



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF WATER QUALITY
John K. Mackey, P.E.
Director

Water Quality Board
James Webb, Vice Chair
Carly Castle
Jill Jones
Michela Harris
Joseph Havasi
Trevor Heaton
Kimberly D. Shelley
John K. Mackey
Executive Secretary

Utah Water Quality Board Meeting
MASOB
195 North 1950 West
Salt Lake City, UT 84116
and
Via [Zoom](#)

June 28, 2023
Board Meeting Begins at 8:30 am

AGENDA

Water Quality Board Meeting – Call to Order & Roll Call

Jim Webb

A. Oath of Office for New Board Members

Notary needs to be present

B. Board Introductions

Jim Webb

C. Election of Board Chair and Vice Chair

Jim Webb

D. Minutes:

Approval of Minutes for May 24, 2023 Water Quality Board Meeting

Chair Elect

E. Board Member Orientation and Training

Craig Anderson & Haley Sousa

F. Executive Secretary's Report

John Mackey

1. New Staff Introductions

G. Funding:

1. Financial Status Report

Adriana Hernandez

2. Request for Hardship Planning Grant Authorization, for the Town of Rockville

Robert Beers

H. Other

1. Authorization to Proceed with Public Comment for the FY23 Intended Use Plan

Adrianna Hernandez

2. Final Report from Davis County Health Department for Northwest Groundwater Study

Robert Beers

3. Request to Adopt Amended Utah Administrative Code, Rule 317-4. Onsite Wastewater System

Robert Beers

4. Request to Adopt Amended Utah Administrative Code, Rule 317-101-3. Application & Project Initiation Procedures

Harry Campbell

I. Public Comment Period

J. Meeting Adjournment

Page 2
June 28, 2023
Water Quality Board
Agenda

Next Meeting
August 23, 2023 at 8:30 am

MASOB & Via [Zoom](#)
195 North 1950 West
Salt Lake City, UT 84116

DWQ-2023-118643



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James Webb, Vice Chair
Carly Castle
Michela Harris
Joseph Havasi
Trevor Heaton
Michael D. Luers
Kimberly D. Shelley
John K. Mackey
Executive Secretary

MINUTES

**UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
UTAH WATER QUALITY BOARD**

MASOB
and
Via Zoom

May 24, 2023
8:30 am Meeting

UTAH WATER QUALITY BOARD MEMBERS PRESENT

| | |
|---------------|----------------|
| Steven Earley | Michela Harris |
| Carly Castle | James Webb |
| Joe Havasi | Kim Shelly |
| Trevor Heaton | |
| Mike Luers | |

Excused

DIVISION OF WATER QUALITY STAFF MEMBERS PRESENT

| | |
|------------------|----------------------|
| John Mackey | Leanna Littler-Woolf |
| Emily Cantón | Skyler Davies |
| Ken Hoffman | Adrianna Hernandez |
| Clanci Hawks | Judy Etherington |
| Justin Lemke | Ken Hoffman |
| Ben Holcomb | Jennifer Berjikian |
| Paul Burnett | Jeff Studenka |
| Justine Marshall | Amber Loveland |
| Dan Griffin | Harry Cambell |

OTHERS PRESENT & ONLINE

| | |
|-----------------|--------------------------------|
| Elizabeth Burns | Utah Attorney General's Office |
| Brian Lamar | Certification Council |
| Vern Maloy | Sunrise Engineering |
| Mike Noel | Kane County |
| Amanda Buhler | Kane County |

Mr. Earley called the Meeting to order at 8:30 AM.

ROLL CALL

Mr. Earley took roll call for the members of the Board.

APPROVAL OF MINUTES OF April 26, 2023 BOARD MEETING

Motion: Mr. Early moved to approve the minutes of the April 26, 2023 Board meeting.

Mr. Havasi seconded the motion. The motion passed unanimously.

EXECUTIVE SECRETARY REPORT

Mr. Mackey addressed the Board regarding the following:

- Western States Water Conference in Reno, Nevada - The meeting is focused on issues of water quantity and quality throughout the West.
- Jordan River Commission meeting – The meeting focused on current project along the Jordan River, including the Big Bend Restoration.
- Great Salt Lake Berm Management Plan – This is an important effort towards managing the Great Salt Lake and to be protective of the ecosystem. Joe Havasi is instrumental in helping to shape the management plan.
- Utah Lake Science Panel meeting - This was an in-person meeting with the main focus being a review of the modeling efforts. This is a challenging ecosystem to work with, but we are optimistic that the work is advancing.
- New staff introductions: Justin Lemke is an intern with the Recreational Health Program. The Division has also hired four seasonal water quality technicians who will be assisting with monitoring efforts in the Lakes program, the National Rivers and Streams program, the Health Advisory program, and the Uinta Basin.
- New Board members: Jim Webb will serve another term of four years. The approved nominees are Robert Fehr, Mayor Michelle Kaufusi and Jill Jones.
- Service Awards: The Division presented a service award to Steve Earley and Mike Leurs for their service on the Water Quality Board.

OTHER

Financial Status Report: Ms. Hernandez presented the financial status report to the Board as indicated in the packet.

Kane County Water Conservancy District – Authorization of Supplemental Funding: Skyler Davies presented the request for supplemental funding for the Kane County project. Mike Noel, Executive Director of Kane County Water Conservancy District, and Vernon Maloy, Sunrise Engineering, were present to provide further information and answer questions. The total request of \$510,000 will allow the District to remove material from the primary cell of the Duck Creek lagoon and reline it. In addition, funds will cover a budget shortfall from the original collections and lagoon project and legal/loan fees.

Motion: Mr. Luers motioned to authorize supplemental funding as a hardship grant in the amount of \$510,000 with the following special conditions:

- 1. The District must agree to participate annually in the Municipal Wastewater Planning Program (MWPP).**
- 2. The District must develop, commit to adopt, and implement a capital asset management plan that is consistent with currently public noticed requirements of UAC R317-3-100.**
- 3. The District must complete a Water Conservation and Management Plan.**

Mr. Webb seconded the motion. The motion passed unanimously

Wastewater Operator Certification Program 2022 Annual Report: Mr. Brian Lamar presented the annual report as indicated in the packet.

PUBLIC COMMENTS

Mike Luers and Steve Earley expressed their appreciation for working with everyone on the Board and within the Division of Water Quality.

No other public comments or questions were presented.

MEETING ADJOURNMENT

Motion: Jim Webb motioned adjourn the meeting.

Joe Havasi seconded the motion. The motion passed unanimously.

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May 24,2023
Water Quality Board
Minutes

Next Meeting – June 28, 2023
Meeting begins at 8:30 am

In-Person
MASOB
195 North 1950 West
Salt Lake City, UT 84116

Via Zoom
<https://us02web.zoom.us/j/7074990271>

, Chair
Utah Water Quality Board

DWQ-2023-118667

PENDING

HARDSHIP GRANT FUNDS FINANCIAL STATUS REPORT JUNE 2023

| | State Fiscal Year 2023 | State Fiscal Year 2024 | State Fiscal Year 2025 | State Fiscal Year 2026 | State Fiscal Year 2027 | State Fiscal Year 2028 |
|--|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| HARDSHIP GRANT FUNDS (HGF) | | | | | | |
| Funds Available | | | | | | |
| Beginning Balance | | \$ 1,082,076 | \$ 1,420,272 | \$ 1,671,899 | \$ 1,837,734 | \$ 1,913,907 |
| Federal HGF Beginning Balance (5250) | \$ 3,280,059 | \$ - | \$ - | \$ - | \$ - | \$ - |
| State HGF Beginning Balance (5265) | \$ 3,863,210 | \$ - | \$ - | \$ - | \$ - | \$ - |
| Interest Earnings at 5.0620% | \$ 30,133 | \$ 5,195 | \$ 6,818 | \$ 8,026 | \$ 8,823 | \$ 9,188 |
| UWLF Interest Earnings at 5.0620% | \$ 122,661 | \$ 66,460 | \$ 76,569 | \$ 86,563 | \$ 94,927 | \$ 101,442 |
| Hardship Grant Assessments (5255) | \$ - | \$ 969,300 | \$ 892,769 | \$ 817,302 | \$ 739,827 | \$ 684,802 |
| Interest Payments - (5260) | \$ - | \$ 297,241 | \$ 275,471 | \$ 253,943 | \$ 232,597 | \$ 216,154 |
| Advance Repayments | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Total Funds Available | \$ 7,296,063 | \$ 2,420,272 | \$ 2,671,899 | \$ 2,837,734 | \$ 2,913,907 | \$ 2,925,493 |
| Financial Assistance Project Obligations | | | | | | |
| Big Water-Planning Grant | \$ (52,500) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Delta - Design Grant | \$ (200,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Delta - Short Term Loan | \$ (200,000) | | | | | |
| Dutch John - Planning | \$ (95,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Dutch John - HGF Loan | \$ (60,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Eagle Mountain City - Construction Grant | \$ (510,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Elwood - Planning | \$ (18,200) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Hanksville - Design | \$ (47,400) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Hinckley Hardship Planning Grant | \$ (15,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Kanab City Planning Advance | \$ (29,800) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Lewiston City - Design and Construction | \$ (460,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Lewiston City - De-Obligation | \$ 460,000 | | | | | |
| Long Valley - Design | \$ (103,700) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Millville City - Construction | \$ (1,000,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Spanish Fork - Hardship Grant | \$ (500,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Stockton - Planning | \$ (20,000) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Non-Point Source/Hardship Grant Obligations | | | | | | |
| McKees ARDL interest-rate buy down | \$ (55,261) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Munk Dairy ARDL interest-rate buy down | \$ (16,017) | \$ - | \$ - | \$ - | \$ - | \$ - |
| (FY12) Utah Department of Agriculture | \$ (172,270) | \$ - | \$ - | \$ - | \$ - | \$ - |
| (FY15) DEQ - Ammonia Criteria Study | \$ (27,242) | \$ - | \$ - | \$ - | \$ - | \$ - |
| (FY17) DEQ - Utah Lake Water Quality Study | \$ (348,301) | \$ - | \$ - | \$ - | \$ - | \$ - |
| (FY23) DEQ Davis County Health Department | \$ (105,313) | \$ - | \$ - | \$ - | \$ - | \$ - |
| USU - Historic Trophic State/Nutrient Concentrations Paleo | \$ (25,141) | \$ - | \$ - | \$ - | \$ - | \$ - |
| FY 2018 - Remaining Payments | \$ (7,100) | \$ - | \$ - | \$ - | \$ - | \$ - |
| FY 2019 - Remaining Payments | \$ (88,688) | \$ - | \$ - | \$ - | \$ - | \$ - |
| FY 2020 - Remaining Payments | \$ (173,111) | \$ - | \$ - | \$ - | \$ - | \$ - |
| FY 2021 - Remaining Payments | \$ (138,044) | \$ - | \$ - | \$ - | \$ - | \$ - |
| FY 2022 - Remaining Payments | \$ (621,140) | \$ - | \$ - | \$ - | \$ - | \$ - |
| FY 2023 - Remaining Payments | \$ (768,586) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Future NPS Annual Allocations | | \$ (1,000,000) | \$ (1,000,000) | \$ (1,000,000) | \$ (1,000,000) | \$ (1,000,000) |
| Authorizations | | | | | | |
| Grantsville - Design Advance | \$ (300,000) | | | | | |

HARDSHIP GRANT FUNDS FINANCIAL STATUS REPORT JUNE 2023

| | | | | | | | |
|------------------------------|----|-------------|----------------|----------------|----------------|----------------|----------------|
| Spring City - Design Advance | \$ | (289,000) | | | | | |
| Kane County - Hardship Grant | \$ | (200,000) | | | | | |
| Planned Projects | | | | | | | |
| *Rockville Town | \$ | (27,172) | | | | | |
| Total Obligations | \$ | (6,213,988) | \$ (1,000,000) | \$ (1,000,000) | \$ (1,000,000) | \$ (1,000,000) | \$ (1,000,000) |
| HGF Unobligated Funds | \$ | 1,082,076 | \$ 1,420,272 | \$ 1,671,899 | \$ 1,837,734 | \$ 1,913,907 | \$ 1,925,493 |



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**WATER QUALITY BOARD
REQUEST FOR HARDSHIP PLANNING GRANT TO
PREPARE GROUNDWATER QUALITY STUDY**

June 28, 2023

AUTHORIZATION

APPLICANT:

Town of Rockville
Vicki S. Bell, Town Clerk
PO Box 630206
Rockville, UT 84763
(435) 772-0992
rockville@rockvilleutah.org

PRESIDING OFFICIAL:

Pam Leach, Mayor
PO Box 630302
Rockville, UT 84763
(435) 772-2444
Pam@rockvilleutah.org

TREASURER:

M. Honer-Orton, Treasurer

CONSULTANT:

Trevor Schlossnagle, Hydrogeologist
Utah Geological Survey
PO Box 146100
Salt Lake City, UT 84114-6100
(801) 537-3335
tschlossnagle@utah.gov

TOWN ATTORNEY:

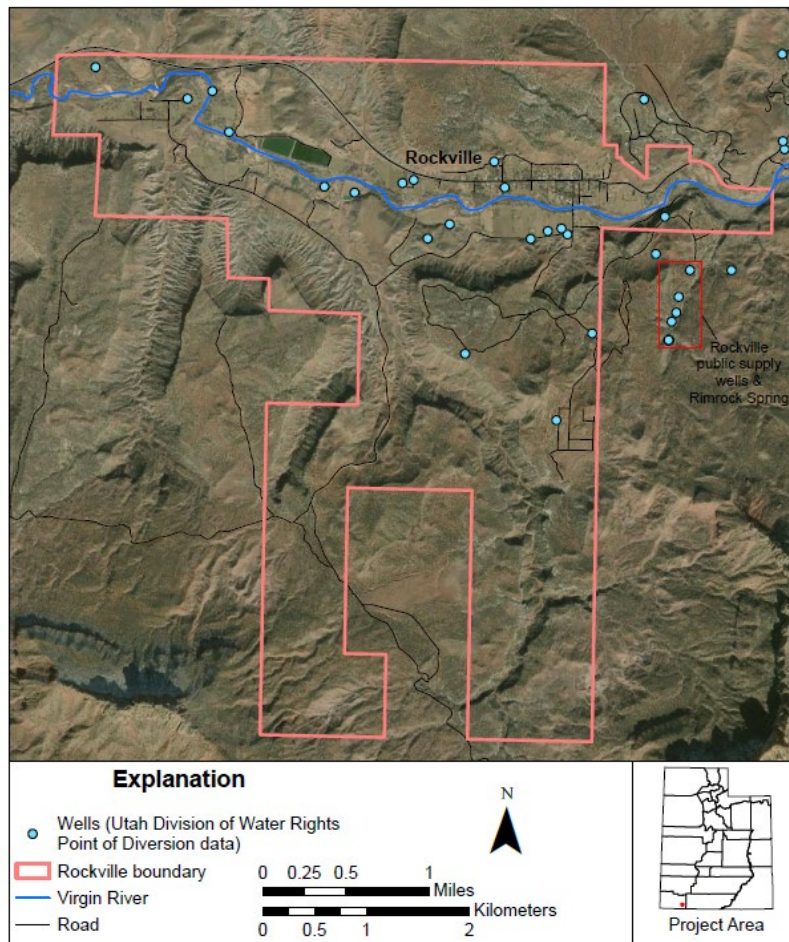
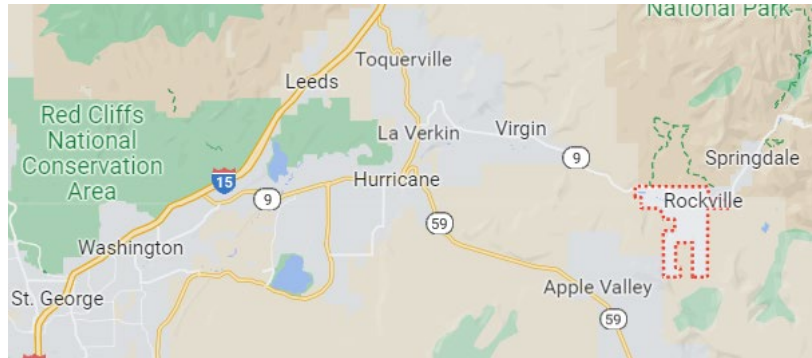
Matthew Ekins, Attorney

APPLICANT'S REQUEST:

The Town of Rockville requests a **hardship planning grant in the amount of \$27,172** to conduct a hydrologic/water quality study South of the Virgin River to determine sewage management recommendations, allowable onsite (septic) system types, septic system densities, potential impact of development and increased wastewater on groundwater quality, and to serve as a basis for planning future development and growth.

APPLICANT'S LOCATION

The Town of Rockville is in Washington County immediately adjacent to Virgin to the West and Springdale to the East. The Town's location and study area are shown in the figures below.



Utah Geological Survey. June 2023.

BACKGROUND

Rockville is a town (population is 229) in Washington County, Utah. Rockville is located along the Virgin River approximately 5 miles Southwest of the main entrance to Zion National Park. The median adjusted gross household income (MAGI) for Rockville is \$32,100¹ as compared with \$46,500 for the state of Utah.

Most properties within Rockville North of the Virgin River are serviced by the Springdale sewer system. Properties South of the Virgin River are required to permit and operate individual onsite wastewater (septic) systems. Existing and future septic systems may overlay either: 1) shallow alluvial deposits that drain into the Virgin River and may supply domestic wells; or 2) fractured bedrock that serves as the principal Rockville public water supply. Rockville Town officials are concerned about the potential for groundwater quality degradation from development reliant on septic systems for wastewater disposal.

PROJECT DESCRIPTION

Properly installed septic systems should not impair groundwater quality, provided that septic system density does not exceed the capacity of local geology and the environment. Exceeding this density can lead to groundwater contamination.

The Town of Rockville has contracted with the Utah Geological Survey (UGS) to conduct a groundwater study. The UGS has conducted several studies similar to the study proposed for the Town of Rockville. The primary goals of the study are to characterize groundwater chemistry with an emphasis on nutrients, other common wastewater constituents, and radiometric dating to help constrain groundwater flow parameters, and to provide a mass-balance analysis for local aquifer(s) based on onsite wastewater systems, ambient nitrate concentration, and groundwater flow available for mixing. The study will conduct sampling of up to 25 groundwater and surface water sites.

The proposed project will take a preventative approach to ensure groundwater quality degradation is limited. Determining appropriate septic system densities will allow managed growth without allowing contaminant concentration to exceed acceptable levels. Results of this study will be used for zoning purposes and to determine if public sewer expansion is necessary.

COST ESTIMATE

The study cost is estimated to be \$54,344. The Town of Rockville is committed to completing the project but is requesting additional support from the Water Quality Board to do so. The proposed breakdown for cost sharing is as follows:

| | | |
|---------------------------|-----------|---------------|
| Utah Geological Survey | \$ | 16,303 |
| Town of Rockville | \$ | 10,869 |
| Water Quality Board Grant | \$ | 27,172 |
| Total | \$ | 54,344 |

¹ <https://deq.utah.gov/drinking-water/magi-by-city>

STAFF COMMENTS

This project is being presented as an authorization request to the Water Quality Board. This is a critical project for the Town of Rockville to assess and develop tools for decision making toward control of nonpoint source pollution of groundwater in their area and expanding into the Virgin River. Their adoption of these strategies will serve as an important example to others in the state facing similar situations of strong economic growth and a need to protect water quality with balanced, science-based solutions for a safe and prosperous Utah. Staff believes the project may not be economically feasible unless grant assistance is provided.

STAFF RECOMMENDATION

Staff recommends the Board authorize funding to the Town of Rockville in the amount of **\$27,172 as a hardship planning grant under the following special conditions:**

1. The Division of Water Quality must approve the consultant agreement and plan of study before the grant agreement will be executed.
2. The Town of Rockville must provide an informational presentation of the study results and recommendations to the Water Quality Board within one year following the project completion.
3. This Planning Advance is a grant and will not be repaid.



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MEMORANDUM

TO: Utah Water Quality Board

THROUGH: John K. Mackey, P.E., Director

FROM: Adriana Hernandez, Contract/Grant Analyst II

DATE: June 28, 2023

SUBJECT: Request for Public Comment on the FY 2023 Intended Use Plan

The Division of Water Quality is requesting approval from the Utah Water Quality Board to go to public comment for feedback regarding the Fiscal Year 2023 Intended Use Plan.

As a condition of the Clean Water State Revolving Fund (CWSRF) capitalization grant, the U.S. Environmental Protection Agency (EPA) requires that the State of Utah provide an annual Intended Use Plan (IUP). The IUP identifies both long and short-term goals and addresses specific program requirements such as additional subsidy, green project reserve, and proportionality of state match. The IUP also contains the Project Priority List which shows current projects ranked using criteria such as project need, potential improvement, and population affected.

Additionally, the CWSRF Capitalization Grant application includes the new Bipartisan Infrastructure Law (BIL) allocations for General Supplemental and Emerging Contaminants funding. The IUP encompasses all three funding sources and addresses additional program requirements per BIL. The IUP also addresses the Sewer Overflow and Stormwater Reuse Municipal Grant, which is the newest funding source that partners with the SRF.

Due to the dynamic nature of wastewater projects, the documents are updated on an ongoing basis throughout the fiscal year. The Water Quality Board will be apprised of these updates by way of the Financial Status Report, the Project Priority List, and feasibility reports.

The Division of Water Quality will publish a notification in the newspaper to advertise the IUP. Staff will post the document on the Division of Water Quality's website for public review and comment. Following the public comment period, the IUP will be submitted to EPA as part of the 2023 CWSRF Capitalization Grant application.

DWQ-2023-118591



UTAH DEPARTMENT *of*
**ENVIRONMENTAL
QUALITY**

Intended Use Plan FY23

Prepared by
The Division of Water Quality

June, 2023

INTENDED USE PLAN FY23

Prepared by

Adriana Hernandez

Ken Hoffman, Emily Canton

Utah Department of Environmental Quality

Division of Water Quality

195 North 1950 West

Salt Lake City, UT 84116

June, 2023

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CHAPTER 1. Introduction

The Intended Use Plan is used by the Utah Department of Environmental Quality (DEQ) to apply for the US Environmental Protection Agency (EPA) Capitalization Grant. The primary purpose of the Plan is to identify current and projected projects that may be awarded funding from federal grant awards. The federal award for the FY23 base program is \$3,952,000. The federal award for the FY23 general supplemental program is \$10,983,000. The federal award for the FY23 emerging contaminants supplemental is \$1,121,000. See Table 2 for a list of State Revolving Fund projects. In addition, the Plan identifies current and projected projects that may be awarded from the Sewer Overflow and Stormwater Reuse Municipal Grants (OSG) Program and State monies, including the Utah Wastewater Loan Program and Hardship Grant Funds. See Tables 3, 4 and 5 for a list of these respective projects.

As required under Sections 606(c) and 610(b) of the Clean Water Act, the State of Utah has prepared an Intended Use Plan (IUP) for the Clean Water State Revolving Fund (CWSRF) program. The purpose of the IUP is to facilitate the negotiation process for the Fiscal Year 2023 CWSRF Capitalization Grant agreements. This IUP outlines the short-term and long-term goals of the program and proposes a schedule of payment between the Department of Environmental Quality – Division of Water Quality (Division) and the Environmental Protection Agency –Region 8. This document also describes the intended uses for: The State Revolving Fund (SRF), Sewer Overflow and Stormwater Reuse Municipal Grants (OSG) Program, the Utah Wastewater Loan Fund (UWLF), and the Hardship Grant Fund (HGF). All data provided in the 2023 IUP are projections of funding for the listed projects. Ultimately, the Utah Water Quality Board will determine loan amounts and financing terms are projects are presented for authorization.

The CWSRF is a financial assistance program that provides low-cost financing for treatment works, sewerage systems, storm water projects, decentralized systems, and nonpoint source projects. The operation of Utah’s CWSRF program is coordinated between the Utah Water Quality Board (the Board) and the Department of Environmental Quality – Division of Water Quality. Projects financed through the State Revolving Fund may receive funding from the following sources: (a) SRF Capitalization Grants; (b) SRF loan repayments; and (c) State matching funds.

Occasionally, an SRF-eligible project will be financed through the Utah Wastewater Loan Program or Hardship Grant Funds.

The Division of Water Quality maintains the SRF Project Priority List comprised of projects for which funding applications have been submitted. The Project Priority List is a numeric calculation used to prioritize projects which will remedy the most severe water quality problems and provide funds for the most beneficial protection of public health and water quality improvement. Projects are listed on the Project Priority List prior to being presented to the Water Quality Board for authorization. These updated Project Priority Lists are considered to be updates to the current IUP. Projects will be considered for funding according to their priority and readiness to proceed. If an SRF-eligible project does not proceed or is funded by SRF, UWLF, HGF, or another source, it will be removed from the Project Priority List. The Intended Use Plan includes projects listed on the most recent FY 2023 Project Priority List.

The Division of Water Quality conducts multiple surveys; one of which is the Municipal Wastewater Planning Program (MWPP) survey to project the potential Utah Statewide funding needs for wastewater treatment and wastewater collections systems. Participation in the MWPP is required for all political subdivisions which have received funding from the SRF, UWLF, or HGF. In addition, all wastewater agencies Statewide are encouraged to voluntarily participate. In the most recent survey from 2021, 168 responses were received which represents 70% of the distributed surveys. Results from the MWPP survey for projected wastewater capital improvement projects are listed below showing a projected Statewide need of more than \$4.4 billion through 2041. It should be noted; agency estimation accuracy diminishes with greater timelines, so the 2025 estimation is believed to be fairly accurate, while the 2040 need is probably greater than estimated.

| 2021 MWPP survey results – Statewide Wastewater Capital Improvement Projects | | | |
|--|---------------|---------------|---------------|
| 2021-2026 | 2027-2031 | 2032-2036 | 2037-2041 |
| \$2,540,200,246 | \$737,598,506 | \$610,615,718 | \$579,739,913 |

The Clean Water Needs Survey (CWNS) has also been completed. The Division surveyed four facility types: Wastewater, Stormwater, Non-Point Source, and Decentralized that showed a total need of \$9.7 billion for the survey period 2022 – 2041. A State Specific Approach (SSA) was used to estimate data for each of these facility types when planning documents were not available. 190 wastewater collection and treatment facilities were entered into the survey by using planning documents, small community forms, and the SSA; of which 95% responded and five percent were estimated using the SSA. There was a total of 91 stormwater facilities entered using a survey to estimate needs with the SSA that showed a need of \$1.9 billion. Decentralized systems were estimated with a SSA according to the 13 health departments in the state and showed a need of \$1.26 billion. The Non-Point Source survey received 37 project responses which showed a need of \$690 million.

CHAPTER 2. Program Operations

Since its inception in 1989, Utah’s CWSRF program has received appropriations from the federal government through capitalization grants. For FY23 the base capitalization grant award is \$3,952,000, and the general supplemental capitalization grant award is \$10,983,000.

In addition to federal dollars, The Department of Environmental Quality – Division of Water Quality is required to provide a twenty percent (20%) state match for the base program, and a 10% state match for the general supplemental funding (in FY24 this match will return to 20%). Utah has met the state match requirement for the base program by using money from the Utah Wastewater Loan Fund. Revenues into the UWLF are comprised of principal repayments from state loans, from a state sales tax allocation, and additional legislature appropriation. Utah has received its full measure of sales tax dollars, in the amount of \$3,587,500. In addition, the Utah State Legislature provided \$5,801,700 for the additional state match requirements for the general supplemental funding. The entire 20% state matching amount for the base capitalization award and 10% for the general supplemental capitalization award will be used toward eligible project costs before draws are made from the capitalization grant. Once the requirement is met, draws will be made from the federal award as a 100% federal share.

The Department of Environmental Quality – Division of Water Quality will use SRF administrative funds of \$400,000 from the base capitalization grant award, and 4% of the general supplemental grant award. Administration will not exceed the statutory limit. In addition, loan origination fees, equal to 1% of the principal loan amount, are charged to loan recipients. That revenue may also be used for program administration expenses. The Division of Water Quality estimates that \$102,600 will be collected from loan origination fees by the end of the Fiscal Year.

The Department of Environmental Quality – Division of Water Quality will reserve the right to use 2% of the Clean Water SRF Capitalization Grants for Technical Assistance. The planned activities for these funds will be determined at a later date.

2.1 Transfer of Clean Water State Revolving Funds

The Water Quality Board and Division of Water Quality reserve authority to transfer funds from the Clean Water SRF program to the Drinking Water SRF (DWSRF) program. The amount reserved for future transfers is up to 33% of the DWSRF capitalization grant award. The table below indicates the reserved transfer amount by award year.

For FY23, the projected amount of funds to be transferred is \$0, with no short- or long-term impacts on the fund. Justification for any transfers to the Drinking Water SRF program, including amount, type of funds, and fund impact, will be documented in a future Intended Use Plan (IUP).

The intended use plan will reserve the authority to transfer funding to the DWSRF program. A Memorandum of Understanding between the divisions to process the actual transfers will require the Water Quality Board approval.

TABLE 1a – TRANSFER AMOUNTS: BASE PROGRAM

| Award Year | DWSRF Capitalization Grant Award | Reserved Transfer Amount |
|--------------|----------------------------------|--------------------------|
| 2019 | \$11,103,000 | \$3,663,990 |
| 2020 | \$11,011,000 | \$3,633,630 |
| 2021 | \$11,001,000 | \$3,630,330 |
| 2022 | \$7,008,000 | \$2,312,640 |
| 2023 | \$4,938,000 | \$1,629,540 |
| Total | | \$14,870,130 |

TABLE 1b – TRANSFER AMOUNTS: GENERAL SUPPLEMENTAL & EMERGING CONTAMINANTS

| Award Year | DWSRF General Supplemental Grant Award | Reserved Transfer Amount | DWSRF Emerging Contaminants Grant Award | Reserved Transfer Amount |
|---|--|--------------------------|---|--------------------------|
| 2022 | \$8,816,080 | \$2,909,306 | \$7,555,000 | \$2,493,150 |
| 2023 | \$21,055,000 | \$6,948,150 | \$7,640,000 | \$2,521,200 |
| Total Reserved Transfer Amount: \$14,871,806 | | | | |

2.2 Extended Financing Terms

As of June 1, 2023, the Utah Water Quality Board has authorized extended financing to three SRF recipients: Hanksville Town, North Logan, and Kane County Water Conservancy District. The Division of Water Quality estimates that the long-term impact of extended financing on the SRF program is less than a 1% revolving level reduction over 60 years. This estimate does not include an adjustment for inflation.

In cases of extreme hardship, the maximum affordable loan amount may not provide sufficient capital to cover project costs. In these cases, the Board would be requested to provide additional subsidization or hardship grant funds to make these projects feasible. Extended-term financing can increase the loan amount that a community qualifies for under the 1.4% median adjusted gross household income (MAGI) affordability guideline. The extended terms also benefit the SRF program by replacing an award of grant dollars with additional loan repayments, albeit in years 21-30.

2.3 Additional Subsidization

The FY23 capitalization grant may allow states to provide additional subsidization in the form of principal forgiveness and negative interest loans. A minimum of \$395,200 and a maximum amount of \$1,185,600 additional subsidization amounts will be outlined in the programmatic terms and conditions of the base award. The Water Quality Board may utilize the difference between the minimum and maximum additional subsidization amounts to refinance existing debt on projects which met CWSRF requirements at the time of construction. General supplemental awards require 49% additional subsidization. The additional subsidization amount for the FY23 supplemental award is \$5,381,670. The Water Quality Board uses principal forgiveness agreements as its mechanism for awarding additional subsidization.

Additional subsidy may be provided to disadvantaged communities, communities addressing water-efficiency or energy-efficiency goals, communities mitigating stormwater runoff, or to encourage sustainability. For the Water Quality Board to qualify a community as disadvantaged, the community must have a demonstrated hardship based on its cost of sewer service relative to 1.4% of the MAGI, unemployment, poverty level, or economic trends. Table 2: FY23 List of SRF Projects identifies those projects that may meet any additional subsidization requirement. However, the Water Quality Board may authorize principal forgiveness to additional projects presented for authorization during the year. The Water Quality Board is currently working on a process for targeting disadvantaged communities.

2.4 Green Project Reserve

The FY23 capitalization grant allocation requires that, to the extent that there are sufficient eligible projects applications, not less than 10% of the SRF funds shall be used for projects that address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities. The State of Utah will meet this objective by identifying projects that meet green infrastructure requirements and providing funding, in whole or in part, as they proceed to construction. Future plans to ensure this requirement is met include creating a website dedicated to Green Project Reserve (GPR). This will create more visibility and transparency regarding the requirement.

Table 1c identifies projects that may meet the Green Project Reserve requirement.

TABLE 1c – FY23 LIST OF GREEN PROJECT RESERVE PROJECTS

| Recipient | Assistance Amount | GPR Amount |
|-------------|-------------------|--------------|
| Provo City | \$85,800,000 | \$19,633,000 |
| Payson City | \$13,500,000 | TBD |

2.5 Program Assurances

The State of Utah must comply with its Operation Agreement with EPA and Utah Administrative Code, R-317-102, Utah Wastewater State Revolving Fund (SRF). Assurances include:

- Section 602(a)-Environmental Reviews
- Section 602(b)(3)-Certify binding commitments within one year
- Section 602(b)(4)-Certify expeditious and timely expenditures
- Section 602(b)(5)-First use for enforceable requirements

The Division of Water Quality will complete reporting requirements through the Office of Water State Revolving Funds (OWSRF) for all binding commitments in the quarter that they are made.

CHAPTER 3. CWSRF Project Funding

Eligible projects to be funded by the SRF include loans closed with remaining draws, authorized loans, and anticipated loans. Loans closed with remaining draws are projects that are currently under construction. Authorized loans are projects that have been authorized by the Utah Water Quality Board and are in the design phase. Anticipated loans are projects that are in the beginning stages of planning.

Funding through the SRF can include federal dollars from the capitalization grant awards, principal repayments, interest payments, and investment fund interest earnings. Table 2 shows the projects that are expected to be funded from the Clean Water SRF. Projects must meet specific programmatic requirements including federal cross cutters and “super cross-cutters,” Davis-Bacon wages, American Iron and Steel (AIS), NEPA-like environmental review, Single Audit Act, Disadvantaged Business Enterprise (DBE), and Architectural and Engineering Services procurement.

The Bipartisan Infrastructure Law includes the Build America, Buy America Act (BABA) requirements which places additional requirements on the CWSRF Program. The United States must make significant investments to install, upgrade, or replace the public works infrastructure of the United States; with respect to investments in the infrastructure of the United States, taxpayers expect that their public works infrastructure will be produced in the United States by American workers. These new BABA requirements have been placed federal equivalency infrastructure projects.

As determined by the Utah Water Quality Board, SRF loan recipients may be charged a hardship grant assessment in lieu of interest. Upon collection, the hardship grant assessment will be placed into the Federal Hardship Grant Fund. If a hardship grant assessment is derived from a loan funded directly by EPA Capitalization Grant monies, the assessment shall be used for purposes identified in 40 CFR Part 31.25. If a hardship grant assessment is derived from a loan funded by SRF loan repayments, the assessment may be used to provide grants to communities for projects that are economically unfeasible without grant assistance.

3.1 Long Term Goals

1. Provide a permanent funding source for water quality construction projects that supplements a community’s own resources and/or other funding sources.
2. Distribute SRF funds to projects with the highest water quality and infrastructure needs by evaluating and prioritizing proposed projects throughout the state.
3. Support EPA’s Sustainability Policy by balancing a community’s economic and water quality needs with the perpetuity of the SRF program.
4. Assist communities with all phases of a project, including sufficient planning, project design, environmental work, and construction.

3.2 Short Term Goals

1. Present eligible projects to the Water Quality Board for authorization and assist communities through the application and award process.
2. Collaborate with other agencies (e.g., Utah Permanent Community Impact Board, U.S. Department of Agriculture Rural Development, and U.S. Army Corps of Engineers) to sufficiently fund projects.
3. Solicit and fund eligible nonpoint source, storm water, and emerging contaminants projects.
4. Provide funding, equal to at least ten percent (10%) of the capitalization award, for energy efficiency and recycled water and water reuse projects to the extent such projects exist.
5. Increasing the profile of the SRF program as a potential funding source for low income and rural Utah communities.

TABLE 2 – LIST OF FY23 SRF PROJECTS

| Type | PERMIT NUMBER | NEEDS CATEGORY | ASSISTANCE AMOUNT | FUNDING TYPE | INTEREST RATE | TERM (YRS) | EQUIVALENCY | ADDITIONAL SUBSIDY AMOUNT | GREEN PROJECT RESERVE AMOUNT | BINDING COMMITMENT / CONSTRUCTION START | INITIATION OF OPERATION |
|----------------------------------|---------------|-------------------------|-------------------|------------------------------|---------------|------------|-------------|---------------------------|------------------------------|---|-------------------------|
| 1st Round: Base Program | | | | | | | | | | | |
| Moab City | UT0020419 | I Secondary Treatment | \$14,200,000 | 1st Round | 1.15% | 20 | Yes | | \$502,937 | 17-Apr | 19-Nov |
| 2nd Round: Revolved Funds | | | | | | | | | | | |
| Millville City | UT0023205 | IV-A New Collectors | \$1,261,000 | 2nd Round | 0% | 30 | No | \$3,750,000 | | 20-Mar | 20-Dec |
| Millville City | UT0023205 | IV-A New Collectors | \$5,200,000 | 2nd Round | 0% | 30 | No | \$4,500,000 | | 20-Mar | 25-Nov |
| Mountain Green | UT0024732 | I Secondary Treatment | \$7,000,000 | 2nd Round | 1.30% | 30 | No | | | 22-Jan | 24-Jan |
| General Supplemental | | | | | | | | | | | |
| Hanksville | UTOP00119 | I Secondary Treatment | \$0 | General Supplemental | | | Yes | \$1,694,600 | | TBD | TBD |
| Combined Funding Sources | | | | | | | | | | | |
| Central Valley WRF | UT0024392 | I-Secondary Treatment | \$65,100,000 | 1st & 2nd Round | 1.50% | 20 | Yes | | | 18-Dec | 24-Dec |
| Grantsville | UT0021130 | II Advanced Treatment | \$26,000,000 | 1st & 2nd Round General Supp | | | TBD | | | TBD | TBD |
| Green River City | UT0025771 | I Secondary Treatment | \$5,000,000 | 1st & 2nd Round General Supp | | | TBD | | | TBD | TBD |
| Lewiston | UT0020214 | III-B Sewer Replacement | \$400,000 | 1st & 2nd Round General Supp | 0% | 30 | Yes | \$1,000,000 | | | |
| Long Valley SID | UTOP00211 | III-B Sewer Replacement | \$1,470,000 | 1st & 2nd Round General Supp | 1.50% | 20 | Yes | | | | |
| North Logan | UT002199920 | III-B Sewer Replacement | \$3,500,000 | 1st & 2nd Round General Supp | 2% | 30 | Yes | | | | |
| Payson City | UT0020427 | I-Secondary Treatment | \$13,500,000 | 1st & 2nd Round General Supp | 0.50% | 20 | Yes | \$1,000,000 | Being Assessed | 22-Feb | 25-Jan |

| Type | PERMIT NUMBER | NEEDS CATEGORY | ASSISTANCE AMOUNT | FUNDING TYPE | INTEREST RATE | TERM (YRS) | EQUIVALENCY | ADDITIONAL SUBSIDY AMOUNT (Principal Forgiveness) | GREEN PROJECT RESERVE AMOUNT | BINDING COMMITMENT / CONSTRUCTION START | INITIATION OF OPERATION |
|---|---------------|-----------------------------------|----------------------|------------------------------|---------------|------------|-------------|---|------------------------------|---|-------------------------|
| Combined Funding (cont.) | | | | | | | | | | | |
| Provo City | UT0021717 | II- Advanced Treatment | \$85,800,000 | 1st & 2nd Round General Supp | 0.50% | 20 | Yes | \$7,000,000 | \$19,633,000 | 18-Dec | 25-Jan |
| South Davis Sewer Dist | UT0021628 | I-Secondary Treatment | \$47,000,000 | 1st & 2nd Round General Supp | | | TBD | | | | |
| South Salt Lake City | See CVWRF | I-Secondary Treatment | \$2,413,000 | 1st Round & General Supp | 0% | 20 | Yes | \$3,760,000 | | 18-Dec | 24-Dec |
| Sewer Overflow and Stormwater Reuse Municipal Grants Program | | | | | | | | | | | |
| Vitro Ditch | MS4 | VI-B Green Infrastructure | \$2,600,000 | OSG | | | TBD | | | TBD | TBD |
| Herriman City | MS4 | VI-B Green Infrastructure | \$54,960 | OSG | | | Yes | | | TBD | TBD |
| Herriman City | MS4 | VI-B Green Infrastructure | \$11,640 | OSG | | | Yes | | | TBD | TBD |
| Herriman City | MS4 | VI-B Green Infrastructure | \$27,200 | OSG | | | TBD | | | TBD | TBD |
| Herriman City | MS4 | VI-B Green Infrastructure | \$47,770 | OSG | | | Yes | | | TBD | TBD |
| Herriman City | MS4 | VI-B Green Infrastructure | \$173,500 | OSG | | | TBD | | | TBD | TBD |
| Ogden City | MS4 | VI-B Green Infrastructure | \$140,000 | OSG | | | Yes | | | TBD | TBD |
| Washington Terrace | MS4 | VI-B Green Infrastructure | \$82,230 | OSG | | | Yes | | | TBD | TBD |
| Weber State University MS4 | MS4 | VI-A. Gray Infrastructure | \$1,400,000 | OSG | | | TBD | | | TBD | TBD |
| Emerging Contaminants | | | | | | | | | | | |
| Snyderville Basin SID | UT0020001 | II. Advanced Wastewater Treatment | \$1,700,000 | Emerging Contaminants | | | Yes | \$1,600,000 | | | 2023-2026 |
| TOTAL | | | \$284,081,300 | | | | | \$24,304,600 | \$20,135,937 | | |

CHAPTER 4. Sewer Overflow and Stormwater Reuse Municipal Grants Program

The Utah Sewer Overflow and Stormwater Reuse Municipal Grants (OSG) Program is a federal program designed to provide funds for infrastructure needs to address combined sewer overflows, sanitary sewer overflows (SSO), and stormwater management. The OSG program has been authorized as grants for the design and construction of green infrastructure stormwater projects. In fall 2022, the Division was awarded \$336,600 in grant funding by EPA which includes \$138,600 from the FFY20 and \$198,000 from the FFY21.

