmland in the U.S. and Mexico.

After 19 years of drought and increasing demand, federal water managers project a 52 percent chance that the river's biggest reservoir, Lake Mead behind Hoover Dam, will fall low enough to trigger cutbacks under agreements governing the system.

The seven states saw this coming years ago, and used Colorado River Water Users Association meetings in December 2007 to sign a 20-year "guidelines" plan to share the burden of a shortage. Contingency agreements would update that pact, running through 2026. They call for voluntarily using less to keep more water in the system's two main reservoirs, Lake Powell and Lake Mead. Lake Powell upstream from the Grand Canyon in Utah and Arizona is currently at 43 percent capacity; Lake Mead, downstream, is at 38 percent.

Colorado, New Mexico, Utah and Wyoming, the river's Upper Basin states, aim to keep the surface of Lake Powell above a target level to continue water deliveries to irrigation districts and cities and also keep hydroelectric turbines humming at Glen Canyon Dam.

The Lower Basin states of California, Arizona and Nevada aim to keep Lake Mead above a shortage declaration trigger point by using less water than they're legally entitled to.

If Lake Mead falls below that level, Arizona will face a 9 percent reduction in water supply, Nevada a 3 percent cut and California up to 8 percent. Mexico's share of river water would also be reduced.

Water officials in most states — from the Southern Nevada Water Authority in Las Vegas to the Colorado River Water Conservation District in Glenwood Springs, Colorado — have signed off on plans in recent weeks.

In Arizona, the board governing the Central Arizona Project irrigation system approved the Lower Basin plan on Thursday.

In California, the sprawling Metropolitan Water District of Southern California, which serves some 19 million people, is set to approve it Tuesday.

Board members there were reminded the agreements are only a short-term fix.

According to a board briefing, the Bureau of Reclamation, seven basin states and water contractors will begin negotiating again no later than 2020.

"That process is expected to result in new rules for management and operation of the Colorado River after 2026," the board briefing said.

Ranchers reveling in Trump's proposed rollback of water regulations

By: Amy Joi O'Donoghue, Deseret News; December 11, 2018; deseretnews.com

<https://www.deseretnews.com/article/900046022/ranchers-reveling-in-trumps-proposed-rollback-of-water-regulations.html>

SALT LAKE CITY — The Trump administration's proposed rollback of an Obama-era rule defining what waterways fall under federal jurisdiction was hailed by ranchers and private property advocates and blasted by environmental groups.

On Tuesday, the U.S. Environmental Protection Agency and the Army Corps of Engineers released proposed revisions to the 2015 rule that was challenged by 21 states, including Utah. American Farm Bureau President Zippy Duvall said Obama's rule required "drastic" action by farmers and ranchers across the country, spawning a nationwide campaign called "Ditch the Rule."

At the press event announcing the proposed revisions, Duvall said all presidents of the federation's 50 chapters were in the room as a show of support.

"I think the government is being given back to the people through this administration," Duvall said.

Utah Farm Bureau President Ron Gibson, who attended the EPA announcement on the proposed changes, said the revisions will provide much-needed clarity.

"I think the point of this is that nobody is saying anybody cares less about water or the environment, but we finally have clear definitions of what navigable waters are. That is what we have been after for years."

The Obama-era rule was hotly contested in the courts before it was even put into real action. Utah Attorney General Sean Reyes signed Utah on as the first state to join a challenge to the rule.

At the time, he called it an example of "blatant disregard for rural communities and businesses in Utah and other Western states."

Environmental groups countered that the rule was necessary to protect water from contamination in ephemeral waterways and wetlands.

Their reaction today was swift and harsh.

"EPA and the U.S. Army Corps of Engineers are attempting to reduce or eliminate Clean Water Act protections for the majority of our nation's waters in violation of our most basic procedural

and environmental laws," said Waterkeeper Alliance senior attorney Kelly Hunter Foster. "The agencies should be working to protect the public and restore our nation's waters — not engaging in this elaborate multiyear plot to legalize more water pollution."

Critics call the changes a "gift" to industry.

