

# **Technical Guidance Committee Meeting**

## **Draft Minutes**

Thursday, November 3, 2016

**Conference Room C  
Department of Environmental Quality  
1410 North Hilton  
Boise, Idaho**

### **TGC ATTENDEES:**

Clark Weaver, On-Site Wastewater Coordinator, DEQ  
Joe Canning, PE, B&A Engineers  
Bob Erickson, REHS, Senior Environmental Health Specialist, SCPHD  
Dale Peck, PE, Environmental & Health Protection Division Administrator, PHD  
Michael Reno, REHS, Environmental Health Supervisor, CDHD

### **GUESTS:**

Larry Waters, PE, Wastewater Program Manager, DEQ  
Allen Worst, R.C. Worst & Company, Inc.  
PaRee Godsill, Everlasting Extended Treatment.  
Sheryl Ervin, Bio-Microbics, Inc. (via telephone)  
Ryan Spiers, CCWS

### **CALL TO ORDER/ROLL CALL:**

Meeting called to order at 10:00 a.m.  
Committee members and guests introduced themselves.

### **OPEN PUBLIC COMMENT PERIOD:**

This section of the meeting is open to the public to present information to the TGC that is not on the agenda. The TGC is not taking action on the information presented.

No public comment was presented during the allotted agenda time, the opportunity to comment later on the new business was requested by Allen Worst.

### **MEETING MINUTES:**

**August 18, 2016 Draft TGC Meeting Minutes: Review, Amend, or Approve**

No public comments during the public comment period.

**Motion:** Bob Erickson moved to approve the minutes without amendment.

**Second:** Mike Reno.

**Voice Vote:** Motion carried unanimously.

Minutes will post as final. See DEQ website and **Appendix A**

## **OLD BUSINESS/FINAL REVIEW**

### **4.4.2 Composting Toilet Approval Conditions**

No public comment was received on this section. The committee had no questions or comments.

**Motion:** Bob Erickson moved that the TGC recommend final approval of Section 4.4.2 Composting Toilet Approval Conditions to DEQ as presented.

**Second:** Mike Reno.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix B**.

### **4.13 Grey Water System**

No public comment was received on this section. The committee had no questions or comments.

**Motion:** Mike Reno moved that the TGC recommend final approval to DEQ for Section 4.13 Grey Water System as presented.

**Second:** Joe Canning.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix C**.

### **2.1.2 Soil Design Groups and Subgroups**

No public comment was received on this section. The committee had no questions or comments.

**Motion:** Dale Peck moved that the TGC recommend final approval to DEQ for Section 2.1.2 Soil Design Groups and Subgroups as presented.

**Second:** Joe Canning.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix D**.

## **NEW BUSINESS/DRAFT REVIEW**

## **ECOJOHN® Residential Septic Alternative Solutions - Public Comment Received**

Allen Worst commented on the need for considerations to consider different criteria to approve composting toilet flows that would result in lower fuel requirements.

**Discussion:** Allen Worst discussed the concept of changes the criteria for approvals of composting toilets to reduce the amount of fuel required. Mike Reno and Dale Peck recommended that Allen Worst if interested submit proposed changes to the committee for consideration at the next Technical Guidance Committee meeting

Provide public comment to Clark Weaver at 208-373-0144 or by email at [clark.weaver@deq.idaho.gov](mailto:clark.weaver@deq.idaho.gov).

## **4.19.3.4.4.c Dosing Chamber - alternative to screens around pumps – Public Comment Received**

Allen Worst discussed concern with the current requirements and recommended that an alternative to the requirement for screens around dosing chamber pumps be allowed.

Mike Reno and Dale Peck recommended that Allen Worst if interested submit proposed changes to the committee for consideration at the next Technical Guidance Committee meeting

Provide public comment to Clark Weaver at 208-373-0144 or by email at [clark.weaver@deq.idaho.gov](mailto:clark.weaver@deq.idaho.gov).

## **Extend Treatment Package System Rule Update Discussion**

The proposed change to IDAPA 58.01.03 Individual/Subsurface Sewage Disposal Rules concerning extended treatment package systems was discussed by the committee. An update is requested on this topic, including corresponding changes to the Technical Guidance Manual for the next Technical Guidance Committee meeting .

### **NEXT MEETING:**

The next committee meeting is scheduled to be on February 22, 2017 at the Idaho Department of Environmental Quality's state office.

**Motion:** Bob Canning moved to adjourn the meeting.

**Second:** Mike Reno.

**Voice Vote:** Motion carried unanimously.

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The meeting adjourned at 2:35 p.m.

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### **TGC Parking Lot.**

This is a running list of issues requested to be prepared and presented at a future TGC meeting.

- Add individual section and title callouts into TGM header on each page.
  - Research summary on reduced separation to surface water for the gray water system.
  - ECOJOHN ® Residentia Septic Alternative Solutions Allen Worst to write up change and submit for next meeting.
  - Dosing Chamber alternatives to screens around pumps ; Allen Worst to write up proposed changes and submit for next meeting.
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### **List of Appendices from the November 3, 2016 Meeting**

#### **Appendix A:**

August 18, 2016 TGC Meeting Minutes

Status: Final

#### **Appendix B:**

Composting Toilet Approval Conditions

Status: Final

#### **Appendix C:**

4.13 Grey Water System

Status: Final

#### **Appendix D:**

2.1.2 Soil Design Groups and Subgroups

Status: Final

#### **Appendix E** ECOJOHN ® Residential Septic Alternative Solutions

Public Comment - Review for discussion

#### **Appendix F** 4.19.3.4.4.c Dosing Chamber - alternative to screens around pumps.

Public Comment Review for discussion

**Appendix A**

**Technical Guidance Committee Meeting  
Final Minutes (Approved November 3, 2016)**

Thursday, August 18, 2016  
Conference Room C  
Department of Environmental Quality  
1410 North Hilton  
Boise, Idaho

**TGC ATTENDEES:**

Tyler Fortunati, REHS, Compliance, Inspection, and Enforcement Lead, DEQ  
Clark Weaver, On-Site Wastewater Coordinator, DEQ  
Joe Canning, PE, B&A Engineers  
Bob Erickson, REHS, Senior Environmental Health Specialist, SCPHD (via telephone)  
Dale Peck, PE, Environmental & Health Protection Division Administrator, PHD  
Michael Reno, REHS, Environmental Health Supervisor, CDHD  
Jason Holm, J.T. Holm Construction, LLC

**GUESTS:**

Janelle Larson, Administrative Assistant, DEQ  
Allen Worst, R.C. Worst & Company, Inc.  
PaRee Godsill, Everlasting Extended Treatment (via telephone)  
Sheryl Ervin, Bio-Microbics, Inc. (via telephone)  
Fred Vengrouskie, Presby Plastics, Inc. (via telephone)

**CALL TO ORDER/ROLL CALL:**

Meeting called to order at 8:30 a.m.  
Committee members and guests introduced themselves.