The 2022 OSG program prioritized rural and distressed communities and required these communities to bring a 0% local “non-Federal” cost-share for funding match required by the EPA. For urban and un-distressed communities, the program requires 40% of local funds to projects to meet the 20% “non-Federal”. In addition, 15% of the funds are required to go to rural communities and 10% of the funds must go to distressed communities. For the OSG program, rural is defined as communities under 10,000 in population and distressed is defined as a community with sewer rates exceeding 1.4% of the modified median adjusted gross household income (MAGI). The Board authorized \$56,000 in Hardship Grant Funds to meet the non-federal match requirements for the rural and distressed communities to meet their funding packages 20% match.

Please refer to Tables 3a and 3b for a list of projects to be funded from the OSG program.

TABLE 3a – LIST OF FUNDED PROJECTS

| FUNDING RECIPIENT | DISTRESSED/ RURAL | ASSISTANCE AMOUNT | HARDSHIP GRANT | REQUIRED LOCAL COST SHARE | BINDING COMMITMENT/ CONSTRUCTION START | CONSTRUCTION END |
|---|----------------------|----------------------|-------------------|------------------------------|---|-----------------------|
| AUTHORIZED LOANS | | | | | | |
| Herriman City - Autumn Detention Pond Retrofit | No/No | \$54,960 | | 36,640 | TBD | No later than 24- Nov |
| Herriman City - Butterfield Detention Pond Retrofit | No/No | \$11,640 | | \$7,760 | TBD | No later than 24- Nov |
| Herriman City - City Hall Parking Lot Stormwater Retrofit | No/No | \$47,770 | | \$19,508 | TBD | No later than 24- Nov |
| Ogden City - 3300 South 1325 West | Yes/No | \$140,000 | \$35,000 | | TBD | No later than 24- Nov |
| Washington Terrace Bioswale at Rohmer Park | No/Yes | \$103,230 | \$21,000 | | TBD | No later than 24- Nov |

TABLE 3b – LIST OF OSG POTENTIAL FUTURE PROJECTS

| COMMUNITY | PROJECT | PROJECT COST |
|----------------------------|---|--------------------|
| Herriman City | Main St Parking Lot Retrofit | \$27,200 |
| Herriman City | Butterfield Park and Public Works Yard Storm Drain Retrofit | \$173,500 |
| South Salt Lake City | Vitro Ditch | \$2,600,000 |
| Weber State University MS4 | Lindquist Retention Pond Renovation | \$1,400,000 |
| | Totals | \$4,173,500 |

CHAPTER 5. Utah Wastewater Loan Program

The Utah Wastewater Loan program is a state-funded loan program similar to the SRF. Revenue for the Utah Wastewater Loan program is derived from sales tax dollars and principal repayments. Monies may be authorized in the form of loans or interest-rate buydowns.

Projects eligible for funding through the Utah Wastewater Loan program have been divided into three categories: closed loans with remaining draws, authorized loans, and anticipated loans. Closed loans with remaining draws are projects that have held loan closing and are currently under construction. Authorized loans are those projects which have received authorization from the Utah Water Quality Board but have not yet held loan closing and are still in the planning or design phase. Anticipated loans are those projects that may be presented to the Utah Quality Board for authorization in the next fiscal year.

Please refer to Table 4 for a list of projects to be funded from the Utah Wastewater Loan Fund.

TABLE 4 – LIST OF FY23 UTAH WASTEWATER LOAN PROGRAM PROJECTS

| LOAN RECIPIENT | ASSISTANCE AMOUNT | INTEREST RATE | TERM (YEARS) | BINDING COMMITMENT | CONSTRUCTION START | CONSTRUCTION END |
|---|-------------------|---------------|--------------|--------------------|--------------------|------------------|
| LOAN CLOSED WITH REMAINING DRAWS | | | | | | |
| South Salt Lake | \$7,867,000 | 0% | 20 | 18-Dec | 20-Feb | 24-Jun |
| AUTHORIZED LOANS | | | | | | |
| Grantsville | \$1,000,000 | 0% | 20 | TBD | TBD | TBD |
| Hanksville | \$350,000 | 0% | 30 | TBD | TBD | TBD |
| Kane County | \$310,000 | 0% | 30 | TBD | TBD | TBD |
| Lewiston | \$400,000 | 0% | 20 | TBD | TBD | TBD |
| Spanish Fork City | \$4,500,000 | 1.12 | 20 | TBD | TBD | 24-Dec |
| ANTICIPATED LOANS | | | | | | |
| N/A | | | | | | |
| TOTAL \$14,427,000 | | | | | | |

CHAPTER 6. Hardship Grant Funds

The State of Utah provides hardship grants for several types of projects. First, hardship grant funds may be authorized as planning advances or grants and design advances or grants. Advances are repaid once construction funding has been secured through a loan closing. Second, funds may be awarded as hardship construction grants to entities that may not otherwise be able to afford to complete an eligible project. The Water Quality Board may consider authorizing a hardship grant when the estimated annual cost of sewer service exceeds 1.4% of the local MAGI. Third, hardship grants may be awarded for water quality improvement projects such as non-point source, water quality studies, and educational outreach efforts. Projects eligible for Hardship Grant Funds may be added to the list once authorization has been received from the Board.

Please refer to Table 5 for a list of projects to be funded from the Hardship Grant Funds.

TABLE 5 – LIST OF FY23 HARDSHIP GRANT FUND PROJECTS

| Recipient | Assistance Amount/Balance | Type |
|--|---------------------------|---------------------------|
| HARDSHIP GRANTS | | |
| Big Water | \$52,500 | Planning Advance Grant |
| Davis County Health Department | \$105,313 | Planning Grant |
| Delta City | \$200,000 | Short Term Design Loan |
| Delta City | \$200,000 | Design Grant |
| Dutch John (Daggett County) | \$60,000 | Hardship Grant Loan |
| Dutch John (Daggett County) | \$95,000 | Planning Grant |
| Grantsville City | \$300,000 | Design Advance |
| Hanksville | \$47,400 | Design Advance |
| Hinckley Town | \$15,000 | Planning Advance |
| Kanab City | \$29,800 | Planning Advance |
| Kane County Water Conservancy District | \$200,000 | Hardship Grant |
| Lewiston City | \$274,000 | Design/Construction Grant |
| Long Valley Sewer Improvement District | \$84,300 | Design Advance |
| Millville City | \$1,000,000 | Design/Construction Grant |
| Spanish Fork | \$500,000 | Construction Grant |
| Spring City | \$289,000 | Design Advance |
| Town of Elwood | \$18,200 | Planning Advance Grant |
| Town of Stockton | \$20,000 | Planning Grant |
| NON-POINT SOURCE GRANTS | | |
| Utah Department of Agriculture | \$172,270 | NPS Grant |
| DEQ - Ammonia Criteria Study | \$27,242 | NPS Grant |
| DEQ - Utah Lake Water Quality Study | \$348,301 | NPS Grant |
| USU - Historic Trophic State/Nutrient Concentrations Paleo | \$25,141 | NPS Grant |
| FY18 – FY23 Remaining Payments | \$1,796,670 | Various NPS Grants |
| FY24 – New Projects | \$1,000,000 | Various NPS Grants |
| TOTAL | \$6,860,137 | |

CHAPTER 7. Payment Schedule

Utah's CWSRF has met "first use" requirements of Section 602(b) (5). CWSRF funds will be distributed using the method, criteria, and eligible activities that are outlined in Section R-317-101 and 102 of the Utah Administrative Code. The methods and criteria provide affordable assistance as well as maximum benefit to the long-term viability of the fund. If the dollar amount of projects in the FY23 Intended Use Plan exceeds the actual amount of funds available during the planning period, one of the following may occur:

- Projects listed may not be funded.
- Projects may be funded using available credit enhancement techniques.
- Projects may need to be delayed until funds are available.

Please see the CASH FLOW PROJECTIONS for the detail of revenue and expenses for the State Revolving Fund, Utah Wastewater Loan Fund, and Hardship Grant Funds.

7.1 Cash Flow Projections – State Revolving Fund

TABLE 6 – FY23 STATE REVOLVING FUND

| STATE REVOLVING FUND (SRF) | | | |
|--|-----------------------|-----------------------|-----------------------|
| Funds Available | 2023 | 2024 | 2025 |
| Capitalization Grants Awards (FFY22) | \$ 15,474,000 | - | - |
| State Match (FFY22) | \$ 2,157,000 | - | - |
| Future Capitalization Grants (estimated) | - | \$14,935,000 | \$11,234,025 |
| Future State Match (estimated) | - | \$1,888,700 | \$2,246,805 |
| SRF - 2nd Round | \$ 14,507,998 | (\$7,777,840) | (\$7,668,982) |
| Interest Earnings at 0.4676% | \$ 67,946 | - | - |
| Loan Repayments (5255) | - | \$20,400,748 | \$20,164,590 |
| Total Funds Available | \$ 32,206,944 | \$29,446,608 | \$25,976,438 |
| Project Obligations | | | |
| Millville City | (\$5,146,000) | - | - |
| Moab City | (\$80,000) | - | - |
| Mountain Green | (\$5,449,000) | (\$1,500,000) | - |
| Payson City | (\$1,925,000) | (\$11,500,000) | - |
| Provo City | (\$9,073,002) | (\$6,800,000) | - |
| Provo City | - | (\$9,864,000) | - |
| South Salt Lake City (A) | (\$524,000) | - | - |
| Loan Authorizations | | | |
| Millville City Refinance Loan | (\$1,261,000) | - | - |
| Long Valley | (\$1,250,000) | - | - |
| North Logan | (\$3,500,000) | - | - |
| South Davis Sewer District (with NPS) | - | - | (\$14,176,000) |
| Total Obligations | (\$28,208,002) | (\$29,664,000) | (\$14,176,000) |
| SRF Unobligated Funds | \$3,998,942 | (\$217,392) | \$11,800,438 |

7.2 Cash Flow Projections – Utah Wastewater Loan Fund

TABLE 7 – FY23 UTAH WASTEWATER LOAN FUND

| UTAH WASTEWATER LOAN FUND (UWLF) | | | |
|------------------------------------|----------------|---------------|---------------|
| Funds Available | 2023 | 2024 | 2025 |
| UWLF | \$29,078,176 | \$13,843,526 | \$15,949,117 |
| Sales Tax Revenue | - | \$3,587,500 | \$3,587,500 |
| Loan Repayments (5260) | - | \$2,473,791 | \$2,808,235 |
| Total Funds Available | \$29,078,176 | \$19,904,817 | \$22,344,852 |
| General Obligations | | | |
| State Match Transfers | (\$2,157,000) | (\$2,257,100) | (\$2,615,205) |
| DWQ Administrative Expenses | (\$424,650) | (\$1,698,600) | (\$1,698,600) |
| Project Obligations | | | |
| South Salt Lake City (B) | (\$4,891,000) | - | - |
| South Salt Lake City (C) | (\$982,000) | - | - |
| Loan Authorizations | | | |
| Grantsville | (\$1,000,000) | - | - |
| Hanksville | (\$350,000) | - | - |
| Kane County | (\$310,000) | - | - |
| Lewiston | (\$400,000) | - | - |
| Long Valley | (\$220,000) | - | - |
| Spanish Fork | (\$4,500,000) | - | - |
| Total Obligations | (\$15,234,650) | (\$3,955,700) | (\$4,313,805) |
| UWLF Unobligated Funds | \$13,843,526 | \$15,949,117 | \$18,031,047 |

7.3 Cash Flow Projections – Hardship Grant Funds

TABLE 8 – FY23 HARDSHIP GRANT FUND

| HARDSHIP GRANT FUNDS (HGF) | | | |
|--|--------------------|--------------------|--------------------|
| Funds Available | 2023 | 2024 | 2025 |
| Beginning Balance | - | \$1,082,076 | \$1,420,272 |
| Federal HGF Beginning Balance (5250) | - | - | - |
| State HGF Beginning Balance (5265) | \$3,280,059 | - | - |
| Interest Earnings at 5.0620% | \$3,863,210 | \$5,195 | \$6,818 |
| UWLF Interest Earnings at 5.0620% | \$30,133 | \$66,460 | \$76,569 |
| Hardship Grant Assessments (5255) | \$122,661 | \$969,300 | \$892,769 |
| Interest Payments - (5260) | - | \$297,241 | \$275,471 |
| Total Funds Available | \$7,296,063 | \$2,420,272 | \$2,671,899 |
| Financial Assistance Project Obligations | | | |
| Big Water-Planning Grant | (\$52,500) | - | - |
| Delta - Design Grant | (\$200,000) | - | - |
| Delta - Short Term Loan | (\$200,000) | - | - |
| Dutch John (Daggett County) - Planning | (\$95,000) | - | - |
| Dutch John (Daggett County) - HGF Loan | (\$60,000) | - | - |
| Eagle Mountain City - Construction Grant | (\$510,000) | - | - |
| Elwood - Planning | (\$18,200) | - | - |
| Hanksville - Design | (\$47,400) | - | - |
| Hinckley Hardship Planning Grant | (\$15,000) | - | - |
| Kanab City Planning Advance | (\$29,800) | - | - |
| Long Valley - Design | (\$103,700) | - | - |
| Millville City - Construction | (\$1,000,000) | - | - |
| Spanish Fork – Hardship Grant | (\$500,000) | - | - |
| Stockton - Planning | (\$20,000) | - | - |
| Hardship Grant Authorizations | | | |
| Grantsville - Design Advance | (\$300,000) | - | - |
| Kane County - Hardship Grant | (\$200,000) | - | - |
| Spring City - Design Advance | (\$289,000) | - | - |
| Non-Point Source/Hardship Grant Obligations | | | |
| McKees ARDL interest-rate buy down | (\$55,261) | - | - |
| Munk Dairy ARDL interest-rate buy down | (\$16,017) | - | - |
| (FY12) Utah Department of Agriculture | (\$172,270) | - | - |
| (FY15) DEQ - Ammonia Criteria Study | (\$27,242) | - | - |
| (FY17) DEQ - Utah Lake Water Quality Study | (\$348,301) | - | - |
| (FY23) DEQ Davis County Health Department | (\$105,313) | - | - |
| USU - Historic Trophic State/Nutrient Concentrations Paleo | (\$25,141) | - | - |

| | | | |
|--------------------------------------|---------------|---------------|---------------|
| FY 2018 - Remaining Payments | (\$7,100) | - | - |
| FY 2019 - Remaining Payments | (\$88,688) | - | - |
| FY 2020 - Remaining Payments | (\$173,111) | - | - |
| FY 2021 - Remaining Payments | (\$138,044) | - | - |
| FY 2022 - Remaining Payments | (\$621,140) | - | - |
| FY 2023 - Remaining Payments | (\$768,586) | - | - |
| Future NPS Annual Allocations | - | (\$1,000,000) | (\$1,000,000) |
| Total Obligations | (\$6,186,814) | (\$1,000,000) | (\$1,000,000) |
| HGF Unobligated Funds | \$1,109,249 | \$1,420,272 | \$1,671,899 |

CHAPTER 8. Project Priority List (PPL)

State of Utah
Wastewater Project
Assistance Program Project
Priority List
As of August 10, 2022

TABLE 9 – FY23 PROJECT PRIORITY LIST

| Rank | Project Name | Funding Authorized | Total Points | Point Categories | | | |
|------|---|--------------------|--------------|------------------|-----------------------|---------------------|-----------------------|
| | | | | Project Need | Potential Improvement | Population Affected | Special Consideration |
| 1 | South Salt Lake City (CVWRF) | X | 143 | 50 | 23 | 10 | 60 |
| | Central Valley (CVWRF) | R | 143 | 50 | 23 | 10 | 60 |
| 2 | South Davis Sewer District | X | 138 | 50 | 18 | 10 | 60 |
| 3 | Springdale | | 119 | 40 | 18 | 1 | 60 |
| 4 | Spanish Fork Water Reclamation Facility | X | 117 | 50 | 19 | 8 | 40 |
| 5 | North Logan | | 86 | 25 | 14 | 7 | 40 |
| 6 | Hanksville | | 76 | 50 | 5 | 1 | 20 |
| 7 | Lewiston City | R | 66 | 10 | 14 | 2 | 40 |
| 8 | Dutch John (Dagget County) | | 28 | 10 | 17 | 1 | 0 |
| 9 | Delta | | 24 | 0 | 0 | 4 | 20 |
| 10 | Long Valley SID | | 11 | 10 | 0 | 1 | 0 |

X - funding authorized; R - Additional Funding Requested; 0 - Funding Not Yet Authorized



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF WATER QUALITY
John K. Mackey, P.E.
Director

MEMORANDUM

DATE: June 28, 2023
TO: Utah Water Quality Board
THROUGH: John K. Mackey, Director
FROM: Robert Beers, Onsite Wastewater Program
SUBJECT: Final Report for Northwest Davis County Groundwater Study

The Utah Water Quality Board (Board) awarded a hardship planning grant to Davis County on June 22, 2022. This grant was awarded to assist Davis County in completing a hydrogeologic / water quality study to assess the impacts of growth and land use transition in Northwest Davis County on groundwater quality. The Davis County Health Department and their engineering consultant, SWCA Environmental Consultants, have completed the study and have provided DWQ with a copy of a summary of the final report (attached.) The study is also summarized on the Web site: <https://gisportal-pro.daviscountyutah.gov/portal/apps/storymaps/stories/26a067a47cf84737b7703668a68f0987> Davis County Health Department and SWCA representatives will provide a brief presentation of their work and findings from the study and answer any questions from Board Members.

No recommendation is offered and no Board action is required.

DWQ-2023-008159

File: P:\WQ\DWQDatabases\OnsiteWastewater\Davis County HD\WQ Study Grant



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Water Quality Board
Vacant, Chair
James Webb, Vice Chair
Carly Castle
Michela Harris
Joseph Havasi
Trevor Heaton
Kimberly D. Shelley
John K. Mackey

MEMORANDUM

TO: Utah Water Quality Board

THROUGH: John Mackey, P.E. Director

FROM: Robert Beers, Onsite Wastewater Program

DATE: June 28, 2023

SUBJECT: Request for adoption of Amended Utah Administrative Code, Rule 317-4. Onsite Wastewater Systems.

The purpose of this memorandum is to request adoption of Utah Administrative Code Rule 317-4 by the Utah Water Quality Board (Board). This rule has been amended at the request of the Local Health Departments (LHDs), which administer Rule *R317-4. Onsite Wastewater Systems* throughout the State, in conjunction with the Division of Water Quality (Division). The Division has amended R317-4 to include additions related to membrane bioreactors (MBR), as a class of alternative wastewater systems not in the previous version of the Rule. The amendment also includes revisions as recommended by the Utah Office of Administrative Rules and as listed in the *Rulewriting Manual for Utah, 12th Edition*.

MBR systems treat wastewater differently than alternative methods allowed in previous version of the Rule and have been installed in other states for many years. Two systems from one vendor have been permitted by the Summit County Health Department as experimental systems and have been installed and operating successfully in Summit County since June 2021. The amended rule will allow LHDs to permit these systems as alternative onsite wastewater systems under their existing onsite programs, without additional program management costs. The proper installation and operation of MBR onsite wastewater systems is expected to produce effluent with reduced contaminants and reduced impacts on groundwater quality. The amended Rule also lists design criteria, installation specifications, operating parameters, and monitoring requirements. The rule was first presented to the Board for approval to initiate rulemaking on March 22, 2023 and changes to the rule have been made since that time. Attachment 1 is the amended rule for Board approval.

The amended rule was revised to correct word usage, grammar, and punctuation errors following a review by the Utah Office of Administrative Rules, Utah Attorney General's Office, and the Utah Governor's Office. In addition, the amended rule has been reviewed by the Utah State University Onsite Wastewater Treatment Training Program. The amended rule was published in the Utah State Bulletin on May 15, 2023 with a public comment period from May 15 through June 15, 2023. Sixteen public comments were received and Division staff have prepared responses. Attachment 2 lists all submitted comments and Division responses to the amended rule.

Staff recommends the Board adopt the amended *R317-4. Onsite Wastewater Systems* effective June 28, 2023 as listed in Volume 10 of the *Utah State Bulletin* (May 15, 2023.)

DWQ-2023-118198

File: P:\WQ\DWQDatabases\OnsiteWastewater\Rulemaking\R317-4

Attachment 1

State of Utah
Administrative Rule Analysis
Revised June 2022

| NOTICE OF PROPOSED RULE | | |
|--|--------|------------------|
| TYPE OF RULE: New ___; Amendment <u>X</u> ; Repeal ___; Repeal and Reenact ___ | | |
| Title No. - Rule No. - Section No. | | |
| Rule or Section Number: | R317-4 | Filing ID: 55391 |

Agency Information

| | | |
|--|------------------------------------|-----------------|
| 1. Department: | Environmental Quality | |
| Agency: | Water Quality | |
| Room number: | DEQ, Third Floor | |
| Building: | Multi Agency State Office Building | |
| Street address: | 195 N. 1950 W. | |
| City, state and zip: | Salt Lake City | |
| Mailing address: | PO Box 144870 | |
| City, state and zip: | Salt Lake City, Utah 84114 | |
| Contact persons: | | |
| Name: | Phone: | Email: |
| Robert Beers | 385-501-9580 | rbeers@utah.gov |
| Please address questions regarding information on this notice to the agency. | | |

General Information

| | | |
|---|--|--|
| 2. Rule or section catchline: | R317-4. Onsite Wastewater Systems | |
| 3. Purpose of the new rule or reason for the change (Why is the agency submitting this filing?): | The purpose of the amendment is to incorporate up-to-date industry equipment, standards, and practices not previously addressed. | |
| 4. Summary of the new rule or change (What does this filing do? If this is a repeal and reenact, explain the substantive differences between the repealed rule and the reenacted rule): | This filing adds requirements that allow membrane bioreactor alternative onsite wastewater systems. It would also add definitions and sections for design, installation, construction, operation, and maintenance of membrane bioreactor alternative onsite wastewater systems. The rule is also revised for added compliance with Office of Administrative Rules' "Rulewriting Manual." | |

Fiscal Information

| | | |
|---|---|--|
| 5. Provide an estimate and written explanation of the aggregate anticipated cost or savings to: | A) State budget: | |
| | The amended rule does not require construction or installation of any onsite wastewater system. Installation or construction of any onsite wastewater system at any state facilities is optional. Costs to the state would be subject to local health department rules, ordinances, and fees for permitting and initial installation costs only for facilities where any onsite wastewater system may be installed. Such costs are inestimable, but vary by the size of the onsite wastewater system to be installed and the installation equipment selected for use. Ongoing maintenance costs are anticipated to be an insignificant addition to typical onsite system maintenance costs. | |
| | A benefit to the state may be realized through improved groundwater quality due to increased use of alternative onsite wastewater technology. Such savings will vary by the volume of water treated by the alternative onsite system. | |

B) Local governments:

Costs are inestimable as all local health departments are required to have alternative onsite wastewater system programs. Local health departments can choose to approve or disallow any new alternative onsite wastewater system technology.

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

Costs to small businesses are subject to local health department rules, ordinances, and fees for permitting and initial installation costs only for businesses that choose to install onsite wastewater systems. Such costs are inestimable, but will vary by the size and type of the onsite wastewater systems to be installed. Ongoing maintenance costs for new technology included in the amended rule are not anticipated to be significantly different in comparison to ongoing maintenance costs for other alternative onsite wastewater systems.

Savings to small businesses may be realized through the increased use of treated wastewater used for subsurface landscape irrigation. This could result in reduced charges for landscape watering by local utilities. Such savings will vary by the volume of water treated by alternative onsite wastewater systems.

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

Costs to non-small businesses are subject to local health department rules, ordinances, and fees for permitting and initial installation costs only for entities that choose to install onsite wastewater systems. Such costs are inestimable, but will vary by the size and type of the onsite wastewater systems to be installed. Ongoing maintenance costs for new technology included in the amended rule are not anticipated to be significantly different in comparison to ongoing maintenance costs for other alternative onsite wastewater systems.

Savings to small businesses may be realized through the increased use of treated wastewater used for subsurface landscape irrigation. This could result in reduced charges for landscape watering by local utilities. Such savings will vary by the volume of water treated by alternative onsite wastewater systems.

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

Costs for residential property owners are subject to local health department rules, ordinances, and fees for permitting and initial installation costs only when they choose to install onsite wastewater systems. Such costs are inestimable, but will vary by the size and type of the onsite wastewater systems to be installed. Ongoing maintenance costs for new technology included in the amended rule are not anticipated to be significantly different in comparison to ongoing maintenance costs for other alternative onsite wastewater systems.

Savings to residential property owners may be realized through the increased use of treated wastewater used for subsurface landscape irrigation. This could result in reduced charges for landscape watering by local utilities. Such savings will vary by the volume of water treated by alternative onsite wastewater systems.

F) Compliance costs for affected persons (How much will it cost an impacted entity to adhere to this rule or its changes?):

Costs for business or residential property owners are subject to local health department rules, ordinances, and fees for permitting and initial installation costs only when they choose to install onsite wastewater systems. Such costs are inestimable, but will vary by the size and type of the onsite wastewater systems to be installed. Ongoing maintenance costs for new technology included in the amended rule are not anticipated to be significantly different in comparison to ongoing maintenance costs for other alternative onsite wastewater systems.

Savings to business, or residential property owners may be realized through the increased use of treated wastewater used for subsurface landscape irrigation. This could result in reduced charges for landscape watering by local utilities. Such savings will vary by the volume of water treated by alternative onsite wastewater systems.

G) Regulatory Impact Summary Table (This table only includes fiscal impacts that could be measured. If there are inestimable fiscal impacts, they will not be included in this table. Inestimable impacts will be included in narratives above.)

| Regulatory Impact Table | | | |
|-------------------------|--------|--------|--------|
| Fiscal Cost | FY2023 | FY2024 | FY2025 |
| State Government | \$0 | \$0 | \$0 |

| | | | |
|------------------------------|---------------|---------------|---------------|
| Local Governments | \$0 | \$0 | \$0 |
| Small Businesses | \$0 | \$0 | \$0 |
| Non-Small Businesses | \$0 | \$0 | \$0 |
| Other Persons | \$0 | \$0 | \$0 |
| Total Fiscal Cost | \$0 | \$0 | \$0 |
| Fiscal Benefits | FY2023 | FY2024 | FY2025 |
| State Government | \$0 | \$0 | \$0 |
| Local Governments | \$0 | \$0 | \$0 |
| Small Businesses | \$0 | \$0 | \$0 |
| Non-Small Businesses | \$0 | \$0 | \$0 |
| Other Persons | \$0 | \$0 | \$0 |
| Total Fiscal Benefits | \$0 | \$0 | \$0 |
| Net Fiscal Benefits | \$0 | \$0 | \$0 |

H) Department head comments on fiscal impact and approval of regulatory impact analysis:
 The Executive Director of the Department of Environmental Quality, Kimberly D. Shelley, has reviewed and approved this fiscal analysis.

Citation Information

6. Provide citations to the statutory authority for the rule. If there is also a federal requirement for the rule, provide a citation to that requirement:
 Title 19, Chapter 5

Public Notice Information

8. The public may submit written or oral comments to the agency identified in box 1. (The public may also request a hearing by submitting a written request to the agency. See Section 63G-3-302 and Rule R15-1 for more information.)
A) Comments will be accepted until: 06/15/2023

9. This rule change MAY become effective on: 06/29/2023
 NOTE: The date above is the date the agency anticipates making the rule or its changes effective. It is NOT the effective date.

Agency Authorization Information

To the agency: Information requested on this form is required by Sections 63G-3-301, 302, 303, and 402. Incomplete forms will be returned to the agency for completion, possibly delaying publication in the *Utah State Bulletin* and delaying the first possible effective date.
Agency head or designee and title: John K. Mackey, Division Director **Date:** 05/01/2023

1.0

R317. Environmental Quality, Water Quality.

R317-4. Onsite Wastewater Systems.

R317-4-1. Authority, Purpose, Scope, and Administrative Requirements.

~~(1) [1.1. Authorization.~~
 _____] This[ese] rule[s are] is[is] ~~administered by the division~~ authorized by Title 19, Chapter 5, Water Quality Act.

~~(2) [1.2. Purpose.~~
 _____] The purpose of this rule is to protect the public health and environment from potential adverse effects from onsite wastewater disposal within the boundaries of Utah.

~~(3) [1.3. Scope.~~
 _____] This rule shall apply to any onsite wastewater system[s].

~~(4) [1.4. Jurisdiction.~~
 _____] Local health departments have jurisdiction to administer this rule. Nothing contained in this rule shall be construed to prevent local health departments from:

~~(a) [A.]~~ adopting stricter requirements than those contained ~~herein~~ in this rule;

- (b) ~~B-~~ issuing an operating permit, with a term not exceeding five years, with an inspection showing a satisfactory performance of the permitted system by the department's staff before renewal;
- (c) ~~C-~~ taking necessary steps for ground water quality protection:
 - (i) ~~1-~~ through adoption of a ground water quality protection management policy based on a ground water management study; or
 - (ii) ~~2-~~ by an onsite wastewater systems management planning policy and land use planning through the county's agency;
- (d) ~~D-~~ prohibiting any alternative system within its jurisdiction;
- (e) ~~E-~~ assessing administrative fees ~~for administration of this rule~~;
- (f) ~~F-~~ requiring ~~the~~ any onsite system[s] within its jurisdiction to be ~~placed under an umbrella of~~ managed by a:
 - (i) ~~1-~~ responsible management entity overseen by the local health department;
 - (ii) ~~2-~~ contract service provider overseen by the local health department; or
 - (iii) ~~3-~~ management district body politic created by the county for ~~the purpose of~~ operating ~~on~~, maintaining ~~enancee~~, repairing ~~s~~ and monitoring ~~of~~ alternative or all onsite wastewater systems;
- (g) ~~G-~~ requiring any conventional and alternative system[s] to be serviced; ~~and~~ or
- (h) ~~H-~~ receiving a request for a variance, conducting a review, and granting either an approval or denial.

~~(5) 1.5. Alternative System Administration.~~

- ~~_____~~ Local health departments shall administer an alternative onsite wastewater system ~~s~~ program.
- (a) ~~A-~~ ~~The~~ A local ~~board of~~ health department may restrict its administration of ~~these~~ alternative onsite wastewater systems by notifying the division that it is exempt from this requirement by:
 - (i) ~~1-~~ adopting a resolution or regulation; or
 - (ii) ~~2-~~ presenting an ordinance.
- (b) ~~B-~~ An alternative onsite wastewater system ~~s~~ program shall:
 - (i) ~~1-~~ advise the owner of the:
 - (A) ~~a-~~ type of alternative onsite wastewater system;
 - (B) ~~b-~~ information concerning risk of failure;
 - (C) ~~c-~~ level of maintenance required;
 - (D) ~~d-~~ financial liability for repair, modification or replacement of a failed system; and
 - (E) ~~e-~~ periodic monitoring requirements;
 - (ii) ~~2-~~ ensure that a ~~N~~ notice of the existence of the alternative onsite wastewater system is recorded in the chain of title for that property;
 - (iii) ~~3-~~ provide oversight of installed alternative onsite wastewater systems;
 - (iv) ~~4-~~ inspect any ~~H~~ installed alternative onsite wastewater system ~~s~~ at frequency specified in this rule, through:
 - (A) ~~a-~~ the department's staff;
 - (B) ~~b-~~ contracted service providers;
 - (C) ~~c-~~ responsible management entity ~~ies~~; or
 - (D) ~~d-~~ a management district body politic created by the county for ~~the purpose of~~ managing onsite wastewater systems; ~~or~~
- ~~_____~~ e. ~~any combination of the above options;~~

- (v) ~~5-~~ maintain records of all installed alternative onsite wastewater system ~~s~~, failures, modifications, repairs and all inspections, recording the condition of the system at the time of inspection, such as overflow, surfacing, ponding, and nuisance;
- (vi) ~~6-~~ submit an annual report to the division on or before September 1 for the previous ~~state of~~ Utah fiscal year's activities showing:
 - (A) ~~a-~~ the type and number of alternative onsite wastewater systems approved, installed, modified, repaired, failed, and inspected;
 - (B) ~~b-~~ a summary of enforcement actions taken, pending and resolved; and
 - (C) ~~c-~~ a summary of performance of water quality data collected; and
- (vii) ~~7-~~ require any ~~H~~ alternative onsite wastewater system ~~s~~ to be inspected and serviced as detailed in Section R317-4-13 Table 7 and Section R317-4-11.

~~(6) 1.6. Variance Administration Authority.~~

- ~~_____~~ The ~~Water Quality Board~~ division delegates the authority to grant or deny any variance ~~s~~ to the design requirements provided for in this rule to the local health departments. The ~~board~~ division may amend, suspend, or rescind this delegation of authority to a local health department if it ~~is~~ determines ~~d~~ that the local health department is not accepting or conducting onsite wastewater system reviews as described in Section R317-4-12.
 - (a) ~~A-~~ The local health department having jurisdiction shall accept any application ~~s~~ for variance request ~~s~~ on any lot ~~s~~ that ~~are~~ is deemed not feasible for permitting an onsite wastewater system. Upon completion of a review, the local health department ~~will~~ shall grant or deny a variance to this rule as outlined in Section R317-4-12. The local health department also ~~will~~ shall submit an annual report of completed variance determinations to the division.
 - (b) ~~B-~~ If a local health department fails to evaluate any variance request ~~s~~ according to Section R317-4-12, the director shall notify the local health department. The director ~~on behalf of the board~~ may thereafter amend, suspend, or rescind the delegation of variance authority to the local health department. The variance authority would then revert to the division, and any variance request ~~s~~ ~~will~~ shall be reviewed as follows: ~~-~~

(i)[4-] The director may appoint a variance advisory committee to consider variance requests and make recommendations to the director. Any such advisory committee shall include at least one representative from a local health department. The director may refer any variance request to the variance advisory committee.

(ii)[2-] Upon review of the recommendation submitted by the variance advisory committee, the director shall ~~provide~~ provide a written determination of the requested variance. If no committee was appointed by the director, the director shall ~~provide~~ provide a written determination. Written determinations must be given within 180 days of the receipt of a complete and technically adequate variance request.

(iii)[3-] The director's final written determination ~~will~~ shall be forwarded to the local health department that has jurisdiction. The local health department is not required to approve or deny an operating or construction permit based on the director's determination of a variance request.

R317-4-2. Definitions.

(1) "Absorption area" means the entire area used for the subsurface treatment and dispersion of effluent by an absorption system.

(2) "Absorption bed" means an absorption system consisting of large excavated areas utilizing drain media or chambers.

(3) "Absorption system" means a covered system constructed to receive and to disperse effluent, from gravity or a pump, in such a manner that the effluent is effectively filtered and retained below the ground surface.

(4) "Absorption trench" means an absorption system consisting of a series of narrow excavated trenches utilizing drain media, chambers, or bundled synthetic aggregate units.

(5) "Alternative onsite wastewater system" means an onsite wastewater system that is not a conventional onsite wastewater system.

(6) "At-grade system" means an alternative onsite wastewater system where the bottom of the absorption system is placed at or below the elevation of the existing site grade, and the top of the distribution pipe is above the elevation of existing site grade, and the absorption system is contained within fill that extends above that grade.

(7) "Barrier material" means an effective, pervious material such as an acceptable synthetic filter fabric, or a two-inch layer of compacted straw.

(8) "Bedrock" means the rock, usually solid, that underlies soil or other unconsolidated, superficial material.

(9) "Bedroom" means any portion of a dwelling that is so designed as to furnish the minimum isolation necessary for use as a sleeping area. It may include a den, study, sewing room, or sleeping loft. Unfinished basements shall be counted as a minimum of one additional bedroom.

~~(10) ["Board" means the Utah Water Quality 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 other governmental subdivision or public corporation of the state.

(11) "Building sewer" means the pipe that carries wastewater from the building to a public sewer, an onsite wastewater system or other point of dispersal. It is synonymous with "house sewer."[-]

(12) "Bundled synthetic aggregate trench" means an absorption trench utilizing bundled synthetic aggregate units.

(13) "Bundled synthetic aggregate unit" means a cylindrically shaped manufactured unit of synthetic aggregate enclosed in polyolefin netting, which may contain a perforated pipe.

(14) "Chamber" means an open bottom, chambered structure of an approved material and design.

(15) "Chambered trench" means an absorption trench utilizing chambers.

(16) "Cleanout" means a device designed to provide access for removal of deposited or accumulated materials, generally from a pipe.

(17) "Closed loop distribution" means a distribution method where the absorption system layout has the inlet and outlet ends of each lateral connected creating a complete and continuous pathway for effluent flow.

(18) "Coarse drain media" means drain media ranging from 3/4 to 12 inches in diameter.

(19) "Condominium" means the ownership of a single unit in a multi-unit project together with an undivided interest in common, in the common areas and facilities of the property.