But farmers and ranchers and a coalition of states worried the Obama rule, written to clarify an earlier U.S. Supreme Court decision, would have extended regulatory oversight to ponds and ditches and intermittent streams because they would be considered as extensions of "navigable waterways."

In February, the Trump administration delayed implementation of the rule for up to two years to buy more time for possible revisions.

The Obama-era rule was both hated and loved because of its modification of regulations that had been in place for over 25 years regarding which water falls under Clean Water Act jurisdiction. Groups like the Theodore Roosevelt Conservation Partnership said federal protection was necessary over seasonal streams, which involve 60 percent of the stream miles in the United States.

At the time, the EPA argued the rule did not expand the scope of jurisdictional oversight, but clarified protections for upstream waters vital to the health of downstream communities.

The new revisions could be finalized next year and was prompted by Trump's executive order urging the EPA to protect those waters with a "relatively permanent surface connection" to traditionally navigable waters like a major river.

The revision lists six categories of jurisdictional waters that would fall under Clean Water Action protections and its exclusions, such as land where water results from heavy rainfall, groundwater and most ditches.

Water conservation group objects to Division of Water Resources' UTA agreement, future pipe plan

By: Carter Williams, KSL; December 12, 2018; ksl.com

<https://www.ksl.com/article/46447129/water-conservation-group-objects-to-division-of-water-resources-uta-agreement-future-pipe-plan>

SALT LAKE CITY — Not everyone is a fan of a deal reached between Utah Transit Authority and Division of Water Resources to jointly purchase land in Box Elder County for future projects.

Some believe the deal was done in the dark, the plan is managed and the project would be misguided.

“It’s disappointing on many fronts,” said Zach Frankel, executive director of the Utah Rivers Council, a non-profit group focused on protecting Utah’s rivers and water sources.

The deal between UTA and the Division of Water Resources was announced on Dec. 5. UTA, which had already made previous arrangements with Box Elder County, wanted a corridor near an existing Union Pacific line for potential future railroad lines, should FrontRunner expand to Brigham City in the future decades.

Water Resources wanted land next to land UTA sought after for a potential future underground pipe for its Bear River Project. The two agencies planned to jointly purchase various properties throughout the county, just in case future population growth and price would make seeking the land difficult in 10 to 20 years.

But Frankel said the agencies’ announcement means the cat is out of the bag, which could mean those who currently own the property could ask for a higher price because they know it’s desired land — which, in turn, could cost the taxpayer more. On top of that, he accused DWR of being mum on the topic until last week.

“The lack of transparency from the Division of Water Resources has shown is shocking,” Frankel said, saying he’s seen more transparency at town halls for his neighbor building a shed than a taxpayer-funded project.

However, Marisa Egbert, an engineer for the Division of Water Resources, contends that going public with the deal with UTA to purchase land didn’t jeopardize the cost because they’re only asking for willing sellers to come forward at the moment. She said there will be appraisals done and most of the land they’re looking at hasn’t been developed yet.

“We’re not negotiating above that appraisal price,” Egbert said.

The Utah Rivers Council, which was founded in 1994, has been a vocal opponent to the Bear River Development. The project, which formed in the 1991 but has been pushed back several times, is Utah's future plan to bring water from the Bear River to the counties living in the state's population center. It includes multiple proposed dams.

Frankel argues that project would continue to dry up the Great Salt Lake, which would then create a series of new environmental problems for northern Utah, and that the state should focus on improving its management of the current water supply instead.

Egbert said the project has been delayed because the need for the water from Bear River hasn't existed yet. She said it likely wouldn't come into play until at least 2040 or 2050, if not longer, and the division will focus on water management until that need comes.

"We're just planning ahead," Egbert said. "We're trying to stay ahead of the housing and development, where we're not trying to knock on people's doors in 20, 30, 40 years and say 'we've got to come through here.' ... We don't want to take Bear River Development off the table until the legislature tells us we should. We've been directed to continue to planning, projecting and looking forward."

In the meantime, Frankel hopes the division will be transparent about its plans for the future water project and allow the public to have a say in the issue.

"It's critical that the public be allowed to input and understand what's being proposed," he said.