**OPEN PUBLIC COMMENT PERIOD:**

This section of the meeting is open to the public to present information to the TGC that is not on the agenda. The TGC is not taking action on the information presented.

Public comment was provided by Fred Vengrouskie of Presby Plastics, Inc. Mr. Vengrouskie asked that his company affiliation on the May 18, 2016 TGC minutes be adjusted to Presby Plastics, Inc. from Presby Environmental, Inc. Mr. Vengrouskie also asked that the record on page 7 of the minutes be adjusted to reflect that Dick Bachelder of Infiltrator Systems, Inc. be amended to include his statement that their ATL product tested with 6 inches of sand below the pipe and loaded at 2.1 gallons/linear foot exceeded NSF Standard 40 performance requirements State of Idaho Department of Environmental Quality Technical Guidance Committee

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but that Mr. Bachelder couldn't tell how long their product would perform at that loading rate. Tyler Fortunati made the requested amendments to the minutes.

Mr. Vengrouski also submitted written comments to Tyler Fortunati prior to the August 18, 2016 TGC meeting on various TGM sections (see **Appendix A**). Mr. Vengrouskie commented on the following TGM sections:

- Section 1.4.2.4 Proprietary Wastewater Treatment Product Approval Policy – Mr. Vengrouski believes the current language is confusing and can be misinterpreted regarding the NSF-tested products. The recommendation is that the section be reworded to reflect that an NSF 40 report is necessary to obtain separation reductions to limiting layers and a NSF 245 report is required to obtain the same TN reduction as the recirculating gravel filter.
- Section 2.2.4.2.2 Drainfield Design Requirements for a Reduced Separation Distance to Surface Water – Mr. Vengrouski takes issue with drainfields being required to be pressurized to receive the reduced separation distance to surface water and feels this should be based on the quality of effluent discharging to the system and not the method of disposal. Mr. Vengrouski would like to see this changed to secondary treatment standards instead of pressurization.
- 3.2.4 Drainfields - Mr. Vengrouski feels the term pressure-dosed restricts innovative approaches to wastewater disposal for systems larger than 1,500 square feet. Mr. Vengrouski would like to see a broader allowance for wastewater distribution in these systems.
- 4.19.2 Approval Conditions - Mr. Vengrouski believes the term pressure distribution is again restrictive of methods to distribute wastewater and would like to see this replaced with a broader allowance.

Dale Peck asked what Mr. Vengrouski's alternative to pressure distribution would be. Mr. Vengrouski stated that they would recommend uniform distribution using different technologies but could not specify a specific manufacturer due to a conflict of interest. The committee held discussion on Mr. Vengrouski's comments. The committee decided that they needed more information from Mr. Vengrouski before acting on his comments.

### **MEETING MINUTES:**

#### **May 18, 2016 Draft TGC Meeting Minutes: Review, Amend, or Approve**

The only public comments received were from Fred Vengrouski during the public comment period of this meeting and were addressed at that time. The minutes were reviewed by the committee.

**Motion:** Bob Erickson moved to approve the minutes as amended.

**Second:** Mike Reno.

**Voice Vote:** Motion carried unanimously. State of Idaho Department of Environmental Quality Technical Guidance Committee

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Minutes will post as final. See DEQ website and **Appendix B**

### **OLD BUSINESS/FINAL REVIEW**

#### **4.23.1 In-Trench Sand Filter Description**

No public comment was received on this section. The committee had no questions or comments.

**Motion:** Dale Peck moved that the TGC recommend final approval of Section 4.23.1 In-Trench Sand Filter Description to DEQ as presented.

**Second:** Joe Canning.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix C**.

#### **4.24.2 Sand Mound Approval Conditions**

No public comment was received on this section. The committee had no questions or comments.

**Motion:** Joe Canning moved that the TGC recommend final approval to DEQ for Section 4.24.2 Sand Mound Approval Conditions as presented.

**Second:** Dale Peck.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix D**.

#### **3.3.1 Letter of Intended Use and 3.3.2 Empirical Wastewater Flow Data**

No public comment was received on this section. Dale Peck requested that the sub-bullets for each list be consistent so users understand those are sub-bullets of the previous bullet point. Tyler Fortunati made those changes.

**Motion:** Dale Peck moved that the TGC recommend final approval to DEQ for Section 3.3.1 Letter of Intended Use and 3.3.2 Empirical Wastewater Flow Data as amended.

**Second:** Mike Reno.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix E**.

#### **4.15 Incinerator Toilets**

No public comment was received on this section. Tyler Fortunati reminded the committee that these changes were made to address the EcoJohn product approval made at the last meeting. Bob Erickson questioned the note contained in the design requirements section and whether it is just a notification or a requirement. Tyler Fortunati clarified that it is just a notification and contained no requirements. The committee decided to leave the note in that location.

**Motion:** Mike Reno moved that the TGC recommend final approval to DEQ for Section 4.15

Incinerator Toilets as proposed.

**Second:** Joe Canning.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix F**.

### **1.9 Managed Operation, Maintenance, and Monitoring**

Written public comment was received from the Idaho Conservation League (ICL) on this section (see **Appendix G**). ICL believes that operation, maintenance, and monitoring should be at the discretion of the permitting entity and not the DEQ Director as stated in the guidance. ICL also requested that proposed stricken language from section 4.8.3 regarding protection of public health and the environment be left in the new guidance. ICL also requested that the language in section 1.9.2 item 6 be changed from may to shall regarding total nitrogen testing to protect sensitive areas.

The committee agreed to add the language concerning protection of public health and the environment back into the new guidance. The committee did not feel the other changes recommended by ICL warranted any changes to the proposed guidance.

**Motion:** Dale Peck moved that the TGC recommend final approval to DEQ for Section 1.9 Managed Operation, Maintenance, and Monitoring as amended.

**Second:** Jason Holm.

**Voice Vote:** Motion carried unanimously.  
Section will post to TGM as final. See DEQ website and **Appendix H**.

### **4.8 Extended Treatment Package System**

No public comment was received on this section. Bob Erickson asked for clarification as to whether the flow charts would remain in this section or be moved to section 1.9. Tyler Fortunati stated that they were moved to section 1.9.

**Motion:** Dale Peck moved that the TGC recommend final approval to DEQ for Section 4.8 Extended Treatment Package System as proposed.

**Second:** Mike Reno.

**Voice Vote:** Motion carried unanimously.  
Section will post to TGM as final. See DEQ website and **Appendix I**. State of Idaho Department of Environmental Quality Technical Guidance Committee  
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### **4.5 Drip Distribution System**

Written public comment was received from the Idaho Conservation League (ICL) on this section (see **Appendix G**). ICL requested that section 4.5.3.1 item 3.d be amended to require that drip tubing and emitter spacing be reduced in lower permeability soils instead of making it optional. The committee held discussion on tubing spacing in low permeability soils and decided to leave the guidance as a recommendation. ICL also questioned section 4.5.3.1 item 5 regarding flushable and nonflushable filters and if the stipulation in the guidance is necessary since both filter types are acceptable. The committee held discussion on this topic and decided to leave the guidance as proposed by DEQ.