(20) "Connecting trench" means an absorption trench that is used to connect other absorption trenches, is less than 20 feet in length, and may be used to calculate total required absorption area.

(21) "Construction permit" means the permit that authorizes an onsite wastewater system to be installed according to an approved design. An additional construction permit may also authorize activities associated with the repair or alteration of a malfunctioning or failing system.

(22) "Conventional onsite wastewater system" means an onsite wastewater system typically consisting of a building sewer, a septic tank, and an absorption system utilizing absorption trenches, absorption beds, deep wall trenches, or seepage pits.

(23) "Cover" means soils used to overlay the absorption area that is free of large stones 10 inches diameter or larger, frozen clumps of earth, masonry, stumps, or waste construction material, or other materials that could damage the system.

(24) "Curtain drain" means any ground water interceptor or drainage system that is backfilled with gravel or other suitable material and is intended to interrupt or divert the course of shallow ground water or surface water away from the onsite wastewater system.

(25) "Designer" means a person who fulfills the requirements of Rule R317-11.

(26) "Deep wall trench" means an absorption system consisting of deep excavated trenches utilizing coarse drain media, with a minimum sidewall absorption depth of 24 inches of suitable soil formation below the distribution pipe.

~~["Director" means the director of the Division of Water Quality or, for purposes of groundwater quality at a facility licensed by and under the Division of Radiation Control, the director of the Division of Radiation Control.~~

~~(27) "Distribution box" means a watertight structure that receives effluent and distributes it concurrently, in essentially equal portions, into two or more pipes leading to an absorption system.~~

(28) "Distribution pipe" means an approved pipe, solid or perforated, used in the dispersion of effluent in an absorption system.

(29) "Diversion valve" means a watertight structure that receives effluent through one inlet and distributes it to two or more outlets, only one of which is used at a time.

~~["Division" means the Utah Division of Water Quality.~~

~~(30) "Domestic wastewater" means a combination of the liquid or water-carried wastes from residences, business buildings, institutions, and other establishments with installed plumbing facilities, excluding non-domestic wastewater. It is synonymous with the term "sewage."[-]~~

(31) "Drain media" means media used in an absorption system. It shall consist of stone, crushed stone, or gravel, ranging from 3/4 to 2-1/2 inches in diameter. It shall be free from fines, dust, sand or organic material and shall be durable and inert so that it ~~will~~ maintain its integrity, will not collapse or disintegrate with time. The maximum fines in the media shall be 2% by weight passing through a US Standard #10 mesh or 2 millimeter sieve. It shall be protected by a barrier material.

(32) "Drainage system" means all the piping within public or private premises that conveys sewage or other liquid wastes to a legal point of treatment and dispersal, but does not include the mains of a public sewer system or a public sewage treatment or disposal plant.

(33) "Drop box" means a watertight structure that receives septic tank effluent and distributes it into one or more distribution pipes, and into an overflow leading to another drop box and absorption system located at a lower elevation.

(34) "Dry wash" means the dry bed of an ephemeral stream that flows only after heavy rains and is often found at the bottom of a canyon.

(35) "Dwelling" means any structure, building, or any portion thereof that is used, intended, or designed to be occupied for human living purposes including houses, mobile homes, hotels, motels, and apartments.

(36) "Effluent" means the liquid discharge from any treatment unit including a septic tank.

(37) "Effluent pump" means a pump used to lift effluent.

(38) "Effluent sewer" means solid pipe that carries effluent to the absorption system.

(39) "Ejector pump" means a device to elevate or pump sewage to a septic tank, public sewer, or other means of disposal.

(40) "Ephemeral stream" means a stream that flows for a ~~small~~ short period ~~of time~~, a week or less, after a precipitation event.

(41) "Excessively permeable soil" means soils having an excessively high permeability, such as cobbles or gravels with little fines and large voids, and having a percolation rate faster than 1 minute per inch.

(42) "Experimental onsite wastewater system" means an onsite wastewater treatment and absorption system that is still in experimental use and requires further testing ~~in order~~ to provide sufficient information to determine its acceptance.

(43) "Filter fabric" means a synthetic, non-degradable woven or spun-bonded sheet material that has adequate tensile strength to prevent ripping during installation and backfilling, adequate permeability to allow free passage of water and gases; and adequate particle retention to prevent downward migration of soil particles into the absorption system. The minimum physical properties for the fabric shall be 4.0 ounces per square yard or equivalent.

(44) "Ground water" means that portion of subsurface water that is in the zone of soil saturation.

(45) "Ground water table" means the surface of a body of unconfined ground water in which the pressure is equal to that of the atmosphere.

(46) "Ground water table, perched" means unconfined ground water separated from an underlying body of ground water by an unsaturated zone. It is underlain by a restrictive strata or impervious layer. Perched ground water may be either permanent, where recharge is frequent enough to maintain a saturated zone above the perching bed, or temporary, where intermittent recharge is not great or frequent enough to prevent the perched water from disappearing from time to time as a result of drainage over the edge of or through the perching bed.

(47) "Gulch" means a small rocky ravine or a narrow gorge, especially one with an ephemeral stream running through it.

(48) "Gully" means a channel or small valley, especially one carved out by persistent heavy rainfall or an ephemeral stream.

(49) "Impervious strata" means a layer that prevents water or root penetration. In addition, it shall be defined as unsuitable soils or soils having a percolation rate slower than 60 minutes per inch for conventional systems.

(50) "Installer" means a qualified person with an appropriate contractor's license and knowledgeable in the installation or repair of an onsite wastewater system or its components.

(51) "Intermittent stream" means a stream that flows for a period longer than an ephemeral stream on a seasonal basis or after a precipitation event.

(52) "Invert" means the lowest portion of the internal cross section of a pipe or fitting.

(53) "Large Underground Wastewater Disposal System" means an onsite wastewater system that is designed to receive wastewater flows that may exceed more than 5,000 gallons per day, and may be designed to serve multiple dwelling units that are owned by separate owners except condominiums. A large underground wastewater disposal system usually consists of a building sewer, a septic tank and an absorption system.

~~(54) "Lateral" means a length of distribution pipe or chambered trenches in the absorption system.[~~

~~_____ "Local health department" means a county or multi-county local health department established under Title 26A.]~~

(55) "Lot" means a portion of a subdivision, or any other parcel of land intended as a unit for transfer of ownership or for development or both and may not include any part of the right-of-way of a street or road.

(56) "Malfunctioning or failing system" means any onsite wastewater system that is not functioning in compliance with the requirements of this regulation and may include:

(a)~~[A-]~~ any absorption system[s] that seeps or flows to the surface of the ground or into waters of the state;

(b)~~[B-]~~ any system[s] that overflows from any of ~~[their]its~~ components;

(c)~~[C-]~~ any system[s] that, due to failure to operate in accordance with ~~[their]its~~ designed operation, causes backflow into any portion of a building drainage system;

(d)~~[D-]~~ any system[s] discharging effluent that does not comply with applicable effluent discharge standards;

(e)~~[E-]~~ any leaking septic tank[s]; or

(f)~~[F-]~~ noncompliance with any standard[s] stipulated on or by the construction permit, operating permit, or both.

(57) "Maximum ground water table" means the highest elevation that the top of the "ground water table" or "ground water table, perched" is expected to reach for any reason over the full operating life of the onsite wastewater system at that site.

~~["May" means discretionary, permissive, or allowed.]~~(58) "Membrane Bioreactor" means an alternative onsite wastewater system that includes both biological processes and mechanical filtration processes to treat septic tank effluent before discharge to an absorption system. A membrane bioreactor unit includes a balance tank, an aeration tank, and a filtration tank. All tanks are interconnected with aeration pumps and recirculation lines.

(59) "Mound system" means an alternative onsite wastewater system where the bottom of the absorption system is placed above the elevation of the original site, and the absorption system is contained in a mounded fill body above that grade.

(60) "Non-closed loop distribution" means a distribution method where the absorption system layout has lateral ends that are not connected.

(61) "Non-domestic effluent" means the liquid discharge from any treatment unit including a septic tank that has a BOD5 equal or greater than 250 mg/L; or TSS equal to or greater than 145 mg/L; or fats, oils, and grease equal to or greater than 25 mg/L.

(62) "Non-domestic wastewater" means process wastewater originating from the manufacture of specific products. Such wastewater is usually more concentrated, more variable in content and rate, and requires more extensive or different treatment than domestic wastewater.

(63) "Non-public water source" means a culinary water source that is not defined as a public water source.

(64) "Non-residential" means a building that produces domestic wastewater, and is not a single[-]-family dwelling.

(65) "Onsite wastewater system" means an underground wastewater dispersal system that is designed for a capacity of 5,000 gallons per day or less, and is not designed to serve multiple dwelling units that are owned by separate owners except condominiums. It usually consists of a building sewer, a septic tank and an absorption system.

(66) "Operating permit" means the permit that authorizes the operation and maintenance of an onsite wastewater system or wastewater holding tank. It may have a fee component that requires periodic renewal.

(67) "Packed bed media system" means an alternative onsite wastewater system that uses natural or synthetic media to treat wastewater. Biological treatment is facilitated via microbial growth on the surface of the media. The system may include a pump tank, a recirculation tank, or both.

(68) "Percolation rate" means the time expressed in minutes per inch required for water to seep into saturated soil at a constant rate during a percolation test.

(69) "Percolation test" means the method used to measure the permeability of the soil by measuring the percolation rate as described in this~~[ese]~~ rule[s]. This is sometimes referred to as a "perc test."~~[.]~~

(70) "Permeability" means the rate at which a soil transmits water when saturated.

~~["Person" means an individual, trust, firm, estate, company, corporation, partnership, association, state, state or federal agency or entity, municipality, commission, or political subdivision of a state as defined in Section 19-1-103.~~

~~"Pollution" means any man-made or man-induced alteration of the chemical, physical, biological, or radiological integrity of any waters of the state, unless the alteration is necessary for public health and safety as defined in Section 19-5-102.~~

~~_____](71) "Pressure distribution" means a method designed to uniformly distribute effluent under pressure within an absorption system.~~

(72) "Public health hazard" means, for ~~[the purpose of]~~ this rule, a condition whereby there are sufficient types and amounts of biological, chemical, or physical agents relating to water or sewage that are likely to cause human illness, disorders or disability. These may include pathogenic viruses and bacteria, parasites, toxic chemicals and radioactive isotopes. A malfunctioning onsite wastewater system constitutes a public health hazard.

(73) "Public water source" means a culinary water source, either publicly or privately owned, providing water for human consumption and other domestic uses, as defined in Title R309.

(74) "Pump tank" means a watertight receptacle equipped with a pump and placed after a septic tank or other treatment component.

(75) "Pump vault" means a device installed in a septic or pump tank that houses a pump and screens effluent with 1/8 inch openings or smaller before it enters the pump.

(76) "Recirculation tank" means the tank that receives, stores, and recycles partially treated effluent and recycles that effluent back through the treatment process or to the absorption area.

(77) "Regulatory authority" means either the Utah Division of Water Quality or the local health department having jurisdiction.

(78) "Replacement area" means sufficient land with suitable soil, excluding streets, roads, easements and permanent structures that complies with the setback requirements of this[ese] rule[s], and is intended for the 100% replacement of absorption systems.

(79) "Rotary tilling" means a tillage operation. Working land by plowing and harrowing[~~in order~~] to make land ready for cultivation, or employing power driven rotary motion of the tillage tool to loosen, shatter and mix soil.

(80) "Sand lined trench system" means an alternative onsite wastewater system consisting of a series of narrow excavated trenches utilizing sand media and pressure distribution.

(81) "Sand media" means sand fill meeting the ASTM C33/C33M - 11A Standard Specification for Concrete Aggregates.

(82) "Saprolite" means weathered material underlying the soil that grades from soft thoroughly decomposed rock to rock that has been weathered sufficiently so that it can be broken in the hands, cut with a knife or easily dug with a backhoe and is devoid of expansive clay. It has rock structure instead of soil structure and does not include hard bedrock or hard fractured bedrock.

(83) "Scarification" means loosening and breaking up of soil compaction in a manner that prevents smearing and maintains soil structure.

(84) "Scum" means a mass of sewage solids, which is buoyed up by entrained gas, grease, or other substances, floating on the surface of wastes in a septic tank.

(85) "Seepage pit" means an absorption system consisting of one or more deep excavated pits, either hollow-lined or filled, utilizing coarse drain media, with a minimum sidewall absorption depth of 48 inches of suitable soil formation below the distribution pipe.

(86) "Septage" means the semi-liquid material that is pumped out of a septic or pump tank, generally consisting of the sludge, liquid, and scum layer.

(87) "Septic tank" means a watertight receptacle that receives the discharge of a drainage system or part thereof, designed and constructed so as to retain solids, digest organic matter through a period of detention and allow the liquids to discharge into the soil outside of the tank through an absorption system.

(88) "Sequential distribution" means a distribution method in which effluent does not pass through an absorption area before it enters the succeeding areas through a distribution box or relief line allowing for portions of the absorption area to be isolated.

(89) "Serial distribution" means a distribution method in which effluent passes through an absorption area before entering the succeeding areas through a distribution box or relief line creating a single uninterrupted flow path.

~~["Shall" means a mandatory requirement.~~

~~"Should" means recommended or preferred and is intended to mean a desirable standard.~~

~~]~~(90) "Single-family dwelling" means a building designed to be used as a home by the owner or lessee of such building.

(91) "Sludge" means the accumulation of solids that have settled in a septic tank or a wastewater holding tank.

(92) "Slope" means the ratio of the rise divided by the run between two points, typically described as a percentage (rise divided by run multiplied by 100).

(93) "Soil exploration pit" means an open pit dug to permit examination of the soil to evaluate its suitability for absorption systems. This is also referred to as a "test pit."[-]

(94) "Soil log" means a detailed description of soil characteristics and properties.

(95) "Soil structure" means the way in which the individual particles, sand, silt, and clay, are arranged into larger distinct aggregates called peds. The main types of soil structure are granular, platy, blocky, prismatic, and columnar. Soil may not have a visible structure because it is either single grain or massive.

(96) "Soil texture" means the percent of sand, silt, and clay in a soil mixture. Field methods for judging the texture of a soil are found in Subsection R317-4-14(3) Appendix C.

(97) "Standard trench" means an absorption trench utilizing drain media into which effluent is discharged through specially designed distribution pipes.

(98) "Suitable soil" means undisturbed soil that through textural and structural analysis or percolation rate meets the requirements for placement of an absorption system.

(99) "Test pit" see "soil exploration pit."[-]

(100) "Unapproved system" means any onsite wastewater system that is deemed by the regulatory authority to be any:

(a)[A-] installation without the required regulatory oversight, permits, or inspections;

(b)[B-] repairs to an existing system without the required regulatory oversight, permits, or inspections; or

(c)[C-] alteration to an existing system without the required regulatory oversight, permits, or inspections.

(101) "USDA system of classification" means the system of classifying soil texture used by the United States Department of Agriculture.

~~["Waste" means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water as defined in Section 19-5-102.~~

~~]~~(102) "Wastewater" means sewage, industrial waste or other liquid substances that might cause pollution of waters of the state. Intercepted ground water that is uncontaminated by wastes is not included.

(103) "Wastewater holding tank" means a watertight receptacle designed to receive and store wastewater to facilitate treatment at another location.

~~["Waters of the state":~~

~~_____ A. means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, public or private, that are contained within, flow through, or border upon this state or any portion of the state; and~~

~~_____ B. does not include bodies of water confined to and retained within the limits of private property, and that do not develop into or constitute a nuisance, or public health hazard, or a menace to fish or wildlife.~~

~~_____](104) "Wind-blown sand" means sand that is formed by the weathering and erosion of sandstone typically found in sand-dune or sand-sheet deposits and is capable of producing sand and dust storms when disturbed.~~

R317-4-3. General Standards, Prohibitions, Requirements, and Enforcement.

~~(1)[3.1. Failure to Comply With Rules.~~

~~_____]~~ Any person failing to comply with this rule shall be subject to enforcement action as specified in Sections 19-5-115 and 26A-1-123.

~~(2)[3.2. Feasibility.~~

~~_____ O]~~ An onsite wastewater system[s-are] may not be feasible in some areas and situations. If property characteristics [indicate] show conditions that may fail in any way to meet the requirements specified [here] in this rule, the use of an onsite wastewater system[s] shall be prohibited.

~~(3)[3.3. Onsite Wastewater System Required.~~

~~_____]~~ The drainage system of each dwelling, building or premises covered [here] in this rule shall receive all wastewater, including bathroom, kitchen, and laundry wastes, and shall have a connection to a public sewer except when such sewer is not available or practicable for use, in which case connection shall be made:

~~(a)[A-]~~ to an onsite wastewater system found to be adequate and constructed in accordance with this rule; or

~~(b)[B-]~~ to any other type of wastewater system acceptable under Rule[s] R317-1, R317-3, R317-5, R317-401, or R317-560.

~~(4)[3.4. Flows Prohibited From Entering Onsite Wastewater Systems.~~

~~_____]~~ No ground water drainage, drainage from roofs, roads, yards, or other similar sources [shall] may discharge into any portion of an onsite wastewater system, but shall be disposed of so [they] it will in no way affect the system. Non-domestic wastes such as chemicals, paints, or other substances that are detrimental to the proper functioning of an onsite wastewater system may not be disposed of in such systems.

~~(5)[3.5. Increased Flows Prohibited.~~

~~_____]~~ A person may not connect or expand the use of a single-family dwelling or non-residential facility connected to an existing onsite wastewater system if the projected wastewater flows would be greater than the original design flow. When the design flow is exceeded, expansion may occur if the onsite wastewater system is modified, permitted, and approved by the regulatory authority for the increased flow.

~~(6)[3.6. Material Standards.~~

~~_____]~~ All materials used in any onsite wastewater system[s] shall comply with the standards in this rule.

~~(7)[3.7. Property Lines Crossed.~~

~~_____ S]~~ Any onsite wastewater system[s], including any replacement area[s], shall be located on the same lot as the building served unless, when approved by the regulatory authority, a perpetual utility easement and right-of-way is established on an adjacent or nearby lot for the construction, operation, and continued maintenance, repair, alteration, inspection, relocation, and replacement of an onsite wastewater system, including all rights to ingress and egress necessary or convenient for the full or complete use, occupation, and enjoyment of the granted easement. The easement shall be large enough to accommodate the proposed onsite wastewater system and replacement area. The easement shall meet the setbacks specified in Section R317-4-13 Table 2.

~~(8) [3.8. Initial Absorption Area and Replacement Area.~~

~~_____ A. All]~~ Any property[ies] that utilizes an onsite wastewater system[s] shall be required to have a replacement area.[

~~_____ B-]~~ The absorption area, including installed absorption system and replacement area, may not be subject to activity that is likely to adversely affect the soil or the functioning of the system. This may include vehicular traffic, covering the area with asphalt, concrete, or structures, filling, cutting or other soil modifications.

~~(9)[3.9. Operation and Maintenance.~~

~~_____ O]~~ An owner[s] of any onsite wastewater system[s] shall operate, maintain, and service their system[s] according to the standards of this rule.

~~(10)[3.10. No Discharge to Surface Waters or Ground Surface.~~

~~_____]~~ Effluent from any onsite wastewater system may not be discharged to surface waters or upon the surface of the ground. Wastewater may not be discharged into any abandoned or unused well, or into any crevice, sinkhole, or similar opening, either natural or artificial.

~~(11)[3.11. Repair of a Malfunctioning or Unapproved System.~~

~~_____]~~ Upon determination by the regulatory authority that a malfunctioning or unapproved onsite wastewater system creates or contributes to any dangerous or unsanitary condition that may involve a public health hazard, or noncompliance with this rule, the regulatory authority shall order the owner to take the necessary action to cause the condition to be corrected, eliminated or otherwise come into compliance.

~~(a)[A-]~~ For any malfunctioning system[s], the local health department shall require and order:

(i)~~[4-]~~ all necessary steps, such as maintenance, servicing, repairs, and replacement of system components to correct the malfunctioning system, to meet all ~~[rule-]~~requirements of this rule to the extent possible and may not create any new risk to the environment or public health;

(ii)~~[2-]~~ effluent quality testing as required by Subsection R317-4-11~~[4]~~(4);

(iii)~~[3-]~~ evaluation of the system design including non-approved changes to the system, the wastewater flow, and biological and chemical loading to the system; and

(iv)~~[4-]~~ any additional test[s] or sample[s] to troubleshoot the system malfunction.

(b)~~[B-]~~ The regulatory authority may require fees for additional inspections, reviews, and testing.

(12)~~[3-12- P]~~ A property owner shall follow the approved procedure for [W]wastewater [S]system [A]abandonment.

(a)~~[A-]~~ When a dwelling served by an onsite wastewater system is connected to a public sewer, the septic tank shall be abandoned and shall be disconnected from and bypassed with the building sewer unless otherwise approved by the regulatory authority.

(b)~~[B-]~~ When~~[ever]~~ the use of an onsite wastewater system has been abandoned or discontinued, the owner of the real property on which such wastewater system is located shall ~~[render]~~make it safe by having the septic tank, any other tanks, hollow seepage pit, or cesspool wastes pumped out or otherwise disposed of in an approved manner. Within 30 days the tanks shall be:

(i)~~[4-]~~ crushed in place and the void filled;

(ii)~~[2-]~~ completely filled with earth, sand, or gravel; or

(iii)~~[3-]~~ removed.

(c)~~[C-]~~ The regulatory authority may require oversight, permitting, or inspection of the abandonment process.

(13)~~[3-13- Septage Management.~~

~~_____]~~ A person shall only dispose of septage, or sewage contaminated materials in a location or manner in accordance with ~~[the regulations]~~state rules [of the division] and the local health department having jurisdiction.

(14)~~[3-14- Multiple Dwelling Units.~~

~~_____]~~ Multiple dwelling units under individual ownership, except condominiums, may not be served by a single onsite wastewater system except where that system is under the sponsorship of a body politic. Plans and specifications for any such system[s] shall be submitted to and approved by the division. Issuance of a construction permit by the ~~[board]~~division shall constitute approval of plans and authorization for construction. Before ~~[the]~~any permit is issued, the division shall review plans with the local health department having jurisdiction over the proposed onsite wastewater system.

R317-4-4. Feasibility Determination.

(1)~~[4.1- General Criteria for Determining Onsite Wastewater System Feasibility.~~

~~_____]~~ The regulatory authority shall determine the feasibility of using any onsite wastewater system. The regulatory authority ~~[will]~~shall review required information for any existing or proposed lot to determine onsite wastewater system feasibility. The required information shall be prepared at the owner's expense by, or under the supervision of, a qualified person approved by the regulatory authority.

(a) ~~[A- General Information.~~

~~_____]~~ The required information shall include:

(i)~~[4-]~~ the county recorder's plat and parcel ID and situs address if available;

(ii)~~[2-]~~ name and address of the property owner and person requesting feasibility;~~[and]~~

~~[3- the location, type, and depth of all existing and proposed non-public water supply sources within 200 feet of the proposed onsite wastewater systems, and of all existing or proposed public water supply sources within 1,500 feet of the proposed onsite wastewater systems.~~

~~_____ a. If the lot is located in aquifer recharge areas or areas of other particular geologic concern, the regulatory authority may require such additional information relative to ground water movement, or possible subsurface wastewater flow.~~

~~_____ b. If the proposed onsite wastewater system is located within any drinking water source protection zone two, this zone shall be shown.~~

~~_____ 4. The location and distance to nearest sewer, owner of sewer, whether property is located within service boundary, and size of sewer.~~

~~_____ 5. Statement of proposed use if other than a single family dwelling.~~

~~_____]~~(iii) statement of proposed use if other than a single-family dwelling;

~~_____]~~(iv) the location and distance to nearest sewer, owner of sewer, whether property is located within service boundary, and size of sewer;

and

~~_____]~~(v) the location, type, and depth of any existing and proposed non-public water supply source within 200 feet of the proposed onsite wastewater system, and of any existing or proposed public water supply source within 1,500 feet of the proposed onsite wastewater system.

~~_____]~~(A) If the lot is located in aquifer recharge areas or areas of other particular geologic concern, the regulatory authority may require such additional information relative to ground water movement, or possible subsurface wastewater flow.

~~_____]~~(B) If the proposed onsite wastewater system is located within any drinking water source protection zone two, this zone shall be shown.

(b)~~[B- S]~~ The regulatory authority shall require soil exploration and ~~[S]~~site ~~[E]~~evaluation.

[4- Soil Exploration Pit and Percolation Test.

~~_____a.](i)~~ A minimum of one soil exploration pit shall be excavated to allow the evaluation of the soil. The soil exploration pit shall be constructed and soil log recorded as detailed in Subsection R317-4-14(3) Appendix C.

~~(ii)[b.]~~ The regulatory authority shall have the option of requiring a percolation test in addition to the soil exploration pit.

~~(iii)[e.]~~ The regulatory authority:

~~(A)[±.]~~ shall require additional soil exploration pits, percolation tests, or both where flows are greater than 1,000 gallons per day; and

~~(B)[±.]~~ may require additional soil exploration pits, percolation tests, or both where:

~~(1)~~ soil structure varies;

~~(2)~~ limiting geologic conditions are encountered; or

~~(3)~~ the regulatory authority deems it necessary.

~~(iv)[d.]~~ The percolation test shall be conducted as detailed in Subsection R317-4-14(4) Appendix D.

~~(v)[e.]~~ Soil exploration pits and percolation tests shall be conducted as closely as possible to the proposed absorption system site. The regulatory authority shall have the option of inspecting the open soil exploration pits and monitoring the percolation test procedure. All soil logs and percolation test results shall be submitted to the regulatory authority.

~~(vi)[f.]~~ When there is a substantial discrepancy between the percolation rate and the soil classification, it shall be resolved through additional soil exploration pits, percolation tests, or both.

~~(vii)[g.]~~ Absorption system feasibility shall be based on Section R317-4-13 Table 5 or R317-4-13 Table 6.

~~(c)2. Wind-Blown Sand.~~

~~_____]~~ The extremely fine grained wind-blown sand found in some parts of Utah shall be deemed not feasible for absorption systems. This does not apply to lots that have received final local health department approval ~~[prior to]~~ before the effective date of this rule.

~~_____a.]~~ Percolation test results in wind-blown sand will generally be rapid, but experience has shown that this soil ~~[has a tendency]~~ tends to become sealed with minute organic particles within a short period ~~[of time]~~. For lots that have received final local health department approval ~~[prior to]~~ before the effective date of this rule, an onsite wastewater system[s] may be constructed in such material provided it is found to be within the required range of percolation rates specified in ~~this[ese]~~ rule[s], and provided further that the required area shall be calculated on the assumption of minimum acceptable percolation rate of 60 minutes per inch for standard trenches, deep wall trenches, and seepage pits, and 40 minutes per inch for absorption beds.

~~(d)3. Suitable Soil Depth.~~

~~_____]~~ For each conventional onsite wastewater system[s], effective suitable soil depth shall extend at least 48 inches or more below the bottom of the dispersal system to bedrock formations, impervious strata, or excessively permeable soil. ~~[Some]~~ An alternative onsite wastewater system[s] may have other requirements.

~~(e)4. Ground Water Requirements.~~

~~_____]~~ The elevation of the anticipated maximum ground water table shall meet the separation requirements of the anticipated absorption systems. Local health departments and other local government entities may impose stricter separation requirements between absorption systems and the maximum ground water table when deemed necessary. Building lots recorded or having received final local health department approval ~~[prior to]~~ before May 21, 1984 shall be subject to the ground water table separation requirements of the then Part IV of the Code of Waste Disposal Regulations dated June 21, 1967, that states "high ground water elevation shall be at least 1 foot below the bottom of absorption systems and at least 4 feet below finished grade". Notwithstanding this grandfather provision for recorded or other approved lots, the depth to ground water requirements are applicable if compelling or countervailing public health interests would ~~[necessitate]~~ require application of the more stringent requirements of this regulation.

~~[a. Maximum Ground Water.~~

~~_____](i)~~ The ~~[M]~~ maximum ground water table shall be determined where the anticipated maximum ground water table, including irrigation induced water table, might be expected to rise closer than 48 inches to the elevation of the bottom of the onsite wastewater system. Maximum ground water table shall be determined where alternative onsite wastewater systems may be considered based on groundwater elevations. The maximum ground water table shall be determined by the following.

~~(A)[±.]~~ Regular monitoring of the ground water table, or ground water table, perched, in an observation well for a period of one year, or for the period of the maximum groundwater table.

~~(B)[(4)]~~ Previous ground water records and climatological or other information may be consulted for each site proposed for an onsite wastewater system and may be used to adjust the observed maximum ground water table elevation.

~~(C)[±.]~~ Direct visual observation of the maximum ground water table in a soil exploration pit for[±]

~~_____](1-)]~~ evidence of crystals of salt left by the maximum ground water table[±] or[

~~_____](2-)]~~ chemically reduced iron in the soil, reflected by ~~[redoximorphic]~~ redoximorphic features, ~~[i.e.]~~ such as a mottled coloring.[

~~_____](3-)]~~ Previous ground water records and climatological or other information may be consulted for each site proposed for an onsite wastewater system and may be used to adjust the observed maximum ground water table elevation in determining the anticipated maximum ground water table elevation.

~~(D)[±±.]~~ In cases where the anticipated maximum ground water table is expected to rise to closer than 34 inches from the original ground surface and an alternative or experimental onsite wastewater system would be considered, previous ground water records and climatological or other information shall be used to adjust the observed maximum ground water table in determining the anticipated maximum ground water table.

~~(ii)[b. Curtain Drains.~~

_____] A curtain drain or other effective ground water interceptor may be allowed as an attempt to lower the groundwater table to meet the requirements of this rule. The regulatory authority shall require that the effectiveness of such devices in lowering the ground water table be demonstrated during the season of maximum ground water table.

~~(f) 4. Ground Slope.~~

_____] An Absorption system[s] may not be placed on any slope[s] where the addition of fluids is judged to create an unstable slope.

(i)[~~a-~~] An absorption system[s] may be placed on any slope[s] between 0% and 25%, inclusive.

(ii)[~~b-~~] An absorption system[s] may be placed on any slope[s] greater than 25% but not exceeding 35% if:

(A)[~~i-~~] all other requirements of this rule can be met;

(B)[~~ii-~~] effluent from the proposed system ~~with~~may not contaminate ground water or surface water, and ~~with~~may not surface or move off site before it is adequately treated to protect public health and the environment;

(C)[~~iii-~~] no slope will fail, and there will be no other landslide or structural failure if the system is constructed and operated adequately, even if all properties in the vicinity are developed with onsite wastewater systems; and

(D)[~~iv-~~] a report is submitted by a professional engineer or professional geologist that is licensed to practice in Utah.

The report shall be imprinted with the engineer's or geologist's registration seal and signature and shall include the following:~~[-]~~

(I)(~~1~~) Predictions and supporting information of ground water transport from the proposed system and of expected areas of ground water mounding;~~[-]~~

(II)(~~2~~) A slope stability analysis that shall include information about the geology of the site and surrounding area, soil exploration and testing, and the effects of adding effluent; and~~[-]~~

(III)(~~3~~) The cumulative effect on slope stability of added effluent if all properties in the vicinity were developed with onsite wastewater systems.

(iii)[~~e-~~] An absorption system[s] may not be placed on any slope[s] greater than 35%.

(g)~~5-~~ Other ~~[F]~~factors may ~~[A]~~affect~~[ing-0]~~ onsite ~~[W]~~wastewater ~~[S]~~system ~~[F]~~feasibility, including~~[-]~~:

(i)[~~a-~~] The location[s] of ~~[aH]~~any river[s], stream[s], creek[s], dry or ephemeral wash~~[es]~~, lake[s], canal[s], marsh~~[es]~~, subsurface drain[s], natural storm water drain[s], lagoon[s], artificial impoundment[s], either existing or proposed, that will affect the building site[s], shall be provided.

(ii)[~~b-~~] Any area[s] proposed for an onsite wastewater system[s] shall comply with the setbacks in Section R317-4-13 Table 2.

(iii)[~~e-~~] If any part of a property lies within or abuts a flood plain area, the flood plain shall be shown within a contour line and shall be clearly labeled on the plan with the words "flood plain area".

~~(h) 6. Unsuitable.~~

_____] Where soil and other site conditions are clearly unsuitable for the placement of an onsite wastewater system, there is no need for conducting soil exploration pits or percolation tests.

~~[C. Lot Size.~~

_____](i) One of the following two methods shall be used for determining minimum lot size. Determination of minimum lot size by the regulatory authority ~~would~~may not preempt local governments from establishing larger minimum lot sizes.

~~[1. Method 1.~~

_____](A) The local health department having jurisdiction may determine minimum lot size. Under this method, a local health department[s] may elect to involve other affected governmental entities and the division in making joint lot size determinations. The division ~~with~~shall develop technical information, training programs, and provide engineering and geohydrologic assistance in making lot size determinations that ~~with~~shall be available to local health departments upon their request. ~~[F]~~Any individual~~[s-0]~~ ~~or developers~~ requesting a lot size determination[s] under this method ~~with~~shall be required to submit to the local health department, at their own expense, a report that accurately takes into account at least the following factors:

(I)[~~a-~~] soil type and depth;

(II)[~~b-~~] area drainage, lot drainage, and potential for flooding;

(III)[~~c-~~] protection of surface and ground waters;

(IV)[~~d-~~] setbacks from ~~[property lines, water supplies, etc.]~~items listed in Section R317-4-13 Table 2;

(V)[~~e-~~] source of culinary water;

(VI)[~~f-~~] topography, geology, hydrology and ground cover;

(VII)[~~g-~~] availability of public sewers;

(VIII)[~~h-~~] activity or land use, present and anticipated;

(IX)[~~i-~~] growth patterns;

(X)[~~j-~~] individual and accumulated gross effects on water quality;

(XI)[~~k-~~] reserve areas for additional subsurface dispersal;

(XII)[~~l-~~] anticipated wastewater volume;

(XIII)[~~m-~~] climatic conditions;

(XIV)[~~n-~~] installation plans for wastewater system; and

(XV)[~~o-~~] area to be utilized by dwelling and other structures.

~~(B) 2. Method 2.~~

_____a.] When~~ever~~ a local health department[s] does not establish minimum lot sizes for single-family dwellings that will be served by onsite wastewater systems, the requirements of Sections R317-4-13 Table[s] 1.1 and R317-4-13 Table 1.2 shall be met.

~~(b)(1)~~ For non-residential facilities, one-half of the buildable area of the lot must be available for the absorption system and replacement area.

~~(i)(II)~~ The area required for ~~the~~ a non-residential facility absorption system and replacement area may be adjusted by the regulatory authority during the permitting process.

~~(2)(4.2. Subdivision Onsite Wastewater System Feasibility Determination)~~ The regulatory authority shall determine the feasibility for any new subdivision where using onsite wastewater systems is proposed.

~~(a)(A-)~~ In addition to information in Subsection R317-4-4~~(-1)(1)~~, the following information must be provided on a plat map:

~~(i)(1-)~~ the proposed street and lot layout with all lots consecutively numbered;

~~(ii)(2-)~~ size and dimensions of each lot, with the minimum required area sufficient to permit the safe and effective use of an onsite wastewater system, including a replacement area for the absorption system;

~~(iii)(3-)~~ location of all water lines;

~~(iv)(4-)~~ location of any easements; and

~~(v)(5-)~~ areas proposed for wastewater dispersal, including replacement area.

~~(b)(B-)~~ ~~[S]~~ Any surface drainage system[s] shall be included on the plan, as naturally occurring, and as altered by roadways or any drainage, grading or improvement, installed or proposed by the developer. The details of the system shall show the surface drainage structures, whether ditches, pipes, or culverts, will in no way affect onsite wastewater systems on the property.

~~(c)(C-)~~ Each proposed lot shall have at least one soil exploration pit, percolation test, or both.

~~(i)(1-)~~ The regulatory authority may allow fewer tests based on the uniformity of prevailing soil and ground water characteristics and available percolation or soil log test data.

~~(ii)(2-)~~ If soil conditions and surface topography ~~[indicate]~~ show, a greater number of soil exploration pits or percolation tests may be required by the regulatory authority.

~~(iii)(3-)~~ The location of all soil exploration pits and percolation test holes shall be clearly identified on the subdivision final plat and identified by a key number or letter designation.

~~(iv)(4-)~~ The results of such soil tests, including stratified depths of soils and final percolation rates for each lot shall be recorded on or with the final plat.

~~(v)(5-)~~ Soil exploration pits and percolation tests shall be conducted as closely as possible to the dispersal system sites on the lots or parcels.

~~(d)(D-)~~ When ~~ever~~ available, information from published soil studies of the area of the proposed subdivision shall be submitted for review.

~~(e)(E-)~~ If soil or site conditions exist in or near the project so as to complicate design and location of an onsite wastewater system, a detailed system layout shall be provided for those lots presenting the greatest design difficulty by meeting rules in Section R317-4-5.

~~(3)(4.3. Statement of Feasibility.~~

~~_____]~~ After review of all information, plans, and proposals, the regulatory authority shall make a written determination of feasibility stating the results of the review or the need for additional information.

~~(a)(A-)~~ An affirmative statement of feasibility for a subdivision does not imply that it will be possible to install onsite wastewater systems on all ~~of~~ the proposed lots, but shall mean that such onsite wastewater systems may be installed on the majority of the proposed lots in accordance with minimum state requirements and any conditions that may be imposed.

~~(b)(B-)~~ The regulatory authority shall establish the expiration, if any, of the statement of feasibility.

R317-4-5. Plan Review and Permitting.

~~(1)(5.1. Plan Review and Permitting]~~ The regulatory authority shall conduct a plan review and permit an onsite wastewater system when a property owner submits required information.

~~(a)(A. Designer Certification.~~

~~_____]~~ Any ~~[H]~~ plans and specifications shall be prepared by an individual certified in accordance with Rule R317-11.

~~(b)(B. Domestic Wastewater.~~

~~_____]~~ Plans and specifications for the construction, alteration, extension, or change of use of an onsite wastewater system[s] that receives domestic wastewater shall be submitted to the regulatory authority.

~~(c)(C. Non-Domestic Wastewater.~~

~~_____]~~ Plans and specifications for the construction, alteration, extension, or change of use of an onsite wastewater system[s] that receives non-domestic wastewater shall be submitted to and approved by the local health department having jurisdiction and the division.

~~(d)(D. Construction Permit Required.~~

~~_____]~~ The regulatory authority shall review ~~[-said]~~ plans and specifications as to their adequacy of design for the intended purpose, and shall, if necessary, require such changes as are required by this ~~[ese]~~ rule[s]. When the reviewing regulatory authority is satisfied that plans and specifications are adequate for the conditions under which a system is to be installed and used, a construction permit shall be issued to the individual making the submittal.

~~(e)(1-)~~ Construction of any onsite wastewater system may not ~~[commence]~~ begin until a ~~the~~ construction permit has been issued by the regulatory authority.

~~(f)(E. Information Required.~~

~~_____]~~ Plans submitted for review shall be drawn to scale, 1" = 10', 20' or 30', or other scale as approved by the regulatory authority. Plans shall be prepared in such a manner that the contractor can read and follow them ~~[-in order]~~ to install the system

properly. Depending on the individual site and circumstances, or as determined by the regulatory authority, some or all~~[-of]~~ the following information may be required.