Ribbon cutting set for new wastewater reclamation facility

By: Moab Sun News; December 13, 2018; moabsunnews.com

http://www.moabsunnews.com/news/article_07fa84ce-feece-11e8-99d7-733a36c4682b.html

The City of Moab is celebrating the official grand opening of its new wastewater reclamation facility during a ribbon-cutting ceremony on Thursday, Dec. 13, at 2 p.m.

Light refreshments will be served in the administration building.

The facility, located on 5 acres at 1007 W. 400 North, is directly south of the site that once housed the city's more than 60-year-old former sewer treatment plant. The wastewater reclamation facility (WRF) has been operating for approximately four months while crews monitor the new system to ensure compliance with state and federal regulations. The old plant has been dismantled and removed, and the 3.5 acres have been reclaimed and revegetated, including planting approximately 50 new trees, for use as public open space.

"The old sewer facility relied on outdated technology that struggled to keep up with the growing demands of our community," said Moab City Manager David Everitt. "Our new facility is state-of-the-art and will ensure the city and the immediate region (will) effectively meet our needs for many decades to come."

Greg Fosse, the city wastewater reclamation facility superintendent and chief operator, said he is more than impressed with the operations and efficiency of the new facility.

"The new plant is operating far beyond expectations with regard to Environmental Protection Agency (EPA) reportable standards," Fosse said. "It is well within compliance for state and federal requirements. It's incredible, the numbers that we're reaching at the plant. The fact that this plant was in complete compliance within such a short time, that's very unusual for a new plant."

The new WRF has a total hydraulic capacity of 1.75 million gallons per day compared to the 1.5-million-gallon capacity of the old sewer plant. Most importantly, according to Fosse, the new facility will be able to process significantly more effluent using far less water.

"Because this is state-of-the-art processing, it will handle almost twice the loading level of the old plant," Fosse said. "It isn't about the water hydraulics, it's about the loading and what the capabilities of that loading are."

Solar panels were recently installed on the administration building at the WRF to add energy efficiency to the offices. The city also hopes to install a larger array of solar panels to help offset a portion of the plant's energy use.

Southwestern states have until Jan. 31 to seal drought deal for Colorado River water

By: Ken Ritter, Deseret News; December 13, 2018; deseretnews.com

<https://www.deseretnews.com/article/900046457/southwestern-states-have-until-jan-31-to-seal-drought-deal-for-colorado-river-water.html>

LAS VEGAS — The head of the federal agency controlling the Colorado River said Thursday the U.S. government will impose unprecedented restrictions on water supplies to the seven Southwestern U.S. states that depend on the river unless everyone agrees by Jan. 31 on a plan to deal with an expected shortage in 2020.

Water users from Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming should have had a pact to sign at an annual water users' conference this week in Las Vegas, Bureau of Reclamation Commissioner Brenda Burman said.

They didn't. However, a flurry of approvals in several states in recent weeks signaled urgency and set a stage for an overall agreement to use less water from a river beset by drought and locked into promises to deliver more water than it takes in.

Burman identified California and Arizona as the holdouts.

"Close isn't 'done,' " she told a standing-room crowd at the Colorado River Water Users Association conference at a Las Vegas Strip resort. "Only 'done' will protect this basin."

The river that carries winter snowmelt from the Rocky Mountains to the Gulf of Mexico is plumbed with dams to generate hydropower and meter water releases. It provides drinking water to 40 million people and cities including Los Angeles, San Diego, Denver, Phoenix and Las Vegas. It irrigates crops in wide areas once deemed as reclaimed desert in the U.S. and Mexico.

The keys to contingency plans are voluntary agreements to use less water than users are allocated from the river's two largest reservoirs, Lake Powell behind the Glen Canyon Dam on the Arizona-Utah state line and Lake Mead behind Hoover Dam just east of Las Vegas.

Lake Powell is currently at 43 percent capacity; Lake Mead at 38 percent.

To date, entities including agricultural districts and municipal suppliers in five states have reached what Burman characterized as a complex puzzle of agreements.