The committee also held discussion on the tubing network for noncontinuous flush systems. Dale Peck requested that some interval for flushing be specified for review purposes. The committee decided to require that flushing on noncontinuous flush drip distribution systems occur every two weeks.

Bob Erickson made a minor editing suggestion to amend the word grey to gray in section 4.5.1 for consistency. Tyler Fortunati made the requested edit.

**Motion:** Dale Peck moved that the TGC recommend final approval to DEQ for Section 4.5 Drip Distribution System as amended.

**Second:** Bob Erickson.

**Voice Vote:** Motion carried unanimously.

Section will post to TGM as final. See DEQ website and **Appendix J**.

9:35 a.m. Break

9:50 a.m. Meeting Resumed

## **NEW BUSINESS/DRAFT REVIEW**

### **4.4.2 Composting Toilet Approval Conditions**

The committee had no comments on the proposed guidance changes.

**Motion:** Mike Reno moved that the TGC recommend preliminary approval to DEQ for Section 4.4.2 Composting Toilet Approval Conditions as proposed.

**Second:** Dale Peck.

**Voice Vote:** Motion carried unanimously, section will be posted for public comment.

See **Appendix K** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov. State of Idaho Department of Environmental Quality Technical Guidance Committee

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### **4.13 Grey Water System**

Dale Peck inquired as to whether there was a way to not require a full-sized drainfield for vacation homes that install a gray water system. Tyler Fortunati expressed concern about making an exception in sizing for this type of systems but not other subsurface systems. The committee discussed this proposition but decided not to make any changes.

The committee discussed whether or not they could potentially reduce the separation distance to surface water due to the limited sources of gray water in the revised guidance.

**Action Item:** DEQ will examine research to evaluate if the separation distance to surface water could be reduced due to lower bacteria/virus and nutrient concentrations in the gray water when compared to typical septic tank effluent. DEQ will deliver a research summary on this request at a future TGC meeting.

**Motion:** Mike Reno moved that the TGC recommend preliminary approval to DEQ for Section 4.13 Gray Water System as proposed.

**Second:** Jason Holm.

**Voice Vote:** Motion carried unanimously, section will be posted for public comment.

See **Appendix L** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at [tyler.fortunati@deq.idaho.gov](mailto:tyler.fortunati@deq.idaho.gov).

### **Lower Boise Watershed Septic Implementation Plan Update**

Graham Freeman, Watershed Coordinator, from DEQ's Boise Regional Office provided the committee an update on the Lower Boise Watershed's draft Septic Implementation Plan (see **Appendix M**). The committee held discussion on the presentation and draft proposal to determine how to address a portion of the Lower Boise TMDL phosphorous issue with nonpoint source control or credits/trading.

#### **2.1.2 Soil Design Groups and Subgroups**

The committee had no comments on the proposed guidance changes.

**Motion:** Mike Reno moved that the TGC recommend preliminary approval to DEQ for section

2.1.2 Soil Design Groups and Subgroups as proposed.

**Second:** Bob Erickson.

**Voice Vote:** Motion carried unanimously, section will be posted for public comment.

See **Appendix N** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at [tyler.fortunati@deq.idaho.gov](mailto:tyler.fortunati@deq.idaho.gov).

### **NEXT MEETING:**

The next committee meeting is scheduled to be on November 3, 2016 at the Idaho Department of Environmental Quality's state office. State of Idaho Department of Environmental Quality  
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**Motion:** Mike Reno moved to adjourn the meeting.

**Second:** Joe Canning.

**Voice Vote:** Motion carried unanimously.

The meeting adjourned at 11:00 a.m.

### **TGC Parking Lot.**

This is a running list of issues requested to be prepared and presented at a future TGC meeting.

- Add individual section and title callouts into TGM header on each page.
- Research summary on reduced separation to surface water for the gray water system.

## **List of Appendices from the February 4, 2016 Meeting**

### **Appendix A:**

Copy of written public comments submitted by Fred Vengrouskie on behalf of Presby Plastics, Inc.

### **Appendix B:**

May 18, 2016 TGC Meeting Minutes

Status: Final

### **Appendix C:**

4.23.1 In-Trench Sand Filter Description

Status: Final

### **Appendix D:**

4.24.2 Sand Mound Approval Conditions

Status: Final

### **Appendix E:**

3.3.1 Letter of Intended Use and 3.3.2 Empirical Wastewater Flow Data

Status: Final

### **Appendix F:**

4.15 Incinerator Toilets

Status: Final

### **Appendix G:**

Copy of written public comments submitted by Austin Hopkins on behalf of the Idaho Conservation League State of Idaho Department of Environmental Quality Technical Guidance Committee

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### **Appendix H:**

1.9 Managed Operation, Maintenance, and Monitoring

Status: Final

### **Appendix I:**

4.8 Extended Treatment Package System

Status: Final

### **Appendix J:**

4.5 Drip Distribution System

Status: Final

### **Appendix K:**

4.4.2 Composting Toilet Approval Conditions

Status: Preliminary, out for public comment

### **Appendix L:**

4.13 Grey Water System

Status: Preliminary, out for public comment

### **Appendix M:**

Copy of presentation by Graham Freeman on the Lower Boise Watershed Septic Implementation Plan

### **Appendix N:**

2.1.2 Soil Design Groups and Subgroups

Status: Preliminary, out for public comment State of Idaho Department of Environmental Quality  
Technical Guidance Committee  
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## **Appendix A**

Copy of written public comments  
submitted by

Fred Vengrouskie on behalf of Presby Plastics, Inc.

### ***Rule: 1.4.2.4 Proprietary Wastewater Treatment Product Approval Policy***

Response: Clarify the policy language. Otherwise if you're not reading closely, the way the sentence is written one could interpret it as the NSF-tested product must, in its NSF report, obtain the reduction and separation distances. It appears that the intent is that by showing your NSF report, your product is now given the benefit of those reductions/separation distances that the intermittent sand/recirculating gravel filters get. The policy could be reworded by switching the order of ideas in the sentence, so "For the product to obtain the same drainfield sizing reduction and separation distance reduction to limiting layers as intermittent sand or recirculating gravel filters, the NSF/ANSI Standard 40 report is required" and "For the product to obtain the same TN reduction as the recirculating gravel filter, the NSF/ANSI Standard 245 report is required."

### **Rule: 2.2.4.2.2 Drainfield Design Requirements for a Reduced Separation Distance to Surface Water**

A drainfield proposed with a reduced separation distance to surface water as allowed under this variance procedure must meet the following minimum design requirements:

The drainfield shall be pressurized and designed based on section 4.19 of this manual.

Response: Separation distance reductions from surface waters and restrictive layers should be based on the quality of effluent entering the ground not the method of disposal. We suggest replacing the "shall be pressurized" language with "shall be treated to secondary standards".

