State of Idaho
Department Of Environmental Quality
Technical Guidance Committee

Technical Guidance Committee Meeting

Minutes

Wednesday, December 10, 2014

Idaho Correctional Industries
1301 North Orchard, Suite 110
Boise, Idaho

TGC ATTENDEES:

Tyler Fortunati, REHS, 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
Complex Installer Seat - Vacant

GUESTS:

Tammarra Golightly, Administrative Assistant, DEQ
Ryan Spiers, Alternative Wastewater Systems, LLC
PaRee Godsill, Everlasting Extended Treatment, LLC
AJ Maupin, PE, IPDES Permit Lead, DEQ
Matt Gibbs, Infiltrator Systems, Inc.
Dick Bachelder, Infiltrator Systems, Inc.
Jake Davis, Environmental Health Specialist, PH-INCD (via telephone)

CALL TO ORDER/ROLL CALL:

Meeting called to order at 8:30 a.m.
Committee members and guests introduced themselves. Tammarra Golightly was introduced as the new Administrative Assistant for DEQ's Wastewater Program. Tyler Fortunati informed the committee that Tammarra would be the point of contact for non-DEQ employee reimbursement for committee members. Mike Reno requested a status update on the complex installer seat for the committee. Tyler Fortunati informed the committee that Jason Holm of JT Holm Construction, LLC had been appointed to fill the complex installer seat on the committee. Mr. Holm is permitted as a complex installer through Southeastern Idaho Public Health and Mr. Holm's appointment will begin on January 1, 2015.

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 comments were submitted during the allotted agenda timeframe.

MEETING MINUTES:

September 18, 2014 Draft TGC Meeting Minutes: Review, Amend, or Approve

The minutes were reviewed and no suggestions for amendments were made.

Motion: Dale Peck moved to approve the minutes.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

OLD BUSINESS/ FINAL REVIEW:

4.11 Extra Drainrock Drainfield

This TGM Section was posted for public comment. There were no public comments received on this section.

Motion: Dale Peck moved that the TGC recommend final approval to DEQ for Section 4.11 Extra Drainrock Drainfield.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

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

4.16 Incinerator Toilets

This TGM Section was posted for public comment. There were no public comments received on this section.

Formatting edits were made regarding the requirements for full time use requirements of an incinerating toilet.

Motion: Mike Reno moved that the TGC recommend final approval to DEQ for Section 4.16 Incinerator Toilets as amended.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

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

4.27 Steep Slope System

This TGM Section was posted for public comment. There were no public comments received on this section.

The separation distance requirements from the bottom of the drainfield on the uphill side of a trench were clarified to be vertical separation distances only. Horizontal separation distances are to be determined from the closest location of a trench to the feature of interest.

Motion: Bob Erickson moved that the TGC recommend final approval to DEQ for Section 4.27 Steep Slope System as amended.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

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

4.10.3 Extended Treatment Package System Operation, Maintenance, and Monitoring

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee had no recommended revisions to this section.

Motion: Dale Peck moved that the TGC recommend final approval to DEQ for Section 4.10.3 Extended Treatment Package System Operation, Maintenance, and Monitoring.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

1.4.2.1.1 Initial Septic Tank Approvals and 1.4.2.1.2 Transfer of Septic Tank Approvals Between Manufacturers

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee had no recommended revisions to this section.

Motion: Bob Erickson moved that the TGC recommend final approval to DEQ for Section 1.4.2.1.1 Initial Septic Tank Approvals and 1.4.2.1.2 Transfer of Septic Tank Approvals Between Manufacturers.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

3.2.3 Septic Tanks and Dosing Chambers

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee discussed one-piece and multi-piece tanks and how the separation distance to ground water from the top of the tank was interpreted in this section. AJ Maupin provided the committee background information on the changes to fluid weights in regards to hydrostatic water pressure requirements for septic tank and dosing chamber walls. The committee also discussed the requirement that structural changes to septic tanks (e.g., core drilling and roto-hammering) are not allowed unless they are approved by DEQ prior to the change being made. The committee placed the modification approval requirements at the beginning of this section.