Indian tribes also are involved, and Burman on Thursday announced publication of a report called the Colorado River Basin Ten Tribes Partnership Tribal Water Study . It charts water claims and use by tribes that hold rights to divert almost 20 percent of the water in the river.

A drought-shortage declaration next year would cut 11.4 percent of Arizona's usual river water allocation beginning in 2020, and 4.3 percent of Nevada's share. That amount of water,

combined, would serve more than 625,000 homes. California would voluntarily reduce its Colorado River use by about 6 percent.

Arizona gained approvals for conservation, mitigation and payment plans from its Department of Water Resources and the key Central Arizona Project irrigation district. Unlike the other states, it also needs state Legislature approval for water agreements. Lawmakers convene in January.

In California, the largest municipal suppliers have signed on, including the Metropolitan Water District of Southern California serving some 19 million people.

However, the sprawling Imperial Irrigation District, which holds some of the largest and oldest rights to river water, has so far granted only tentative approval. James Hanks, board president, said in an interview the district wants to be last to sign so it can see what others agree to.

It also wants government help to save the Salton Sea, a briny shallow desert lake east of Palm Springs, California, that is fed primarily by agricultural irrigation runoff. Dusty hot winds blowing across exposed former shorelines are blamed for asthma by area residents who also complain of sometimes brackish smells.

Burman didn't say what the federal government plans if it is left to impose restrictions.

But local officials warned that a free-for-all could lead to crippling lawsuits and legislative gridlock.

John Entsminger, chief executive of the Southern Nevada Water Authority in Las Vegas, predicted "complete chaos" if negotiations that he compared with nuanced scalpel work are overridden by federal sledgehammer rules.

"Everyone thinks their own water use is justified and no one else's is," observed Kathryn Sorensen, Phoenix city water services director.

Keith Moses, vice chairman of the Colorado River Indian Tribal Council in Arizona, offered what he saw as a key to complex water questions.

"To me, the best way of conserving water is not to use it," he said before adding that he knew that would mean limiting growth so as not to continue to drain the Colorado River.

"Realistically," he added, "looking at it, that's not going to happen."

In wake of fires, Utah County asks feds for \$20 million to protect waterways, prevent debris flow

By: Katie England, Daily Herald; December 16, 2018; heraldextra.com

https://www.heraldextra.com/news/local/south/in-wake-of-fires-utah-county-asks-feds-for-million/article_e4c39d2a-dfe8-55f3-a1da-71bcbf3542f8.html

After weeks of long days, troubled sleep and sleeping in strange beds, it was a feeling beyond relief for residents in Woodland Hills, Elk Ridge and other southern Utah County communities to return to their homes after a nine-day evacuation in September.

The Pole Creek and Bald Mountain fires destroyed a combined 120,000 acres over several weeks, but the announcement that both fires were 100 percent contained didn't mean these cities' troubles were over. In many ways, they were just beginning.

Residents and cities at the base of the extensively-burned canyons like Loafer Canyon and Spanish Fork Canyon now face the very real issue of debris flow coming off the burn scar and damaging homes. Whole cities are at risk of debris flow contaminating supplies of drinking water.

Unlike the flames, this risk is not something that can be taken care of within a few weeks. According to experts, at-risk areas need to be on alert for debris flow for up to five years after the initial burn.

It's impossible for cities to ask all their residents to be on heightened alert for that long, said Woodland Hills Mayor Wendy Pray, meaning it's important to take action now to lower any risks they face.

"In four years, it's not going to be at the top of the list," Pray said. "That's the reason we have to make sure we have a plan to put debris where we want it. It's too much to ask for people to be on heightened alert for five years. Nobody can sustain that effort."

How can cities get funding?

Wanting to minimize risks and being able to pay to do that are two separate issues. Combined projects for steel fencing, debris basins and re-vegetation that south county cities need done will likely cost millions, according to Utah County's emergency manager, Peter Quittner.

Those are dollar numbers many of the small cities found in southern Utah County simply can't afford, which is why Utah County, Payson, Santaquin, Spanish Fork, Woodland Hills, Elk Ridge and the Strawberry Water User's Association are all applying under the umbrella of Utah County

for \$20-25 million in funding from the Natural Resources Conservation Service's Emergency Watershed Protection program.