### **3.2.4 Drainfields**

Drainfields larger than 1,500 ft<sup>2</sup> trench area bottom are prohibited from being constructed as a standard (gravity) drainfield. Drainfields exceeding 1,500 ft<sup>2</sup> in total trench bottom area must be pressure-dosed (section 4.19).

Response: The term "pressure-dosed" is being used to restrict innovative approaches to wastewater disposal. Remove the "pressure-dosed" reference and replace with broader language that does not restrict the use of emerging and innovative methods of wastewater distribution. The language used should allow for other options beside just pressure-dosed disposal.

### **4.19.2 Approval Conditions**

Pressure distribution shall be used in drainfields that exceed 1,500 ft<sup>2</sup> in total trench bottom and large soil absorption systems.

Response: The term "pressure-distribution" is being used to restrict innovative approaches to wastewater disposal. Remove the "pressure-distribution" reference and replace with broader language that does not restrict the use of emerging and innovative methods of wastewater distribution. The language used should allow for other options beside just pressure-distribution.

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## **Appendix B**

### **4.4.2 Approval Conditions**

1. Water under pressure shall not serve the dwelling unless a public sewer or another acceptable method of on-site disposal is available.
2. [Composting toilet models must be approved by DEQ before installation \(section 5.5\).](#)
3. Units are restricted to the disposal of human feces, urine, and small quantities of household garbage.

Household garbage should be limited to the manufacturer's recommendations. Chemicals, pharmaceuticals, and nonbiodegradable products (e.g., plastics) should not be disposed of in a composting toilet.

## Appendix C

### **4.13 Grey-Gray Water System**

Revision: ~~September 16, 2004~~ November 3, 2016

Installer registration permit: Property owner or standard and basic (complex if pressurized)

Licensed professional engineer required: No (yes if pressurized)

#### **4.13.1 Description**

~~A gray water system is used to distribute gray water in the root zone of landscaping. Grey water is untreated household wastewater that has not come into contact with toilet waste. Grey-Gray water is domestic wastewater that consists of includes-used water from bathtubs, showers, and sinks used only for hand washing bathroom wash basins, and water from clothes washing machines and laundry tubs. Other acceptable gray water sources may be determined on a case-by-case basis as long as the source does not come into contact with blackwaste or food products (e.g., drinking fountain, ice machine). It shall-Gray water does not include wastewater from toilets, kitchen sinks, water softeners, dishwashers, or clothes washing machines, or non-domestic wastewater sources laundry water from soiled diapers. A grey-gray water system consists of a separate plumbing system for the approved gray water sources from the blackwaste and kitchen plumbing non-approved gray wastewater sources, a dosing chamber or tank with surge capacity tank to temporarily hold large drain flows, a filter to remove particles that could clog the irrigation system, a pump to move the greygray water from the surge tankdosing chamber to the irrigationdrip irrigation field (if necessary), and a drip irrigation system or mini-leachfield to distribute the greygray water.~~

#### **4.13.2 Approval Conditions**

- ~~Grey-Gray water-treatment and disposal-systems components~~ must meet all the effective soil depths and separation distance setback-criteria and soil application rate criteria as found in the rules (required by IDAPA 58.01.03) for standard systems.
- Minimum irrigation area shall be based on the landscape area calculated in equation 4-11 and/or 4-12.
- ~~Specialized-Separate~~ plumbing designs for the gray water and other wastewater sources will need to be approved by the Idaho Division of Building Safety, Plumbing Program Bureau.
- Grey water ~~surge~~-tanks for gravity flow systems must be watertight, ~~and~~ noncorrosive, and be included on the approved product lists in section 5.2 and 5.3.
- Dosing chambers shall meet the requirements of section 4.19.3.4 and should account for surge flows and storage to meet the irrigation needs of the system, and
  - Must have an overflow to the subsurface sewage disposal system with an invert elevation lower than the inlet or pressure pipe outlet of the chamber.
  - High level audio and visual alarms are not required.
- The system must be designed by a PE licensed in Idaho if using drip or pressure distribution.

7. ~~Operations and maintenance manuals must be provided to the property owner. The design engineer shall provide an O&M manual for the system to the health district before permit issuance.~~
8. ~~The drip distribution (irrigation) system shall meet the requirements of section 4.5 for pretreated effluent drip distribution systems except that a pretreatment system is not required.~~
9. ~~Mini-leachfields shall meet the design requirements for drainfields outlined in IDAPA 58.01.03.008, except for those deviations allowed in table 4-12, and shall use geotextile fabric for the drainrock-soil barrier.~~
10. ~~Grey-Gray~~ water may not be used to irrigate vegetable gardens.
9. ~~Capacity of the septic tank and size of the blackwaste drainfield and replacement area shall not be reduced by the existence or proposed installation of a grey water system servicing the dwelling.~~
11. ~~Grey-Gray~~ water shall not be applied on the land surface or be allowed to reach the land surface.
12. ~~All wastewater generated that is not approved to be discharged to the gray water system shall either discharge to a full-sized subsurface sewage disposal system or collection system for a private or public municipal wastewater treatment plant.~~

**Table 4-12. ~~Grey-Gray~~ water gravity flow mini-leachfield design criteria.**

<b>Mini-leachfield Design Criteria</b>	<b>Minimum</b>	<b>Maximum</b>
Number of drain lines per irrigation zone	1	—
Length of each perforated line	—	100 feet
<u>Distribution area square footage</u>	<u>—</u>	<u>1,500</u>
Bottom width of trench	6 inches	18 inches
Total depth of trench	12 inches	18 inches
Spacing of line, center-to-center	3 feet	4 feet
Depth of earth cover over lines	6 inches	12 inches
Depth of aggregate over pipe	2 inches	—
Depth of aggregate beneath pipe	2 inches	—
Grade on perforated pipe	Level	1 inch/100 feet

### 4.13.3 Design Requirements

1. ~~Grey-Gray~~ water flows are determined by calculating the maximum number of occupants or visitors in the wastewater generating structure dwelling; Residences shall be based on

the first bedroom with two occupants and each bedroom thereafter with one occupant unless higher usage is proposed by the applicant.

2. Estimated daily greygray water flows for each occupant are:
  - a. ~~Showers, bathtubs, and wash basins (total): 25 GPD per occupant~~
  - b. ~~Clothes washer: 15 GPD per occupant~~

**Table 4-13. Gray water flows by fixture type connected to system in gallons per person per day.**

<u>Fixture</u>	<u>Gallons/Person/Day</u>
<u>Shower/bath</u>	<u>18</u>
<u>Hand sinks (faucets)</u>	<u>12</u>
<u>Other</u>	<u>Case-by-case determination</u>

Multiply the number of occupants and visitors by the estimated greygray water flow for the fixtures proposed to be connected to the gray water system.

For example: A three-bedroom house is designed for four people. The house has ~~a washing machine connection, shower and hand sinks~~ thus each occupant is assumed to produce 430 GPD of greygray water, resulting in a total of ~~160~~ 120 GPD.