Motion: Bob Erickson moved that the TGC recommend final approval to DEQ for Section 3.2.3 Septic Tanks and Dosing Chambers as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

6 Septic Tank Pumpers' Guidance Manual

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee again expressed desire that this section of the manual be removed from the TGM and placed into its own separate manual. Tyler Fortunati stated that DEQ would consider this once everything related to septage was worked out in the IPDES program and there was a better understanding of how the pumper rules and domestic septage land application requirements were going to be impacted. Tyler Fortunati stated this will take some time based on the necessary rule making that must occur for the IPDES program.

The committee made minor changes to the septic tank inspection and pumping time frames.

Motion: Mike Reno moved that the TGC recommend final approval to DEQ for Section 6 Septic Tank Pumpers' Guidance Manual as amended.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

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

9:38 a.m. Break

9:55 a.m. Meeting Resumed

4.22 Recirculating Gravel Filter

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee requested that Figure 4-25 have the drainrock depth description clarified. It was also requested that the figures included in this section of the agenda be larger and legible upon their addition to the TGM. Tyler Fortunati stated he would ensure the figures were large enough in the actual manual and that their size in the agenda was simply made to reduce the number of agenda pages. Joe Canning asked that the callout for Figure 4-27 be changed to describe the figure as a bottom view.

The committee held discussion on the proposed design. The committee made some adjustments to the pressurized drainfield requirements and engineer inspection requirements.

Motion: Joe Canning moved that the TGC recommend final approval to DEQ for Section 4.22 Recirculating Gravel Filter as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

4.23 Intermittent Sand Filter

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee held discussion on the proposed design. The committee made some adjustments to the engineer inspection requirements.

Motion: Joe Canning moved that the TGC recommend final approval to DEQ for Section 4.23 Intermittent Sand Filter as amended.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

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

NEW BUSINESS/DRAFT REVIEW

4.1.3 Combination of Multiple Alternative Systems in One System Design

Dale Peck requested that all of the table cells above the diagonal designation of "S" across the table be removed as this is just a mirror version of what is located below the "S". A few minor changes were made in the footnotes of Table 4-1 to clarify the asterisk designations.

Motion: Dale Peck moved that the TGC recommend preliminary approval to DEQ for Section 4.1.3 Combination of Multiple Alternative Systems in One System Design as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

See **Appendix K** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

4.3 Existing and Approved System Rights, Abandoned and Undocumented System, and Nonconforming Uses

Tyler Fortunati provided a reminder that upon final approval of this section the committee would also be approving the movement of existing sections 4.2, 4.3, and 4.4 to section 1 of the manual. The only section with content changes upon this move would be section 4.3.

The committee made some changes to section 4.3.1 in regards to non-conforming permits and that all existing systems will be repaired or replaced to meet the current requirements of IDAPA 58.01.03 when at all possible.

The committee also made a revision for the timeframe of abandonment shall be two years instead of one year. There was also clarification made that only one form of approval is necessary to use an abandoned system.

The committee also provided clarification that a test hole is only needed for an undocumented system if there is no existing soil documentation for the property.

The committee discussed the necessity of section 4.3.5 to be included in this guidance. Tyler Fortunati stated that DEQ has seen cases where nonconforming subsurface sewage disposal permits are being issued that allow the system blanket nonconformance when several system parameters could be brought into compliance with IDAPA 58.01.03 upon replacement. The committee moved a description regarding the requirement that any nonconforming system be brought into compliance with as much of IDAPA 58.01.03 as the property will allow to the front of this section. The committee also added reference

that the DEQ issued memorandums may be found in the document maintained by the health districts titled Idaho Subsurface Sewage Disposal Standard Operating Procedures.