The EWP program provides financial and technical assistance for projects such as removing debris from stream channels, reshaping eroded stream banks and establishing vegetative cover on critically eroding lands, according to the NRCS website.

Some communities need one project funded. Others need five or six, Quittner said, and all told, there are 20 to 30 different projects. A team was put together to conduct on-site surveys and damage assessments to find the most cost-effective ways to protect cities and water sources.

"We say, how do you want us to prepare? How do you want us to plan, to go forward?" Quittner said. "Because ultimately, the more expensive the project is, the more you as a community have to come up with as a matching fund."

For instance, in Spanish Fork, the city has prioritized projects that will help protect streams on Loafer Mountain from which the city sources about 15 percent of its water.

"When the fire burns, it burned over all that vegetation on top (of the streams)," said Scott Aylett, public information officer for Spanish Fork. That can increase the likelihood over the next few years that the drinking water will be contaminated, though tests so far have show the water to be clear. Mudslides can deposit silt and debris in the basins used to catch that water. Cities in turn damage survey reports to the county, which has to be turned in by Dec. 16.

"It goes to their headquarters and we wait for their approval," Quittner said. "They're very optimistic we will be approved for these projects. There might be little tweaks where they say, instead of doing this, we'd rather you do this."

Approval for that funding could take anywhere from one week to six weeks, Quittner said. It largely depends on how many other communities across the country have also applied for similar relief.

If the funding is approved, then the money will be given to the requesting agencies for the approved projects. That triggers a 220-day timeline in which those projects have to be completed.

Cities are hoping to have at least some projects completed by this spring, when runoff puts them at higher risk for debris flows.

"Come springtime, we're hoping to have some things in place to keep the runoff from causing issues," Aylett said.

How can cities afford their share?

Though NCRS covers engineering costs, every approved project requires a 25 percent match from cities, which could potentially be a debilitating amount for small cities.

“As a city, our budget is very small,” Pray said. “We’re funding some, but we’re really relying on state and federal funding the most.”

Woodland Hills City Councilwoman Kari Malkovich said if their city can’t afford the 25 percent match for all approved projects, it can prioritize the projects that are most important that it can afford and go from there.

“We’re going to do our best to put forth a proposal of projects helpful for immediate risks,” Malkovich said.

It’s been a challenge, especially with as small as Woodland Hill’s city staff is, to keep residents informed about what could happen, particularly since there are so many variables, Malkovich said.

“They have told us to be prepared for at least three to five years of potential issues,” Malkovich said. “We know from other places in the county that it may go beyond that. There are a lot of unknowns. That’s where the fear comes in.”

In Elk Ridge, the burn scar and long-term plans are an item of discussion at almost every meeting, said Elk Ridge Mayor Ty Ellis.

Homes at the base of narrow Loafer Canyon in Elk Ridge are at high risk if flooding or a debris flow happens.

For its projects, Elk Ridge is looking at steel fencing and retention ponds to at least filter out large debris before it would have a chance to make it anywhere near homes.

“We want to get it so that once it hits flat lands, it’s basically water, or mud. No trees, or boulders by the time it hits where the homes are,” Ellis said.

The real challenge, then, is to figure out how to divert the water away from homes.

“Where Park Drive meets Loafer Canyon Road, that’s ground zero for us,” Ellis said.

Money is going to be a deciding factor in what projects Elk Ridge can complete.

“You take a little city like ours,” Ellis said, “if we end up with a \$2 million project, which is probably not out of scope, that’s \$500,000 for our little city. We don’t have \$500,000 kickin’ around.”

Elk Ridge’s entire annual budget is about \$1.5 million, Ellis said, and it would be difficult to come up with an extra one-third of the annual budget for prevention projects. Those funding decisions will be made by the city council at the appropriate time.

“If it comes back that a retention basin is \$5 million, we’re probably gonna go, “How can we afford that?” Ellis said. “Then make a decision at that time.”