2. The formula shown in Equation 4-11 is used to estimate the square footage of landscape to be irrigated:

$$LA = \frac{GW}{ET \times PF \times 0.62}$$

**Equation 4-11. Landscaped area needed for greygray water produced.**

where:

GW = estimated greygray water produced (gallons per week)

LA = landscaped area (square feet)

ET = evapotranspiration (inches per week)

PF = plant factor, based on climate and type of plants either 0.3, 0.5, or 0.8

0.62 = conversion factor (from inches of ET to gallons per week)

For example: If ET = 2 inches per week, and lawn grasses are grown with a PF of 0.8 (high water using) then the landscaped area is equal to:

$$LA = (\del{160} \u120 \text{ GPD} \times 7 \text{ days}) / (2 \times 0.8 \times 0.62) = \del{1,129} \u847 \text{ ft}^2 \text{ of lawn.}$$

3. An alternative to using greygray water for lawns is to irrigate landscape plants. A plant factor depends on the type of plants watered, an ET rate, and plant canopy. Table 4-~~12~~14 is used to calculate square footage of landscape plants that can be irrigated with greygray water.

**Table 4-1214. GreyGray water application rates for landscape plants.**

Evapotranspiration (inches per week)	Relative Water Need of Plant (plant factor)	Gallons per Week		
		200 ft <sup>2</sup> Canopy	100 ft <sup>2</sup> Canopy	50 ft <sup>2</sup> Canopy
1	Low water using 0.3	38	19	10
	Medium water using 0.5	62	31	16
	High water using 0.8	100	50	25
2	Low water using 0.3	76	38	19
	Medium water using 0.5	124	62	31
	High water using 0.8	200	100	50
3	Low water using 0.3	114	57	28
	Medium water using 0.5	186	93	47
	High water using 0.8	300	150	75

Note: square feet (ft<sup>2</sup>)

Gallons per week (GPW) calculation for this chart was determined with [Equation Error! No text of specified style in document.-1](#) **Equation 4-12**:

$$\text{GreyGray water flow (GPW)} = ET \times \text{plant factor} \times \text{area} \times 0.62 \text{ (conversion factor)}$$

**Equation Error! No text of specified style in document.-112. Gallons per week needed for irrigated plants.**

This formula does not account for irrigation efficiency. If the irrigation system does not distribute water evenly, extra water will need to be applied.

For example: A three-bedroom home [with a washer](#) will produce [1,120,840](#) GPW (7 days x [160,120](#) GPD). If ET = 2 inches per week, then with the [1,120,840](#) gallons of [greygray](#) water a homeowner could irrigate the following :

- [EightFour](#) small fruit trees: [84](#) x 50 = [400,200](#) gallons (high water using, 50-foot canopy)
- [EightSix](#) medium shade trees: [86](#) x 62 = [496,372](#) gallons (medium water using, 100-foot canopy)
- [SevenEight](#) large shrubs: [78](#) x 31 = [2,424,8](#) gallons (medium water using, 50-foot canopy)
- Total water use per week: [1,113,820](#) GPW

#### 4.13.4 Other Requirements

1. The Uniform Plumbing Code (UPC) [GreyGray](#) Water Standards require that all [greygray](#) water piping be marked *Danger—Unsafe Water*.
2. Valves in the plumbing system must be readily accessible, and backwater valves must be installed on [surge/holding tank/dosing chamber](#) drain connections to sanitary drains or sewer piping. Ball valves are recommended to be used in the system. Finally all piping must be downstream of water-seal type trap(s). If no such trap exists, an approved vented running trap shall be installed upstream of the connection to protect the building from possible waste or sewer gasses.
3. ~~Surge tank/Dosing chamber or tank must be vented and have a locking gasketed lid. If the surge tank is within the structure, then the venting must meet the requirements of the UPC. Outside surge tanks shall be vented with a 180° bend and screened. A minimum capacity of 50 gallons is required. The surge tank must be placed on a 3-inch concrete slab or on dry, level compacted soil and the lid labeled *Grey Water Irrigation System, Danger—Unsafe Water*. Surge tanks shall be constructed of solid durable materials, not subject to excessive corrosion or decay, and shall be watertight. T~~ the tank drain and overflow gravity drain must be permanently connected to the [structure's](#) septic tank or sewer line. The drain and overflow drain shall not be ~~less in size~~ [smaller in diameter](#) than the inlet pipe.
4. Filters with a minimum flow capacity of 25 GPM are required.
5. ~~Pumps are usually required to lift the greygray water from the surge tank to the irrigation system (section 4.19). Alternatively if all of the landscape plants are below the building drain lines, then the grey water irrigation system could use gravity to distribute the grey water.~~
6. ~~Irrigation system can be either a mini leachfield or a subsurface drip irrigation system. Mini leachfield designs follow IDAPA 58.01.03.008, except for those deviations allowed by Table 4-13, and are required to use geotextile for the drain/rock-soil barrier.~~

#### Notes:

1. The plants listed in Table 4-~~14~~[15](#) are tolerant of sodium and chloride ions or have been reported to do well under [greygray](#) water irrigation.
2. Different types of media can be used in [greygray](#) water filtration. These include nylon or cloth filters, sand filters, and rack or grate filters.
3. ~~Table 4-13 lists criteria for the design of mini leachfields.~~

**Table 4-13. Grey water mini-leachfield design criteria.**

<b>Mini-leachfield Design Criteria</b>	<b>Minimum</b>	<b>Maximum</b>
Number of drain lines per irrigation zone	4	—
Length of each perforated line	—	100 feet
Bottom width of trench	6 inches	18 inches
Total depth of trench	12 inches	18 inches
Spacing of line, center-to-center	3 feet	4 feet
Depth of earth cover over lines	6 inches	12 inches
Depth of aggregate over pipe	2 inches	—
Depth of aggregate beneath pipe	2 inches	—
Grade on perforated pipe	Level	1 inch/100 feet

**Table 4-1415. Sodium and chloride tolerant plants.**

Agapanthus	Cottonwood	Honeysuckle	Olive	Rosemary
Arizona cypress	Crape myrtle	Italian stone pine	Pfitzer bush	Strawberry clover
Bermuda grass	Deodar cedar	Juniper	Purple hopseed bush	Star jasmine
Bougainvillea	Evergreen shrubs	Oaks	Redwoods	Sweet clover
Carpet grass	Holly	Oleander	Rose	

Figure 4-21 shows a single-tank gravity [greygray](#) water system, and Figure 4-22 shows a single-tank pumped [greygray](#) water system.