- ~~(i) 1. Applicant Information.~~
 - ~~a.]~~ The name, current address, and telephone number of the applicant.
 - ~~(ii) [b-]~~ Complete address, legal description of the property, or both to be served by this onsite wastewater system.
 - ~~(iii) [2-]~~ The applicant shall submit an [O]onsite [W]wastewater [S]system [S]site [P]plan, including: [-]
 - ~~(A) [a-]~~ [S]ubmittal date of plan; [-]
 - ~~(B) [b-]~~ North arrow; [-]
 - ~~(C) [c-]~~ [L]ot size and dimensions; [-]
 - ~~(D) [d-]~~ [L]egal description of property; [-]
 - ~~(E) [e-]~~ [G]round surface contours, preferably at 2 foot intervals, of both the original and proposed final grades of the property, or relative elevations using an established bench mark; [-]
 - ~~(F) [f-]~~ [L]ocation and explanation of type of dwelling or structure to be served by an onsite wastewater system [-]
 - ~~i. M]~~ and specifies the maximum number of bedrooms, including a statement of whether a finished or unfinished basement will be provided, or if other than a single[-]family dwelling, the number of occupants expected and the estimated gallons of wastewater generated per day; [-]
 - ~~(G) [g-]~~ [L]ocation and dimensions of paved and unpaved driveways, roadways and parking areas; [-]
 - ~~(H) [h-]~~ [L]ocation and dimensions of the essential components of the wastewater system including the replacement area for the absorption system; [-]
 - ~~(I) [i-]~~ [L]ocation of all soil exploration pits and all percolation test holes; [-]
 - ~~(J) [j-]~~ [L]ocation of building sewer and water service line to serve the building; [-]
 - ~~(K) [k-]~~ [L]ocation of easements or drainage right-of-ways affecting the property; [-]
 - ~~(L) [l-]~~ [L]ocation of ~~[all intermittent or year round streams, ditches, watercourses, ponds, subsurface drains, etc.]~~ any surface water feature within 100 feet of proposed onsite wastewater system; [-]
 - ~~(M) [m-]~~ [F]the location, type, and depth of all existing and proposed non-public water supply sources within 200 feet of onsite wastewater systems, and of all existing or proposed public water supply sources within 1,500 feet of onsite wastewater systems and associated source protection zones; [-]
 - ~~(N) [n-]~~ [P]distance to nearest public water main and size of main; [-] and
 - ~~(O) [o-]~~ [P]distance to nearest public sewer, size of sewer, and whether accessible by gravity.
 - ~~(iv) 3. Statement with Site Plan.~~
 - ~~S]~~ A statement shall be included with the site plan indicating the source of culinary water supply, whether a well, spring, non-public or public system, its location and distances from all onsite wastewater systems within 200 feet.
 - ~~(v) 4. Site Assessment and Soil Evaluation.~~
 - ~~S]~~ Documentation of soil exploration and site evaluation activities, including soil [L]logs, [P]percolation [F]test [C]certificates, or both.
 - ~~a.]~~ [S]Documentation of soil exploration and site evaluation activities shall include a statement with supporting evidence indicating the maximum anticipated ground water table and the flooding potential for the onsite wastewater system site[s].
 - ~~(vi) 5. Relative Elevations.~~
 - ~~]~~ Show relative elevations of the following, using an established bench mark; [-]
 - ~~(A) [a-]~~ [B]uilding drain outlet; [-]
 - ~~(B) [b-]~~ [F]the inlet and outlet inverts of any septic tanks; [-]
 - ~~(C) [c-]~~ [S]eptic tank access cover, including height and diameter of riser, if used; [-]
 - ~~(D) [d-]~~ [P]ump tank inlet, if used, including height and diameter of riser; [-]
 - ~~(E) [e-]~~ [F]the outlet invert of the distribution box, if provided, and the ends or corners of each distribution pipe lateral in the absorption system; [-] and
 - ~~(F) [f-]~~ [F]the final ground surface over the absorption system.
 - ~~(vii) 6. System Design.~~
 - ~~]~~ Details for ~~said~~ site, plans, and specifications as ~~are~~ listed in Section R317-4-6, shall include: [-]
 - ~~(A) [a-]~~ [S]chedule or grade, material, diameter, and minimum slope of building sewer and effluent sewer; [-]
 - ~~(B) [b-]~~ [S]eptic tank and pump tank capacity, design, cross sections, ~~etc.,~~ materials, and dimensions. If tank is commercially manufactured, state the name and address of manufacturer [-];
 - ~~(C) [c-]~~ pump, if provided, details as referenced in Subsection R317-4-14(2) Appendix B;
 - ~~(D)~~ if an alternative system is designed, include all pertinent information to allow plan review and permitting for compliance with this rule;
 - ~~(E)~~ [A]bsorption system details, including the following:
 - ~~(I) [i-]~~ details of drop boxes or distribution boxes, if provided;
 - ~~(II) [ii-]~~ schedule or grade, material, and diameter of distribution pipes;
 - ~~(III) [iii-]~~ length, slope, and spacing of each absorption system component;
 - ~~(IV) [iv-]~~ maximum slope across ground surface of absorption system area;
 - ~~(V) [v-]~~ distance of absorption system from trees, cut banks, fills, or subsurface drains; and
 - ~~(F) [vi-]~~ cross section of absorption system showing the:
 - ~~(+) (I)~~ depth and width of absorption system excavation;
 - ~~(-) (II)~~ depth of distribution pipe;

- ~~(3)~~(III) depth of filter material;
- (4)(IV) barrier material, ~~[i.e.]~~such as synthetic filter fabric, straw, ~~[ete.]~~or other material acceptable to the regulatory authority, used to separate filter material from cover; and
- ~~(5)~~(V) depth of cover.
- ~~(E)~~(d.) Pump, if provided, details as referenced in Subsection R317-4-14(2) Appendix B.
- ~~(F)~~(e.) If an alternative system is designed, include all pertinent information to allow plan review and permitting for compliance with this rule.
- ~~(g)~~(F. Plans Submitted.
- ~~1.~~ An ~~(H)~~ applicant[s] requesting plan approval for an onsite wastewater system shall submit ~~[a sufficient number of]~~enough copies of ~~[the above]~~required information to enable the regulatory authority to retain one copy as a permanent record.
- ~~(h)~~(2.) Any application[s] may be rejected if proper information is not submitted.

R317-4-6. Design Requirements.

- ~~(6.1. System Location.~~
- ~~A.)~~(1) An ~~(O)~~onsite wastewater system~~[s are]~~ may not be suitable in some areas and situations. Location and installation of each system shall be such that with reasonable maintenance, it ~~[will]~~shall function in a sanitary manner and ~~[will]~~may not create a nuisance, public health hazard, or endanger the quality of any waters of the state.
- ~~B.)~~ In determining a suitable location for ~~[the]~~each system, due consideration shall be given to such factors as:
 - ~~1.)~~(a) the minimum setbacks in Section R317-4-13 Table 2;
 - ~~2.)~~(b) size and shape of the lot;
 - ~~3.)~~(c) slope of natural and final grade;
 - ~~4.)~~(d) location of existing and future water supplies;
 - ~~5.)~~(e) depth of ground water and bedrock;
 - ~~6.)~~(f) soil characteristics and depth;
 - ~~7.)~~(g) potential flooding or storm catchment;
 - ~~8.)~~(h) possible expansion of the system; and
 - ~~9.)~~(i) future connection to a public sewer system.
- ~~(6.2. Minimum Setback Distances.~~
- ~~All)~~(2) Any onsite wastewater system[s], including the replacement area, shall conform to the minimum setback distances in Section R317-4-13 Table 2.
- ~~(6.3. Maximum Ground Slope.~~
- ~~All)~~(3) Any absorption system[s], including the replacement area, shall conform to the ground slope requirements in Section R317-4-4.
- ~~(6.4. Estimates of Wastewater Quantity.)~~(4) Any design for an onsite wastewater system shall include an estimate of wastewater quantity.
- ~~(A. Single Family Dwellings.~~
- ~~A.)~~(a) The wastewater quantity estimate for a single-family dwelling shall be a minimum of 300 gallons per day~~[s]~~ for 1 or 2 bedroom, and 150 gallons per day for each additional bedroom~~[shall be used]~~.
- ~~(B. Non Residential Facilities.~~
- ~~F)~~(b) For any non-residential facility, the quantity of wastewater shall be determined accurately, preferably by actual measurement. Metered water supply figures for similar installations can usually be relied upon, providing the non-disposable consumption, if any, is subtracted. Where this data is not available, the minimum design flow figures in Section R317-4-13 Table 3 shall be used to make estimates of flow.
- ~~(C. Design Capacity.~~
- ~~)~~(c) In no event shall the anticipated maximum daily wastewater flow exceed the capacity for which a system is designed.
- ~~(6.5. Non Domestic Effluent.~~
- ~~)~~(5) Effluent shall be treated to levels at or below the defined parameters of non-domestic effluent before being discharged into an absorption system.
- ~~(6.6.)~~(6) Building ~~(S)~~sewer shall meet the following requirements:~~[s]~~
- ~~(A.)~~(a) The building sewer shall have a minimum inside diameter of 4 inches and shall comply with the minimum standards in Section R317-4-13 Table 4.
- ~~1.)~~ If the sewer leaving the house is ~~[three]~~3 inches, the building sewer may be ~~[three]~~3 inches.
- ~~(B.)~~(b) Building sewers shall be laid on a uniform minimum slope of not less than 1/4 inch per foot or 2.08% slope.
- ~~(C.)~~(c) The building sewer shall have a minimum of one cleanout and cleanouts every 100 feet.
- ~~1.)~~(i) A cleanout is also required for each aggregate horizontal change in direction exceeding 135 degrees.
- ~~2.)~~(ii) ~~[Ninety]~~90 degree ells are not recommended.
- ~~(D.)~~(d) ~~(B)~~The building sewer[s] shall be separated from water service pipes in separate trenches, and by at least 10 feet horizontally, except that they may be placed in the same trench when all ~~[of]~~the following conditions are met.
 - ~~1.)~~(i) The bottom of the water service pipe, at all points, shall be at least 18 inches above the top of the building sewer.
 - ~~2.)~~(ii) The water service pipe shall be placed on a solid shelf excavated at one side of the common trench with a minimum clear horizontal distance of at least 18 inches from the sewer or drain line.

~~[3-](iii)~~ The number of joints in the water service pipe should be kept to a minimum, and the materials and joints of both the sewer and water service pipes shall be of strength and durability to prevent leakage under adverse conditions.

~~[4-](iv)~~ If the water service pipe crosses the building sewer, it shall be at least 18 inches above the latter within 10 feet of the crossing. Joints in water service pipes should be located at least 10 feet from such crossings.

~~[E-](e)~~ ~~[B]~~ Each building sewer placed under driveways or other areas subjected to heavy loads shall receive special design considerations to ensure against crushing or disruption of alignment.

~~[6.7. Septic Tank.~~

~~—————A)](7)~~ Each septic tank[s] shall meet the requirements of Subsection R317-4-14(1) Appendix A and be approved by the division. Septic tanks shall be constructed of sound, durable, watertight materials that are not subject to excessive corrosion, frost damage, or decay. They shall be designed to be watertight, and to withstand all expected physical forces.

~~[A. Liquid capacity.~~

~~—————1-](a)~~ A septic tank that serves a non-residential facility shall have a liquid capacity of at least 1-1/2 times the designed daily wastewater flow. In all cases the capacity shall be at least 1,000 gallons.

~~[2-](b)~~ The capacity of a septic tank that serves a single[-]family dwelling shall be based on the number of bedrooms that can be anticipated in the dwelling served, including the unfinished space available for conversion as additional bedrooms. Unfinished basements shall be counted as a minimum of one additional bedroom.

~~[a-](i)~~ The minimum liquid capacity of the tank shall be 1,000 gallons for up to three bedroom homes.

~~[b-](ii)~~ The minimum liquid capacity of the tank shall be 1,250 gallons for four bedroom homes.

~~[e-](iii)~~ Two hundred fifty gallons per bedroom shall be added to the liquid capacity of the tank for each additional bedroom over four bedrooms.

~~[3-](c)~~ The regulatory authority may require a larger capacity than specified in this subsection as needed for unique or unusual circumstances.

~~[B. Tanks in S](d)~~ Multiple septic tanks may be installed in series.

~~[1-](i)~~ No tank in the series ~~[shall]~~ may be smaller than 1,000 gallons.

~~[2-](ii)~~ The capacity of the first tank shall be at least two-thirds of the required total septic tank volume. If a compartmented tank~~[s-are]~~ is used, the compartment of the first tank shall have this two-thirds capacity. A membrane bioreactor system may include the balance tank as a second tank in series where the volume of the balance tank is included in the total required septic tank liquid storage capacity.

~~[3-](iii)~~ The connecting pipe[s] between each successive tank shall meet the slope requirements of the building sewer and shall be unrestricted except for the inlet to the first tank and the outlet for the last tank.

~~[C. Maximum Number of Tanks or Compartments.~~

~~—————](iv)~~ The maximum number of tanks and compartments in series may not exceed three.

~~[D. Inlets and Outlets.~~

~~—————](e)~~ Each septic tank inlet or outlet device[s] shall conform to the following:

~~[1-](i)~~ Approved tanks with offset inlets may be used where they are warranted by constraints on septic tank location.

~~[2-](ii)~~ Multiple outlets from septic tanks shall be prohibited unless preauthorized by the regulatory authority.

~~[3-](iii)~~ A gas deflector may be added at the outlet of the tank to prevent solids from entering the outlet pipe of the tank.

~~[E. Effluent Screens.~~

~~—————A)](f)~~ Any septic tank[s] may have an effluent screen installed at the outlet of the terminal tank. The screen shall prevent the passage of solid particles larger than a nominal 1/8 inch diameter sphere. The screen shall be easily removable for routine servicing by installing a riser to the ground surface, with an approved cover. ~~[E]~~ An effluent screen~~[s-are]~~ is required for each non-domestic wastewater system[s], unless screening is achieved by some other means acceptable to the regulatory authority.

~~[F. Access to Tank Interior.~~

~~—————A)](g)~~ Adequate access to the tank shall be provided to facilitate inspection, pumping, servicing, and maintenance, and shall have no structure or other obstruction placed over it and shall conform to all ~~[of]~~ the following requirements.

~~[1. Riser Heights.~~

~~—————W)](i)~~ Watertight risers are required, extending to within 6 inches of the surface of the ground when soil covering the septic tank is greater than 6 inches. Preferably, the riser should be brought up to the final grade to encourage periodic servicing and maintenance.

~~[a-](A)~~ If a septic tank is located under paving or concrete, risers shall be extended up through the paving or concrete.

~~[b-](B)~~ If non-domestic wastewater is generated, risers shall be extended to the final grade.

~~[2. Riser Diameter.~~

~~—————](ii)~~ The inside diameter of the riser shall be a minimum of 20 inches.

~~[3. Riser Covers.~~

~~—————R)](iii)~~ Each riser cover[s] shall be designed and constructed in such a manner that:

~~[a-](A)~~ ~~[they can]~~ it may not pass through the access openings;

~~[b-](B)~~ ~~[when closed will]~~ it shall be child-proof when closed;

~~[e-](C)~~ ~~[wi]~~ it shall prevent entrance of surface water, dirt, or other foreign materials; and

~~[d-](D)~~ it shall seal odorous gases in the tank.

~~[4. Riser Construction.~~

~~—————The)](iv)~~ Each riser[s] shall be constructed of durable, structurally sound materials that are approved by the regulatory authority and designed to withstand expected physical loads and corrosive forces.

~~[5. Multiple Risers Required.~~

~~_____~~(v) When ~~the~~ a septic tank capacity exceeds 3,000 gallons, a minimum of two access risers shall be installed.

~~[G. Other Requirements.~~

~~_____~~(h) ~~[F]~~Each septic tank installation located in a high groundwater area shall conform to ~~[all of]~~the following additional requirements:~~[-]~~

~~[1. Ground Water.~~

~~_____~~a.)(i) ~~[S]~~Each septic tank[s] located in a high groundwater area[s] shall be designed with the appropriate weighted or anti-buoyancy device to prevent flotation in accordance with the manufacturer's recommendations.

~~[b-]~~(ii) The building sewer inlet of ~~the~~a septic tank may not be installed at an elevation lower than the highest anticipated groundwater elevation.

~~[i-]~~(A) If the tank serves a mound, ~~or~~ packed bed, or membrane bioreactor alternative system and has an electronic control panel capable of detecting water intrusion, the building sewer inlet of the tank may be installed below the maximum anticipated groundwater elevation.

~~[(4)]~~(B) Any component below the anticipated maximum ground water elevation shall be water tightness tested.

~~[2. Depth of Septic Tank.~~

~~_____~~(i) The minimum depth of cover over ~~the~~a septic tank shall be at least 6 inches and a maximum of 48 inches at final grading. For unusual situations, the regulatory authority may allow deeper burial provided the following conditions are met.

~~[a-]~~(A) ~~[The]~~Each septic tank shall be approved by the division for the proposed depth and burial cover load.

~~[b-]~~(B) ~~[R]~~Each riser[s] shall:

~~[i-]~~(I) be installed over ~~the~~each access opening[s] of the inlet and outlet baffles or sanitary tees; and

~~[ii-]~~(II) conform to Subsection R317-4-6~~[7-F]~~(7)(g), except each riser[s] shall be at least 24 inches in diameter.

~~[6.8. Grease Interceptor Tanks.~~

~~_____~~(8) A grease interceptor tank or automatic grease removal device may be required by the regulatory authority to receive the drainage from fixtures and equipment with grease-laden waste. It shall be sized according to the current Plumbing Code.

~~[A. Accessibility and Installation.~~

~~_____~~F)Any grease interceptor tank[s] or automatic grease removal device installed in the ground shall conform to Subsection R317-4-6~~[7-F]~~(7)(g) for accessibility and installation, except risers are required and shall be brought to the surface of the ground. ~~[A]~~Each interior compartment[s] shall be accessible for inspecting, servicing, and pumping.

~~[6-9-]~~(9) ~~[P]~~Installation of each pump and ~~[R]~~recirculation ~~[F]~~tank[s-] shall conform to the following:

~~[A-]~~(a) ~~[F]~~Each pump or recirculation tank[s] shall be constructed of sound, durable, watertight materials that are not subject to excessive corrosion, frost damage, or decay. The ~~[y]~~ tank shall be designed to be watertight, and to withstand all expected physical forces:~~[-]~~

~~[B-]~~(b) Pump tank volume shall have a liquid capacity adequate for the minimum operating volume that includes the dead space, dosing volume, and surge capacity, and shall have the emergency operation capacity of:

~~[1-]~~(i) storage capacity for the system design daily wastewater flow;

~~[2-]~~(ii) at least two independent power sources with appropriate wiring installed; or

~~[3-]~~(iii) other design considerations approved by the regulatory authority that do not increase public health risks ~~i[n the event of]~~ pump failure occurs.

~~[C. Accessibility and Installation.~~

~~_____~~(c) Each ~~[F]~~ tank[s] shall conform to Subsection R317-4-6~~[7-F]~~(7)(g) for accessibility and installation, except risers are required and shall be brought to the surface of the ground. ~~[A]~~Each interior compartment[s] shall be accessible for inspecting, servicing, and pumping; and~~[-]~~

~~[D-]~~(d) ~~[O]~~Each outlet[s] of any septic tank[s] upstream of each pump tank[s] shall be fitted with an effluent screen, unless a pump vault is used in a pump tank.

~~[6.10. Pump Vaults.~~

~~_____~~P)(10) A pump vault[s] may be used when approved by the regulatory authority.

~~[A-]~~(a) The vault shall be constructed of durable material and resistant to corrosion.

~~[B-]~~(b) The vault shall have an easily accessible screen with 1/8 inch openings or smaller.

~~[C-]~~(c) ~~[A]~~Each component[s] of the vault shall be accessible from the surface.

~~[D-]~~(d) When a pump vault is used in a septic tank:

~~[1-]~~(i) The tank size shall be increased by the larger of the following:

~~[a-]~~(A) two hundred fifty gallons; or

~~[b-]~~(B) ten percent of the required capacity of the tank.

~~[2-]~~(ii) At least two independent power sources with appropriate wiring, or other design considerations approved by the regulatory authority that do not increase public health risks, shall be installed.

~~[3-]~~(iii) The maximum drawdown within the tank shall be no more than 3 inches per dose.

~~[6.11. Pumps.~~

~~_____~~See)(11) Each pump shall be designed as detailed in Subsection R317-4-14(2) Appendix B~~[for details]~~.

~~[6.12. Sampling Ports.~~

~~_____~~(12) When any onsite wastewater system is required to have effluent sampling or receives non-domestic wastewater, the system shall include a sampling port at an area approved by the regulatory authority capable of sampling effluent ~~[prior to]~~before the absorption system.

~~[6.13-]~~(13) Each effluent ~~[S]~~sewer shall conform with the following:~~[-]~~

~~(A-)~~(a) The effluent sewer shall have a minimum inside diameter of 4 inches and shall comply with the minimum standards in Section R317-4-13 Table 4;[-]

~~(B-)~~(b) The effluent sewer shall extend at least 5 feet beyond the septic tank before entering the absorption system;[-]

~~(C-)~~(c) ~~(E)~~The effluent sewer[s] shall be laid on a uniform minimum slope of not less than 1/4 inch per foot or 2.08% slope. When it is impractical, due to structural features or the arrangement of any building, to obtain a slope of 1/4 inch per foot, a sewer pipe of 4 inches in diameter or larger may have a slope of not less than 1/8 inch per foot or 1.04% slope when approved by the regulatory authority;[-]

~~(D-)~~(d) The effluent sewer line[s] shall have cleanouts at least every 100 feet; and[-]

~~(E-)~~(e) Each effluent sewer placed under a driveway[s] or other area[s] subjected to heavy loads shall receive special design considerations to ensure against crushing or disruption of alignment.

~~(6-14-)~~(14) An absorption [S]system[s] shall consist of one or more absorption trenches, absorption beds, deep wall trenches, or seepage pits.

~~(A- System Types-~~

~~1-)Absorption [F]trenches may be standard trenches, chambered trenches, or bundled synthetic aggregate trenches.~~

~~a. Standard Trenches-~~

~~b. Chambered Trenches-~~

~~c. Bundled Synthetic Aggregate Trenches-~~

~~2. Absorption Beds-~~

~~3. Deep Wall Trenches-~~

~~4. Seepage Pits-~~

~~B-)~~(a) Each absorption system shall meet ~~(G)~~general ~~(R)~~requirements.

~~(1-)~~(i) ~~(R)~~A replacement ~~(A)~~area for each [A]absorption [S]system[s] shall have ~~(A)~~adequate and suitable land which shall be reserved and kept free of permanent structures, traffic, or adverse soil modification for 100% replacement of each absorption system. If approved by the regulatory authority, the area between standard trenches or deep wall trenches may be regarded as replacement area.[-]

~~a-)~~ In lieu of a replacement area, two complete absorption systems shall be installed with a diversion valve. The valve shall be accessible from the final grade. The valve should be switched at least annually.

~~(2- Protection of Absorption Systems-~~

~~(ii)~~ The site of the initial and replacement absorption system shall be protected and may not be covered by asphalt, concrete, ~~(or)~~ structures, or be subject to vehicular traffic, or other activity that would adversely affect the soil, such as construction material storage, or soils storage[-ete]. This protection applies before and after construction of the onsite wastewater system.

~~(3- Sizing Criteria for Absorption Systems-~~

~~(iii)~~ Each absorption system[s] shall be sized based on Section R317-4-13 Table 5 or R317-4-13 Table 6.

~~(4- Design Criteria for Absorption Systems-~~

~~(iv)~~ Many different criteria [designs-] may be used in ~~(laying out)~~designing an absorption system[s], the choice depending on the size and shape of the available areas, the capacity required, and the topography of the dispersal area.

~~a. Horizontal Setbacks-~~

~~(A)~~ Each ~~(A)~~absorption system[s] shall comply with the setbacks in Section R317-4-13 Table 2.

~~b. Sloping Ground-~~

~~(B)~~ An absorption system[s] may be placed in sloping ground. Any absorption system placed in 10% or greater sloping ground shall be designed so that there is a minimum of 10 feet of undisturbed earth measured horizontally from the bottom of the distribution line to the ground surface. This requirement does not apply to drip irrigation.

~~c. Undisturbed Natural Earth-~~

~~(C)~~ That portion of the absorption system[s] below the top of distribution pipes shall be in undisturbed natural earth.

~~d. Tolerance-~~

~~(D)~~ All piping, chambers, and the bottoms of absorption system excavations shall be designed level.

~~e. Distribution Pipe-~~

~~(E)~~ Distribution pipe for gravity-flow absorption systems shall be 4 inches in diameter and shall comply with the minimum standards in Section R317-4-13 Table 4.

~~(1)~~ The pipe shall be penetrated by at least two rows of round holes, each 1/2 inch in diameter, and located at ~~(approximately)~~about 6 inch intervals. The perforations should be located at about the five o'clock and seven o'clock positions on the pipe.

~~(II)~~ The open ends of the pipes shall be capped.

~~f. Absorption System Laterals-~~

~~(F)~~ Absorption system laterals should be designed to receive proportional flows of wastewater.

~~g. Drain Media Protection-~~

~~(G)~~ Drain media shall be covered with a barrier material before being covered with earth backfill.

~~(H)~~ ~~(P)~~The following prohibitions shall apply to the design of an absorption system;[-]

~~(I)~~ In any gravity-flow absorption system[s] with multiple distribution lines, the effluent sewer may not be in direct line with any one of the distribution pipes, except where drop boxes or distribution boxes are used.

~~(II)~~ Any section of distribution pipe laid with non-perforated pipe may not be considered in determining the required absorption area.

~~(III)~~ Perforated distribution pipe may not be placed under a driveway[s] or other area[s] subjected to heavy loads.[-]

- ~~_____ i. Exceptions.~~
- ~~_____ (D) A deep wall trench[es and] or filled seepage pit[s] may be allowed beneath an unpaved driveway[s] on a case-by-case basis by the regulatory authority, if the top of the distribution pipe is at least 3 feet below the final ground surface.~~
- ~~_____ (C)(b) Effluent [D]distribution [D]devices may be used to distribute effluent evenly throughout an absorption system.~~
- ~~_____ 1. Distribution Boxes.~~
- ~~_____ (i) A [D]distribution box[es] may be used on level or nearly level ground. [They]Each distribution box shall be watertight and constructed of durable, corrosion resistant material. [They]Each distribution box shall be designed to accommodate [the]an inlet pipe and the necessary distribution lines.~~
- ~~_____ (a)(A) The outlet inverts of the distribution box [shall be]may not be less than 1 inch below the inlet invert.~~
- ~~_____ (b)(B) [D]Each distribution box[es] shall have a riser[s] brought to final grade.~~
- ~~_____ 2. Drop Boxes.~~
- ~~_____ (ii) Each [D]drop boxes shall be watertight and constructed of durable, corrosion resistant material and may be used to distribute effluent within the absorption system and shall meet the following requirements:~~
- ~~_____ (a)(A) Each [D]drop box[es] shall be designed to accommodate [the]an inlet pipe, an outlet pipe leading to the next drop box, except for the last drop box, and one or two distribution pipes leading to the absorption system.~~
- ~~_____ (b)(B) The inlet pipe to the drop box shall be at least 1 inch higher than the outlet pipe leading to the next drop box.~~
- ~~_____ (c)(C) The invert of the distribution pipes shall be 1 through 6 inches below the outlet invert. If there is more than one distribution pipe, their inverts shall be at exactly the same elevation.~~
- ~~_____ (d)(D) Each [D]drop box[es] shall have a riser[s] brought to final grade.~~
- ~~_____ (3)(iii) Effluent [P]may be pumped to an [A]absorption [S]system.~~
- ~~_____ (a)(A) If a pump is used to lift effluent to an absorption system, the pump tank or pump vault shall meet the requirements of Subsection R317-4-6(9)[-9] or R317-4-6(10)[-10] and the pump and controls shall meet the requirements of Subsection R317-4-14(2) Appendix B.~~
- ~~_____ (b)(B) Pumping to an absorption system may not warrant any reductions to the absorption area.~~
- ~~_____ 4. Other Devices.~~
- ~~_____ (iv) Any tee[s], wye[s], ell[s], or other distributing device[s] may be used as needed to [permit]distribute proportional flow to the branches of the absorption system. A clean out or other means of access from the surface shall be provided for [these]any such device[s].~~
- ~~_____ (c)(C) Effluent shall be [D]distributed[ion] evenly throughout an absorption system using various [M]methods.~~
- ~~_____ 1. Closed Loop.~~
- ~~_____ (i) In a location[s] where the slope of the ground over the absorption system area is relatively flat, [the]absorption trenches should be interconnected to produce a closed loop system and the trenches shall be installed at the same elevations.~~
- ~~_____ 2. Non-Closed Loop.~~
- ~~_____ (ii) If a non-closed loop design is used, effluent shall be proportionally distributed to each lateral.~~
- ~~_____ 3. Serial or Sequential.~~
- ~~_____ (iii) Serial or sequential distribution may be used in absorption systems designed for sloping areas, or where absorption system elevations are not equal.~~
- ~~_____ (a)(A) Serial trenches shall be connected with a drop box or watertight overflow line in such a manner that a trench [will]shall be filled before the effluent flows to the next lower trench.~~
- ~~_____ (b)(B) The overflow line shall be a 4-inch solid pipe with direct connections to the distribution pipes. It should be laid in a trench excavated to the exact depth required. Care must be exercised to ensure a block of undisturbed earth remains between trenches. Backfill should be carefully tamped.~~
- ~~_____ (iv) Pressure [D]distribution to an absorption system shall conform to the following general requirements:[-]~~
- ~~_____ a. General Requirements.~~
- ~~_____ i. Conformance to Applicable Requirements.~~
- ~~_____ (A) All requirements stated elsewhere in this rule for design, setbacks, construction and installation details, performance, repairs, and abandonment shall apply.~~
- ~~_____ ii. Design Criteria.~~
- ~~_____ All(B) Each system[s] that uses this method shall be designed by a person certified at Level 3 in accordance with Rule R317-11.~~
- ~~_____ (1)(I) The designer shall submit details of all system components with the necessary calculations.~~
- ~~_____ (2)(II) The designer shall provide to the local health department and to the owner operation and maintenance instructions that include the minimum inspection levels in Section R317-4-13 Table 7 for the system.~~
- ~~_____ iii. Record in the Chain of Title.~~
- ~~_____ (C) When a system utilizing pressure distribution exists on a property, notice of the existence of that system shall be recorded in the chain of title for that property.~~
- ~~_____ b. Design.~~
- ~~_____ i.(D) Pressure distribution may be permitted on any site meeting the requirements for an onsite wastewater system if conditions in this rule can be met.~~
- ~~_____ ii.] Pressure distribution should be considered when:~~
- ~~_____ (1)(I) effluent pumps are used;~~
- ~~_____ (2)(II) the flow from the dwelling or structure exceeds 3,000 gallons per day;~~
- ~~_____ (3)(III) soils are a Type 1 or have a percolation rate faster than five minutes per inch; or~~

~~(4)~~(IV) soils are a Type 5 or have a percolation rate slower than 60 minutes per inch.

~~(iii)~~(E) The Utah Guidance for Performance, Application, Design, Operation and Maintenance: Pressure Distribution Systems document shall be used for design requirements, along with the following:

~~(4)~~(I) Dosing pumps, controls and alarms shall comply with Subsection R317-4-14(2) Appendix B.

~~(2)~~(II) Pressure distribution piping,[-

~~(a)~~ ~~Alt~~ pressure transport, manifold, lateral piping, and fittings shall meet PVC Schedule 40 standards or equivalent.

~~(b)~~(III) The ends of lateral piping shall be constructed with sweep elbows or an equivalent method to bring the end of the pipe to final grade. The ends of the pipe shall be provided with threaded plugs, caps, or other devices acceptable to the regulatory authority to allow for access and flushing of the lateral.

~~(E)~~(d) Design of Each [A]bsorption [S]ystem[s] shall be designed according to the requirements for the specific absorption method selected.

~~(i)~~(i) An absorption system shall be designed to ~~[approximately]~~ follow the ground surface contours so that variation in excavation depth ~~[will]~~ shall be minimized. The excavations ~~[could]~~ may be installed at different elevations, but the bottom of each individual excavation shall be level throughout its length.

~~(ii)~~(ii) Each absorption system[s] should be constructed as shallow as is possible to promote treatment and evapotranspiration.

~~(iii)~~(iv) Observation ports may be placed to observe the infiltrative surfaces of the trenches or beds.

~~(4)~~(v) ~~Absorption Trenches.~~

~~a.~~ Absorption trenches shall conform to the following:

~~(i)~~(A) The minimum required effective absorption area shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6.

~~(ii)~~(B) The effective absorption area of absorption trenches shall be calculated as the total bottom area of the excavated trench system in square feet.

~~(iii)~~(C) The [M]inimum number of absorption trenches shall be two.[+-2.]

~~(iv)~~(D) [M]The maximum length of an absorption trench[es], not including any connecting trench[es;-] shall be 150 feet.

~~(v)~~(E) [M]The minimum spacing of absorption trenches from wall to wall[+-] shall be 7 feet.

~~(vi)~~(F) [M]The minimum width of each absorption trench excavation[s;-] shall be 24 inches.

~~(vii)~~(G) [M]The maximum width of each absorption trench excavation[s;-] shall be 36 inches.

~~(viii)~~(H) [M]The minimum depth of each absorption trench excavation[s] below the original, natural grade[+-] shall be 10 inches.

~~(ix)~~(I) [M]The minimum depth of soil cover over [the]each absorption trench[es;-] shall be 6 inches.

~~(x)~~(J) [M]The minimum separation from the bottom of [the]each absorption trench[es] to:

~~(4)~~(K) the anticipated maximum ground water table[+-] shall be 24 inches; and

~~(2)~~(L) to unsuitable soil or bedrock formations[s;-] shall be 48 inches.

~~b.~~ ~~Standard Trenches.~~

~~(vi)~~ Each [S]tandard trench[es] shall conform to the following:

~~(i)~~(A) The top of any distribution pipe may not be installed above original, natural grade.

~~(ii)~~(B) The distribution pipe shall be centered in the absorption trench and placed the entire length of the trench.

~~(iii)~~(C) Drain media shall extend the full width and length of the trench[es] to a depth of at least[+-] 12 inches.

~~(iv)~~(D) [M]The minimum depth of drain media under the distribution pipe[+-] shall be 6 inches.

~~(v)~~(E) [M]The minimum depth of drain media over the distribution pipe[+-] shall be 2 inches.

~~(vi)~~(F) [M]The minimum depth of cover over the barrier material[+-] shall be 6 inches.

~~c.~~ ~~Chambered Trenches.~~

~~(vii)~~ Each [C]hambered trench[es] shall conform to the following:

~~(i)~~(A) ~~Alt~~ Each chamber[s] shall ~~[meet]~~ be certified under the International Association of Plumbing and Mechanical Officials (IAPMO) [S]tandard ~~[PS-63-2005, which is hereby incorporated into this rule by reference]~~ for plastic leaching chambers.

~~(ii)~~(B) The minimum required effective absorption area of chambered trenches shall be calculated:

~~(4)~~(I) using 36 inches for Type A Chambers[-as: 36 inches;]; and

~~(2)~~(II) using 24 inches for Type B Chambers,[-as: 24 inches;]

~~(3)~~(C) The minimum required effective absorption area of chambered trenches shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6 and may be reduced by[+-] 30%.

~~(iii)~~(D) The chambered trenches shall be designed and installed in conformance with manufacturer recommendations, as modified by this[ese] rule[s].

~~(iv)~~(E) Type A [C]hambers shall have:[-]

~~(4)~~ ~~M~~(I) a minimum width of [chambers:-]30 inches; and[+-]

~~(2)~~ ~~M~~(II) a maximum trench excavation width of [trench excavations:-]36 inches.

~~(v)~~(F) Type B [C]hambers shall have:[-]

~~(4)~~ ~~M~~(I) a minimum width of [chambers:-]22 inches; and[+-]

~~(2)~~ ~~M~~(II) a maximum trench excavation width of [trench excavations:-]24 inches.

~~(vi)~~(G) [M]The minimum elevation of the inlet pipe invert from the bottom of the chamber[+-] shall be 6 inches.