The 25 percent match can include in-kind contributions, like material or labor, but none of what has already been done goes toward those matches, such as road-clearing or sandbags.

Ellis said the city will be looking at ways to contribute in-kind to try to get their costs lower.

“Our city residents are awesome, so if there are places we can have them help, they’ll step up and help,” Ellis said. “We saw that in the canyon with the sandbags, we’ve seen that multiple times.”

Regardless of whether the money is approved, Quittner says the EWP program is not designed to be a quick fix.

“We’ve made it very clear to these entities,” Quittner said. “You do what you need to to protect your communities now, and we are in the meantime working on a process for long-term.”

Quittner said Utah County has already done some work, clearing debris off roadways, and clearing out debris basins that have filled up.

“If there’s anything we have the ability to do, then we’ll do it,” Quittner said.

Dust blowing off the shrinking Great Salt Lake is eroding Wasatch snowpack and that could eventually threaten drinking water

By: Brian Maffly, Salt Lake Tribune; December 23, 2018; sltrib.com

<https://www.sltrib.com/news/environment/2018/12/22/dust-blowing-off/>

The winds kicked up in Utah's West Desert ahead of a late-season storm blowing out of the south and into the Wasatch Mountains, which were then coated with a heavier-than-usual snowpack. But soon the winds shifted west and scraped up particles from the bed of the Great Salt Lake, left exposed from chronically receding lake levels.

The wind event on April 13, 2017, was just what McKenzie Skiles, a young professor of geography who harbors a deep fascination with snow, was waiting for.

She left her office in Salt Lake City to visit a study plot she and her University of Utah research team set up at the town of Alta high up in the Wasatch's Little Cottonwood Canyon. Freshly deposited dust was darkening the snow.

From her team's measurements, Skiles has concluded that these particles, particularly from the Great Salt Lake's ever-expanding dry bed, are significantly increasing the pace of the Wasatch Mountains' spring runoff.

"We used the amount of dust in the snowpack to calculate how much additional sunlight the dust would absorb relative to a dust-free snowpack," Skiles said. "We found that from this one event, dust accelerated snowmelt by five days. And dust from all events [in the spring of 2017] accelerated snowmelt by 25 percent."

This observation could have serious consequences for the Utah cities that rely on the Central Wasatch for drinking water, according to the team's paper published Friday in the journal *Environmental Research Letters*.

Through a property known as albedo, clear snow reflects much of the sun's radiant energy, but snow covered in dust absorbs that energy and melts faster than it otherwise would, according to Salt Lake City hydrologist Brian McInerney, who was not involved with the study.

“Any time you melt snow earlier than you typically see, it’s much less efficient. You lose much more to evaporation and to the atmosphere,” said McInerney, who works for the National Weather Service.

That leaves less water available for human uses or to eventually return to the Great Salt Lake, further lowering its level and exposing more lakebed that could lead to more dust storms — a troubling feedback loop.

Courtesy photos, University of Utah This side-by-side images of the Great Salt Lake and Desert show how much lakebed has become exposed since 1989 as lake levels declined thanks to drought and upstream diversions.

Growing up a skier in Alaska, Skiles picked her college based on its proximity to snow-covered mountains. The logical choice was the University of Utah, where she studied under geographer Tom Painter, who specialized in snow albedo.

“He said, ‘You’re out there skiing a lot; you are obviously interested in snow. If you want to go to graduate school, you could study this further,’” Skiles said. “I was blown away. I didn’t know you could be a snow hydrologist as a career. As soon as I went to the Southern Colorado Rockies to do field work for him, I was hooked.”

She recently landed a tenure-track position at the U. after completing a doctorate at the University of California, Los Angeles, where she studied snow in the Sierra Nevada.

Now she is back in the Wasatch, examining dust on snow in the four major canyons supplying water to Salt Lake City: City Creek, Parleys and Little and Big Cottonwood canyons.

For the new study, her team collected dust samples at the Alta site both in the snow and in the air above and around the site. This was the first time anyone simultaneously gathered dust samples from the air and the snow.