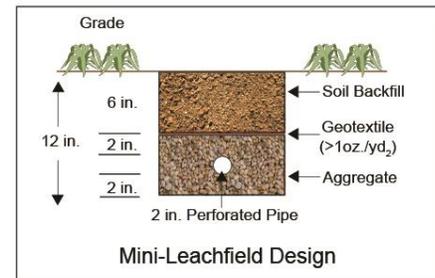
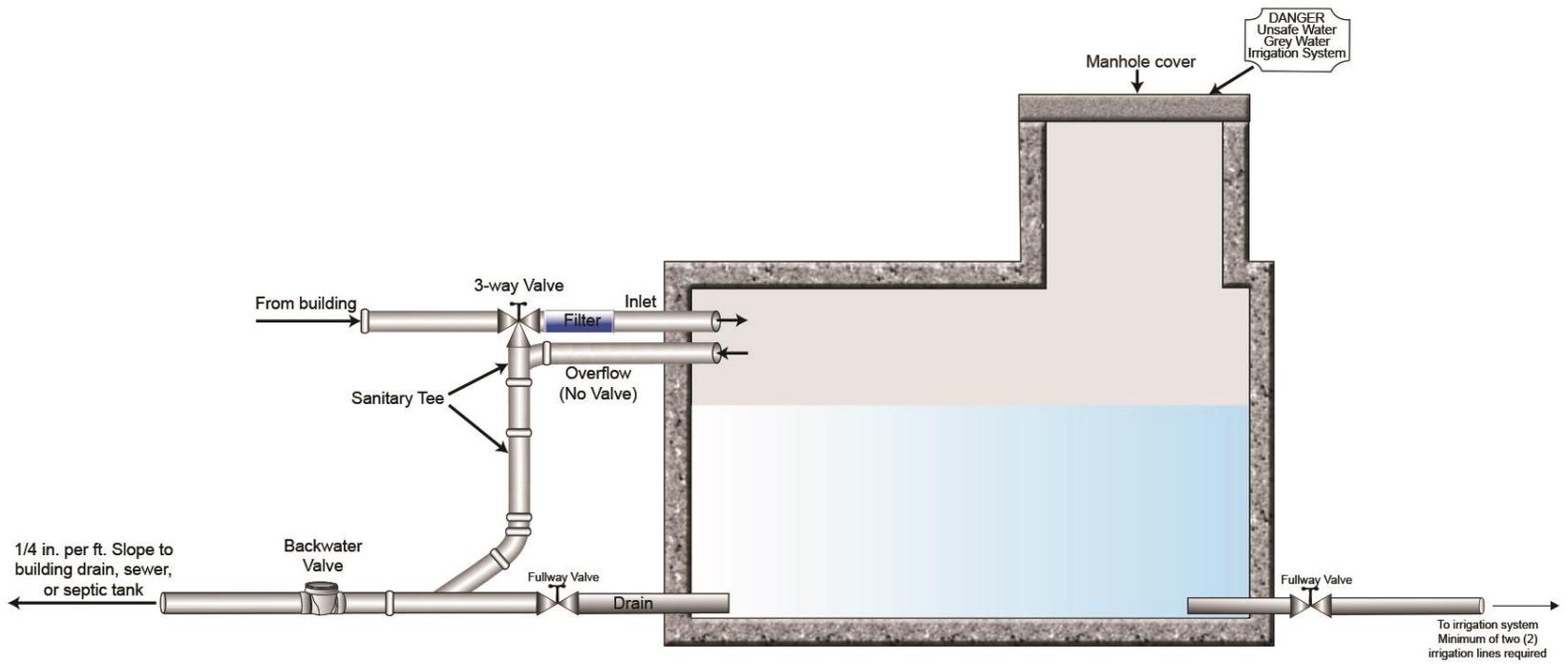
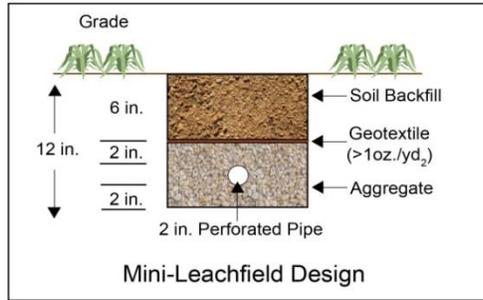
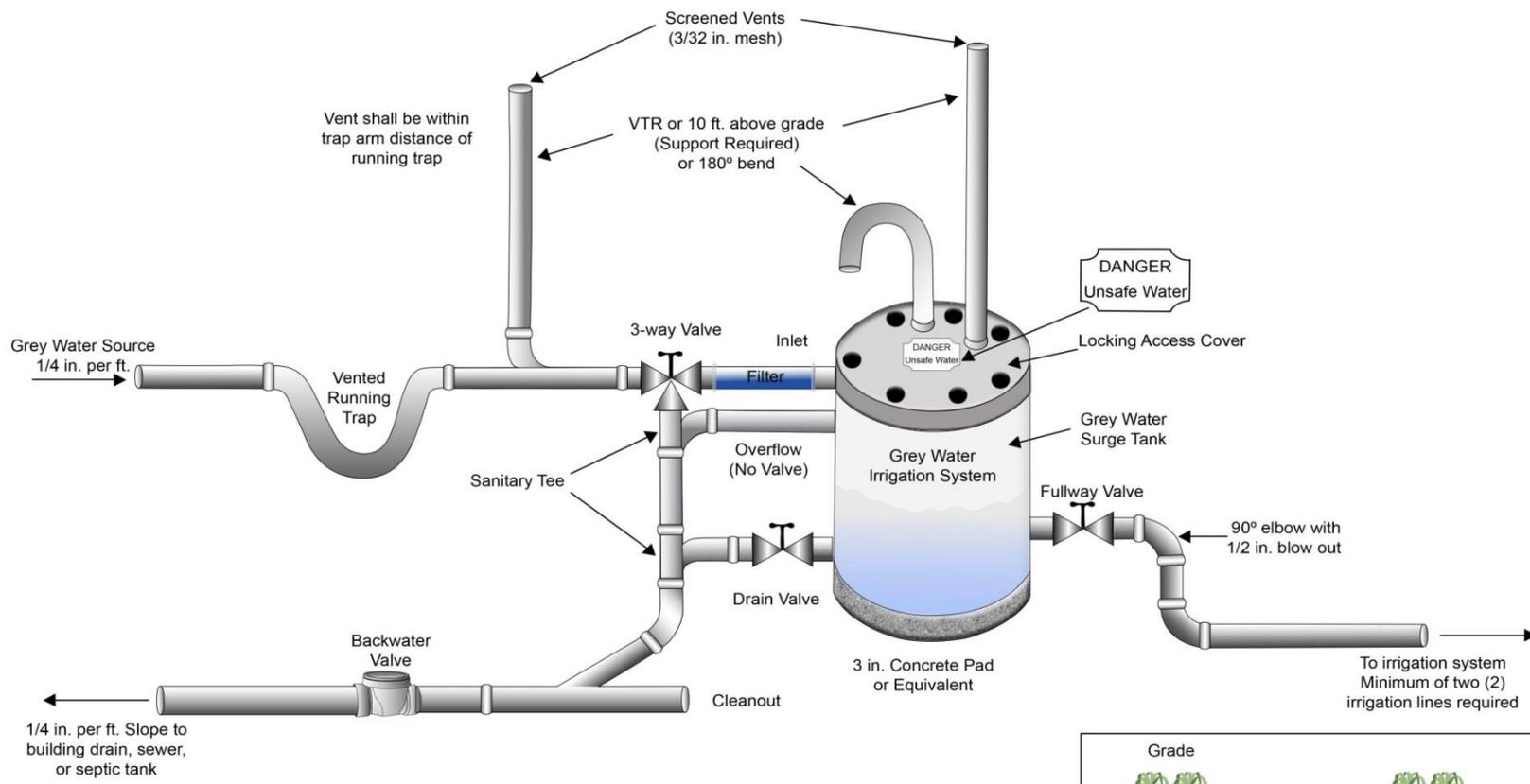


Figure 4-21. GreyGray water system (single-tank gravity).