Motion: Joe Canning moved that the TGC recommend preliminary approval to DEQ for Section 4.3 Existing and Approved System Rights, Abandoned and Undocumented System, and Nonconforming Uses as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

4.18 Pit Privy

Tyler Fortunati stated that the revisions to section 4.18, 4.19 and 4.29 are all based off of the current version of ANSI standard Z4.3.The committee discussed the new design and construction requirements for this system. The committee added that the floor and toilet riser be constructed of sealed material to ensure it is nonabsorbent.

Motion: Bob Erickson moved that the TGC recommend preliminary approval to DEQ for Section 4.18 Pit Pricy as amended.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

See **Appendix M** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

4.19 Portable Sanitation Units

The committee reviewed the proposed revisions and had no recommended changes.

Motion: Mike Reno moved that the TGC recommend preliminary approval to DEQ for Section 4.19 Portable Sanitation Units as proposed.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

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

The meeting was adjourned for Lunch.
Lunch 11:55 a.m. – 12:55 p.m.

Product Review for Arc 36 LP Gravelless Chamber – Infiltrator Systems, Inc.

Dick Bachelder and Matt Gibbs from Infiltrator Systems, Inc. presented their Arc 36 LP gravelless chamber product to the committee. Dick Bachelder provided a presentation to the committee to answer questions the committee had related to this product.

Dick provided information that the chamber has a very similar open bottom area to the currently approved Quick 4 Plus Standard LP chamber produced by Infiltrator Systems, Inc. He described that the side supports of the chamber were reduced due to the presence of the middle support posts.

Dick also provided information regarding wetting patterns in chambers with center supports for pressurized drainfields. Dick asserted that the wetting pattern in chambers with posts is not much different than in pressurized gravel systems. The committee voiced concerns regarding the progressive failure nature of effluent distribution across a pressurized dome with a center support post. The committee feels the posts prevent effluent from distributing across the dome under unsaturated conditions.

Mike Reno expressed concerns regarding the reduction allowance that this chamber would receive and the fact that the holding capacity of the dome is reduced since the product is only 8 inches tall and the inlet invert is at 3.77 inches, where full sized domes and gravel systems have inverts at least 6 inches above the trench bottom. Dick and Matt described that the product could be installed using their "periscope" connection or the pipe could enter the top of the chamber product which would allow the entire chamber to be utilized for storage. Dick did express concern that this requirement would limit the chamber's use in shallow installations due to the effluent pipe height and a lack of cover over this pipe in gravity flow installations. Dick indicated that this installation condition was not warranted and did not want that condition placed on the product.

Dick also provided empirical data from Montana and Washington that outlined the number of gravelless systems manufactured by Infiltrator Systems, Inc. installed within both states over the last five years. This was correlated to a very low warranty claim rate from both states. Dale Peck expressed his concern that Idaho's sizing requirements are much less than any other state in the country and the failure rates may not be similar in Idaho. Dick expressed that this is not something that Infiltrator Systems, Inc. can control and the sizing aspects should not impact the approval of this product.

The committee discussed possible approval with certain installation requirements to address wetting and storage capacity concerns. Tyler Fortunati stated that DEQ would not be comfortable approving a single product within a product category with conditions that the other products would not have to meet. Tyler stated that if the committee wanted specific installation requirements for low profile chambers or pressurized chambers with

support posts that this would best be addressed through the installation, operation, and maintenance requirements included in the Gravelless Trench System section of the TGM as authorized by IDAPA 58.01.03.004.08 and .10.

Action Item: The committee would like to review low profile chambers at the next meeting in relation to storage capacity based on inlet installation height in comparison to gravel systems based on data provided by Infiltrator Systems, Inc. and through available literature on this topic, and they would also like to look at wetting and pressurization requirements when support posts and columns are located in the chamber.