The airborne samples enabled Skiles to identify what days particular dust particles were deposited, which she could then link to specific wind events. There were five major events in the spring of 2017, but the April 13 storm accounted for most of the dust at the Alta site, and most of that dust came from the Great Salt Lake, according to Skiles’ analysis.

The team sampled the size and number of airborne particles, then excavated pits to analyze the snow’s properties and sample dust concentrations. Computer simulations helped them determine where the dust came from.

Dust has specific qualities, depending on where it came from and how far it has traveled. If it has come from a distant source, such as the dry Sevier Playa south of Delta or the Milford Flat burn area, the dust grains are finer, Skiles said, while they are more coarse when they originate from a closer source.

Since the 1980s, the Great Salt Lake has lost more than half of its surface area, exposing 700 square miles of its bed. McInerney attributed the loss to water diversions on the Bear River, the lake's largest source of in-flows, and rising temperatures, which speed evaporation.

“We keep using more water, pulling it out of the rivers, and it doesn't make it to the Great Salt Lake and it has all sorts of consequences,” he said. “There is a greater surface area of alkaline dust that comes off there because the lake is getting smaller.”

While researchers are getting a handle on the impact of dust on the Wasatch snowpack, more observations are needed to determine what the main dust sources are. In the meantime, Skiles stressed, Wasatch Front cities have much at stake.

“The Great Salt Lake doesn't have any protections; there is no minimum lake level,” Skiles said. “It's important to understand the impact now and see if there is any policy we could put in place that would minimize this impact.”

Skiles' study was co-authored by U. geographer Steven Clark, and Derek Mallia, A. Gannet Hallar, John Lin, Andrew Lambert and Ross Peterson of the U.'s Department of Atmospheric Sciences.

Winter storms over the holidays are helping to boost Utah's snowpack

By: Amy Joi O'Donoghue, Deseret News; December 26, 2018; deseretnews.com

<https://www.deseretnews.com/article/900048024/winter-storms-over-the-holidays-are-helping-to-boost-utahs-snowpack.html>

SALT LAKE CITY — A series of winter storms over the holidays are helping to boost Utah's snowpack and another, colder storm will deliver more snow to Utah's mountains and valley floor on Thursday.

Compared to last year's lackluster winter and poor runoff this spring, many of the basins are reporting good numbers for the percentage of "snow water equivalent" that has accumulated compared to the median.

As of Wednesday, the Bear River area sat at 89 percent, Weber-Ogden River was at 96 percent and the Provo River-Utah Lake-Jordan River clocked in at 98 percent.

Southeast Utah is not doing as well, sitting at 66 percent as one of the most drought-stricken regions of the state continues to experience water-related challenges.

Southwest Utah, too, sits at 72 percent.

"Last year was a bad year," said KSL-TV meteorologist Brett Benson.

These have not been huge storms, but they have a lot of water content, which will help, he said.

"It's really what we need, and it does make for a better base" for skiers, Benson said.

Thursday's storm, because it comes with colder temperatures, will deliver the powder craved by winter enthusiasts.

According to the Natural Resources Conservation Service's Utah Snow Survey, some Utah regions have snow water equivalent above the median, such as the Price River San Rafael Region at 112 percent and Duchesne River basin at 107 percent.

By 8 a.m. Wednesday, the Bountiful bench had picked up 4 inches of new snow and Salt Lake City, at an elevation of 5,088 feet, received 7.5 inches.

Powder Mountain Ski area in Weber County reported it had received 8 new inches of snow in two days' time and a Ski Utah snow report released Wednesday said 11 inches of new snow was adding to a 40-inch base at Brian Head.

Benson said the key moving forward into next year is for Utah to continue to get storms like these every few days to steadily add to the snowpack accumulation season.

Tage Flint, general manager of the Weber Basin Water Conservancy District, echoed Benson's comments.

"Every time you go four or five days without a snow storm, you really see those (numbers) drop," he said. "If we can keep those storms rolling in, it really helps us."

The next trick for Mother Nature is to have a well-behaving runoff that steadily builds the volumes of streams, rivers and creeks.

Flint said frequent storms and a slow runoff will put reservoirs in good shape next year.