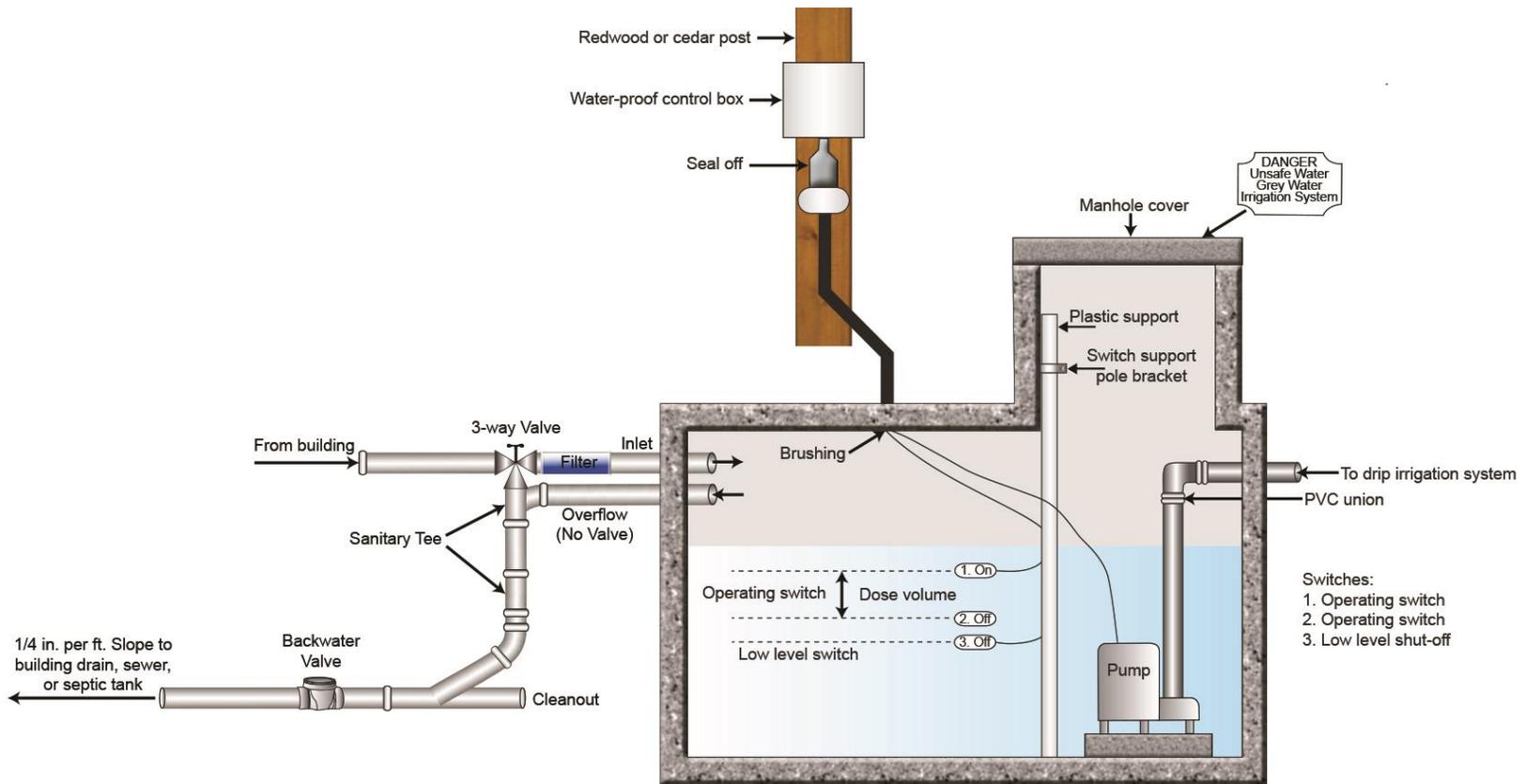
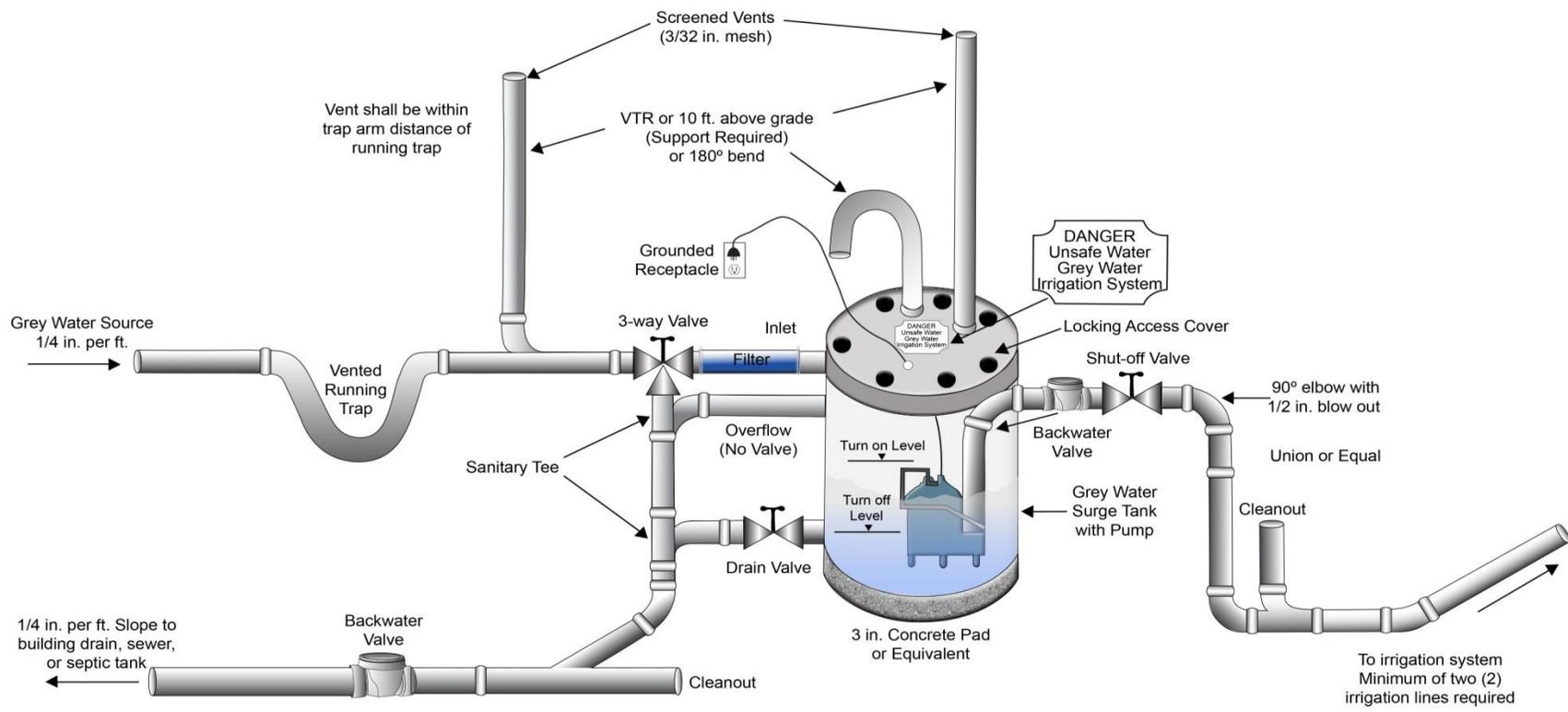