Motion: Mike Reno moved that the TGC recommend approval to DEQ for the Arc 36 LP gravelless chamber product presented by Infiltrator Systems, Inc. with an allowed sizing reduction of 25%.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

Product approval recommendation will be passed to DEQ for final approval.

2:35 p.m. Break

2:45 p.m. Meeting Resumed

4.29 Vault Privy

The committee requested that Jake Davis with Public Health – Idaho North Central District provide his input regarding vault privies in north Idaho. Jake voiced concern about limiting vault privies to areas outside of floodways and the requirement to place them more than 50 feet from a surface water body. Jake stated that north Idaho has several river corridors and lake areas where these restrictions would prevent the installation of a vault privy. Jake expressed concern that this would lead to improper disposal of human waste in these locations. Jake felt it would be better for overall protection of public health and the environment to allow the vault privies to be placed in these locations. Jake also expressed concern regarding how these requirements would impact floating vault toilets located on some northern Idaho lakes. Joe Canning expressed concern that if we allowed these structures in floodways we may be creating issues with cities and counties related to flood insurance and assessments. Tyler Fortunati also stated that since vaults are underground tanks, and in some cases, converted septic tanks that it would not be consistent with the remainder of the subsurface program to allow these features closer than 50 feet to surface water. There was also clarification that the floodway is much different than a floodplain. The committee felt the restrictions on vault privies to keep them out of floodways and more than 50 feet from surface water was reasonable. Based on Jake's concerns regarding floating vaults and input from Dale Peck that these are prevalent in north Idaho, Tyler Fortunati stated that DEQ will draft separate guidance for inclusion in the TGM for these types of facilities and that the requirements for vault privies will not impact the future guidance for floating vaults.

Action Item: Draft new guidance to address floating vault toilets in Idaho.

Motion: Dale Peck moved that the TGC recommend preliminary approval to DEQ for Section 4.29 Vault Privy as proposed.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

See **Appendix O** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

2.1.3 Soil Design Subgroup Corrections

Tyler Fortunati explained that this revision came out of a request for how soil design subgroup corrections are made in regards to lowering subgroups and whether it was acceptable to lower from one soil design group (A, B, or C) to another soil design subgroup. Tyler also explained that the removal of raising a subgroup was made due to Idaho's already limited drainfield sizing.

Motion: Mike Reno moved that the TGC recommend preliminary approval to DEQ for Section 2.1.3 Soil Design Subgroup Corrections as proposed.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

See **Appendix P** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

Bob Erickson Requested to Discuss Table 2-7 from Section 2.2.4.1 of the TGM

Bob Erickson requested the committee's input regarding a situation where an applicant has to meet separation distances to surface water and a spring. The site can meet the requirements to the surface water but the spring is closer than the required 200 feet. Bob stated that the spring boils to the surface and the water then seeps back into the ground and does not stay surfaced. Bob also expressed that based on elevations and topography it was unlikely that the drainfield could have an impact on the spring.

The committee stated it would be acceptable to require the applicant have a professional with experience in hydrology verify and document that the drainfield and spring would not be hydraulically connected. Alternatively, the applicant can have a professional in hydrology verify and document that the spring discharges to ground water upon surfacing. If either could be verified and documented then the separation distance could be reduced to 100 feet.

NEXT MEETING:

The next committee meeting is scheduled to be on March 20, 2015 at the DEQ state office building.

Motion: Mike Reno moved to adjourn the meeting.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

The meeting adjourned at 3:20 p.m.