~~[(iii)](H) [A]Each chamber[s]ed trench shall have a splash plate under the inlet pipe or another design feature to avoid unnecessary channeling into the trench bottom.~~

~~[(iii)](I) [H]Any inlet and outlet effluent sewer pipe[s] shall enter and exit the chamber endplate[s].~~

~~[(ix)](J) [M]The minimum depth of cover over [the]any chamber[s-] shall be 12 inches. _[~~

~~_____]The depth of cover may be reduced to no less than 6 inches, if approved by the regulatory authority, considering the protection of absorption systems as required in Subsection R317-4-6(14)(a)(ii)[14-B-2], and other activities, as determined by the authority.~~

~~[d. Bundled Synthetic Aggregate Trenches-~~

~~_____B](viii) Each bundled synthetic aggregate trench[es] shall conform to the following:[-]~~

~~[-](A) [A]Each synthetic aggregate bundle[s] shall meet IAPMO Standards for the General, Testing and Marking and Identification of the guide criteria for Bundled Expanded Polystyrene Synthetic Aggregate Units.~~

~~[-](B) The effective absorption area of a bundled synthetic aggregate trench[es] shall be calculated as the total bundle length times the total bundle width in square feet.~~

~~[-](C) [The]Each bundled synthetic aggregate trench[es] shall be designed and installed in conformance with manufacturer recommendations, as modified by this[ese] rule[s].~~

~~[-](D) Only 12-inch diameter bundles are approved in this rule.~~

~~[(4)](E) For bundles with perforated pipe the minimum depth of synthetic aggregate under pipe[-] shall be 6 inches.~~

~~[-](F) [W]The width of each bundled synthetic aggregate trench[es-] shall require:~~

~~[(4)](I) [When designed for a 3 foot wide trench, t]three bundles [are-]laid parallel to each other with the middle bundle containing perforated pipe when designed for a 3 foot trench[-]; or~~

~~[(2)](II) [When designed for a 2 foot wide trench, -]two bundles [are-]placed on the bottom, with [one]another bundle containing perforated pipe placed on top of the other two bundles.~~

~~[-](G) The [M]minimum depth of cover over the bundles[-] shall be 12 inches. _[~~

~~_____]The depth of cover may be reduced to no less than 6 inches, if approved by the regulatory authority, considering the protection of absorption systems as required in Subsection R317-4-6(14)(a)(ii)[14-B-2], and other activities, as determined by the authority.~~

~~[2. Absorption Beds-~~

~~_____A](ix) Each absorption bed[s] shall conform to the requirements applicable to absorption trenches, except for the following:[-]~~

~~[-](A) The minimum required effective absorption area shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6.~~

~~[-](B) The effective absorption area of absorption beds shall be considered as the total bottom area of the excavated bed system in square feet.~~

~~[-](C) [A]An absorption bed[s] may be built over naturally existing soil types per Section R317-4-13 Table 5 or R317-4-13 Table 6.~~

~~[-](D) The bottom of the entire absorption bed shall be level.~~

~~[-](E) The distribution pipes or chambers shall be interconnected to produce a closed loop distribution system.~~

~~[-](F) [M]The minimum number of laterals in an absorption bed[-] shall be 2.~~

~~[-](G) [M]The maximum length of laterals in an absorption bed[-] shall be 150 feet.~~

~~[-](H) [M]The maximum distance between laterals[-] shall be 6 feet.~~

~~[-](I) [M]The minimum distance between laterals and sidewalls[-] shall be 1 foot.~~

~~[-](J) [M]The maximum distance between laterals and sidewalls[-] shall be 3 feet.~~

~~[-](K) [M]The minimum distance between absorption beds[-] shall be 7 feet.~~

~~[-](L) [M]The minimum depth of an absorption bed excavation from original, natural grade[-] shall be 10 inches.~~

~~[-](M) Absorption beds with drain media shall conform to the following:~~

~~[-](I) [M]The minimum depth of drain media under a distribution pipe[-] shall be 6 inches.~~

~~[-](II) [M]The minimum depth of drain media over a distribution pipe[-] shall be 2 inches.~~

~~[-](III) [M]The minimum depth of cover over the barrier material[-] shall be 6 inches.~~

~~[-](N) [A]Each absorption bed[s] with chambers shall require:~~

~~[-](I) Chambers shall be installed with sides touching, no separation allowed.~~

~~[-](II) All chambers shall be connected in a closed loop distribution system.~~

~~[-](III) The outlet side of the chamber runs shall be connected through the bottom port of the end plates.~~

~~[-](IV) No absorption area reduction factor shall be given for using chambers in absorption beds.~~

~~[-](V) [M]The minimum depth of cover over the chambers[-] shall be 12 inches.~~

~~[3. Deep Wall Trenches-~~

~~_____](x) Each [D]deep wall trench[es] shall conform to the following:~~

~~[-](A) The minimum required effective absorption area shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6.~~

~~[-](B) The effective absorption area of deep wall trenches shall be calculated using the total trench vertical sidewall area below the distribution pipe. The bottom area and any highly restrictive or impervious strata or bedrock formations may not be considered in determining the effective sidewall absorption area.~~

~~[-](C) If a percolation test[s-are] is used, [they]it shall be conducted in accordance with Subsection R317-4-14(4) Appendix D and in the most restrictive soil horizon.~~

- ~~(d.)(D) [M]The maximum length of any trench[es-], not including any connecting trench, shall be 150 feet.~~
- ~~i. Does not include connecting trenches.~~
- ~~]~~
- ~~[e.](E) [M]The minimum spacing of trenches from wall to wall[+-] shall be 12 feet,~~
~~] or three times the depth of the media under the distribution pipe, whichever is the larger distance.~~
- ~~[f. Vertical depth of t](F) Each deep wall trench[es-] shall:~~
 - ~~[i. M](I) have a minimum effective sidewall[s-] depth of 2 feet;[-]~~
 - ~~[ii. M](II) have a maximum effective sidewall[s-] depth of 10 feet; and[-]~~
 - ~~[iii.](III) allow[Calculate using] only suitable soil formation depth when calculating the absorption area.~~
- ~~[g.](G) [M]The minimum width of each trench excavation[s-] shall be 24 inches.~~
- ~~[h.](H) [M]The minimum separation from the bottom of each deep wall trench to:~~
 - ~~[+](I) the anticipated maximum ground water table[-] shall be a minimum of 48 inches; and~~
 - ~~[+](II) unsuitable soil or bedrock formations[-] shall be a minimum of 48 inches.~~
- ~~[+](I) Drain media shall cover the coarse drain media to [permit]allow for leveling of the distribution pipe and shall extend the full width and length of the trench.[es-]~~
- ~~[+](J) [M]The minimum depth of drain media[-] shall be 12 inches.~~
- ~~[ii.](K) [M]The minimum depth of drain media under the distribution pipe[-] shall be 6 inches.~~
- ~~[iii.](L) [M]The minimum depth of drain media over the distribution pipe[-] shall be 2 inches.~~
- ~~[+](M) [M]The minimum depth of cover over the barrier material[-] shall be 6 inches.~~
- ~~[k.](N) The distribution pipe shall be centered in the trench and placed the entire length of the trench.~~
- ~~[+](O) [S]The horizontal setback distance to any property line[s-] shall be a minimum of 10 feet.~~

~~4. Seepage Pits.~~

~~S)(xi) A seepage pit[s] shall be considered as a modified deep wall trench[es] and shall conform to the requirements applicable to deep wall trenches, except for the following:~~

~~[a.](A) The effective absorption area of a seepage pit[s] shall be calculated using the total pit vertical sidewall area below the distribution pipe. The bottom area and any highly restrictive or impervious strata or bedrock formations may not be considered in determining the effective sidewall absorption area.~~

~~[b.](B) [M]The minimum diameter of a seepage pit[s-] shall be 3 feet.~~

~~[e.](C) [Vertical depth of]Each seepage pit[s-] shall:~~

~~[+](I) [M]have a minimum effective sidewall[s-] depth of 4 feet;[-]~~

~~[ii.](II) [M]have a maximum effective sidewall[s-] depth of 10 feet; and[-]~~

~~[iii.](III) allow[Calculate using] only suitable soil formation depth when calculating the absorption area.~~

~~[d. Filled Seepage Pits.~~

~~i.)(D) In each pit[s] filled with coarse drain media, the perforated distribution pipe shall run across each pit. A layer of drain media shall be used for leveling the distribution pipe.[~~

~~ii.] The entire pit shall be completely filled with coarse drain media to at least the top of any permeable soil formation to be calculated as effective sidewall absorption area.~~

~~[e. Hollow Lined Seepage Pits.~~

~~i.)(E) Each hollow-lined seepage pit shall conform to the following:~~

~~(I) For each hollow-lined pit[s, the], an inlet pipe shall extend horizontally at least 1 foot into the pit.~~

~~[ii.](II) The annular space between the lining and excavation wall shall be filled with crushed rock or gravel ranging from 3/4 through 6 inches in diameter and free of fines, sand, clay or organic material. The maximum fines in the gravel shall be 2% by weight passing through a US Standard #10 mesh or 2.0 millimeter sieve.~~

~~[iii.](III) [M]The minimum width of annular space between lining and sidewall[-] shall be 12 inches.~~

~~[iv.](IV) [M]The minimum thickness of reinforced perforated concrete liner[-] shall be 2-1/2 inches.~~

~~[v.](V) [M]The minimum thickness of reinforced concrete top[-] shall be 6 inches.~~

~~[vi.](VI) [M]The minimum depth of drain media in the seepage pit bottom[-] shall be 6 inches.~~

~~[vii.](VII) Minimum depth of cover over seepage pit top[-] shall be 6 inches.~~

~~[viii.](VIII) A reinforced concrete top shall be provided.~~

~~[(4)](IX) When the cover over [the]any seepage pit top exceeds 6 inches, risers shall conform to Subsection R317-4-6(7)(g)[-7.F] for accessibility.~~

~~[6.15.](15) Alternative [S]onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a textile filter or a peat filter.~~

~~[A. System Types.~~

~~1. At Grade.~~

~~2. Mounds.~~

~~3. Packed Bed Media.~~

~~a. Intermittent Sand Filters.~~

~~b. Recirculating Sand Filters.~~

~~c. Recirculating Gravel Filters.~~

~~d. Textile Filters.~~

~~e. Peat Filters.~~

~~4. Sand Lined Trenches.~~

~~_____ B. General Requirements.~~

~~_____ 1.](a) An alternative onsite wastewater system shall conform to applicable requirements.~~
~~_____ All] requirements stated elsewhere in this rule for design, setbacks, construction and installation details, performance, repairs and abandonment shall apply unless stated differently for a given alternative system.~~

~~[2. Sizing Criteria for Alternative Systems.~~

~~_____](i) An absorption area for each alternative onsite wastewater system shall be sized based on Section R317-4-13 Table 5 or R317-4-13 Table 6 except as specified in this section.~~

~~[3. Design Criteria for Alternative Systems.~~

~~_____ All](ii) Each alternative onsite wastewater system[s] shall be designed by a person certified at Level 3 in accordance with Rule R317-11.~~

~~[a.](A) The designer shall submit details of all system components with the necessary calculations.~~

~~[b.](B) The designer shall provide to the local health department and to the owner operation and maintenance instructions that include the minimum inspection levels in Section R317-4-13 Table 7 for the system.~~

~~[4. Record in the Chain of Title.~~

~~_____](iii) When an alternative system exists on a property, notice of the existence of that system shall be recorded in the chain of title for that property.~~

~~[C. Design of Alternative Systems.](b) The design each alternative onsite wastewater system shall be designed according to the requirements for the specific alternative system selected.~~

~~[1. At Grade Systems.~~

~~_____](i) Absorption trenches and absorption beds may be used in an at-grade system[s]. Each at-grade system[s] shall conform to the requirements applicable to absorption trenches and absorption beds, except for the following:~~

~~[a.](A) Horizontal setbacks in Section R317-4-13 Table 2 are measured from edge of trench sidewall, except at property lines, where the toe of the final cover shall be 5 feet or greater in separation distance to a property line.~~

~~[b.](B) [M]The minimum number of observation[s] ports provided within absorption area[-] shall be 2.[~~

~~_____ i.] The ports shall be installed to the depth of the trench or bed.~~

~~[c.](C) [D]The depth of each absorption excavation[s] below natural grade[-] shall be 0-10 inches.~~

~~[d.](D) [M]The minimum cover over the absorption area[-] shall be 6 inches.~~

~~[e.](E) [M]The maximum slope of natural ground surface[-] shall be 4%.~~

~~[f.](F) The maximum side slope for above ground fill shall be four horizontal to one vertical[-] shall be a 25% slope.~~

~~[g.](G) Where final contours are above the natural ground surface, the cover shall extend from the center of the wastewater system at the same general top elevation for a minimum of 10 feet in all directions beyond the limits of the absorption area perimeter, before beginning the side slope.~~

~~[2. Mound Systems.~~

~~_____](ii) Each [M]mound system[s] shall conform to the following:~~

~~[a.](A) The design shall generally be based on the Wisconsin Mound Soil Absorption System: Siting, Design and Construction Manual, January 2000 published by the University of Wisconsin-Madison Small-Scale Waste Management Project, with the following exceptions.~~

~~[i.](B) The minimum separation distance between the natural ground surface and the anticipated maximum ground water table[-] shall be 12 inches.~~

~~[ii.](C) [M]A mound system[s] may be built over naturally existing soil types per Section R317-4-13 Table 5 or R317-4-13 Table 6 provided the minimum depth of suitable soil is:~~

~~[(+)](I) 36 inches between the natural ground surface and bedrock formations or unsuitable soils[-36 inches]; or~~

~~[(2)](II) 24 inches above soils that have a percolation rate faster than one minute per inch[-24 inches].~~

~~[iii.](D) The minimum depth of sand media over natural soil[-] shall be 12 inches.~~

~~[iv.](E) The maximum slope of natural ground surface[-] shall be 25 %.~~

~~[v.](F) The separation distances in Section R317-4-13 Table 2 are measured from the toe of the final cover.~~

~~[vi.](G) The effluent loading rate at the sand media to natural soil interface shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6.~~

~~[vii.](H) The effluent entering a mound system shall be at levels at or below the defined parameters of non-domestic effluent.~~

~~[viii.](I) The minimum thickness of aggregate media around the distribution pipes of the absorption system shall be the sum of 6 inches below the distribution pipe, the diameter of the distribution pipe and 2 inches above the distribution pipe or 10 inches, whichever is larger.~~

~~[ix.](J) The cover may not be less than 6 inches in thickness, and shall provide protection against erosion, frost, storm water infiltration and support vegetative growth and aeration of distribution cell.~~

~~[x.](K) A minimum of three observation ports shall be located within the mound at each end and the center of the distribution cell.[~~

~~_____ (1) At least one port shall be installed at the gravel-sand interface, and one port at the sand-soil interface.~~

~~[b.](L) Mounds shall use pressure distribution.[~~

~~_____ i.] The Utah Guidance for Performance, Application, Design, Operation and Maintenance: Pressure Distribution Systems document and Subsection R317-4-6(14)(c)(iv)[-14.D.4] shall be used for design requirements.[~~

~~_____ (1) See Subsection R317-4-14(2) Appendix B for pump and control requirements.~~

~~[3. Packed Bed Media Systems.~~

_____](iii) Each [P]packed bed media system[s] shall conform to the following design criteria:

~~[a. System Design Criteria.~~

~~i. Wastewater Design Flows.~~

_____](1)(A) For a single-family dwelling[s] the design shall be based on a minimum of 300 gallons per day for two bedrooms and 100 gallons per day for each additional bedroom.

~~[(2)(B) All other flow estimates shall be based on Subsection R317-4-6(4)(4).~~

~~[(3)(C) Special design considerations shall be given for non-domestic effluent.~~

~~[ii. Effluent Distribution.~~

_____](D) Effluent shall be uniformly distributed over the filter media using pressure distribution.

~~[b. Absorption System Requirements.~~

_____]Absorption systems shall conform to the following:

~~i. Siting Conditions.~~

_____](E) A [P]packed bed media absorption system[s] may be ~~[sited under the following conditions:~~

_____](1) ~~T]placed where the minimum separation distance between the natural ground surface and the anticipated maximum ground water table[+] is 12 inches.~~

~~[(2)(F) [P]A packed bed media absorption system[s] may be built over naturally existing soil types per Section R317-4-13 Table 5 or R317-4-13 Table 6 provided the minimum depth of suitable soils:~~

~~[(a)(I) above soils that have a percolation rate faster than one minute per inch[+] is at least 24 inches; and~~

~~[(b)(II) at least 36 inches between the natural ground surface and bedrock formations or unsuitable soils[+ 36 inches];~~

or

~~[(c)(III) there is at least 18 inches between the natural ground surface and bedrock formations or unsuitable soils[+ 18 inches based on] determined by an evaluation of infiltration rate and hydrogeology from a professional geologist or engineer that is certified at the appropriate level to perform onsite wastewater system design and having sufficient experience in geotechnical engineering based on the detailed subsurface geology of the vicinity, the hydrogeology of the vicinity, and the cumulative hydrogeological effect of all existing and future onsite wastewater systems within the area.[+:~~

~~(i) type, extent of fractures, presence of bedding planes, angle of dip;~~

~~(ii) hydrogeology of surrounding area; and~~

~~(iii) cumulative effect of all existing and future systems within the area for any localized mounding or surfacing that may create a public health hazard or nuisance, description of methods used to determine infiltration rate and evaluations of surfacing or mounding conditions.]~~

~~[(3)(G) A non-chemical disinfection unit, capable of meeting laboratory testing parameters in Table 7.3, and a maintenance schedule consistent to Section R317-4-13 Table[s] 7.1 and R317-4-13 Table 7.3, shall be used in excessively permeable soils.~~

~~[(4)(H) Conformance with the minimum setback distances in Section R317-4-13 Table 2, except for the following that require a minimum of 50 feet of separation:~~

~~[(a)(I) watercourses, lakes, ponds, reservoirs;~~

~~[(b)(II) non-culinary springs or wells;~~

~~[(c)(III) foundation drains, curtain drains; or~~

~~[(d)(IV) non-public culinary grouted wells, constructed as required by Title R309.~~

~~[ii. Sizing Criteria.~~

_____](I) The minimum required effective absorption area shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6 and may be reduced by[+] 30%.[

_____](4) The use of chambered trenches with a packed bed media system may not receive additional reductions as allowed in Subsection R317-4-6(14)(d)(v).[+E.I.e.]

~~[iii. Separation from Ground Water Table.~~

_____](J) The bottom of the absorption system shall have a vertical separation distance of at least 12 inches from the anticipated maximum ground water table.

~~[iv. Observation Ports.~~

_____](K) A minimum of two observation ports shall be provided within the absorption area.

~~[v. Drip Irrigation.~~

_____](L) Drip irrigation absorption may be used for packed bed media absorption system effluent dispersal based on type of soil and drip irrigation manufacturer's recommendations.

~~[(+) (I) Materials shall be specifically designed and manufactured for onsite wastewater applications.~~

~~[(2) (II) Non-absorption components shall be installed per Section R317-4-6 and Section R317-4-13 Table 2.~~

~~[e-] (iv) [H]Each intermittent [S]and [F]filter [S]system[s] shall conform to the following:[-]~~

~~[i. Media.~~

_____](A) Either sand media or sand fill ~~[as described below]~~ may be used.

~~[(1) Minimum depth of sand media: 24 inches.~~

_____](2)(I) ~~[M]The minimum depth of sand media or sand fill[+] shall be 24 inches.~~

~~[(a)(II) [E]The effective size[+] of the sand media or sand fill shall be 0.35-0.5 millimeters.~~

~~[(b)(III) [U]The uniformity coefficient[+] of the sand media or sand fill shall be less than 4.0.~~

~~[(c)(IV) [M]The maximum fines passing through #200 sieve[+] shall be 1%.~~

~~[i-] (B) [M]The maximum application rate per day per square foot of media surface area shall be:~~

~~(4)(I) [S]1.0 gallons for sand media; or [:-1.0 gallons.]~~
~~(2)(II) [S]1.2 gallons for sand fill [:-1.2 gallons].~~
~~iii.(C) [M]The maximum dose volume through any given orifice for each dosing [:-] shall be 2 gallons.~~
~~iv.(D) Effluent entering an intermittent sand filter shall be at levels at or below the defined parameters of non-domestic~~
effluent.

~~(v) [R]Each recirculating [S]sand [F]filter [(RSF)-S]system[s] shall conform to the following: [:-]~~
~~i. Media.~~

~~(1)(A) [M]The minimum depth of washed sand [:-] shall be 24 inches.~~
~~(2)(B) [E]The effective size [:-] of the media shall be 1.5-2.5 millimeters.~~
~~(3)(C) [U]The uniformity coefficient [:-] shall be less than 3.0.~~
~~(4)(D) [M]The maximum fines passing through a #50 sieve [:-] shall be 1%.~~
~~ii.(E) [M]The maximum application rate per day per square foot of media surface area [:-] shall be 5 gallons.~~
~~(vi) [R]Each recirculating [G]gravel [F]filter [(RGF)-S]system[s] shall conform to the following: [:-]~~
~~i. Media.~~

~~(1)(A) [M]The minimum depth of washed gravel [:-] shall be 36 inches.~~
~~(2)(B) [E]The effective size [:-] of the media shall be 2.5-5.0 millimeters.~~
~~(3)(C) [U]The uniformity [C]coefficient [:-] shall be less than 2.0.~~
~~(4)(D) [M]The maximum fines passing through a #16 sieve [:-] shall be 1%.~~
~~ii.(E) [M]The maximum application rate per day per square foot of media surface area [:-] shall be 15 gallons.~~

~~(vii) [F]Each textile [F]filter [S]system[s] shall conform to the following:~~
~~i.(A) Media shall be an approved geotextile fabric. [:-AdvanTex, or an approved equal.]~~
~~ii.(B) [M]The maximum application rate per day per square foot of media surface area [:-] shall be 30 gallons.~~
~~(viii) [P]Each peat [F]filter [S]system[s] shall conform to the following:~~
~~i.(A) [M]The minimum depth of peat media [:-] shall be 24 inches.~~
~~ii.(B) [M]The maximum application rate per day per square foot of media surface area [:-] shall be 5 gallons.~~

~~4. Sand Lined Trench Systems.~~

~~(ix) Each [S]sand lined trench system[s] shall conform to the following:~~

~~a. Siting Conditions.~~

~~i.(A) The minimum depth of suitable soil or saprolite between the sand media in trenches and the anticipated maximum ground water table [:-] shall be 12 inches.~~

~~ii.(B) [S]Each sand lined trench system[s] may be built over naturally existing:~~

~~(1) soil types 1 through 4; or~~

~~(2) soils or saprolite with a percolation rate between 1 and 60 minutes per inch.~~

~~iii.(C) The minimum depth of suitable soil or saprolite [is] shall be:~~

~~(1) 36 inches between the sand media in trenches and bedrock formations or unsuitable soils [:-36 inches]; or~~

~~(2) 24 inches above soils or saprolite that have a percolation rate faster than one minute per inch [:-24 inches].~~

~~e. Trench Requirements.~~

~~(D) Each [S]sand lined trench[es] shall conform to the requirements applicable to absorption trenches except for the following:~~

~~i.(I) [F]For each trench[es] in [S]suitable [S]soil, [:-]~~

~~F]the minimum required effective absorption area shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6.~~

~~ii.(II) [F]For each trench[es] in [S]saprolite, [:-]~~

~~F]the minimum required effective absorption area shall be based on percolation rate using Section R317-4-13 Table 5.[~~

~~(1) This rate shall be determined by conducting percolation tests. The soil shall be allowed to swell not less than 24 hours or more than 30 hours; [:-]~~

~~iii.(III) The use of chambered trenches with a sand media system may not receive additional reductions as allowed in Subsection R317-4-6(14)(d)(v). [:-14.E.1.e.]~~

~~iv.(IV) [W]The maximum width of an absorption trench excavation [:-] shall be 36 inches.~~

~~v.(V) The entire trench sidewall shall be installed in natural ground. [A]An at-[G]grade system design [:-are] may not be allowed.~~

~~vi.(VI) [M]The minimum depth of sand media [:-] shall be 24 inches.~~

~~vii.(VII) [S]Each sand lined trench[es] with drain media [:-]~~

~~(1) M] shall have a minimum depth of 6 inches of drain media under the pressure lateral distribution pipe [:-6 inches.]~~

~~(2)(VIII) [M]Each sand lined trench with drain media shall have a minimum depth of 2 inches of drain media over pressure lateral distribution pipe [:-2 inches.]~~

~~(3)(IX) [M]The minimum depth of soil cover or saprolite over drain media [:-] shall be 6 inches.~~

~~viii.(X) [S]For each sand lined trench[es] with Type A chambers. [:-]~~

~~(1) M] the minimum depth of soil cover or saprolite over chambers [:-] shall be 12 inches.~~

~~ix.(XI) [M]The minimum number of observation ports per trench [:-] shall be 1.~~

~~e. Effluent Distribution.~~

~~(E) Effluent shall be uniformly distributed over the sand media using pressure distribution. [:-]~~

_____ i. D] Pressure distribution design shall generally be based on the Utah Guidance for Performance, Application, Design, Operation and Maintenance: Pressure Distribution Systems document.

_____ (x) Each membrane bioreactor system installed as part of an alternative onsite wastewater system is intended to be installed as a complete unit. The design of any the treatment tank and all accessory components, treatment pods, aerators, blowers, pumps, membranes, and control panel shall conform to manufacturer specifications specific to the daily flows and wastewater strength proposed to be treated. Each membrane bioreactor system shall conform to the following:

_____ (A) For a single-family dwelling the design shall be based on a minimum of 300 gallons per day for two bedrooms and 100 gallons per day for each additional bedroom.

_____ (B) All other flow estimates shall be based on Subsection R317-4-6(4).

_____ (C) Special design considerations shall be given for non-domestic effluent.

_____ (D) Each membrane bioreactor system installed shall meet the requirements listed in Subsection R317-4-6(7).

_____ (E) Each septic, equalization, recirculation, pump, or other tanks used in conjunction with any membrane bioreactor system shall meet the requirements listed in Section R317-4-6.

_____ (F) MBR tank volume shall have a liquid capacity adequate for the minimum operating volume that includes the dead space, dosing volume, and surge capacity, and shall have the emergency operation capacity of:

_____ (I) storage capacity for the system design daily wastewater flow;

_____ (II) at least two independent power sources with appropriate wiring installed; or

_____ (III) other design considerations approved by the regulatory authority that do not increase public health risks if pump failure occurs.

_____ (G) Each membrane bioreactor system shall have a minimum of two membrane filter units installed in a manner that any unit can be maintained independently of other filter membrane units.

_____ (H) Each membrane bioreactor overflow shall discharge directly to the septic tank.

_____ (I) Each membrane bioreactor unit shall be installed according to manufacturer's specifications.

_____ (J) Any membrane bioreactor system constructed above ground shall be housed in an easily accessible service building that is climate controlled. The service building shall meet the appropriate permitting and setback distances required by the building authority.

_____ (K) Each membrane bioreactor absorption system shall conform to the following:

_____ (I) The minimum separation distance between the natural ground surface and the anticipated maximum groundwater table shall be 12 inches.

_____ (II) An absorption system receiving effluent from a membrane bioreactor may be built over naturally existing soil types per Section R317-4-13 Table 5 or R317-4-13 Table 6 provided the minimum depth of suitable soils above soils that have a percolation rate faster than one minute per inch is 24 inches.

_____ (III) An absorption system receiving effluent from a membrane bioreactor may be built over naturally existing soil types per Section R317-4-13 Table 5 or R317-4-13 Table 6 provided the minimum depth of suitable soils between the natural ground surface and bedrock formations or unsuitable soils is 36 inches.

_____ (IV) An absorption system receiving effluent from a membrane bioreactor may be built over naturally existing soil types per Section R317-4-13 Table 5 or R317-4-13 Table 6 provided the minimum depth of suitable soils between the natural ground surface and bedrock formations or unsuitable soils is at least 18 inches between the natural ground surface and bedrock formations or unsuitable soils determined by an evaluation of infiltration rate and hydrogeology from a professional geologist or engineer that is certified at the appropriate level to perform onsite wastewater system design and having sufficient experience in geotechnical engineering based on the subsurface geology of the vicinity, the hydrogeology of the vicinity, and the cumulative hydrogeological effect of all existing and future onsite wastewater systems within the area.

_____ (L) A non-chemical disinfection unit, capable of meeting laboratory testing parameters in Table 7.3, and a maintenance schedule consistent to Sections R317-4-13 Table 7.1 and R317-4-13 Table 7.3, shall be used in excessively permeable soils.

_____ (M) Conformance with the minimum setback distances in Section R317-4-13 Table 2, except for the following that require a minimum of 50 feet of separation:

_____ (I) watercourses, lakes, ponds, reservoirs;

_____ (II) non-culinary springs or wells;

_____ (III) foundation drains, curtain drains; or

_____ (IV) non-public culinary grouted wells, constructed as required by Title R309.

_____ (N) The minimum required effective absorption area for an absorption system receiving effluent from a membrane bioreactor system shall be calculated using Section R317-4-13 Table 5 or R317-4-13 Table 6 and may be reduced by 30%.

_____ (O) The use of chambered trenches with any membrane bioreactor system may not receive additional reductions as allowed in Subsection R317-4-6(14)(d)(vii)(C).

_____ (P) The bottom of the absorption system shall have a vertical separation distance of at least 12 inches from the anticipated maximum groundwater table.

_____ (Q) A minimum of two observation ports shall be provided within the absorption area.

_____ (R) Drip irrigation absorption may be used for membrane bioreactor absorption system effluent dispersal based on type of soil and drip irrigation manufacturer's recommendations.

_____ (S) Materials shall be specifically designed and manufactured for onsite wastewater applications.

_____ (T) Non-absorption components shall be installed per Sections R317-4-6 and R317-4-13 Table 2.

_____ (U) A membrane bioreactor manufacturer shall submit NSF/ANSI Standard 40 - Residential Wastewater Treatment Systems certification for any model proposed to be approved for use in Utah. The division may approve any membrane bioreactor

model as equivalent to an NSF certified model, if the manufacturer submits a written recommendation bearing the seal of a professional engineer licensed to practice in Utah who is certified as a Level 3 Onsite Professional as defined in Rule R317-11.

R317-4-7. Construction and Installation.

~~[7.1. System Installation.~~

~~_____A-](1) [A]Each onsite wastewater system shall be constructed and installed in compliance with approved [P]plans.~~

~~(a) The installer may not deviate from the approved plans or conditions of the construction permit without the approval of the designer and the reviewing regulatory authority.~~

~~[B. Installation Restrictions.~~

~~_____](b) A regulatory authority may limit the time period or area in which a system can be installed to ensure that soil conditions, weather, groundwater, or other conditions do not adversely affect the reliability of the system.~~

~~[C-](c) Construction and installation of each onsite wastewater system shall conform to the following [G]general [R]requirements:[-]~~

~~[1-](i) [Prior to]Before installation, all minimum setback distances shall be field verified.~~

~~[2-](ii) [A]Each absorption area[s] shall be protected [prior to]before and during site construction.~~

~~[3-](iii) The regulatory authority may require a temporary barrier around the absorption area, including the replacement area for additional protection [prior to]before and during any site construction. If necessary, a more permanent barrier may be required following construction.~~

~~[4-](iv) All absorption excavations and piping shall be level within a tolerance of plus or minus 1 inch. The overall slope from effluent entry to terminus shall be no more than 4 inches per hundred feet.~~

~~[5-](v) Absorption system excavations shall be made such that the soil in the bottom and sides of the excavation is not compacted. Strict attention shall be given to the protection of the natural absorption properties of the soil.~~

~~[6-](vi) Any absorption system[s] may not be excavated when the soil is wet enough to smear or compact easily.~~

~~[7-](vii) [A]Any smeared or compacted surfaces should be raked to a depth of 1 inch, and loose material removed before the absorption system components are placed in the excavation.~~

~~[8-](viii) Any [O]open absorption system excavation[s] shall be protected from surface runoff to prevent the entrance of silt and debris.~~

~~[9-](ix) Each [A]absorption system[s] shall be backfilled with earth that is free from stones 10 inches or more in diameter.~~

~~[10-](x) Distribution pipe[s] may not be crushed or misaligned during backfilling. When backfilling, the earth shall be mounded slightly above the surface of the ground to allow for settlement and prevent depressions for surface ponding of water.~~

~~[11-](xi) Final grading shall prevent ponding throughout the entire system area and promote surface water runoff.~~

~~[12-](xii) Heavy wheeled equipment may not be driven in or over any absorption system[s] [prior to]before or during construction or backfilling.~~

~~[D. Building and Effluent Sewer.~~

~~_____1-](d) Pipe, pipe fittings, and similar materials comprising building and effluent sewers shall conform to the applicable standards as outlined in Section R317-4-13 Table 4.~~

~~[2-](i) Each length of pipe shall be stamped or marked as required by the International Plumbing Code.~~

~~[3-](ii) Where two different sizes or types of pipe are connected, a proper type of fitting or conversion adapter shall be used.~~

~~[4-](iii) [A]Each building sewer[s]:~~

~~[a-](A) shall have watertight, root-proof joints; and~~

~~[b-](B) may not receive any ground water or surface runoff.~~

~~[5-](iv) Pipes shall be installed on a foundation of undisturbed earth, or stabilized earth that is not subject to settling.~~

~~[E. Tanks.~~

~~_____](c) Tank installation shall conform to the following requirements.~~

~~[1-](i) [A]Each tank[s] shall be installed on a level, stable base that [will]may not settle.~~

~~[2-](ii) The hole to receive the tank shall be large enough to permit the proper placement of the tank and backfill.~~

~~[3-](iii) Where ground water, rock or other undesirable protruding obstructions are encountered, the bottom of the hole shall be excavated an additional 6 inches, and backfilled with sand, crushed stone, or gravel to the proper grade.~~

~~[4-](iv) [B]backfill around and over the septic tank shall be placed in such a manner as to prevent undue strain or damage to the tank or connected pipes.~~

~~[F-](f) Absorption [S]system[s] construction and installation shall conform to the following:[-]~~

~~[1-](i) Cover shall be evenly graded over the entire absorption area.~~

~~[2-](ii) Distribution [and]or [D]drop [B]box[es].~~

~~_____a. The] inlet and outlet piping shall be sealed watertight to the sidewalls of the box.~~

~~[b. The](iii) Each distribution or drop box shall be provided with a means of access. Access shall be brought to final grade.~~

~~[e-](iv) The lid of the riser shall be adequate to prevent entrance of water, dirt or other foreign material, but made removable for observation and maintenance of the system.~~

~~[d-](v) The top of the box shall be at least 6 inches below final grade.~~

~~[e-](vi) The box shall be installed on a level, stable base to ensure against tilting or settling, and to minimize movement from frost action.~~

- ~~(f.)~~(vii) ~~(U)~~Each unused knock-out hole[s] in any box[es] shall be sealed watertight.
- ~~(3-)~~(g) The solid and distribution pipes shall be bedded true to line and grade, uniformly and continuously supported by firm, stable material.
- ~~(4-)~~(h) No cracked, weakened, modified or otherwise damaged chamber or bundled synthetic aggregate units ~~(shall)~~may be used in any installation.
- ~~(G-)~~(i) Pressure ~~(D)~~distribution[
1-] installation practices shall follow the approved design.
- ~~(G-)~~(i) Alternative ~~(S)~~system[s] construction and installation practices shall follow the approved design.
- ~~(4-)~~(i) ~~(A)~~For each at-~~(G)~~grade ~~(and)~~or ~~(M)~~mound ~~(S)~~system[s-] installation:
 - ~~(a-)~~(A) The site shall be cleared of surface vegetation, without removing soil, and scarified to an approximate depth of 6 inches. Any furrows resulting from the scarification shall be perpendicular to any slope on the site.[
i-] Rotary tilling ~~(is)~~shall be prohibited for scarification.
 - ~~(b-)~~(B) The system may not be installed in wet or moist soil conditions.
 - ~~(e-)~~(C) No equipment ~~(shall)~~may be driven over the scarified area.
 - ~~(d-)~~(D) The site shall be graded such that surface water drains away from the system and adjoining area.
 - ~~(2-)~~(ii) Packed ~~(B)~~bed ~~(M)~~media, ~~(and)~~S[sand ~~(L)~~lined ~~(T)~~trench, and membrane bioreactor ~~(S)~~system[s-]
1-] installation practices shall follow the approved design.

R317-4-8. Final Inspections.

- ~~(8-1. Final Inspections.~~
1-) (1) The regulatory authority shall inspect the entire installation before backfilling to determine compliance with this rule. Some components or system types require additional testing or inspection methods as outlined in the following.
 - ~~(A. Tank Water Tightness Testing.~~
1-) (a) Each tank shall be tested for water tightness ~~(prior to)~~before backfilling.
 - ~~(4-)~~(i) ~~(The)~~Each tank[s] shall be filled 24 hours before the inspection to allow stabilization of the water level. Considering water absorption by the concrete, there may not be a change in the water level nor any water moving visibly into or out of the tank. Testing shall be supervised by the regulatory authority. Tanks exhibiting obvious defects or leaks may not be approved unless such deficiencies are repaired to the satisfaction of the regulatory authority.
 - ~~(a-)~~(A) The regulatory authority may allow two piece tanks, with the joint below the water level, to be backfilled up to 3 inches below the joint to provide adequate support to the seam of the tank.
 - ~~(b-)~~(B) ~~(P)~~Any polyethylene or fiber[-]glass tank[s] may be backfilled as per manufacturers' recommendations.
 - ~~(2-)~~(ii) If ground water elevations inhibit the ability to visibly inspect the exterior of the tank, the tank[s] may be tested by ~~(their)~~its ability to exclude water.
 - ~~(B. Distribution and Drop Boxes.~~
1-) (b) ~~(D)~~Each distribution ~~(and)~~or drop box[es] should be installed level and the flow distribution lines shall be checked by filling the box[es] with water up to the outlets.
 - ~~(C. Pressure Distribution, Effluent Pumps.~~
1-) (c) Any pump, controls, or alarms shall have its ~~(Verify the -)~~correct operation ~~(verified.)~~~~(of the pump, controls, and alarm.)~~
 - ~~(D. Deep Wall Trenches, Seepage Pits.~~
1-) (d) ~~(Verify)~~Any deep wall trench or seepage pit shall have the depth of the trench excavation ~~(verified.)~~
 - ~~(E-)~~(e) For each ~~(At-G)~~at-grade ~~(and)~~or ~~(M)~~mound ~~(S)~~system[s-]
 - 1- Verify ~~(i)~~(i) the preparation of the original ground before the placement of fill ~~(shall be verified; and)~~-
 - 2- Verify ~~(ii)~~(ii) the final cover ~~(shall meet)~~s requirements.
 - ~~(E-)~~(f) ~~(A)~~For each alternative ~~(and)~~or ~~(E)~~experimental ~~(S)~~system[s-]
 - 1- All, additional inspections ~~(will)~~shall be dictated by the complexity of the system and absorption system type as identified by the regulatory authority.[
G. Final Approval.]
- ~~(g)~~ Final approval shall be issued by the regulatory authority ~~(prior to)~~before operation of ~~(the)~~any system, and shall include an as-built drawing of the completed system.

R317-4-9. Experimental Systems.

- ~~(9-1. Administrative Requirements.~~
A-) (1) Where unusual conditions exist, ~~(an)~~ experimental method[s] of onsite wastewater treatment ~~(and)~~or dispersal may be employed provided ~~(they are)~~the method is acceptable to the division and to the local health department having jurisdiction.
 - ~~(B-)~~(a) When considering ~~(any)~~proposal[s] for ~~(an)~~ experimental onsite wastewater system[s], the division or the local health departments may not be restricted by this rule provided that:
 - ~~(4-)~~(i) the experimental system proposed is attempting to resolve an existing pollution or public health hazard, or when the experimental system proposal is for new construction, it has been predetermined that an acceptable back-up wastewater system ~~(will)~~shall be installed in event of failure of the experiment;
 - ~~(2-)~~(ii) the proposal for an experimental onsite wastewater system shall be in the name of and bear the signature of the person who ~~(will)~~shall own the system; and

~~[3-](iii)~~ the person proposing to utilize an experimental system has the responsibility to maintain, correct, or replace the system in event of failure of the experiment.

~~[C-](b)~~ When sufficient, successful experience is established with an experimental onsite wastewater system[s], the division may designate ~~[them]that system~~ as an approved alternative onsite wastewater system[s].

~~[D-](c)~~ Following ~~[this]the~~ approval of an alternative onsite wastewater system[s], the division may initiate rulemaking.

~~[9-2 General Requirements.~~

~~_____ A. All](2)~~ Each experimental system[s] shall be designed, installed and operated under the following conditions:

~~[1-](a)~~ The ground water requirements shall be determined as described in Subsection R317-4-4(1)(d).~~[1-B-3-]~~

~~[2-](b)~~ The local health department shall advise the owner of the system of the experimental status of that type of system. The advisory shall contain information concerning risk of failure, level of maintenance required, financial liability for repair, modification or replacement of a failed system and periodic monitoring requirements that are all specific to the type of system to be installed.

~~[3-](c)~~ The local health department and the owner shall be provided with sufficient design, installation and operating information to produce a successful, properly operating installation.

~~[4-](d)~~ The local health department is responsible for provision of, or oversight of an approved installation, inspection and maintenance and monitoring program for the systems. Such programs shall include approved procedures for complete periodic maintenance and monitoring of the systems.

~~[5-](e)~~ The local health department may impose more stringent design, installation, operating and monitoring conditions than those required by the division.

~~[6-](f)~~ ~~[A]Any~~ failure[s], repair[s] or alteration[s] shall be reported to the local health department. ~~[A]Each~~ repair[s] or alteration[s] shall be approved by the local health department.

~~[B-](3)~~ When an experimental wastewater system exists on a property, notification of the existence of that system shall be recorded in the chain of title for that property.

R317-4-10. Wastewater Holding Tanks Administrative, Design, and Installation.

~~[10.1. Administrative Requirements.~~

~~_____ A-](1)~~ ~~[R]Each~~ request[s] for the use of a wastewater holding tank[s] shall receive the written approval of the local health department ~~[prior to]before~~ the installation of the holding tank and be administered under an annual operating permit.

~~[B-](a)~~ ~~[W]A~~ wastewater holding tank[s] ~~[are]~~ shall only be permitted:

~~[1-](i)~~ where an absorption system for an existing dwelling has failed and installation of a replacement absorption system is not practicable;

~~[2-](ii)~~ as a temporary, not to exceed one year, wastewater system for a new dwelling until a connection is made to an approved sewage collection system;

~~[3-](iii)~~ as a temporary, not to exceed one year, wastewater system that may include construction sites, labor camps, temporary mass gatherings, or emergency refuge sheltering; or

~~[4-](iv)~~ for other essential and any unusual situation[s] where both the division and the local health department having jurisdiction concur that the proposed holding tank ~~[will]shall~~ be designed, installed and maintained in a manner that provides long term protection of the waters of the state.]

~~_____ a. R.]~~ Each request[s] for the use of a wastewater holding tank[s] in this instance shall receive the written approval of both agencies ~~[prior to]before~~ the installation of such device[s].