Figure 4-22. GreyGray water system (single-tank pumped).



Grey Water Source  
1/4 in. per ft.

Vent shall be within  
trap arm distance of  
running trap

Screened Vents  
(3/32 in. mesh)

VTR or 10 ft. above grade  
(Support Required)  
or 180° bend

Grounded  
Receptacle

**DANGER**  
Unsafe Water  
Grey Water  
Irrigation System

3-way Valve

Inlet

Filter

Locking Access Cover

Vented  
Running  
Trap

Shut-off Valve

Sanitary Tee

Overflow  
(No Valve)

90° elbow with  
1/2 in. blow out

Turn on Level

Backwater  
Valve

Union or Equal

Turn off Level

Drain Valve

Grey Water  
Surge Tank  
with Pump

Cleanout

1/4 in. per ft. Slope to  
building drain, sewer,  
or septic tank

Backwater  
Valve

Cleanout

3 in. Concrete Pad  
or Equivalent

To irrigation system  
Minimum of two (2)  
irrigation lines required

## Appendix D

### **2.1.2 Soil Design Groups and Subgroups**

This section is provided as a guide to field environmental health personnel in making technical allowances for standard systems and for health districts to use in selecting alternative systems. The required absorption area of a subsurface sewage disposal system depends on the texture of the soils in the proposed disposal system location. In a similar manner, required separation distances between the disposal area and features of concern, such as wells, surface water, and ground water, depend on soil texture. Soils surrounding the disposal system and those below it may not be the same.

The soil design group or subgroup (Table 2-4) used to determine the ~~minimum effective soil depth, and applicable vertical~~ separation distances, describes the finest-textured soils adjacent to ~~the drainfield trenches~~ and beneath the drainfield for the effective soil depth. The soil design group or subgroup (Table 2-4) used to determine the horizontal separation distances to surface water is the coarsest-textured soils adjacent to and beneath the drainfield for the effective soil depth. Effective soil depths are described in section 2.2.2, 2.2.3, and 2.2.5 for standard and basic alternative systems. Some complex alternative treatment systems have effective soil depth reductions that impact vertical separation distances. Complex alternative treatment system effective soil depth reductions are described within each treatment system's individual guidance section.

All other soil textures and some soil features (i.e., gravel, coarse sand, all clays, organic muck, claypan, hardpan, and duripan) are unsuitable for installing a standard drainfield system.

## Appendix E

ECOJOHN® Residential Septic Alternative Solutions

☑ Public Comment - Review for discussion

This public comment refers to TGM 4.15 Individual Wastewater Incinerator.

The conditions of approval for the new ECOJOHN whole waste stream incinerators include the following statement:

4.15.2 1. c. "An incinerator capable of combusting the daily design flow for the dwelling's sewage blackwater and grey water is installed."

I would like DEQ to consider relaxing this condition for the following reasons:

1. I predict that a high percentage of ECOJOHN installations will be for seasonal and even weekend dwellings. Cost of fuel might be cost prohibitive given full time use. These systems could be designed and constructed accordingly.
2. The ECOJOHN system and Idaho approvals require a storage tank which would help to mitigate peak/weekend flows if experienced, the ECOJOHN unit could finish burning after occupancy until the system shuts down upon an empty tank.
3. In order to address the fuel cost concerns, ECOJOHN and other companies offer many "reduced flow" fixture options that would likely be incorporated in the home design. These would most likely be high priority construction considerations due to the cost of fuel as mentioned above.
4. Also as a condition of approval, limitations have been placed on the water supply system making overuse difficult without homeowner awareness.
5. The ECOJOHN WC (entire waste flow units) units are offered in a number of sizes. As it stands, the only size that meets Idaho's minimum flow requirement of 150 GPD is the WC64 which is sized for up to 300 GPD. The WC64 may not effectively match flows for properly planned applications as well as some of the smaller units would. In these cases, much of the unit's capacity would go unused, and equipment cost would be considerably higher than necessary.

## Appendix F

4.19.3.4.4.c Dosing Chamber - alternative to screens around pumps.

Public Comment Review for discussion

Please consider this email a formal request asking DEQ and the Technical Guidance Committee to reconsider Section 4.19.3.4.4.c of the Technical Guidance Manual for Individual and Subsurface Sewage Disposal (TGM). Under this section, the following is listed:

An effluent filter placed on the outlet of the septic tank, **designed with a closing mechanism when the filter is removed**, is a suitable alternative to screens around pumps...

I would like DEQ and the Committee to consider striking the words in bold above based on the following points:

1. Not all filters approved under Table 5.9 include a closing mechanism, therefore design engineers and installers would be limited to only filters that included that feature.
2. The closing mechanism offered on some effluent filters is a proprietary feature and only offered by one manufacturer (based on my quick research) of the products listed under Table 5.9 giving this manufacturer a competitive advantage in the Idaho market.
3. Most, if not all, effluent filters designed and constructed without a closing mechanism are designed to maintain a effluent entrance location separate from the actual filter which would pull effluent from the septic tank clear zone with the filter removed. This would, by design, limit solids carryover to a downstream dose tank during the short duration needed to remove the screen for cleaning.
4. Considering Point 3 above, with the cleanable filter removed, clear zone solids would be limited in size and would not be likely to plug pumping equipment.
5. If solids were to carryover to a downstream dose tank, these solids would either settle or rise in the dose tank before entering the pumping equipment area limiting solids carryover to the drainfield system.
6. Given the short duration and frequency needed to clean any effluent filter, any solids carryover would be inconsequential to the long term operation of the pumping equipment and drainfield absorptive interface.