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

- Floating vault toilets

List of Appendices from the September 18, 2014 Meeting

Appendix A:
September 18, 2014 TGC Minutes
Status: Final

Appendix B:
4.11 Extra Drainrock Drainfield
Status: Final

Appendix C:
4.16 Incinerating Toilets
Status: Final

Appendix D:
4.27 Steep Slope System
Status: Final

Appendix E:
4.10.3 Extended Treatment Package System Operation, Maintenance, and Monitoring
Status: Final

Appendix F:
1.4.2.1.1 Initial Septic Tank Approvals and 1.4.2.1.2 Transfer of Septic Tank Approvals between Manufacturers
Status: Final

Appendix G:
3.2.3 Septic Tanks and Dosing Chambers
Status: Final

Appendix H:
6 Septic Tank Pumpers' Manual
Status: Final

Appendix I:
4.22 Recirculating Gravel Filter
Status: Final

Appendix J:
4.23 Intermittent Sand Filter
Status: Final

Appendix K:
4.1.3 Combination of Multiple Alternative Systems in One System Design
Status: Preliminary Approval – Posted for Public Comment

Appendix L:
4.3 Existing and Approved System Rights, Abandoned and Undocumented System, and Nonconforming Uses
Status: Preliminary Approval – Posted for Public Comment

Appendix M:
4.18 Pit Privy
Status: Preliminary Approval – Posted for Public Comment

Appendix N:
4.19 Portable Sanitation Units
Status: Preliminary Approval – Posted for Public Comment

Appendix O:
4.29 Vault Privy
Status: Preliminary Approval – Posted for Public Comment

Appendix P:
2.1.3 Soil Design Subgroup Corrections
Status: Preliminary Approval – Posted for Public Comment

Appendix A

Technical Guidance Committee Meeting

Minutes

Thursday, September 18, 2014

Department of Environmental Quality
Conference Room C
1410 N. Hilton
Boise, Idaho

TGC ATTENDEES:

Tyler Fortunati, REHS, 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:

Chas Ariss, PE, Wastewater Program Manager, DEQ
Ryan Spiers, Alternative Wastewater Systems, LLC
Matt Gibbs, Infiltrator Systems, Inc.
PaRee Godsill, Everlasting Extended Treatment, LLC

CALL TO ORDER/ROLL CALL:

Meeting called to order at 8:30 a.m.
Committee members and guests introduced themselves. Dale Peck was introduced as the new Environmental Health Director representative on the TGC replacing David Loper.

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 were submitted during the allotted agenda timeframe.

MEETING MINUTES:

June 5, 2014 Draft TGC Meeting Minutes: Review, Amend, or Approve

The minutes were reviewed. Two amendments were made. The first was to clarify that Dave Lowe is a Washington State licensed onsite designer and not a PE. The second is that the

LOWeFLOW system is approved for up to 100,000 gallons per day in Washington State not 1,000 gallons per day.

Motion: Joe Canning moved to approve the minutes as amended.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

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

OLD BUSINESS/ FINAL REVIEW:

4.1 General Requirements

This TGM Section was posted for public comment. There were no public comments received on this section.

Motion: Dale Peck moved that the TGC recommend final approval to DEQ for Section 4.1 General Requirements.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

1.5 Installer Registration Permit

This TGM Section was posted for public comment. There were no public comments received on this section.

Modifications were made that allow an installer to attend a scheduled installer training class in lieu of viewing the installer video for initial permit issuance upgrading from a basic of complex installer's permit. The allowance for viewing the statewide installer video was also removed due to no statewide video being available at this time. The committee agreed to revisit this once a statewide video was prepared.

Clarification was added that a revocation of an installer's permit shall last for the remainder of the permit cycle that the revocation is made within.

Motion: Mike Reno moved that the TGC recommend final approval to DEQ for Section 1.5 Installer Registration Permit as amended.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

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

4.17 Individual Lagoon

This TGM Section was posted for public comment. There were no public comments received on this section.

Discussion was held regarding the requirement that lagoons not be installed within floodways and that the top of the lagoon embankment shall be at least one foot higher than the established flood elevation for the site.

Discussion was also held regarding the allowed seepage rate of a lagoon. The committee decided that a seepage rate of 500 gallons per acre of lagoon surface area per day was acceptable and that other seepage rates should be removed.