~~[C-](b)~~ Except on those lots recorded and approved for wastewater holding tanks ~~[prior to]before~~ May 21, 1984, a wastewater holding tank[s] ~~[are]~~ may not be permitted for use in any new housing subdivision[s], or commercial, institutional, and recreational development[s] except in those instances where these devices are part of a specific watershed protection program acceptable to the division and the local health department having jurisdiction.

~~[10.2. General Requirements.~~

~~_____](2)~~ The design, site placement, installation, and maintenance of ~~[a]each~~ wastewater holding tank[s] shall comply with the following:

~~[A-](a)~~ No wastewater holding tank ~~[shall]may~~ be installed and used unless plans and specifications covering its design and construction have been submitted to and approved by the appropriate regulatory authority.

~~[B-](b)~~ A statement accompanying the application, that a contract with an approved pumper per Rule R317-550 ~~[will]shall~~ be obtained stating that the tank ~~[will]shall~~ be pumped out periodically at regular intervals or as needed, and contents ~~[will]shall~~ be disposed in an approved manner.

~~[C-](c)~~ If authorization is necessary for disposal of wastewater at certain facilities, evidence of such authorization ~~[must]shall~~ be submitted for review.

~~[10.3. Basic Plan Information Required.~~

~~_____](3)~~ Depending on the individual site and circumstances, or as determined by the regulatory authority, some or all ~~[of]~~ the following plan information may be required.

~~[A. Applicant Information.~~

~~_____ 1-](a)~~ The name, current address, and telephone number of the applicant.

~~[2-](b)~~ Complete address, legal description of the property, or both, to be served by this ~~[onsite wastewater system.]holding tank.~~

~~[B-](c)~~ A plot or site plan showing:

~~[1-](i)~~ ~~[d]the~~ direction of North;

- ~~[2-]~~(ii) ~~[d]~~the estimated daily wastewater flow;
 - ~~[3-]~~(iii) ~~[H]~~the location and liquid capacity of the wastewater holding tank;
 - ~~[4-]~~(iv) ~~[s]~~the source and location of the water supply;
 - ~~[5-]~~(v) ~~[H]~~the location of any water service line and building sewer; and
 - ~~[6-]~~(vi) ~~[H]~~the location of ~~[streams, ditches, watercourses, ponds, etc.,]~~any surface water feature near the property.
- ~~[C-]~~(d) Plan detail of wastewater holding tank and high wastewater level warning device.

~~[D-]~~(e) Relative elevations of:

- ~~[1-]~~(i) building floor drain;
 - ~~[2-]~~(ii) building sewer;
 - ~~[3-]~~(iii) invert of inlet for tank;
 - ~~[4-]~~(iv) lowest plumbing fixture or drain in building served; and
 - ~~[5-]~~(v) the maximum liquid level of the tank.
- ~~[E-]~~(f) Statement indicating the maximum anticipated ground water table.

~~[10.4. Construction.~~

~~_____A-]~~(4) The tank shall be constructed of sound and durable material not subject to excessive corrosion and decay and designed to withstand hydrostatic and external loads. ~~[All]~~Each wastewater holding tank[s] shall comply with the manufacturing materials and construction requirements specified for septic tanks.

~~[B-]~~(a) Construction of the tank shall be such as to assure water tightness and to prevent the entrance of rainwater, surface drainage or ground water.

~~[C-]~~(b) ~~[F]~~Each tank[s] shall be provided with a maintenance access manhole at the ground surface or above and of at least 18 inches in diameter. Access covers shall have adequate handles and shall be designed and constructed in such a manner that they cannot pass through the access opening, and when closed ~~[will]~~shall be child-proof and prevent entrance of surface water, dirt, or other foreign material, and seal the odorous gases in the tank.

~~[D-]~~(c) A high water warning device shall be installed on each tank to ~~[indicate]~~show when it is within 75% of being full.

~~[1-]~~(i) This device shall be either an audible or a visual alarm.[

~~_____a. If the latter, it]~~ Any visual alarm shall be conspicuously mounted.

~~[2-]~~(ii) ~~[All w]~~Wiring and mechanical parts of such devices shall be corrosion resistant.

~~[3-]~~(iii) ~~[All]~~Any conduit passage way[s] through the tank top or wall[s] shall be water and vapor tight.

~~[E-]~~(d) No overflow, vent, or other opening ~~[shall]~~may be provided in the tank other than the inlet sewer pipe~~[see described above].~~

~~[F-]~~(e) The regulatory authority may require that any wastewater holding tank[s] be filled with water and allowed to stand overnight to check for leaks. ~~[F]~~Each tank[s] exhibiting obvious defects or leaks may not be approved unless such deficiencies are repaired to the satisfaction of the regulatory authority.

~~[G-]~~(f) The building sewer shall comply with this rule.

~~[H- A]~~(g) Any above ground holding tank[s] shall be clearly labeled as "Sewage".

~~[10.5. Capacity.~~

~~_____]~~(5) The liquid capacity of the wastewater holding tank shall be based on wastewater flows for the type of dwelling or facility being served as identified in Section R317-4-13 Table 3 and on the desired time period between each pumping.[

~~_____A-]~~ The minimum capacity of each underground wastewater holding tank[s] shall be 1,000 gallons.

~~[10.6. Location.~~

~~_____]~~(6) Any wastewater holding tank ~~[must]~~shall be located:

~~[A-]~~(a) in an area readily accessible to the pump truck in any type of weather that is likely to occur during the period of use;

~~[B-]~~(b) in accordance with the requirements for septic tanks as specified in Section R317-4-13 Table 2; and

~~[C-]~~(c) where it ~~[will]~~may not tend to float out of the ground due to a high ground water table or a saturated soil condition, since it will be empty or only partially full most of the time. In an area[s] where the ground water table may be high enough to float the tank out of the ground when empty or partially full, adequate ground anchoring procedures shall be provided.

~~[10.7. Management.~~

~~_____A-]~~(7) ~~[W]~~Each wastewater holding tank[s] shall be pumped periodically, at regular intervals or as needed, and the wastewater contents shall be disposed of in a manner and at a facility meeting the approval of the appropriate regulatory authority.

~~[B-]~~(a) ~~[W]~~Each wastewater holding tank[s] for a seasonal dwelling[s] should be pumped out before each winter season to prevent freezing and possible rupture of the tank.

~~[C-]~~(b) A record of the liquid waste hauler, pumping dates, and amounts pumped shall be maintained and made available to the appropriate regulatory authorities upon request.

~~[D-]~~(c) ~~[W]~~Each wastewater holding tank[s] shall be checked at frequent intervals by the owner or occupant and if leakage is detected it shall be immediately reported to the regulatory authority.

~~[E-]~~(d) ~~[R]~~Any repair[s] or replacement[s] shall be conducted under the direction of the regulatory authority.

~~[F-]~~(e) Improper location, construction, operation, or maintenance of a particular holding tank may result in appropriate legal action against the owner by the regulatory authority having jurisdiction.

~~[G-]~~(f) Each holding tank installed under this rule, shall be inspected upon renewal of the operating permit.

R317-4-11. Operation and Maintenance of Systems.

~~[11.1. Purpose.~~

~~_____](1) The purpose of this section is to diminish the possibility of onsite wastewater system failures by informing the owners of required periodic maintenance, servicing, and monitoring. ~~[M]~~Any more complex system[s] ~~[will]~~shall require a higher level of operation and maintenance.~~

~~[11.2. Conventional Systems.~~

~~_____](2) Each ~~[A-H]~~ conventional system[s] should be assessed after the first year of operation, and thereafter at the following minimum frequency.~~

~~[A-S](a) Any system[s] with daily flows between 1 and 3,000 gallons[±] should be assessed every three years.~~

~~[B-S](b) Any system[s] with daily flows between 3,001 and 5,000 gallons[±] should be assessed every two years.~~

~~[C-S](c) Any system[s] with non-domestic wastewater flows[±] should be assessed yearly.~~

~~[11.3. Pressure Distribution.~~

~~_____A-](3) Each system utilizing pressure distribution shall be inspected as outlined in Sections R317-4-13 Table[s] 7.1 and R317-4-13 Table 7.2.~~

~~[11.4. Alternative Systems.~~

~~_____A-](4) Each alternative system shall be inspected as outlined in Sections R317-4-13 Table[s] 7.1 and R317-4-13 Table 7.2.~~

~~[B-](a) Each packed bed media system shall be sampled a minimum of every six months as outlined in Section R317-4-13 Table 7.3.~~

~~[4-](i) The grab sample shall be taken before discharge to an absorption system.~~

~~[2-](ii) Effluent not meeting the standards of Section R317-4-13 Table 7.3 shall be followed with two successive weekly tests of the same type within a 30-day period from the first exceedance.~~

~~[3-](iii) If two successive samples exceed the minimum standards, the system shall be ~~[deemed to be]~~considered as malfunctioning, and shall require further evaluation and a corrective action plan, see Subsection R317-4-3(11).~~[4-]~~~~

~~_____a.] Effluent quality testing shall continue every two weeks until three successive samples are found to be in compliance.~~

~~_____b.) Each membrane bioreactor system shall be sampled a minimum of every three months as outlined in Section R317-4-13 Table 7.3.~~

~~_____i) Any grab sample shall be taken before discharge to an absorption system.~~

~~_____ii) Effluent not meeting the standards of Section R317-4-13 Table 7.3 shall be followed with two successive weekly tests of the same type within a 30-day period from the first exceedance.~~

~~_____iii) If two successive samples exceed the minimum standards, the system shall be considered as malfunctioning, and shall require further evaluation and a corrective action plan, see Subsection R317-4-3(11). Effluent quality testing shall continue every two weeks until three successive samples are found to be in compliance.~~

~~[11.4. Tank Servicing.~~

~~_____](5) For recommended tank servicing see Subsection R317-4-14(5) Appendix E.~~

~~[11.5. Distribution and Drop Box Maintenance.~~

~~_____](6) Each ~~[D]~~distribution ~~[and]or~~ drop box[es], if provided, should be inspected and cleaned periodically.~~

~~[11.6. Repair of a Malfunctioning System.~~

~~_____](7) If corrective action is required for any malfunctioning system, see Subsection R317-4-3(11).~~[4-]~~~~

R317-4-12. Variance to Design Requirements.

~~[12.1. Reasons for a Variance.~~

~~_____](1) An applicant may request a variance from requirements of this rule only when a property has been deemed not feasible for the design or construction of an onsite wastewater system. A variance may not be granted for separation distances from public culinary water sources.~~

~~[12.2. Conditions for a Variance.~~

~~_____](2) A variance ~~[will]~~may not be approved unless the applicant demonstrates that all ~~[of]~~the following conditions are met:~~

~~[A-](a) An onsite wastewater system consistent with this rule and local health department requirements cannot be constructed and a connection to a public or community-based sewerage system is not available or practicable. This determination ~~[will]~~shall be made by the local health department.~~

~~[B-](b) Wastewater from the proposed onsite wastewater system ~~[will]~~may not:~~

~~[1-](i) contaminate ground water or surface water; and~~

~~[2-](ii) surface or move off site before it is adequately treated to protect public health and the environment.~~

~~[C-](c) The proposed system ~~[will]~~shall result in equal or greater protection of public health and the environment than is required by meeting the minimum standards and intent of this rule.~~

~~[D-](d) An ~~[A]~~adjacent property[ies], including the current and reasonably anticipated use[s] of any adjacent property[ies], ~~[will]~~may not be jeopardized if the proposed system is constructed, operated, and maintained.~~

~~[12.3. Procedure for Requesting a Variance.~~

~~_____A-](3) A variance request shall include the information and documentation described in Subsection R317-4-12(5).~~[5-]~~~~

~~_____B-] The local health department shall review the variance request and prepare a written determination outlining the conditions of approval or denial of the request. The review shall identify the factors considered in the process and specify the basis for the determination.~~

~~[12.4. Variance Approvals.~~

~~_____A-]~~(4) A variance ~~[will]~~may not be approved unless the applicant demonstrates that all ~~[of]~~the conditions in Subsection R317-4-12(2)~~[2]~~ are met.

~~[B-]~~(a) A local health department may not issue an approval or an operating permit for an onsite wastewater system that does not comply with this rule unless a variance has been approved.

~~[C-]~~(b) Notice of the conditions shall be recorded in the chain of title for the property in the office of the county recorder. The notice shall include:

~~[1-]~~(i) the description of the system and variance conditions;

~~[2-]~~(ii) operation and maintenance requirements;

~~[3-]~~(iii) permission for the regulatory authority to access the property for~~[the purpose of]~~ inspecting~~[on]~~ and monitoring~~[of]~~ the system; and

~~[4-]~~(iv) owner responsibilities to correct, repair, or replace the system at the direction of the regulatory agency.

~~[12.5. Application Requirements.~~

~~_____]~~(5) The variance application shall include all information and documentation necessary to ensure that the standards in Subsection R317-4-12(2)~~[2 will]~~ shall be met.

~~_____A-]~~ As appropriate, the information required under this section shall be submitted in a report by a professional engineer or a professional geologist that is certified at the appropriate level to perform onsite wastewater system design. An engineer or geologist who submits a report shall be licensed to practice in Utah and shall have sufficient experience and expertise to make the determinations in the report. Any such report shall include the engineer's or geologist's name and registration number, and a summary of qualifications. The report shall be imprinted with the engineer's or geologist's registration seal and signature. Information shall include at least the following:~~[-]~~

~~[1-]~~(a) Information demonstrating that connection to a public or community-based sewerage system is not available or practicable.

~~[2-]~~(b) Technical justification and appropriate engineering, geotechnical, hydrogeologic, and reliability information justifying the request for a variance and how the conditions in 12.2 ~~[will]~~shall be met.

~~[3-]~~(c) A detailed description of the proposed system, including a detailed explanation of wastewater treatment technologies allowed by this rule that have been considered for use, and that ~~[will]~~shall provide the best available treatment.

~~[4-]~~(d) A statement of alternatives considered in lieu of a variance.

~~[5-]~~(e) An operation, maintenance, and troubleshooting plan to keep the installed system operating as described in the application.

~~[6-]~~(f) Documentation provided by the local health department that the adjoining land owners have been notified and provided opportunity for comment on the proposed variance.

R317-4-13. Tables.

[TABLE 1.1

Minimum Lot Size (a) by Soil Type and Culinary Water Source

Soil Type ~~Public Water Supply~~ ~~Non-public Water Supply (b)~~

| | | |
|-------|--------------------|----------------|
| 1 | 12,000 sq. ft. | 1 Acre |
| 2 | 15,000 sq. ft. | 1.25 Acres |
| 3 | 18,000 sq. ft. | 1.5 Acres |
| 4 | 20,000 sq. ft. | 1.75 Acres |
| 5 (c) | 20,000 sq. ft. (c) | 1.75 Acres (c) |

TABLE 1.2

Soil Type Key (d)

Soil ~~Soil Texture (e)~~ ~~Soil Structure~~ ~~Percolation~~
Type ~~Rate (minutes~~
~~per inch)~~

1 ~~Coarse Sand, Sand,~~ ~~Single Grain~~ ~~1-10~~
~~Loamy Coarse Sand,~~
~~Loamy Sand~~

2 ~~Fine Sand,~~ ~~Single Grain~~ ~~11-20~~
~~Very Fine Sand,~~
~~Loamy Fine Sand,~~
~~Loamy Very Fine Sand~~

3 ~~Coarse Sandy Loam,~~ ~~Prismatic,~~ ~~21-40~~
~~Sandy Loam~~ ~~Blocky, Granular~~

4 ~~Coarse Sandy Loam,~~ ~~Massive, Platy~~ ~~41-60~~
~~Sandy Loam~~

~~— Fine Sandy Loam, — Prismatic,
 — Very Fine Sandy Loam, — Blocky, Granular
 — Loam, Silt Loam~~

~~5 — Fine Sandy Loam, — Massive, Platy — 61-120
 — Very Fine Sandy Loam,
 — Loam, Silt Loam,~~

~~— Sandy Clay Loam, — Massive
 — Clay Loam, Silty
 — Clay Loam~~

~~— Sandy Clay Loam, — Prismatic,
 — Clay Loam, Silty Clay — Blocky, Granular
 — Loam, Sandy Clay,
 — Clay, Silty Clay, Silt~~

~~6 (f) Sandy Clay Loam, — Platy — >120
 — Clay Loam,
 — Silty Clay Loam~~

~~— Sandy Clay, Clay, — Massive, Platy
 — Silty Clay, Silt~~

NOTES

~~(a) Excluding public streets and alleys or other public
 rights of way, lands or any portion thereof abutting on,
 running through or within a building lot for a single
 family dwelling. These minimum lot size requirements do
 not apply to building lots that have received final local
 health department approval prior to the adoption of
 this rule.~~

~~— Lots that are part of subdivisions that have received
 final local health department approval prior to the
 adoption of this rule are only exempt from the minimum
 lot size requirements if the developer has and is
 proceeding with reasonable diligence. Notwithstanding
 this grandfather provision for approved lots, the
 minimum lot size requirements are applicable if
 compelling or countervailing public health interests
 would necessitate application of these more stringent
 requirements. The shape of the lot shall also be
 acceptable to the regulatory authority.~~

~~(b) See the separation requirements in Section R317-4-13
 Table 2.~~

~~(c) Packed bed media systems are required for this soil
 type.~~

~~(d) When there is a substantial discrepancy between the
 percolation rate and the soil classification, it shall
 be resolved to the satisfaction of the regulatory
 authority, or the soil type requiring the largest lot
 shall be used.~~

~~(e) See the USDA soil classification system for a more
 detailed description.~~

~~(f) These soils are unsuitable for any absorption system.~~

TABLE 2

Minimum Separation Distances in Feet (a)

| Item Requiring Setback | From Building | From Septic Sewers | From Pump and Effluent Sewers | From Absorption and Replacement Areas |
|------------------------|---------------|--------------------|-------------------------------|---------------------------------------|
|------------------------|---------------|--------------------|-------------------------------|---------------------------------------|

Absorption and Replacement Areas — 5 — (b)

Public/Culinary Water Sources (c) — 100 (c) — 100 (c)

Individual or Non-public — 25 — 50 — 100 (c)

~~Culinary Water Sources (d)~~

~~Culinary Water (f) 10 (f) 10 (f)
Supply Line~~

~~Non-culinary Well 10 25 100
or Spring~~

~~Lake, Pond, 10 25 100
Reservoir (a)~~

~~Watercourse (live or 25 100 (g)
ephemeral stream,
river, subsurface
drain, canal, storm water
drainage systems,
etc.)~~

~~Building Foundation
Without foundation 5 5 (h)
drain
With foundation 10 100 (i)
drain~~

~~Curtain drains 10 10 100 (i)~~

~~Dry washes, gulches, 25 50
and gullies~~

~~Swimming pool, 3 10 25
below ground~~

~~Dry wells, catch 5 25
basins~~

~~Down slopes that 10 50 (j)
exceed 25%. This
includes all
natural slopes or
escarpments and any
manmade cuts,
retaining walls,
or embankments.~~

~~Property line 5 5 5~~

NOTES

~~(a) All distances are from edge to edge. Where surface waters are involved, the distance shall be measured from the high water line.~~

~~(b) See Subsection R217 4 6.14 for setback requirements.~~

~~(c) All distances shall be consistent with Rules R300 600 and R300 605.~~

~~(d) Compliance with separation requirements does not guarantee acceptable water quality in every instance. Where geological or other conditions warrant, greater distances may be required by the regulatory authority.~~

~~(e) For ungrouted wells and springs the distance shall be 200 feet. A private or individual well is considered to be grouted if it meets the construction standards required in Section R655 4 11, which requires a minimum 30 foot deep grout surface seal. Private or individual wells not constructed to this minimum standard are considered to be ungrouted. Although this distance shall be generally adhered to as the minimum required separation distance, exceptions may be approved by the regulatory authority, taking into account geology, hydrology, topography, existing land use agreements, consideration of the drinking water source protection requirements, protection of public health and potential for pollution of water source. Any person proposing to locate an absorption system closer than 200 feet to an individual or nonpublic ungrouted well or spring must submit a report to the regulatory authority that considers the above items. In no case shall~~

- the regulatory authority grant approval for an onsite wastewater system to be closer than 100 feet from an ungrouted well or a spring.
- (f) If the water supply line is for a public water supply, the separation distance shall comply with the requirements of Rule R309-550. No culinary water service line shall pass through any portion of an absorption area.
- (g) Lining or enclosing watercourses with an acceptable impervious material may permit a reduction in the separation requirement. In situations where the bottom of a canal or watercourse is at a higher elevation than the ground in which the absorption system is to be installed, a reduction in the distance requirement may be justified, but each case shall be decided on its own merits by the regulatory authority.
- (h) Horizontal setback between a deep wall trench or seepage pit and a foundation of any building is at least 20 feet.
- (i) The regulatory authority may reduce the separation distance, if it can be shown that the effluent will not enter the drain, but each case must be decided on its own merits by the regulatory authority. In no case shall the regulatory authority grant approval for an absorption area to be closer than 20 feet.
- (j) This setback may be reduced if a 53 foot reference line originating at the bottom of the distribution pipe, sloped at 25% below horizontal, will not daylight or intersect the ground surface.

TABLE 2

Estimated Flow Rates of Wastewater (a)

| Type of Establishment | Gallons per Day |
|---|-----------------|
| Airports | |
| a. per passenger | 3 |
| b. per employee | 15 |
| Boarding and Rooming Houses | |
| a. for each resident boarder and employee | 50 per person |
| b. additional for each nonresident boarder | 10 per person |
| Bowling Alleys, not including food service | |
| | 85 per alley |
| Camps | |
| a. developed with flush toilets and showers | 30 per person |
| b. developed with flush toilets | 20 per person |
| c. developed with no flush toilets | 5 per person |
| Churches, per person | |
| | 5 |
| Condominiums, Multiple Family Dwellings, or Apartments | |
| | 150 per bedroom |
| Dentist's Office | |
| a. per chair | 200 |
| b. per staff member | 35 |
| Doctor's Office | |
| a. per patient | 10 |
| b. per staff member | 35 |
| Fairgrounds | |
| | 1 per person |
| Fire Stations | |
| a. with full time employees and food preparation | 70 per person |
| b. with no full time employees and no food preparation | 5 per person |
| Food Service Establishment (b) | |
| a. ordinary restaurants, not 24 hour service | 35 per seat |
| b. 24 hour service | 50 per seat |

e. single service customer utensils only — 2 per customer
d. or, per customer served, includes — 10
— toilet and kitchen wastes

Gyms

a. participant and staff member — 25 per person
b. spectator — 4 per person

Hairdresser, per chair — 65

Highway Rest Stops, improved with — 5 per vehicle
— restroom facilities

Hospitals — 250 per
— bed space

Hotels, Motels, and Resorts — 125 per unit

Industrial Buildings, exclusive of

— industrial waste
a. with showers, per 8 hour shift — 35 per person
b. with no showers, per 8 hour shift — 15 per person

Labor or Construction Camps — 50 per person
Launderette — 580 per washer

Mobile Home Parks — 400 per unit

Movie Theaters

a. auditorium — 5 per seat
b. drive in — 10 per
— car space

Nursing Homes — 200 per
— bed space

Office Buildings and Business — 15 per
— Establishments, not including — employee
— food service, per eight hour shift

Picnic Parks, toilet wastes only — 5 per person

Recreational Vehicle Parks

a. temporary or transient with no — 50 per space
— sewer connections
b. temporary or transient with — 125 per space
— sewer connections

Recreational Vehicle Dump Station, — 50
— per self-contained vehicle

Schools

a. boarding — 75 per person
b. day, without cafeteria, — 15 per person
— gymnasiums or showers
c. day, with cafeteria, — 20 per person
— but no gymnasiums and showers
d. day, with cafeteria, — 25 per person
— gymnasium and showers

Service Stations, per day, per pump — 250

Skating Rink, Dance Halls, Ski Areas, etc. — 10 per person

Stores, including Convenience Stores

a. per public toilet room — 500
b. per employee — 11

Swimming Pools and Bathhouses, Using — 10 per person
— Maximum Bather Load

Taverns, Bars, Cocktail Lounges — 20 per seat
— with No Food Service

Visitor Centers — 5 per visitor

NOTES

- (a) When more than one use will occur, the multiple use shall be considered in determining total flow. Small industrial plants maintaining a cafeteria or showers and club houses or motels maintaining swimming pools or laundries are typical examples of multiple uses. Uses other than those listed above shall be considered in relation to established flows from known or similar installations.
- (b) No commercial food waste disposal unit shall be connected to an onsite wastewater system unless first approved by the regulatory authority.

TABLE 4

Minimum Standards for Building Sewer, Effluent Sewer, and Distribution Pipe Materials (a)

Acceptable Building Sewer and Effluent Sewer Materials

| Type of Pipe | Minimum Standard |
|---------------------------------------|------------------------------------|
| Acrylonitrile Butadiene Styrene (ABS) | ASTM (b) D 2680 (c), D 2751, F 628 |
| Polyvinyl Chloride (PVC) | ASTM D 2665, D 3033, D 3034 |

Acceptable Distribution Pipe Materials

| Type of Pipe | Minimum Standard |
|--------------------------------|---|
| ABS | ASTM D 2661, D 2751 |
| Polyethylene (PE), Smooth Wall | ASTM D 2350 |
| PVC | ASTM D 2665, D 3033, D 3034, D 2729 (d) |

NOTES

- (a) Each length of building sewer, effluent sewer, and distribution pipe shall be stamped or marked.
- (b) American Society for Testing and Materials.
- (c) For domestic wastewater only, free from industrial wastes.
- (d) Although perforated PVC, ASTM D 2729 is approved for absorption system application, the solid wall version of this pipe is not approved for any application.

TABLE 5

Maximum Hydraulic Loading Rates for Percolation Testing

| Percolation Rate (Minutes per Inch) | Absorption Systems and Mound Systems | |
|-------------------------------------|--------------------------------------|---|
| | Absorption Systems Rates (a) | Absorption Beds Hydraulic Loading Rates (b) |
| | (gal/ft ² /day) | (gal/ft ² /day) |
| | (c)(d)(e) | (c)(d)(f) |
| 0-10 (g) | 0.90 | 0.45 |
| 11-20 | 0.70 | 0.35 |
| 21-30 | 0.60 | 0.3 |
| 31-40 | 0.55 | 0.27 |
| 41-50 | 0.50 | 0.25 (h) |
| 51-60 | 0.45 | 0.22 (h) |
| 61-90 (i) | 0.40 | (j) |
| 91-120 (i) | 0.35 | (j) |

NOTES

- (a) The following formula may be used in place of the values in this table: $q = 2.35$ divided by the square root of the percolation rate and then add 0.15 where q is the hydraulic loading rate. In no case shall the loading rate be greater than 1.0.
- (b) The following formula may be used in place of the values in this table: $q = 1.2$ divided by the square root of the percolation rate and then add 0.08 where q is the

- hydraulic loading rate. In no case shall the loading rate be greater than 0.5.
- (c) Minimum absorption area is equal to the actual or estimated wastewater flow in gallons per day shown in Section R217.4.13 Table 3, divided by the hydraulic loading rate within the applicable percolation rate category.
- (d) For non-residential facilities, if a garbage grinder is not used, the absorption area may be reduced by 10% (0.9 multiplier). If any automatic sequence washer is not used, the absorption area may be reduced by 30% (0.7 multiplier). If both of these appliances are not used, the absorption area may be reduced by 40% (0.6 multiplier).
- (e) For non-residential facilities, a minimum of 150 square feet of trench bottom or sidewall absorption area shall be provided.
- (f) For non-residential facilities, a minimum of 300 square feet of absorption area shall be provided.
- (g) Soils with a percolation rate faster than 1 minute per inch are only acceptable with the use of an alternative packed bed media system with a disinfection unit.
- (h) Not suitable for absorption beds.
- (i) Acceptable for alternative packed bed media systems only.
- (j) Not suitable for absorption beds or mounds.

TABLE 6

Maximum Hydraulic Loading Rates for Soil Classification

| Texture | Structure | Absorption Systems | Absorption Beds and Mound Systems |
|-----------------------|-----------|---|---|
| | | (a)(b)(c) | (a)(b)(d) |
| | | Hydraulic Loading Rate (gal/ft ² /day) | Hydraulic Loading Rate (gal/ft ² /day) |
| Coarse sand, | Single | 0.9 (e) | 0.45 (e) |
| sand, loamy grain | | | |
| coarse sand, | | | |
| loamy sand | | | |
| Fine sand, | Single | 0.7 | 0.35 |
| very fine grain | | | |
| sand, loamy | | | |
| fine sand, | | | |
| loamy very | | | |
| fine sand | | | |
| Coarse sandy | Massive | 0.45 | 0.22 (f) |
| loam, sandy Platy | | 0.5 | 0.25 (f) |
| loam Prismatic, | | 0.65 | 0.32 |
| blocky, | | | |
| granular | | | |
| Fine sandy | Massive | 0.4 | (g) |
| loam, very Platy | | 0.35 | (g) |
| fine sandy Prismatic, | | 0.5 | 0.25 (f) |
| loam blocky, | | | |
| granular | | | |
| Loam | Massive | 0.4 | (g) |
| Platy (e) | | (g) | |
| Prismatic, | | 0.5 | 0.25 (f) |
| blocky, | | | |
| granular | | | |
| Silt loam | Massive | (e) | (g) |
| Platy (e) | | (g) | |
| Prismatic, | | 0.45 | 0.22 (f) |
| blocky, | | | |
| granular | | | |
| Sandy clay | Massive | (e)(h) | (g) |
| loam, clay Platy | | (i) | (i) |

~~loam, silty Prismatic, clay loam blocky, 0.4 (c)(h) (g)
granular~~

~~Silt, silty Massive (i) (i)
clay, sandy Platy (i) (i)
clay, clay Prismatic, 0.35 (c)(h) (g)
blocky,
granular~~

NOTES

- ~~(a) Minimum absorption area is equal to the actual or estimated wastewater flow in gallons per day, using Section R317-4-13 Table 3, divided by the hydraulic loading rate within the applicable soil texture and structure category.~~
- ~~(b) For non-residential facilities, if a garbage grinder is not used, the absorption area may be reduced by 10% (0.9 multiplier). If any automatic sequence washer is not used, the absorption area may be reduced by 30% (0.7 multiplier). If both of these appliances are not used, the absorption area may be reduced by 40% (0.6 multiplier).~~
- ~~(c) For non-residential facilities, a minimum of 150 square feet of trench bottom or sidewall absorption area shall be provided.~~
- ~~(d) For non-residential facilities, a minimum of 300 square feet of absorption area shall be provided.~~
- ~~(e) These soils are usually considered unsuitable for absorption systems, but may be suitable, depending upon the percentage and type of fines in coarse grained porous soils, and the percentage of sand and structure in fine grained soils. Percolation testing shall be used for further evaluation.~~
- ~~(f) Not suitable for absorption beds.~~
- ~~(g) Not suitable for absorption beds or mounds.~~
- ~~(h) These soils may be permissible for packed bed media absorption systems only.~~
- ~~(i) These soils are unsuitable for any absorption system.~~

TABLE 7- Minimum Inspection Frequency, Components, and Effluent Sampling Parameters

TABLE 7.1

Minimum Inspection Frequency (a)

| Type of System | Annual | Semi-annual |
|-------------------------------|--------|-------------|
| Pressure Distribution | X | |
| At-Grade (first 5 years only) | X | |
| Mound | X | |
| Packed Bed Media | | X |
| Sand Lined Trench | X | |
| Holding Tank | X | |
| Experimental System | | X |

NOTES (a) Or more frequently as directed by the regulatory authority.

TABLE 7.2

Components (a)

| Type of System | Septic Tank | Distribution or Float Tanks (if accessible) | Pumps | Pressure Laterals, Injection | Disinfection |
|---|-------------|---|-------|------------------------------|--------------|
| Other Drop Boxes, Settings, Absorption Unit (c) | | | | | |
| Control Panel | | | | | |
| Pressure Distribution | X | X | X | X | X |
| At-Grade | X | X | X | X | X |
| Mound | X | X | X | X | X |
| Packed Bed Media | X | X | X | X | X |
| Sand Lined | X | X | X | X | X |

~~Trench~~
 Holding ~~X~~ ~~X~~
~~Tank (b)~~
 Experimental ~~X~~ ~~X~~ ~~X~~ ~~X~~

NOTES
 (a) ~~Inspect other components as directed by the regulatory authority.~~
 (b) ~~Including pumping records.~~
 (c) ~~Required for absorption systems installed in excessively permeable soils, or as directed by the regulatory authority.~~

TABLE 7.3

Effluent Sampling Parameters
 Packed Bed Media System Routine Sampling Parameters
 Must sample Turbidity, or BOD5 and TSS.

Field Testing Laboratory Testing
 Turbidity BOD5 TSS COD (a) E. coli
~~<20 NTU <25 mg/l <25 mg/l <75 mg/l <126/100 ml~~
 (b)

NOTES
 (a) ~~Chemical oxygen demand (COD) may be used in place of BOD5.~~ (b) ~~E. coli testing required when a disinfection unit is installed.~~

| Soil Type | Public Water Supply | Non-public Water Supply (b) |
|--------------|---------------------------|-----------------------------|
| <u>1</u> | <u>12,000 sq. ft.</u> | <u>1.00 Acre</u> |
| <u>2</u> | <u>15,000 sq. ft.</u> | <u>1.25 Acres</u> |
| <u>3</u> | <u>18,000 sq. ft.</u> | <u>1.50 Acres</u> |
| <u>4</u> | <u>20,000 sq. ft.</u> | <u>1.75 Acres</u> |
| <u>5 (c)</u> | <u>20,000 sq. ft. (c)</u> | <u>1.75 Acres (c)</u> |

| Soil Type | Soil Texture (e) | Soil Structure | Percolation Rate (minutes per inch) |
|-----------|---|---|-------------------------------------|
| <u>1</u> | <u>Coarse Sand, Sand, Loamy Coarse Sand, Loamy Sand</u> | <u>Single Grain</u> | <u>1-10</u> |
| <u>2</u> | <u>Fine Sand, Very Fine Sand, Loamy Fine Sand, Loamy Very Fine Sand</u> | <u>Single Grain</u> | <u>11-20</u> |
| <u>3</u> | <u>Coarse Sandy Loam, Sandy Loam</u> | <u>Prismatic, Blocky, Granular</u> | <u>21-40</u> |
| <u>4</u> | <u>Coarse Sandy Loam, Sandy Loam</u> <u>Fine Sandy Loam, Very Fine Sandy</u> | <u>Massive, Platy</u> <u>Prismatic, Blocky, Granular</u> | <u>41-60</u> |

| | | | |
|--------------|---|---|----------------|
| | <u>Loam, Loam, Silt Loam</u> | | |
| <u>5</u> | <u>Fine Sandy Loam, Very Fine Sandy Loam, Loam, Silt Loam</u> <u>Sandy Clay Loam, Clay Loam, Silty Clay Loam</u> <u>Sandy Clay Loam, Clay Loam, Silty Clay Loam, Sandy Clay, Clay, Silty Clay, Silt</u> | <u>Massive, Platy</u> <u>Massive</u> <u>Prismatic, Blocky, Granular</u> | <u>61-120</u> |
| <u>6 (f)</u> | <u>Sandy Clay Loam, Clay Loam, Silty Clay Loam</u> <u>Sandy Clay, Clay, Silty Clay, Silt</u> | <u>Platy</u> <u>Massive, Platy</u> | <u>>120</u> |

NOTES

(a) Excluding public streets and alleys or other public rights-of-way, lands or any portion thereof abutting on, running through or within a building lot for a single-family dwelling. These minimum lot size requirements do not apply to building lots that have received final local health department approval before the adoption of this rule.

Any lot that is part of a subdivision that has received final local health department approval before the adoption of this rule is only exempt from the minimum lot size requirements if the developer has and is proceeding with reasonable diligence. Notwithstanding this grandfather provision for approved lots, the minimum lot size requirements are applicable if compelling or countervailing public health interests would require application of these more stringent requirements. The shape of the lot shall also be acceptable to the regulatory authority.

(b) See the separation requirements in Section R317-4-13 Table 2.

(c) A packed bed media or membrane bioreactor system is required for this soil type.

(d) When there is a substantial discrepancy between the percolation rate and the soil classification, it shall be resolved to the satisfaction of the regulatory authority, or the soil type requiring the largest lot shall be used.

(e) See the USDA soil classification system for a more detailed description.