Motion: Bob Erickson moved that the TGC recommend final approval to DEQ for Section 4.17 Individual Lagoon as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

3.2.3.1 Conversion of a Septic Tank to a Lift Station

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee discussed what their recommendation would be for oversizing a septic tank that is preceded by a lift station. A change was made to recommend that the septic tank be oversized by one day's system design flow.

Motion: Dale Peck moved that the TGC recommend final approval to DEQ for Section 3.2.3.1 Conversion of a Septic Tank to a Lift Station as amended.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

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

9:28 a.m. Break

9:35 a.m. Meeting Resumed

4.22 Recirculating Gravel Filter

This TGM Section was posted for public comment. There were no public comments received on this section.

The committee began this review with discussion on the *LOWeFLOW* system that was presented to the committee during the June 5, 2014 meeting. The committee had concerns regarding the loading rate of this filter design and the extra maintenance that could be necessary due to this design aspect. The committee was not comfortable with this aspect of the system. There was also concern regarding the ability of this system to reduce nitrogen due to the loading rate of the system design and the fact that it had not been evaluated for this effluent constituent. The committee felt that this system design could already be used in Idaho if some of the components and flow rates were adjusted to meet Idaho's current public domain design guidance. Another alternative is for the proposed system design to be permitted as an experimental system. The committee does not see the need to provide a proprietary system design approval for this submittal.

Motion: Bob Erickson moved that the TGC not review or approve proprietary system designs that do not meet the existing design criteria of the TGM.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

Tyler Fortunati will respond to Dave Lowe regarding his submittal to the TGC and the committee's decision not to provide proprietary approval of the submitted system design.

The committee reviewed the proposed revisions to section 4.22 Recirculating Gravel Filter. Joe Canning had concerns on how flows are split after they pass through the gravel filter. The committee wants the design amended so that the filter always discharges to a dosing chamber and that the flows are split upon pressurization from the dosing chamber through a mechanical flow splitter.

***Action Item:** Tyler Fortunati will develop a flow splitter diagram based on the committee's request for mechanical splitting. Joe Canning will provide an example of a mechanical flow splitter.

Bob Erickson would like to see some of the design guidance language removed from the text and added to the system diagrams to help shorten the length of the revision.

The committee would like to see the filter fabric depicted in figure 4-25 moved to the top of the rock cover over the filter. They would also like to see the filter container walls extended above grade to help limit inflow from runoff and the cover over the filter sloped at 3:1. The committee would also like to see the cover over the filter reduced to a six inch minimum and that decorative rock be removed and only drainrock allowed for cover. The committee would also like to see a protective barrier added just below the rock cover over the filter such as chain-link fencing to limit incidental access to the filter surface.

10:27 a.m. Break

10:35 a.m. Meeting Resumed

The committee resumed review and discussion of section 4.22 Recirculating Gravel Filter after the break.

The committee would like the terms "recirculation tank" and "recirculation chamber" standardized throughout the section for consistency in terminology.

Motion: Michael Reno moved that the TGC table Section 4.22 Recirculating Gravel Filter until the next meeting after the proposed revisions and action items are addressed.

Second: Bob Erickson.
Voice Vote: Motion carried unanimously.

Section is tabled until the next meeting. See **Appendix F.**

4.3 Existing and Approved System Rights, Abandoned and Unapproved System, and Nonconforming Uses

This TGM Section was posted for public comment. There were no public comments received on this section.

Dale Peck provided the committee with a proposed revision and rewrite of this section for their consideration. Dale feels that the proposed revision is too lengthy and does not help address permitting issues for the health districts. Tyler Fortunati stated that the proposed revision was reviewed by DEQ's Water Quality Division Administrator and the Attorney General's Office. Any revision would have to go back through these offices prior to coming back to the committee.

Mike Reno would like section 4.3.5.2 of the proposed revision removed from the document. Mike Reno and Dale Peck recommended that this section be amended to meet Dale's proposal somewhere in the middle with the proposed revision in the agenda.