(f) These soils are unsuitable for any absorption system.

| <u>TABLE 2</u> <u>Minimum Separation Distances in Feet (a)</u> | | | |
|---|--|---|---|
| <u>Item Requiring Setback</u> | <u>From Building Sewer or Effluent Sewer</u> | <u>From Septic, Pump, or Other Tank</u> | <u>From Absorption Area or Replacement Area</u> |
| <u>Absorption or Replacement Area</u> | | <u>5</u> | <u>(b)</u> |
| <u>Public Culinary Water Source</u> | <u>(c)</u> | <u>100 (c)</u> | <u>100 (c)</u> |
| <u>Individual or Non-public Culinary Water Source (d)</u> | <u>25</u> | <u>50</u> | <u>100 (c)</u> |
| <u>Culinary Water Supply Line</u> | <u>(f)</u> | <u>10 (f)</u> | <u>10 (f)</u> |
| <u>Lake, Pond, Reservoir (a)</u> | <u>10</u> | <u>25</u> | <u>100</u> |
| <u>Watercourse (live or ephemeral stream, river, subsurface drain, or canal, storm water drainage systems)</u> | | <u>25</u> | <u>100 (g)</u> |
| <u>Building Foundation Without foundation drain</u> | | <u>5</u> | <u>5 (h)</u> |
| <u>Building Foundation With foundation drain</u> | | <u>10</u> | <u>100 (i)</u> |
| <u>Curtain Drain</u> | <u>10</u> | <u>10</u> | <u>100 (i)</u> |
| <u>Dry wash, gulch, or gully</u> | | <u>25</u> | <u>50 (i)</u> |
| <u>Swimming pool, below ground</u> | <u>3</u> | <u>10</u> | <u>25</u> |
| <u>Dry wells, basins</u> | | <u>5</u> | <u>25</u> |
| <u>Down slope that exceed 35%. This includes any all natural slope or escarpment and any artificial cut, retaining wall, or embankment.</u> | | <u>10</u> | <u>50 (i)</u> |
| <u>Property line</u> | <u>5</u> | <u>5</u> | <u>5</u> |
| <u>NOTES</u> | | | |

- (a) All distances are from edge to edge. Where surface waters are involved, the distance shall be measured from the high water line.
- (b) See Subsection R317-4-6(14) for setback requirements.
- (c) All distances shall be consistent with Rules R309-600 and R309-605.
- (d) Compliance with separation requirements does not guarantee acceptable water quality in every instance. Where geological or other conditions warrant, greater distances may be required by the regulatory authority.
- (e) For an ungrouted well or spring the distance shall be 200 feet. A private or individual well is considered to be grouted if it meets the construction standards required in Section R655-4-11, which requires a minimum 30-foot deep grout surface seal. Any private or individual well not constructed to this minimum standard is considered to be ungrouted. Although this distance shall be generally adhered to as the minimum required separation distance, exceptions may be approved by the regulatory authority, taking into account geology, hydrology, topography, existing land use agreements, consideration of the drinking water source protection requirements, protection of public health and potential for pollution of water source. Any person proposing to locate an absorption system closer than 200 feet to an individual or non-public ungrouted well or spring must submit a report to the regulatory authority that considers the above items. In no case may the regulatory authority grant approval for an onsite wastewater system to be closer than 100 feet from an ungrouted well or a spring.
- (f) If the water supply line is for a public water supply, the separation distance shall comply with the requirements of Rule R309-550. No culinary water service line may pass through any portion of an absorption area.
- (g) Lining or enclosing any watercourse with an acceptable impervious material may permit a reduction in the separation requirement. In any situation where the bottom of a canal or watercourse is at a higher elevation than the ground in which the absorption system is to be installed, a reduction in the distance requirement may be justified, but each case shall be decided on its own merits by the regulatory authority.
- (h) Horizontal setback between a deep wall trench or seepage pit and a foundation of any building is at least 20 feet.
- (i) The regulatory authority may reduce the separation distance, if it can be shown that the effluent will not enter the drain, but each case must be decided on its own merits by the regulatory authority. In no case may the regulatory authority grant approval for an absorption area to be closer than 20 feet.
- (j) This setback may be reduced if a 53 foot reference line originating at the bottom of the distribution pipe, sloped at 35% below horizontal, will not daylight or intersect the ground surface.

| <u>TABLE 3</u> <u>Estimated Flow Rates of Wastewater (a)</u> | |
|---|------------------------|
| <u>Type of Establishment</u> | <u>Gallons per Day</u> |
| <u>Airports</u> | |
| <u>a. per passenger</u> | <u>3</u> |

| | |
|---|--|
| <u>b. per employee</u> | <u>15</u> |
| <u>Boarding and Rooming Houses</u> <u>a. for each resident boarder and employee</u> <u>b. additional for each nonresident boarder</u> | <u>50 per person</u> <u>10 per person</u> |
| <u>Bowling Alleys, not including food service</u> | <u>85 per alley</u> |
| <u>Camps</u> <u>a. developed with flush toilets and showers</u> <u>b. developed with flush toilets</u> <u>c. developed with no flush toilets</u> | <u>30 per person</u> <u>20 per person</u> <u>5 per person</u> |
| <u>Churches, per person</u> | <u>5</u> |
| <u>Condominiums, Multiple Family Dwellings, or Apartments</u> | <u>150 per bedroom</u> |
| <u>Dentist's Office</u> <u>a. per chair</u> <u>b. per staff member</u> | <u>200</u> <u>35</u> |
| <u>Doctor's Office</u> <u>a. per patient</u> <u>b. per staff member</u> | <u>10</u> <u>35</u> |
| <u>Fairgrounds</u> | <u>1 per person</u> |
| <u>Fire Stations</u> <u>a. with full-time employees and food preparation</u> <u>b. with no full-time employees and no food preparation</u> | <u>70 per person</u> <u>5 per person</u> |
| <u>Food Service Establishment (b)</u> <u>a. ordinary restaurants, not 24 hour service</u> <u>b. 24 hour service</u> <u>c. single service customer utensils only</u> <u>d. or, per customer served, includes toilet and kitchen wastes</u> | <u>35 per seat</u> <u>50 per seat</u> <u>2 per customer</u> <u>10</u> |
| <u>Gyms</u> <u>a. participant and staff member</u> <u>b. spectator</u> | <u>25 per person</u> <u>4 per person</u> |
| <u>Hairdresser, per chair</u> | <u>65</u> |
| <u>Highway Rest Stops, improved with restroom facilities</u> | <u>5 per vehicle</u> |
| <u>Hospitals</u> | <u>250 per bed space</u> |
| <u>Hotels, Motels, and Resorts</u> | <u>125 per unit</u> |
| <u>Industrial Buildings, exclusive of industrial waste</u> <u>a. with showers, per 8 hour shift</u> <u>b. with no showers, per 8 hour shift</u> | <u>35 per person</u> <u>15 per person</u> |
| <u>Labor or Construction Camps</u> | <u>50 per person</u> |
| <u>Launderette</u> | <u>580 per washer</u> |
| <u>Mobile Home Parks</u> | <u>400 per unit</u> |
| <u>Movie Theaters</u> <u>a. auditorium</u> <u>b. drive-in</u> | <u>5 per seat</u> <u>10 per car space</u> |
| <u>Nursing Homes</u> | <u>200 per bed space</u> |

| | |
|--|------------------------|
| <u>Office Buildings and Business Establishments, not including food service, per eight hour shift</u> | <u>15 per employee</u> |
| <u>Picnic Parks, toilet wastes only</u> | <u>5 per person</u> |
| <u>Recreational Vehicle Parks</u> | |
| <u>a. temporary or transient with no sewer connections</u> | <u>50 per space</u> |
| <u>b. temporary or transient with sewer connections</u> | <u>125 per space</u> |
| <u>Recreational Vehicle Dump Station, per self-contained vehicle</u> | <u>50</u> |
| <u>Schools</u> | |
| <u>a. boarding</u> | <u>75 per person</u> |
| <u>b. day, without cafeteria, gymnasiums or showers</u> | <u>15 per person</u> |
| <u>c. day, with cafeteria but no gymnasiums and showers</u> | <u>20 per person</u> |
| <u>d. day, with cafeteria, gymnasium and showers</u> | <u>25 per person</u> |
| <u>Service Stations, per day, per pump</u> | <u>250</u> |
| <u>Skating Rink, Dance Halls, Ski Areas, or other recreation facility</u> | <u>10 per person</u> |
| <u>Stores, including Convenience Stores</u> | |
| <u>a. per public toilet room</u> | <u>500</u> |
| <u>b. per employee</u> | <u>11</u> |
| <u>Swimming Pools and Bathhouses, Using Maximum Bather Load</u> | <u>10 per person</u> |
| <u>Taverns, Bars, Cocktail lounges with No Food Service</u> | <u>20 per seat</u> |
| <u>Visitor Centers</u> | <u>5 per visitor</u> |
| <u>NOTES</u> | |
| <u>(a) When more than one use will occur, the multiple use shall be considered in determining total flow. Small industrial plants maintaining a cafeteria or showers and club houses or motels maintaining swimming pools or laundries are typical examples of multiple uses. Uses other than those listed above shall be considered in relation to established flows from known or similar installations.</u> | |
| <u>(b) No commercial food waste disposal unit shall be connected to an onsite wastewater system unless first approved by the regulatory authority.</u> | |

| <u>TABLE 4</u> | |
|--|---|
| <u>Minimum Standards for Building Sewer, Effluent Sewer, and Distribution Pipe Materials (a)</u> | |
| <u>Acceptable Building Sewer and Effluent Sewer Materials</u> | |
| <u>Type of Pipe</u> | <u>Minimum Standard</u> |
| <u>Acrylonitrile-Butadiene Styrene (ABS)</u> | <u>ASTM (b) D-2680 (c), D-2751, F-628</u> |
| <u>Polyvinyl Chloride (PVC)</u> | <u>ASTM D-2665, D-3033, D-3034</u> |
| <u>Acceptable Distribution Pipe Materials</u> | |
| <u>Type of Pipe</u> | <u>Minimum Standard</u> |
| <u>ABS</u> | <u>ASTM D-2661, D-2751</u> |

| | |
|--|--|
| <u>Polyethylene (PE), Smooth Wall</u> | <u>ASTM D-3350</u> |
| <u>PVC</u> | <u>ASTM D-2665, D-3033, D-3034, D-2729 (d)</u> |
| <u>NOTES</u> | |
| <p>(a) <u>Each length of building sewer, effluent sewer, and distribution pipe shall be stamped or marked.</u></p> <p>(b) <u>American Society for Testing and Materials.</u></p> <p>(c) <u>For domestic wastewater only, free from industrial wastes.</u></p> <p>(d) <u>Although perforated PVC, ASTM D-2729 is approved for absorption system application, the solid-wall version of this pipe is not approved for any application.</u></p> | |

| <u>TABLE 5</u> | | |
|--|--|---|
| <u>Maximum Hydraulic Loading Rates for Percolation Testing</u> | | |
| <u>Percolation Rate (Minutes per Inch)</u> | <u>Absorption Systems Hydraulic Loading Rates (a) (gal/ft²/day) (c)(d)(e)</u> | <u>Absorption Beds and Mound Systems Hydraulic Loading Rates (b) (gal/ft²/day) (c)(d)(f)</u> |
| <u>0-10 (g)</u> | <u>0.90</u> | <u>0.45</u> |
| <u>11-20</u> | <u>0.70</u> | <u>0.35</u> |
| <u>21-30</u> | <u>0.60</u> | <u>0.30</u> |
| <u>31-40</u> | <u>0.55</u> | <u>0.27</u> |
| <u>41-50</u> | <u>0.50</u> | <u>0.25 (h)</u> |
| <u>51-60</u> | <u>0.45</u> | <u>0.22 (h)</u> |
| <u>61-90 (i)</u> | <u>0.40</u> | <u>(i)</u> |
| <u>91-120 (i)</u> | <u>0.35</u> | <u>(i)</u> |
| <u>NOTES</u> | | |
| <p>(a) <u>The following formula may be used in place of the values in this table: $q = 2.35$ divided by the square root of the percolation rate and then add 0.15 where q is the hydraulic loading rate. In no case may the loading rate be greater than 1.0.</u></p> <p>(b) <u>The following formula may be used in place of the values in this table: $q = 1.2$ divided by the square root of the percolation rate and then add 0.08 where q is the hydraulic loading rate. In no case may the loading rate be greater than 0.5.</u></p> <p>(c) <u>Minimum absorption area is equal to the actual or estimated wastewater flow in gallons per day shown in Section R317-4-13 Table 3, divided by the hydraulic loading rate within the applicable percolation rate category.</u></p> <p>(d) <u>For non-residential facilities, if a garbage grinder is not used, the absorption area may be reduced by 10% (0.9 multiplier). If any automatic sequence washer is not used, the absorption area may be reduced by 30% (0.7 multiplier). If both of these appliances are not used, the absorption area may be reduced by 40% (0.6 multiplier).</u></p> <p>(e) <u>For any non-residential facility, a minimum of 150 square feet of trench bottom or sidewall absorption area shall be provided.</u></p> <p>(f) <u>For any non-residential facility, a minimum of 300 square feet of absorption area shall be provided.</u></p> | | |

- (g) Soils with a percolation rate faster than 1 minute per inch are only acceptable with the use of an alternative packed bed media or membrane bioreactor system with a disinfection unit.
- (h) Not suitable for absorption beds.
- (i) Acceptable for alternative packed bed media or membrane bioreactor system only.
- (j) Not suitable for absorption beds or mounds.

| <u>Texture</u> | <u>Structure</u> | <u>Absorption Systems Hydraulic Loading Rate (gal/ft²/day) (a)(b)(c)</u> | <u>Absorption Beds and Mound Systems Hydraulic Loading Rate (gal/ft²/day) (a)(b)(d)</u> |
|---|--|---|--|
| <u>Coarse sand, sand, loamy coarse sand, loamy sand</u> | <u>Single grain</u> | <u>0.90 (e)</u> | <u>0.45 (e)</u> |
| <u>Fine sand, very fine sand, loamy fine sand, loamy very fine sand</u> | <u>Single grain</u> | <u>0.70</u> | <u>0.35</u> |
| <u>Coarse sandy loam, sandy loam</u> | <u>Massive Platy Prismatic, blocky, granular</u> | <u>0.45 0.50 0.65</u> | <u>0.22 (f) 0.25 (f) 0.32 (f)</u> |
| <u>Fine sandy loam, very fine sandy loam</u> | <u>Massive Platy Prismatic, blocky, granular</u> | <u>0.40 0.35 0.50</u> | <u>(g) (g) 0.25 (f)</u> |
| <u>Loam</u> | <u>Massive Platy Prismatic, blocky, granular</u> | <u>0.40 (e) 0.50</u> | <u>(g) (g) 0.25 (f)</u> |
| <u>Silt loam</u> | <u>Massive Platy Prismatic, blocky, granular</u> | <u>(e) (e) 0.45</u> | <u>(g) (g) 0.22 (f)</u> |
| <u>Sandy clay loam, clay loam, silty clay loam</u> | <u>Massive Platy Prismatic, blocky, granular</u> | <u>(e)(h) (i) 0.40 (e)(h)</u> | <u>(g) (i) (g)</u> |
| <u>Silt, silty clay, sandy clay, clay</u> | <u>Massive Platy Prismatic, blocky, granular</u> | <u>(i) (i) 0.35 (e)(h)</u> | <u>(i) (i) (g)</u> |

| NOTES |
|---|
| (a) Minimum absorption area is equal to the actual or estimated wastewater flow in gallons per day, using Section R317-4-13 Table 3, divided by the hydraulic loading rate within the applicable soil texture and structure category. |
| (b) For any non-residential facility, if a garbage grinder is not used, the absorption area may be reduced by 10% (0.9 multiplier). If any automatic sequence washer is not used, the absorption area may be reduced by 30% (0.7 multiplier). If both of these appliances are not used, the absorption area may be reduced by 40% (0.6 multiplier). |
| (c) For any non-residential facility, a minimum of 150 square feet of trench bottom or sidewall absorption area shall be provided. |
| (d) For any non-residential facility, a minimum of 300 square feet of absorption area shall be provided. |
| (e) These soils are usually considered unsuitable for absorption systems, but may be suitable, depending upon the percentage and type of fines in coarse grained porous soils, and the percentage of sand and structure in fine grained soils. Percolation testing shall be used for further evaluation. |
| (f) Not suitable for absorption beds. |
| (g) Not suitable for absorption beds or mounds. |
| (h) These soils may be permissible for a packed bed media or membrane bioreactor absorption system only. |
| (i) These soils are unsuitable for any absorption system. |

| TABLE 7.1 Alternative Onsite Wastewater System Minimum Inspection Frequency(a) | | | |
|--|--------|-------------|-----------|
| Type of System | Annual | Semi-annual | Quarterly |
| Pressure Distribution | X | | |
| At-Grade (first 5 years only) | X | | |
| Mound | X | | |
| Packed Bed Media | | X | |
| Sand Lined Trench | X | | |
| Membrane Bioreactor | | | X |
| Holding Tank | X | | |
| Experimental System | | X | |
| NOTES | | | |
| (a) Or more frequently as directed by the regulatory authority. | | | |

| TABLE 7.2 Components | | | | | |
|-------------------------|-----------------------------|--|---|------------------------------------|-----------------------|
| Type of System | Septic Tank and Other Tanks | Distribution or Drop Boxes (if accessible) | Pumps, floats, settling, Contr or Panel | Pressure Laterals, Absorption Area | Disinfection Unit (c) |
| Pressure Distribution | X | | X | X | |

| | | | | | |
|--|----------|----------|----------|----------|----------|
| <u>At-Grade</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | |
| <u>Mound</u> | <u>X</u> | | <u>X</u> | <u>X</u> | |
| <u>Packed Bed Media</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> |
| <u>Sand-Lined Trench</u> | <u>X</u> | | <u>X</u> | <u>X</u> | |
| <u>Membrane Bioreactor</u> | <u>X</u> | | <u>X</u> | <u>X</u> | <u>X</u> |
| <u>Holding Tank</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | |
| <u>Experimental</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> | <u>X</u> |
| <u>NOTES</u> | | | | | |
| <u>(a) Inspect other components as directed by the regulatory authority.</u> | | | | | |
| <u>(b) Including pumping records.</u> | | | | | |
| <u>(c) Required for absorption systems installed in excessively permeable soils, or as directed by the regulatory authority.</u> | | | | | |

| <u>TABLE 7.3</u> <u>Effluent Sampling Parameters</u> | |
|--|----------------------|
| <u>Packed Bed Media and Membrane Bioreactor System</u> <u>Routine Sampling Parameters</u> <u>Must sample Turbidity, or BOD5 and TSS.</u> | |
| <u>Field Testing</u> | <u>Maximum Value</u> |
| <u>Turbidity</u> | <u>=<20 NTU</u> |
| <u>Laboratory Testing</u> | <u>Maximum Value</u> |
| <u>BOD5</u> | <u>=<25 mg/l</u> |
| <u>TSS</u> | <u>=<25 mg/l</u> |
| <u>COD (a)</u> | <u>=<75 mg/l</u> |
| <u>E. coli (b)</u> | <u>26/100 ml</u> |
| <u>NOTES</u> | |
| <u>(a) Chemical oxygen demand (COD) may be used in place of BOD5.</u> | |
| <u>(b) E. coli testing required when a disinfection unit is installed.</u> | |

R317-4-14. Appendices.

(1) Appendix A. Septic Tank Construction.

[1.1. Plans for Tanks Required.

—(a) Plans for ~~(a)~~each septic tank[s] ~~(and)~~or underground holding tank[s] shall be submitted to the division for approval. Such plans shall show all dimensions, capacities, reinforcing, maximum depth of soil cover, and such other pertinent data as may be required. ~~(A)~~Each tank[s] shall conform to the design drawing and shall be constructed under strict, controlled supervision by the manufacturer.

~~(A-)~~(i) Each ~~(P)~~precast ~~(R)~~reinforced ~~(C)~~concrete ~~(T)~~tank[s] shall conform to the following:

~~(1-)~~(A) The walls and base of each precast tank[s] shall be securely bonded together and the walls shall be of monolithic or keyed construction.

~~(2-)~~(B) The sidewalls and bottom of such a tank[s] shall be at least 3 inches in thickness.

~~(3-)~~(C) The top shall have a minimum thickness of 4 inches.

~~[4-](D)~~ ~~[Such]~~Each tank[s] shall have reinforcing of at least 6 inch x 6 inch No. 6, welded wire fabric, or equivalent. Exceptions to this reinforcing requirement may be considered by the division based on an evaluation of acceptable structural engineering data submitted by the manufacturer.

~~[5-](E)~~ All concrete used in each precast tank[s] shall be Class A, at least 4,000 pounds per square inch, and shall be vibrated or well-rodged to minimize honeycombing and to assure water tightness.

~~[6-](F)~~ Precast sections shall be set evenly in a full bed of sealant. If grout is used it shall consist of two parts plaster sand to one part cement with sufficient water added to make the grout flow under its own weight.

~~[7-](G)~~ ~~[E]~~Any excessively mortared joint[s] should be trimmed flush.

~~[8-](H)~~ The inside and outside of each mortar joint shall be sealed with a waterproof bituminous sealing compound.

~~[9-](I)~~ For ~~the purpose of~~ early reuse of forms, the concrete may be steam cured. Other curing by ~~[means of]~~water spraying or a membrane curing compound may be used and shall comply to best acceptable methods as outlined in Guide to Curing Concrete, ACI308R-01, by American Concrete Institute, Farmington Hills, Michigan.

~~[B-](ii)~~ Each ~~[P]~~poured-~~[H]~~in-~~[P]~~place ~~[C]~~concrete ~~[S]~~septic ~~[T]~~tank[s-] shall conform to the following:

~~[1-](A)~~ The top of each poured-in-place septic tank[s] with a liquid capacity of 1,000 to 1,250 gallons shall be a minimum of 4 inches thick, and reinforced with 3/8 inch reinforcing rods 12 inches on center both ways, or equivalent.

~~[2-](B)~~ The top of each tank[s] with a liquid capacity of greater than 1,250 gallons shall be a minimum of 6 inches thick, and reinforced with 3/8 inch reinforcing rods 8 inches on center both ways, or equivalent.

~~[3-](C)~~ The walls and floor shall be a minimum of 6 inches thick. The walls shall be reinforced with 3/8 inch reinforcing rods 8 inches on center both ways, or equivalent. Inspections by the regulatory authority may be required of the tank reinforcing steel before any concrete is poured.

~~[4-](D)~~ A 6 inch water stop shall be used at the wall-floor juncture to ensure water tightness.

~~[5-](E)~~ All concrete used in poured-in-place tanks shall be Class A, at least 4,000 pounds per square inch, and shall be vibrated or well-rodged to minimize honeycombing and to ensure water tightness.

~~[6-](F)~~ Curing of concrete shall comply with the requirements in Subsection R317-4-14(1)(a)(i)(II)~~[Appendix A.1.2].~~

~~[C-](iii)~~ ~~[F]~~Each fiberglass ~~[T]~~tank[s-] shall conform to the following:

~~[1-](A)~~ Each fiberglass tank[s] shall comply with one of the following criteria for acceptance:~~[-]~~

~~[a-](I)~~ The Interim Guide Criteria for Glass-Fiber-Reinforced Polyester Septic Tanks, International Association of Plumbing and Mechanical Officials Z1000-2007. The identifying seal of the International Association of Plumbing and Mechanical Officials shall be permanently embossed in the fiberglass as evidence of compliance.

~~[b-](II)~~ Manufactured to meet the structural requirements of Underwriters Laboratories (UL) Standard 1316.

~~[e-](III)~~ Professionally engineered plans demonstrating compliance to tank configuration requirements of this rule including acceptable structural calculations or other pertinent data as may be required.

~~[2-](B)~~ ~~[H]~~Each inlet ~~[and]~~or outlet tee[s] shall be attached to the tank by a rubber or synthetic rubber ring seal and compression plate, or in some other manner approved by the division.

~~[3-](C)~~ ~~[The]~~Each tank shall be installed in accordance with the manufacturer's recommendations.

~~[D-](iv)~~ ~~[P]~~Each polyethylene ~~[T]~~tank[s-] shall conform to the following:

~~[1-](A)~~ ~~[P]~~Each polyethylene tank[s] shall comply with the criteria for acceptance established in Prefabricated Septic Tanks and Wastewater Holding Tanks, Can3-B66-10 by the Canadian Standards Association, Ontario, Canada.

~~[2-](B)~~ ~~[H]~~Each inlet ~~[and]~~or outlet tee[s] shall be attached to the tank by a rubber or synthetic rubber ring seal and compression plate, or in some other manner approved by the division.

~~[3-](C)~~ ~~[The]~~Each tank shall be installed in accordance with the manufacturer's recommendations.

~~1.2. Identifying Marks.~~

~~_____ A. All](b)~~ Each prefabricated or precast tank[s] that ~~[are]~~is commercially manufactured shall be plainly, legibly, and permanently marked or stamped with:

~~[1-](i)~~ the manufacturer's name and address, or nationally registered trademark;

~~[2-](ii)~~ the liquid capacity of the tank in gallons on the exterior at the outlet end within 6 inches of the top of the wall;

and

~~[3-](iii)~~ the inlet and outlet of all such tanks shall be plainly marked as "IN" or "OUT" respectively.

~~1.3. Inlets and Outlets.~~

~~_____](c)~~ Each ~~[I]~~inlet[s and], outlet[s of tanks], or tank compartment~~[s thereof]~~ shall meet the minimum diameter requirements for building sewers.

~~[A-](i)~~ Only one inlet or outlet is allowed, unless preauthorized by the regulatory authority.

~~[B-](ii)~~ An ~~[I]~~inlet[s] and outlet[s] shall be located on opposite ends of ~~[the]~~each tank.

~~[1-](A)~~ The invert of flow line of the inlet shall be located at least 2 inches, above the invert of the outlet to allow for momentary rise in liquid level during discharge to the tank.

~~[2-](B)~~ An approved tank[s] with offset inlets may be used when approved by the regulatory authority.

~~[C-](iii)~~ ~~[A]~~Each inlet[s] and outlet[s] shall have a baffle or sanitary tee.

~~[1-](A)~~ An inlet baffle or sanitary tee of wide sweep design shall be provided to divert the incoming wastewater downward. This baffle or tee is to penetrate at least 6 inches below the liquid level, but the penetration is not to be greater than that allowed for the outlet device.

~~[2-](B)~~ For each tank[s] with vertical sides, the outlet baffle[s] or sanitary tee[s] shall extend below the liquid surface a distance equal to ~~[approximately]~~about 40% of the liquid depth. For each horizontal cylindrical tank~~[s and]~~ or tank[s] of any other shape[s], that distance shall be reduced to ~~[approximately]~~about 35% of the liquid depth.

~~[3-](C)~~ ~~[A#]~~ Each baffle[s] shall be constructed from sidewall to sidewall or shall be designed as a conduit.

~~[4-](D)~~ ~~[A#]~~ Each sanitary tee[s] shall be permanently fastened in a vertical, rigid position.

~~[D-](iv)~~ ~~[#]~~ Each inlet and outlet pipe connection[s] to the septic tank shall be sealed and adhere to the tank and pipe[s] to form a watertight connection[s] with a bonding compound or sealing ring[s].

~~[E-](v)~~ ~~[H]~~ Any inlet ~~[and]~~ or outlet device[s] may not include any design feature[s] preventing free venting of gases generated in the tank or absorption system back through the roof vent in the building plumbing system. The top of ~~[the]~~ each baffle[s] or sanitary tee[s] shall extend at least 6 inches above the liquid level~~[in order]~~ to provide scum storage, but no closer than 1 inch to the inside top of the tank.

~~[1.4. Liquid Depth of Tanks.~~

~~_____~~ ~~(d)~~ Liquid depth of each tank[s] shall be at least 30 inches. Depth ~~[in excess of]~~ greater than 72 inches may only be considered in calculating liquid volume required in Subsection R317-4-6~~(7)~~~~[.6]~~ if the tank length is at least two times the liquid depth.

~~[1.5. Burial Depth.~~

~~_____~~ ~~(e)~~ The maximum burial depth shall be stated on the plans submitted.

~~[1.6. Tank Compartments.~~

~~_____~~ ~~(f)~~ ~~[S]~~ Any septic tank[s] may be divided into compartments provided the ~~[y]~~ tank meets the following:

~~[A-](i)~~ The volume of the first compartment shall equal or exceed two-thirds of the total required septic tank volume.~~[.5]~~

~~[B-](ii)~~ No compartment ~~[shall]~~ may have an inside horizontal dimension less than 24 inches.~~[.5]~~

~~[C-](iii)~~ Each ~~[H]~~ inlet~~[s and]~~ or outlet[s] shall be designed as specified for tanks, except that when a partition wall is used to form a multi-compartment tank, an opening in the partition may serve for flow between compartments provided the minimum dimension of the opening is 4 inches, the cross-sectional area is not less than that of a 6 inch diameter pipe (28.3 square inches), and the mid-point is below the liquid surface a distance ~~[approximately]~~ about equal to 40% of the liquid depth of the tank.

~~[1.7. Scum Storage.~~

~~_____~~ ~~(g)~~ Scum storage volume shall consist of 15% or more of the required liquid capacity of the tank and shall be provided in the space between the liquid surface and the top of inlet and outlet devices.

~~[1.8. Access to Tank Interior.~~

~~_____~~ ~~(h)~~ Adequate access to ~~[the]~~ each tank shall be provided to facilitate inspection, servicing and maintenance, and shall have no structure or other obstruction placed over it and shall conform to the following requirements:

~~[A-](i)~~ Access to each compartment of ~~[the]~~ any tank shall be provided through properly placed manhole openings not less than 18 inches in diameter, in minimum horizontal dimension or by~~[means of]~~ an easily removable lid section.

~~[B-](ii)~~ ~~[A#]~~ Each access cover[s] shall be designed and constructed in such a manner that ~~[they]~~ it ~~[can]~~ may not pass through the access openings, and when closed ~~[will]~~ shall be child-proof and prevent entrance of surface water, dirt, or other foreign material, and seal the odorous gases in the tank. ~~[C-]~~ Each concrete access cover[s] for a manhole opening[s] shall have adequate handles.

~~[C-](iii)~~ Access to each inlet ~~[and]~~ or outlet device[s] shall be provided through a properly spaced opening[s] not less than 12 inches in minimum horizontal dimension or by~~[means of]~~ an easily removable lid section.

~~(2) Appendix B. Pressure Distribution, Pumps, Controls, and Alarms.~~

~~[1-1-](a)~~ ~~[D]~~ Each absorption system designed to use pressure distribution shall conform to the following:~~[-]~~

~~(i)~~ Pressure distribution~~[The]~~ design shall generally be based on the Utah Guidance for Performance, Application, Design, Operation and Maintenance: Pressure Distribution Systems document with the following exceptions:

~~[A-](A)~~ Design and equipment shall emphasize ease of maintenance, longevity, and reliability of components and shall be proven suitable by operational experience, test, or analysis, acceptable to the regulatory authority.

~~[B-](B)~~ Electrical disconnects shall be provided that are appropriate for the installation and shall have gas-tight junction boxes or splices. Each electrical component[s] used in an onsite wastewater system[s] shall comply with applicable requirements of the State of Utah Electrical Code.

~~[C-](C)~~ ~~[A#]~~ Each component[s] shall be constructed and installed to facilitate ease of service without having to alter any other part.

~~[1.2. Pumps, Controls, and Alarms.~~

~~_____~~ ~~(ii)~~ ~~[Prior to]~~ Before final approval for operation, ~~[all]~~ each pump[s], control[s] and related apparatus shall be field tested and found to operate as designed.

~~[A-](A)~~ When a duplex pump system is designed, controls shall be provided that an alarm ~~[will]~~ shall signal when one of the pumps malfunctions.

~~[B-](B)~~ Where multiple pumps are operated in series, controls shall be installed to prevent the operation of a pump or pumps preceding a station that experiences a high level alarm event.

~~[C-](C)~~ Controls shall be capable of controlling all functions incorporated or required in the design of the system.

~~[1-](D)~~ The control panel for ~~[all]~~ each pressure distribution system[s] shall include a pump run-time hour meter and a pump event counter or other acceptable flow measurement method.

~~[2-](II)~~ The control panel shall be installed within sight of the access risers.~~[~~

~~_____~~ ~~a-]~~ ~~[O]~~ An other location[s] may be approved by the regulatory authority.

~~[3-](III)~~ Supporting hydraulic calculations and pump curve analysis shall be submitted to the regulatory authority with the design.

~~(3) Appendix C. Soil Exploration Pits, Soil Logs, Soil Evaluations.~~

~~[1.1. Soil Exploration Pit Construction.~~

_____](a) Soil conditions shall be obtained from a soil exploration pit[~~(s)~~] dug to a depth of 10 feet in the absorption area, or to the ground water table if it is shallower than 10 feet below ground surface. If[~~in the event that~~] an absorption system excavation[s] will be deeper than 6 feet, the soil exploration pit[s] shall extend to a depth of at least 4 feet below the bottom of the proposed absorption system excavation.[

_____A-] [S]Each soil exploration pit[s] shall be constructed in a manner to reduce potential for physical injury. One end of each pit should be sloped gently or "stair-stepped" to permit easy entry if necessary.

~~1.2. Soil Logs.~~

_____A-](b) The soil log shall contain the following information.

[1-](i) A signed statement certifying that the log[s] ~~were~~ was evaluated and recorded in accordance with this rule.

[2-](ii) The names of all qualified individuals per Rule R317-11 conducting the tests.

[3-](iii) The location of the property.

[4-](iv) The location of the soil exploration pit on the property.

[5-](v) The date of the log.

[6-](vi) A description and depths of the soil horizons throughout the soil exploration pit to include:

[a-](A) soil texture and structure using the USDA system of classification;

[b-](B) estimated volume percentage of coarse fragments defined as:

[i-](I) "Gravel" means a rock fragment from 0.1 inches to 3 inches in diameter;

[ii-](II) "Cobble" means rock fragment from 3 inches to 10 inches in diameter;

[iii-](III) "Stone" means a rock fragment greater than 10 inches in diameter;

[e-](C) the presence and abundance of mottling defined as:

[i-](I) "Few" when less than 2% of the exposed surface is occupied by mottles;

[ii-](II) "Common" when from 2% to 20% of the exposed surface is occupied by mottles; and

[iii-](III) "Many" when more than 20% of the exposed surface is occupied by mottles;

[d-](D) depth to groundwater or bedrock, if encountered, and maximum anticipated groundwater table; and

[e-](E) any other pertinent information.

~~1.3. Soil Evaluation.~~

_____](c) Soils shall be evaluated using the USDA Soil Texture Classification method.[

_____A-] The soil horizon with the lowest loading rate shall be used in calculating the required absorption area.

(4) Appendix D. Percolation Method.

~~1.1. Percolation Test Requirements.~~

_____](a) Each [P]percolation test[s] shall be completed by an individual certified per Rule R317-11 and shall be conducted in accordance with the instructions in this appendix.

~~A. Typical Areas.~~

_____](b) When a percolation test[s] ~~are~~ is conducted, [such]the test[s] shall be conducted at a point[s] and elevation[s] selected as typical of the area in which the absorption system [with]shall be located.

~~B. Percolation Test Certificate.~~

_____](c) Percolation test results shall be submitted on a signed "Percolation Test Certificate". The test certificate shall contain the following:

[1-](i) A signed statement certifying that the test[s] ~~were~~ was conducted in accordance with this rule.

[2-](ii) The names of all individuals per Rule R317-11 conducting the test[s].

[3-](iii) The location of the property.

[4-](iv) The location of the percolation test[s] on the property.

[5-](v) The depth to the bottom of the percolation test hole from the existing grade.

[6-](vi) The final stabilized percolation rate of each test in minutes per inch.

[7-](vii) The date of the test[s].

[8-](viii) Any o[O]ther pertinent information.

~~C. Specific Requirements.~~

_____](d) Each [P]percolation test[s] shall be conducted at the owner's expense and in accordance with the following:

~~1. Conditions Prohibited for Test Holes.~~

_____P](i) A percolation test[s] may not be conducted in any test hole[s] that extends into ground water, bedrock, or frozen ground. Where shrink-swell clays, fissured soil formations, or saprolite is encountered, each test[s] shall be made under the direction of the regulatory authority.

~~2. Soil Exploration Pit Prerequisite to Percolation Tests.~~

_____](ii) Since the appropriate percolation test depth depends on the soil conditions at a specific site, the percolation test shall be conducted only after the soil exploration pit has been dug and examined for suitable and porous strata and ground water table information. Percolation test results should be related to the soil conditions found.

~~3. Test Holes to Commence in Specially Prepared Excavations.~~

_____A](iii) Each percolation test hole[s] should [commence]begin in a specially prepared larger excavation[s], preferably made with a backhoe, of sufficient size that extend to a depth [approximately]about 6 inches above the strata to be tested.

~~4. Type, Depth, and Dimensions of Test Holes.~~

_____T](iv) Each test hole[s] shall be dug or bored, preferably with hand tools such as shovels or augers, [~~etc.~~] and shall have horizontal dimensions ranging from 4 to 18 inches, preferably 8 to 12 inches. The vertical sides shall be at least 12 inches deep, terminating in the soil at an elevation 6 inches below the bottom of the proposed onsite wastewater system. In testing individual

soil strata for deep wall trenches and seepage pits, the percolation test hole shall be located entirely within the strata to be tested, if possible.

~~[5. Preparation of Percolation Test Hole.~~

~~_____](v) Each percolation test hole shall be properly prepared. Carefully remove any smeared soil surfaces to provide an open, natural soil interface into that water may percolate. Remove all loose soil from the bottom of the hole. Add 2 to 3 inches of clean pea gravel to protect the bottom from scouring or sealing with sediment when water is added. Caving or sloughing in some test holes can be prevented by placing in the test hole a wire cylinder or perforated pipe surrounded by clean pea gravel.~~

~~[6. Saturation and Swelling of the Soil.~~

~~_____](vi) Adequate saturation and swelling of the soil shall be completed. It is important to distinguish between saturation and swelling. Saturation means that the void spaces between soil particles are full of water. This can be accomplished in a relatively short period~~[of time]~~. Swelling is a soil volume increase caused by intrusion of water into the individual soil particles. This is a slow process, especially in clay-type soil, and is the reason for requiring a prolonged swelling period.~~

~~[7. Placing Water in Test Holes.~~

~~_____](vii) Water should be placed carefully into the test hole~~[s by means of]~~ using a small diameter siphon hose or other suitable method to prevent washing down the side of the hole.~~

~~[8. Percolation Rate Measurement, General.~~

~~_____](viii) Necessary equipment for measuring the percolation rate should consist of a tape measure with at least 1/16 inch calibration or float gauge, and a time piece or other suitable equipment. All measurements shall be made from a fixed reference point near the top of the test hole to the surface of the water.~~

~~[9. Percolation Test Procedure.~~

~~_____](ix) Each percolation test shall follow a consistent procedure. The hole shall be carefully filled with clear water and a minimum depth of 12 inches shall be maintained above the gravel for at least a four hour period by refilling when~~[ever]~~ necessary. Water remaining in the hole after four hours may not be removed. Immediately following the saturation period, the soil shall be allowed to swell not less than 16 hours or more than 30 hours. Immediately following the soil swelling period, the percolation rate measurements shall be made as follows:~~

~~[a-](A) Any soil that has sloughed into the hole shall be removed and water shall be adjusted to 6 inches over the gravel.~~

~~[b-](B) Thereupon, from the fixed reference point, the water level shall be measured and recorded at ~~[approximately]~~ about 30 minute intervals for a period of four hours.~~

~~[+](I) If 6 inches of water seeps away in less than 30 minutes, a shorter time interval of 15 minutes between measurements may be used.~~

~~[++](II) If 6 inches of water seeps away in less than 15 minutes, a shorter time interval of 5 minutes between measurements may be used.~~

~~[+++](III) Eight consecutive time intervals shall be recorded unless two successive water level drops do not vary more than 1/16 of an inch and ~~[indicate]~~ show that an approximate stabilized rate has been obtained.~~

~~[e-](C) The hole shall be filled with 6 inches of clear water above the gravel after each time interval.~~

~~[d-](D) In no case ~~[shall]~~ may the water depth exceed 6 inches above the gravel.~~

~~[e-](E) The final water level drop shall be used to calculate the percolation rate. [~~

~~+] If no stabilized rate is achieved, the smallest drop shall be used to make this calculation.~~

~~[f-](F) Precautions shall be taken to prohibit water or soil from freezing during the test procedure.~~

~~[40-](X) The percolation test ~~[P]~~ procedure for Type 1 ~~[and]~~ or Type 2 ~~[S]~~ soils shall follow a separate procedure. [~~

~~_____] The hole shall be carefully filled with clear water to a minimum depth of 12 inches over the gravel and the time for this amount of water to seep away shall be determined. The procedure shall be repeated and if the water from the second filling of the hole at least 12 inches above the gravel seeps away in 10 minutes or less, the test may proceed immediately as follows:~~

~~[a-](A) Water shall be added to a point not more than 6 inches above the gravel.~~

~~[b-](B) Thereupon, from the fixed reference point, water levels shall be measured at 10 minute intervals for a period of one hour.~~

~~[+](I) If 6 inches of water seeps away in less than 10 minutes, a shorter time interval of 5 minutes between measurements may be used.~~

~~[++](II) Six consecutive time intervals shall be recorded unless two successive water level drops do not vary more than 1/16 of an inch and ~~[indicate]~~ show that an approximate stabilized rate has been obtained.~~

~~[e-](C) The hole shall be filled with 6 inches of clear water above the gravel after each time interval.~~

~~[d-](D) In no case shall the water depth exceed 6 inches above the gravel.~~

~~[e-](E) The final water level drop shall be used to calculate the percolation rate. [~~

~~+] If no stabilized rate is achieved, the smallest drop shall be used to make this calculation.~~

~~[11. Calculation of Percolation Rate.~~

~~_____](xi) The percolation rate is equal to the time elapsed in minutes for the water column to drop, divided by the distance the water dropped in inches and fractions thereof.~~

~~[12. Using Percolation Rate to Determine Absorption Area.~~

~~_____](xii) The minimum or slowest percolation rate shall be used in calculating the required absorption area.~~

~~(5) Appendix E. Septic Tank Operation and Maintenance.~~

~~[1.1. Maintenance of Septic Tanks.~~

~~_____A-](a) ~~[S]~~ Each septic tank~~[s]~~ shall be emptied before too much sludge or scum is allowed to accumulate and seriously reduce the tank volume settling depth. If either the settled solids or floating scum layer accumulate too close to the bottom of the~~

outlet baffle or bottom of the sanitary tee pipe in the tank, solid particles ~~will~~ may overflow into the absorption system and eventually clog the soil and ruin its absorption capacity.

~~[B-]~~(b) A septic tank that receives normal loading should be inspected as ~~[indicat]~~ stated in Section R317-4-11 to determine if it needs emptying. Although there are wide differences in the rate that sludge and scum accumulate in tanks, a septic tank for a private residence ~~[will generally]~~ requires emptying every three to five years. Actual measurement of scum and sludge accumulation is the only sure way to determine when a tank needs to be emptied. Experience for a particular system may ~~[indicate]~~ show the desirability of longer or shorter intervals between inspections.

~~[C-]~~(c) The tank should be completely emptied if either the bottom of the floating scum mat is within 3 inches of the bottom of the outlet baffle or tee or the sludge level has built up to ~~[approximately]~~ about 12 inches from the bottom of the outlet baffle or tee, or the scum and sludge layers together equal 40% or more of the tank volume. All scum and solids should be washed out and removed from the tank.

~~[D-]~~(d) If multiple tanks or tanks with multiple compartments are provided, care should be taken to ensure that each tank or compartment is inspected and emptied.

~~[E-]~~(e) Septic tank wastes contain disease causing organisms and shall be disposed of only in areas and in a manner that is acceptable to local health authorities and consistent with state rules.

~~[F-]~~(f) Immediate replacement of any damaged inlet or outlet fitting[s] in the septic tank is essential for effective operation of the system.

~~[G- Effluent screens or filters-~~

~~_____]~~(g) Remove ~~[the]~~ any effluent screen or filter in a manner that prevents solids from passing to the absorption system. Wash the filter over the inlet side of septic tank. Replace the cleaned filter back into the outlet tee.

~~[H-]~~(h) When the tank is empty, the interior surfaces of the tank should be inspected for leaks or cracks using a strong light.

~~[I-]~~(i) A written record of ~~[all]~~ any maintenance of the septic tank and absorption system should be kept by the owner of that system.

~~[J-]~~(j) The functional operation of a septic tank[s] is not improved by the addition of yeasts, disinfectants, additives or other chemicals; therefore, use of these materials is not recommended.

~~[K-]~~(k) The advice of ~~[your]~~ the regulatory authority should be sought before chemicals arising from a hobby or home industry or other unusual activities are discharged into a septic tank system.

~~[L-]~~(l) Economy in the use of water helps prevent overloading of a septic tank system that could shorten its life and ~~[necessitate]~~ require expensive repairs. The plumbing fixtures in the building should be checked regularly to repair any leaks that can add substantial amounts of water to the system. Industrial wastes and other liquids that may adversely affect the operation of the onsite wastewater system should not be discharged into such a system. Paper towels, facial tissue, disinfectant wipes, newspaper, wrapping paper, disposable diapers, sanitary napkins, coffee grounds, rags, sticks, and similar materials should also be excluded from the septic tank since they do not readily decompose and can lead to clogging of both the plumbing and the absorption system.

~~[4.2. Maintenance of Other Tanks.~~

~~A. Other Tanks.~~

~~_____]~~(m) Any measurable amount of sludge or scum present in any other tank[s] should be removed.[

~~_____B-]~~ If an effluent screen or filter is present, it should be ~~[rinsed and]~~ cleaned over the ~~[opening]~~ inlet side of the septic tank.

KEY: waste water, onsite wastewater systems, alternative onsite wastewater systems, septic tanks

Date of Last Change: ~~January 1, 2016~~ 2023

Notice of Continuation: January 13, 2020

Authorizing, and Implemented or Interpreted Law: 19-5-104

Attachment 2 – Response to Public Comments

| Comments Regarding Amended R317-4 | | | | | | |
|-----------------------------------|--------------------------------|-------------------------|---|--|--|---|
| Comment # | Name* | Comment Subject | Comment | Division of Water Quality ("DWQ") Response | Current Rule Text | Amended Rule Text |
| 1 | Joe Rebori, BioMicrobics, Inc. | R317-4-2(58) | MBR definition describes "mechanical" filtration process (too broad). Subsequent description of MBR does not seem to be general enough to encompass variants of the MBR process. Suggest change to: "...includes both biological and filtration processes using a semi-permeable membrane barrier" | A rule writing committee was formed that included members from DWQ and local health departments ("LHD"). After careful consideration and discussion, the rule writing committee drafted the definition of Membrane Bioreactor ("MBR"). As the rule requires National Sanitation Foundation ("NSF") certification, DWQ believes the definition, as drafted in the amended rule text is sufficient. No action taken. | None | 2(58) "Membrane Bioreactor" means an alternative onsite wastewater system that includes both biological processes and mechanical filtration processes to treat septic tank effluent before discharge to an absorption system. A membrane bioreactor unit includes a balance tank, an aeration tank, and a filtration tank. All tanks are interconnected with aeration pumps and recirculation lines. |
| 2 | | R317-4-6(7) | "Prescriptive septic tank sizing where alternative systems are used can conflict with tested configurations of alternative products. Suggest language: When an alternative onsite wastewater system is used, the septic tank(s) shall conform to manufacturer's specifications and design guidance as approved by the regulatory authority. (7)(ii) suggestion: Strike the language specific to membrane bioreactor balance tank in favor of general language above." | The rule writing committee evaluated a reduction in tank volume, as proposed by the commenter. However, the committee determined that reduced tank volume decreased protection to human health and the environment. After careful consideration and discussion, the rule writing committee drafted the requirement for septic tanks in front of the MBR system. No action taken. | "6.7.A.1. A septic tank that serves a non-residential facility shall have a liquid capacity of at least 1-1/2 times the designed daily wastewater flow. In all cases the capacity shall be at least 1,000 gallons. 6.7.B. Tanks in Series. 1. No tank in the series shall be smaller than 1,000 gallons. 2. The capacity of the first tank shall be at least two-thirds of the required total septic tank volume. If compartmented tanks are used, the compartment of the first tank shall have this two-thirds capacity." | "6(7)(a) A septic tank that serves a non-residential facility shall have a liquid capacity of at least 1-1/2 times the designed daily wastewater flow. In all cases the capacity shall be at least 1,000 gallons. 6(7)(d) Multiple septic tanks may be installed in series. (i) No tank in the series may be smaller than 1,000 gallons. (ii) The capacity of the first tank shall be at least two-thirds of the required total septic tank volume. If a compartmented tank is used, the compartment of the first tank shall have this two-thirds capacity. A membrane bioreactor system may include the balance tank as a second tank in series where the volume of the balance tank is included in the total required septic tank liquid storage capacity." |
| 3 | | R317-4-6(9) | "Comment: Unsure of the intent of having two independent power sources for the pump. This is restrictive to pump controls integrated into manufacturer's standard control panel." | Many alternative systems require power to operate pumps, aerators, or other components. Secondary power is required so that an alternative system may continue to operate when primary power is interrupted. This requirement exists in the current rule and the amended rule did not make any changes. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | 6.9.B. Pump tank volume shall have a liquid capacity adequate for the minimum operating volume that includes the dead space, dosing volume, and surge capacity, and shall have the emergency operation capacity of: ... 2. at least two independent power sources with appropriate wiring installed; | 6(9)(b) Pump tank volume shall have a liquid capacity adequate for the minimum operating volume that includes the dead space, dosing volume, and surge capacity, and shall have the emergency operation capacity of: ... (ii) at least two independent power sources with appropriate wiring installed; |
| 4 | | R317-4-6(10) | Comment: What is the intent of the maximum drawdown of 3 inches per dose? | The drawdown is limited so settleable solids or scum remain undisturbed and only liquid is pumped out of the tank, and to protect the suspended microbial communities within the tank. This requirement exists in the current rule and the amended rule did not make any changes. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | 6.10.D.3 The maximum drawdown within the tank shall be no more than 3 inches per dose. | 6(10)(d)(iii) The maximum drawdown within the tank shall be no more than 3 inches per dose. |
| 5 | | R317-4-6(15)(b)(iii)(A) | Comment: Why should water use estimates be affected by treatment system process? Seems like this is intended to address an implicit safety factor. I do not favor this approach as intent of the rule is obscured. | Currently, conventional systems must be designed for a minimum of 300 gallons/day for up to two bedrooms, and 150 gallons/day for each additional bedroom. The rule writing committee afforded alternative systems a small reduction in design flow due to the more advanced treatment, allowing for only 100 gallons/day for each additional bedroom beyond two. This requirement exists in the current rule and was extended to MBRs. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | "6.15.C.3. Packed bed media systems shall conform to the following: a. System Design Criteria. i. Wastewater Design Flows. (1) For single-family dwellings the design shall be based on a minimum of 300 gallons per day for two bedrooms and 100 gallons per day for each additional bedroom." | "6(15)(b)(iii) Each packed bed media system shall conform to the following design criteria: (A) For a single-family dwelling[s] the design shall be based on a minimum of 300 gallons per day for two bedrooms and 100 gallons per day for each additional bedroom." |
| 6 | | R317-4-6(15)(b)(x) | Comment: "Each membrane bioreactor system installed... is intended to be installed as a complete unit." - This sentence is not clear. | This requirement is included to prohibit partial installation of any MBR unit. For clarity, DWQ would like to change this to read "Each membrane bioreactor system installed as part of an alternative onsite wastewater system shall be installed as a complete unit." DWQ does not believe this is a substantive change to the amended rule. | None | 6(15)(b)(x) Each membrane bioreactor system installed as part of an alternative onsite wastewater system is intended to be installed as a complete unit. The design of any the treatment tank and all accessory components, treatment pods, aerators, blowers, pumps, membranes, and control panel shall conform to manufacturer specifications specific to the daily flows and wastewater strength proposed to be treated. Each membrane bioreactor system shall conform to the following: |
| 7 | | R317-4-6(15)(b)(x)(D-F) | Comment: See comment above for tank requirements and conflict with manufacturer's design. | The rule writing committee evaluated a reduction in tank volume, as proposed by the commenter. However, the committee determined that reduced tank volume decreased protection to human health and the environment. After careful consideration and discussion, the rule writing committee drafted the requirement for septic tanks in front of the MBR system. No action taken. | None | "R317-4-6(15)(b) (x)(D) Each membrane bioreactor system installed shall meet the requirements listed in Subsection R317-4-6(7). (E) Each septic, equalization, recirculation, pump, or other tanks used in conjunction with any membrane bioreactor system shall meet the requirements listed in Section R317-4-6. (F) MBR tank volume shall have a liquid capacity adequate for the minimum operating volume that includes the dead space, dosing volume, and surge capacity, and shall have the emergency operation capacity of:" |
| 8 | | R317-4-6(15)(b)(x)(G) | Comment: "minimum of two membrane filter units" - For small systems, this may be impractical. | The rule writing committee evaluated the use of a single membrane. Redundant filter membranes allow the MBR to continue to operate even while one membrane filter is out of service for maintenance or in the case of a membrane clogging. DWQ believes two membrane filters is achievable and redundancy is required for protection of human health and the environment. No action taken. | None | (G) Each membrane bioreactor system shall have a minimum of two membrane filter units installed in a manner that any unit can be maintained independently of other filter membrane units. |

| | | | | | | |
|----|------------------------|------------------------|--|--|---|--|
| 9 | | R317-4-6(15)(b)(x)(H) | Comment: "membrane bioreactor overflow shall discharge directly to the septic tank" – BioMicrobics forbids a bypass connection in its MBR systems for the reason that a connection which bypasses the required screening device from the primary tank will allow large solids to enter the filtration tank and damage the membrane filter. | This requirement prohibits a bypass of any membrane to the drainfield. This prohibition, together with membrane redundancy, is required for protection of human health and the environment. No action taken. | None | (H) Each membrane bioreactor overflow shall discharge directly to the septic tank. |
| 10 | | R317-4-6(15)(b)(x)(L) | Comment: Can the membrane filter itself be considered non-chemical disinfection if filter is shown to remove pathogens? | Disinfection requirement applies to any alternative treatment system. DWQ has previously reviewed requests for MBRs to qualify as non-chemical disinfection. While DWQ's review determined that MBRs offer advantages by reduction of solids and transmissivity, DWQ does not allow a reduction in disinfection requirements. No action taken. | None | (L) A non-chemical disinfection unit, capable of meeting laboratory testing parameters in Table 7.3, and a maintenance schedule consistent to Sections R317-4-13 Table 7.1 and R317-4-13 Table 7.3, shall be used in excessively permeable soils. |
| 11 | | R317-4-13. Table 7.1. | "Comment: Allow manufacturers to determine minimum inspection frequency for their technology. BioMicrobics' MBR system is designed for 6 month checkups." | The rule writing committee considered the commenters suggestion but determined that more frequent maintenance is necessary due to potential for membrane filters to become clogged or for reduced treatment. No action taken. | None | Table 7.1 requires quarterly inspection of MBR systems |
| 12 | Mike Stidham, EZ-Treat | R317-4-6(15) | Comment: I suggest that EZ treat (which is referred to as a "synthetic polystyrene recirculating media filter", since brand names are not allowed in the rule) also be included in the revision, since it was approved as a Utah alternative system in 2016 but has not yet been included in the rule. | While not specifically enumerated in the current or amended rule, DWQ has previously authorized two specific synthetic media, and would consider authorizing others if presented. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | 6.15. Alternative Systems. A. System Types. 1. At-Grade. 2. Mounds. 3. Packed Bed Media. a. Intermittent Sand Filters. b. Recirculating Sand Filters. c. Recirculating Gravel Filters. d. Textile Filters. e. Peat Filters. | (15) Alternative onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a textile filter or a peat filter. |
| 13 | Mike Stidham, EZ-Treat | R317-4-6(15) | For each of the packed media systems listed, the rule includes the maximum application rate per day per square foot. I feel that the loading rate for the EZ-TREAT system should also be included in the rule. | Specific application rates are determined for each specific alternative treatment system at the time DWQ approves a specific alternative treatment system for use in Utah. Upon determination, DWQ notifies LHDs and maintains a database of assigned application rates for each type of system. This requirement exists in the current rule and the amended rule did not make changes. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | 6-15.C.3.c. Intermittent Sand Filter Systems... ii. Maximum application rate per day per square foot of media surface area: (1) Sand media: 1.0 gallons. (2) Sand fill: 1.2 gallons. d. Recirculating Sand Filter Systems... ii. Maximum application rate per day per square foot of media surface area: 5 gallons... e. Recirculating Gravel Filter Systems... ii. Maximum application rate per day per square foot of media surface area: 15 gallons... f. Textile Filter Systems... ii. Maximum application rate per day per square foot of media surface area: 30 gallons... | "(B) The maximum application rate per day per square foot of media surface area shall be: (I) 1.0 gallons for sand media; or (II) 1.2 gallons for sand fill... (v) Each recirculating sand filter system shall conform to the following: ... (E) The maximum application rate per day per square foot of media surface area shall be 5 gallons. (vi) Each recirculating gravel filter system shall conform to the following: ... (E) The maximum application rate per day per square foot of media surface area shall be 15 gallons. (vii) Each textile filter system shall conform to the following: ... (B) The maximum application rate per day per square foot of media surface area shall be 30 gallons." |
| 14 | Colin Bishop, ANUA | R317-4-6(7)(g)(iii)(B) | "Suggested revision to R317-4-6(7)(g)(iii)(B). it shall be fitted with removable watertight covers and protected against unauthorized intrusions. Acceptable protective measures include: (A) a padlock; (B) a cover that can be removed with tools; (C) a cover having a minimum net weight of 29.5 kilograms (65 pounds) set into a recess of the tank lid; or (D) any other means approved by the director. (E) Should the tank cover be removed, a secondary safety lid or device shall be provided. Secondary safety lids or devices are required to be utilized for safety reasons even if the riser cover weighs more than 29.5 kilograms (65 pounds)." | DWQ agrees that the suggested revisions would likely be considered as "child-proof" under the current rule. However, DWQ believes that adding a definition or a list of items that this requirement allows would be overly prescriptive. This requirement exists in the current rule and the amended rule did not make changes. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | "R317-4-6.7.F.3.3. Riser Covers. Riser covers shall be designed and constructed in such a manner that: ... b. when closed will be child-proof;" | "Each riser cover[s] shall be designed and constructed in such a manner that: ... (B) it shall be child-proof when closed;" |
| 15 | Colin Bishop, ANUA | R317-4-6(15) | Suggested revision to R317-4-6(15). Alternative onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a recirculating textile filter, a recirculating synthetic foam cube filter, a recirculating polystyrene bead filter, a recirculating or intermittent coconut fiber filter, or a recirculating or intermittent peat filter. Packed bed media filters may drain out the bottom into an absorption bed or trench either directly beneath the packed bed media filter or adjacent to the packed bed media filter. | Similar to Comment #12. While not specifically enumerated in the current or amended rule, DWQ has previously authorized two specific synthetic media, and would consider authorizing others if presented. Neither DWQ nor LHDs have identified issues with this rule. No action taken. | 6.15. Alternative Systems. A. System Types. 1. At-Grade. 2. Mounds. 3. Packed Bed Media. a. Intermittent Sand Filters. b. Recirculating Sand Filters. c. Recirculating Gravel Filters. d. Textile Filters. e. Peat Filters. | (15) Alternative onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a textile filter or a peat filter. |

| | | | | | | |
|--|-----------------------|---------------------------|--|---|------|--|
| 16 | Colin Bishop, ANUA | R317-4- 6(15)(b)(x)(U) | Suggested revision to R317-4-6(15)(b)(x)(U). A membrane bioreactor manufacturer shall submit NSF/ANSI Standard 40 - Residential Wastewater Treatment Systems or NSF/ANSI 350 - 2022 Onsite Residential and Commercial Water Reuse Treatment Systems certification for any model proposed to be approved for use in Utah. The division may approve any membrane bioreactor model as equivalent to an NSF certified model, if the manufacturer submits a written recommendation bearing the seal of a professional engineer licensed to practice in Utah who is certified as a Level 3 Onsite Professional as defined in Rule R317-11. | The purpose for including MBR alternative systems in rule is for increased wastewater treatment (i.e. reduced biological oxygen demand and total suspended solids reduction) rather than for reuse of treated effluent. NSF Standard 40 adequately addresses certification of MBR treatment performance. No action taken. | None | (U) A membrane bioreactor manufacturer shall submit NSF/ANSI Standard 40 - Residential Wastewater Treatment Systems certification for any model proposed to be approved for use in Utah. The division may approve any membrane bioreactor model as equivalent to an NSF certified model, if the manufacturer submits a written recommendation bearing the seal of a professional engineer licensed to practice in Utah who is certified as a Level 3 Onsite Professional as defined in Rule R317-11. |
| *See attached documents for comment emails received from the individuals listed above. | | | | | | |

DWQ-2023-118196



Robert Beers <rbeers@utah.gov>

RE: Consideration for onsite wastewater system approval - BioBarrier MBR systems

1 message

Joe Rebori <jrebori@biomicrobics.com>

Wed, May 31, 2023 at 9:25 AM

To: Robert Beers <rbeers@utah.gov>

Cc: Keith Taylor <keith@taylor-morgan.com>, Kevin Sherman <ksherman@biomicrobics.com>

Robert,

Please see my comments attached concerning the draft rule and addition of MBR specific language.

Thanks,

Joe Rebori

Manager, Inquiries & Engineering

913 422-0707

www.biomicrobics.com

BioMicrobics, Inc. | 16002 W 110th St, Lenexa, KS, 66219 USA | Office: 913.422.0707 | Fax: 913.422.0808

From: Joe Rebori

Sent: Tuesday, May 23, 2023 3:20 PM

To: Robert Beers <rbeers@utah.gov>

Cc: Keith Taylor <keith@taylor-morgan.com>; Kevin Sherman <ksherman@biomicrobics.com>

Subject: RE: Consideration for onsite wastewater system approval - BioBarrier MBR systems

Robert,

Thank you. We will review and provide comments.

Joe Rebori

Manager, Inquiries & Engineering

913 422-0707

www.biomicrobics.com

BioMicrobics, Inc. | 16002 W 110th St, Lenexa, KS, 66219 USA | Office: 913.422.0707 | Fax: 913.422.0808

From: Robert Beers [<mailto:rbeers@utah.gov>]
Sent: Tuesday, May 23, 2023 10:11 AM
To: Joe Rebori <jrebori@biomicrobics.com>
Cc: Keith Taylor <keith@taylor-morgan.com>; Kevin Sherman <ksherman@biomicrobics.com>
Subject: Re: Consideration for onsite wastewater system approval - BioBarrier MBR systems

Joe,

Please be aware that amended R317-4 has been published in the Utah State Bulletin (available online at <https://rules.utah.gov/wp-content/uploads/b20230515.pdf>). R317-4. Onsite Wastewater Systems is being amended to include membrane bioreactor technology and associated design, construction, maintenance, and administration. There is also a link for the amended Rule on the *Water Quality Laws and Rules: Proposed Rule Changes* Web page (<https://deq.utah.gov/water-quality/water-quality-laws-and-rules-proposed-rule-changes>). You are invited to review the amended rule and reply to me with any comments during the 30-day public comment period, which is open until June 15, 2023.

The Utah Division of Water Quality anticipates that the rule will be approved following the 30-day public comment period. The amended rule should go into effect near the end of June. You may apply for approval of any membrane bioreactor system once the amended rule goes into effect, provided the proposed system meets rule requirements. You are welcome to review the amended

rule using the links above and to make any comments. Please call or email me if you have any questions or concerns.

Regards,

Robert Beers, MBA, EHS

Onsite Program Manager | Engineering Section

Phone: (385) 501-9580 **Note NEW number**

Fax: (801) 536-4301

waterquality.utah.gov

On Mon, May 22, 2023 at 9:51 AM Joe Rebori <jrebori@biomicrobics.com> wrote:

Hi Robert,

Our representative, Keith Taylor with Taylor-Morgan, provided me your contact info and information concerning onsite wastewater technology approval in Utah. I would like to petition the COWP to review our BioBarrier membrane bioreactor system. Please advise of any upcoming opportunities to do so. I will prepare a submittal for the initial screening of the product.

Regards,

Joe Rebori

Manager, Inquiries & Engineering

913 422-0707

www.biomicrobics.com

BioMicrobics, Inc. | 16002 W 110th St, Lenexa, KS, 66219 USA | Office: 913.422.0707 | Fax: 913.422.0808

R317-4 Draft Rule Comments – Joe Rebori, BioMicrobics, Inc.

R317-4-2 (58)

Comment: MBR definition describes “mechanical” filtration process (too broad). Subsequent description of MBR does not seem to be general enough to encompass variants of the MBR process.

Suggest change to:

“...includes both biological and filtration processes using a semi-permeable membrane barrier”

“A membrane bioreactor may include a balance tank, aeration tank, anoxic tank, and filtration tank, and pumps used for aeration, recirculation, and filtration”.

R317-4-6 (7)

Comment: Prescriptive septic tank sizing where alternative systems are used can conflict with tested configurations of alternative products.

Suggest language: When an alternative onsite wastewater system is used, the septic tank(s) shall conform to manufacturer’s specifications and design guidance as approved by the regulatory authority.

(7) (ii) suggestion: Strike the language specific to membrane bioreactor balance tank in favor of general language above.

R317-4-6 (9)

(b) (ii) comment: Unsure of the intent of having two independent power sources for the pump. This is restrictive to pump controls integrated into manufacturer’s standard control panel.

R317-4-6 (10)

(d) (iii) comment: What is the intent of the maximum drawdown of 3 inches per dose?

R317-4-6 (15)

(b) (iii) (A) comment: Why should water use estimates be affected by treatment system process? Seems like this is intended to address an implicit safety factor. I do not favor this approach as intent of the rule is obscured.

(b) (x) comment: “Each membrane bioreactor system installed... is intended to be installed as a complete unit.” – This sentence is not clear.

(b) (x) (D-F) comment: See comment above for tank requirements and conflict with manufacturer’s design.

(b) (x) (G) comment: “minimum of two membrane filter units” - For small systems, this may be impractical.

(b) (x) (H) comment: “membrane bioreactor overflow shall discharge directly to the septic tank” – BioMicrobics forbids a bypass connection in its MBR systems for the reason that a connection which bypasses the required screening device from the primary tank will allow large solids to enter the filtration tank and damage the membrane filter.

(b) (x) (L) comment: Can the membrane filter itself be considered non-chemical disinfection if filter is shown to remove pathogens?

R317-4-13

Table 7.1 comment: Allow manufacturers to determine minimum inspection frequency for their technology. BioMicrobics' MBR system is designed for 6 month checkups.



DWQ-2023-118215

Robert Beers <rbeers@utah.gov>

Comment for the Rules

1 message

Mike Stidham <mstidham@eztreat.net>
To: "Beers, Robert" <rbeers@utah.gov>
Cc: Judy Sims <jlsims2014@gmail.com>

Tue, Jun 6, 2023 at 11:28 AM

Robert,

I could not access the email on the comments page, so I thought I could email you directly,

Here's how the new rule reads as of now:

"Alternative onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a textile filter or a peat filter."

I suggest that EZ treat (which is referred to as a "synthetic polystyrene recirculating media filter", since brand names are not allowed in the rule) also be included in the revision, since it was approved as a Utah alternative system in 2016 but has not yet been included in the rule.

For each of the packed media systems listed, the rule includes the maximum application rate per day per square foot. I feel that the loading rate for the EZ TREAT system should also be included in the rule.

Please let me know if you have any questions or concerns. Can you let me know that my comment is being added?

Sincerely,

Michael Stidham, VP
EZ TREAT, INC.
703-408-2916

DWQ-2023-118373



Robert Beers <rbeers@utah.gov>

Re: Amended R317-4. (Onsite Wastewater Systems Rule) is in public comment

1 message

Colin Bishop <colin.bishop@anuainternational.com>

Thu, Jun 15, 2023 at 4:42 PM

To: Robert Beers <rbeers@utah.gov>

Cc: Sean Martin <sean.martin@anuainternational.com>, Barbara Smith <barbara.smith@anuainternational.com>

Hello Robert,

My comments are provided in the attached letter. Please acknowledge you received this email. Thank you!

Colin Bishop, REHS, RS

Chief Executive Officer

Anua

T 928,433,3220

C 409,466,4644

e colin.bishop@anuainternational.com

w anuainternational.com

On Tue, May 16, 2023 at 12:08 PM Robert Beers <rbeers@utah.gov> wrote:

Please be aware that amended R317-4 has been published in the Utah State Bulletin (available online at <https://rules.utah.gov/wp-content/uploads/b20230515.pdf>), *R317-4. Onsite Wastewater Systems* is being amended to include membrane bioreactor technology and associated design, construction, maintenance, and administration. There is also a link for the amended Rule on the *Water Quality Laws and Rules: Proposed Rule Changes* Web page (<https://deq.utah.gov/water-quality/water-quality-laws-and-rules-proposed-rule-changes>). You are invited to review the amended rule and reply to me with any comments during the 30-day public comment period, which is open until June 15, 2023.

Regards,

Robert Beers, MBA, EHS

Onsite Program Manager | Engineering Section

Phone: (385) 501-9580 **Note NEW number**

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waterquality.utah.gov

Anua_GR_UT_R317-4_Comments_230615.pdf
159K



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June 15, 2023

Robert Beers, MBA, EHS
Onsite Program Manager, Engineering Section
Utah Department of Environmental Quality
Water Quality Division
PO Box 144870
Salt Lake City, UT 84114-4870

RE: Public Comments for Amended R317-4, (Onsite Wastewater Systems Rule)
Filing ID: 55391

Dear Robert,

My comments with justification are listed below.

Comment 1

Page 63 proposed language:

~~{b.} (B) {when closed will} it shall be child-proof when closed;~~

Suggested revision:

~~{b.} (B) {when closed will} it shall be fitted with removable watertight covers and protected against unauthorized intrusions. Acceptable protective measures include:~~

~~(A) a padlock;~~

~~(B) a cover that can be removed with tools;~~

~~(C) a cover having a minimum net weight of 29,5 kilograms (65 pounds) set into a recess of the tank lid; or~~

~~(D) any other means approved by the director.~~

~~(E) Should the tank cover be removed, a secondary safety lid or device shall be provided. Secondary safety lids or devices are required to be utilized for safety reasons even if the riser cover weighs more than 29,5 kilograms (65 pounds).~~

Justification:

Child safety should be at the top of everyone's list. Too many children have died falling into tanks. The cost to prevent unauthorized access and to prevent injury or death is miniscule as compared to our priceless children. Article link:

<https://www.onsiteinstaller.com/blog/2020/03/little-girls-death-reminds-us-that-securing-septic-lids-is-still-a-concern>



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Comment 2

Page 68 proposed language:

{6.15.} (15) Alternative {S} onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a textile filter or a peat filter.

Suggested revision:

{6.15.} (15) Alternative {S} onsite wastewater systems include at-grade, mound, packed media, sand lined trench, and membrane bioreactor systems. A packed bed media system may be an intermittent sand filter, a recirculating sand filter, a recirculating gravel filter, a recirculating textile filter, a recirculating synthetic foam cube filter, a recirculating polystyrene bead filter, a recirculating or intermittent coconut fiber filter, or a recirculating or intermittent peat filter. Packed bed media filters may drain out the bottom into an absorption bed or trench either directly beneath the packed bed media filter or adjacent to the packed bed media filter.

Justification:

The revised language incorporates packed bed media technologies currently approved by the Department or packed bed media technologies which may be approved by the Department and that are certified to NSF/ANSI Standard 40 – Residential Wastewater Treatment Systems or NSF/ANSI 350 – 2022 Onsite Residential and Commercial Water Reuse Treatment Systems. Access to more technologies improves choices for property owners and improves options to protect water quality.

Comment 2

Page 71 proposed language:

(U) A membrane bioreactor manufacturer shall submit NSF/ANSI Standard 40 – Residential Wastewater Treatment Systems certification for any model proposed to be approved for use in Utah. The division may approve any membrane bioreactor model as equivalent to an NSF certified model, if the manufacturer submits a written recommendation bearing the seal of a professional engineer licensed to practice in Utah who is certified as a Level 3 Onsite Professional as defined in Rule R317-11.

Suggested Revision:

(U) A membrane bioreactor manufacturer shall submit NSF/ANSI Standard 40 – Residential Wastewater Treatment Systems or NSF/ANSI 350 – 2022 Onsite Residential and Commercial Water Reuse Treatment Systems certification for any model proposed to be approved for use in Utah. The division may approve any membrane bioreactor model as equivalent to an NSF certified model, if the



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manufacturer submits a written recommendation bearing the seal of a professional engineer licensed to practice in Utah who is certified as a Level 3 Onsite Professional as defined in Rule R317-11.

I am thankful for the opportunity to provide comments.

Sincerely,

A handwritten signature in black ink, appearing to be "Colin Bishop".

Colin Bishop, REHS, RS
Chief Executive Officer
T 928.433.3220
e colin.bishop@anuainternational.com



State of Utah

SPENCER J. COX
Governor

DEIDRE HENDERSON
Lieutenant Governor

Department of
Environmental Quality

Kimberly D. Shelley
Executive Director

DIVISION OF WATER QUALITY
John K. Mackey, P.E.
Director

Water Quality Board

James Webb, Vice Chair
Carly Castle
Michela Harris
Joseph Havasi
Trevor Heaton
Kimberly D. Shelley
John K. Mackey
Executive Secretary

MEMORANDUM

TO: Utah Water Quality Board

THROUGH: John K. Mackey, Director

FROM: Ken Hoffman, Engineering Section

DATE: June 28, 2023

SUBJECT: Recommendation for Water Quality Board Approval of
Repeal and Reenact R317-101-3.

SUMMARY

The Engineering Section has completed the process of drafting rules in response to HB 269 which was enacted during the 2022 legislative session. It requires that the WQ Board make rules regarding Asset Management for a wastewater service provider when funding is provided (see the paragraph below from HB269).

“19-5-202. Capital asset management.

(1) As a condition of receiving state or federal financing or grants to be used for an improvement to a capital asset related to wastewater or sewer infrastructure, the governing body of a wastewater service provider shall commit to adopt a capital asset management plan.

(2) The board shall make rules, in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act, to establish the elements of a capital asset management plan required by Subsection (1).”

R317-101-3 was revised in November, 2022 to address the mandate from HB269. It has been reviewed by the Office of Administrative Rules and then published on May 1, 2023. The public comment period was over on May 31, 2023, at 10:54 am. No public comments were received.

The Division of Water Quality recommends the Board repeal and reenact *R317-101-3. Application and Project Initiation Procedures* (existing and proposed rules attached) effective June 28, 2023 as listed in Volume 9 of the *Utah State Bulletin* (May 1, 2023.)

R317. Environmental Quality, Water Quality.

R317-101. Utah Wastewater Project Assistance Program.

R317-101-3. Application and Project Initiation Procedures.

The following procedures must normally be followed to obtain financial assistance from the [B]board:

A. It is the responsibility of the applicant to obtain the necessary financial, legal and engineering counsel to prepare an effective and appropriate financial assistance agreement, including cost effectiveness evaluations of financing methods and alternatives, for consideration by the [B]board.

B. A completed application form, project engineering report as appropriate, and financial capability assessment are submitted to the [B]board. Any comments from the local health department or association of governments should accompany the application.

C. The staff prepares an engineering and financial feasibility report on the project for presentation to the [B]board.

D. The [B]board authorizes financial assistance for the project [on the] based[is] on[f] the feasibility report prepared by the staff, designates whether a loan, credit enhancement agreement, interest buy-down agreement, hardship grant, or any combination thereof, is to be entered into, and approves the project schedule see Section R317-101-14. The [B]board shall authorize a hardship grant only if it determines that other financing alternatives are unavailable or unreasonably expensive to the applicant. If the applicant seeks financial assistance in the form of a loan of amounts in the security account established pursuant to Title 73, Chapter 10c, which loan is intended to provide direct financing of projects costs, then the [B]board shall authorize such loan only if it determines that credit enhancement agreements, interest buy-down agreements and other financing alternatives are unavailable or unreasonably expensive to the applicant or that a loan represents the financing alternative most economically advantageous to the state and the applicant; provided, that for purposes of this paragraph and for purposes of Subsection 73-10c-4(2), the term "loan" shall not include loans issued [in connection with]for interest buy-down agreements as described in Section R317-101-12 hereof or [in connection with]for any other interest buy-down arrangement.

E. Planning Advance Only - The applicant requesting a Planning Advance must:

1. attend a preapplication meeting,
2. complete an application for a Planning Advance,
3. prepare a plan of study, and
4. submit a draft contract for planning services.

F. Design Advance Only - The applicant requesting a design advance must have completed an engineering plan which meets program requirements and submitted a draft contract for design services.

G. The project applicant must demonstrate public support for the project.

H. A [P]political subdivision[s] which receives assistance for a wastewater project under [these rules]this rule must agree to participate annually in the Municipal Wastewater Planning Program commonly referred to as [M]WPP[]].

I. A political subdivision which receives assistance for a wastewater project under this rule shall adopt a capital asset management plan. A capital asset management plan shall include:

1. goals for level of service;
2. an inventory of assets including location, condition, value, life, useful life;
3. an analysis of asset for criticality;
4. a plan for sustainable funding; and
5. a certification that the recipient has evaluated and will be implementing water and energy conservation efforts as part of the plan.

J[I]. A [P]political subdivision[s] which receives assistance under [these rules]this rule and which owns a culinary water system must complete and submit a Water Conservation Plan, per Section 73-10-32.

K[J]. The project applicant's engineer prepares a preliminary design report[, as appropriate,] outlining detailed design criteria for submission to the [B]board.

L[K]. Upon approval of the preliminary design report by the [B]board, the applicant's engineer completes the plans, specifications, and contract documents for review by the [B]board.

M[L]. For financial assistance mechanisms when the applicant's bond is purchased by the [B]board, the project applicant's bond documentation, including an opinion from legal counsel experienced in bond matters, that the wastewater project obligation is a valid and binding obligation of the political subdivision, must be submitted to the [A]assistant [A]attorney [G]general for preliminary approval and the applicant shall publish a Notice of Intent to issue bonds in a newspaper of general circulation pursuant to Section 11-14-201. For financial assistance mechanisms when the applicant's bond is not purchased by the [B]board, the applicant shall submit a true and correct copy of an opinion from legal counsel experienced in bond matters that the wastewater project obligation is a valid and binding obligation of the political subdivision.

N[M]. Hardship Grant - The [B]board executes a grant agreement setting forth the terms and conditions of the grant.

O[N]. The [D]director issues a Construction Permit and Plan Approval for plans and specifications, and concurs with[in] bid advertisement.

P[O]. If a project is designated by the board to be financed by a loan or an interest buy-down agreement as described in Sections

R317-101-12 through R317-101-13[, from the Board,] to cover any part of project costs, an account supervised by the applicant and the [B]board [will]shall be established by the applicant to assure that loan funds are used only for qualified project costs. If financial assistance for the project is provided by the [B]board in the form of a credit enhancement agreement as described in Section R317-101-11, [all]any project funds [will]shall be maintained in a separate account and a quarterly report of project expenditures [will]shall be provided to the [B]board.

Q[P]. A copy of the applicant's Sewer Use Ordinance or Resolution and User Charge System must be submitted to the [D]division for review and approval to insure adequate provisions for debt retirement, operation and maintenance, or both.

R[Q]. A plan of operation must be submitted by the applicant to the [D]division for new treatment works, sewerage systems, and projects involving upgrades that add additional treatment, [e.g.,]for example advanced treatment. The [P]plan must address: adequate staffing, with an operator certified at the appropriate level in accordance with Rule R317-10, training, and start up procedures to assure efficient operation and maintenance of the facilities. The plan must be submitted by the applicant in draft at initiation of construction and approved in final form [prior to]before 50% of construction completion.

S[R]. An Operation and Maintenance Manual commonly referred to simply as[()]Manual[()] which provides long-term guidance for efficient facility operations and maintenance is submitted by the applicant and approved in draft and final form [prior to]before, respectively, 50% and 90% of project construction completion. Existing Manuals [can]may be submitted or amended if the existing Manual is relevant to the funded project.

T[S]. The applicant's contract with its engineer must be submitted to the [B]board for review to determine that there will be adequate engineering involvement, including project supervision and inspection, to successfully complete the project.

U[T]. The applicant's attorney must provide an opinion to the [B]board regarding legal incorporation of the applicant, valid legal title to rights-of-way and the project site, and adequacy of bidding and contract documents.

V[U]. Credit Enhancement Agreement and Interest Buy-Down Agreement Only - The [B]board issues the credit enhancement agreement or interest buy-down agreement setting forth the terms and conditions of the security or other forms of assistance provided by the agreement and notifies the applicant to sell the bonds as described in Sections R317-101-11 through R317-101-12.

W[V]. Credit Enhancement Agreement and Interest Buy-Down Agreement Only - The applicant sells the bonds on the open market and notifies the [B]board of the terms of sale. If a credit enhancement agreement is being utilized, the bonds sold on the open

market shall contain the legend required by Subsection 73-10c-6(2)(a). If an interest buy-down agreement is being utilized, the bonds sold on the open market shall bear a legend which makes reference to the interest buy-down agreement and states that such agreement does not constitute a pledge of or charge against the general revenues, credit or taxing powers of the state and that the holder of any such bond may look only to the applicant and the funds and revenues pledged by the applicant for the payment of interest and principal on the bonds.

X[W]. The applicant opens bids for the project.

Y[X]. Loan Only - The [B]board gives final approval to purchase the bonds and execute the loan contract as described in Section R317-101-13.

Z[Y]. Loan Only - The final closing of the loan is conducted.

AA[Z]. The [B]board gives approval to award the contract to the low responsive and responsible bidder.

BB[AA]. A preconstruction conference is held.

CC[BB]. The applicant issues a written notice to proceed to the contractor.

KEY: wastewater, water quality, loans, sewage treatment

Date of Enactment or Last Substantive Amendment: September 24, 2015

Notice of Continuation: March 20, 2018

Authorizing, and Implemented or Interpreted Law: 19-5; 73-10c; 11-8-2; FWPCA section 603(d)(1)(E)