Motion: Mike Reno moved that the TGC table Section 4.3 Existing and Approved System Rights, Abandoned and Unapproved System, and Nonconforming Uses to address the revision suggestions.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

Section is tabled until the next meeting. See **Appendix G.**

The meeting was adjourned for Lunch.
Lunch 11:46 a.m. – 12:50 p.m.

NEW BUSINESS/DRAFT REVIEW

6 Septic Tank Pumpers' Guidance Manual

The committee had questions as to why this section was included within the Technical Guidance Manual since it was not directly related to alternative system design. Tyler Fortunati stated that it had been a part of the manual for as long as he could remember. The committee would like to see section 6.9 on beneficial reuse of domestic septage removed from this document. The committee would also like DEQ to consider moving this entire section into its own stand-alone document at some point in the future, possibly coinciding with the finalization of DEQ guidance that is in development on septage land application.
Motion: Bob Erickson moved that the TGC recommend preliminary approval to DEQ for Section 6 Septic Tank Pumping and Septage Disposal as amended with the consideration to remove this section from the TGM in the future when septage land application guidance is completed.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

See **Appendix H** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

4.11 Extra Drainrock Drainfield

The committee would like to see figure 4-13 amended so that the minimum soil depths equating to 48 inches were for B soils and not A soils.

Dale Peck requested that the language limiting multiplication factors be less than 0.50 not greater than 0.50.

Motion: Dale Peck moved that the TGC recommend preliminary approval to DEQ for Section 4.11 Extra Drainrock Drainfield as amended.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

See **Appendix I** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

4.16 Incinerator Toilets

Discussion was held on whether water under pressure may be allowed to the dwelling. Tyler Fortunati discussed that there has been minimal interest from the public in installing incinerator toilets and composting toilets on properties where public sewer is

available or if the rest of the home is plumbed to a septic system. The language provided in the approval conditions would allow this use.

Motion: Joe Canning moved that the TGC recommend preliminary approval to DEQ for Section 4.16 Incinerator Toilets.

Second: Dale Peck.

Voice Vote: Motion carried unanimously.

See **Appendix J** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

4.23 Intermittent Sand Filter

The committee had some adjustments they would like made to figure 4-24 including the following:

- Adding medium sand below the filter liner.
- Having the filter vents extend above grade.
- Burying the liner below the filter cover.
- Mounding the cover over the filter with a 3:1 slope to control runoff into and over the filter.

The committee would also like the inspection criteria to match the inspection criteria for the recirculating gravel filter. Discussion was also held regarding the allowance of cover over the intermittent filter versus leaving it open to the atmosphere for oxygen circulation. Tyler Fortunati explained that this is not necessary with the intermittent sand filter design and would potentially cause freezing issues within the media in colder climates. The committee also questioned requiring pretreatment of non-domestic wastewater prior to the filter. Tyler Fortunati explained that this would harm the filter biology necessary for effluent treatment and that the higher TSS and BOD loading from non-domestic wastewater would clog the filter.

Motion: Mike Reno moved that the TGC recommend preliminary approval to DEQ for Section 4.23 Intermittent Sand Filter as amended.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.

See **Appendix K** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

4.27 Steep Slope System

The committee discussed the required separation distance between trenches and whether this followed the sloped ground surface or was a straight horizontal distance between trenches. Clarification was made that this separation distance is to be a straight horizontal distance between trenches.

The committee also questioned why the allowance for a reduction in disposal area was removed for gravelless trench products installed in a steep slope design. Tyler Fortunati explained that gravel systems are required to install 12 inches of drainrock below the pipe for this system design with no credit for extra drainrock and that gravelless products should have a similar disposal area requirement. The committee agreed on this point.

Motion: Dale Peck moved that the TGC recommend preliminary approval to DEQ for Section 4.27 Steep Slope System.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

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

1.4.2.1.1 Initial Septic Tank Approvals and 1.4.2.1.2 Transfer of Septic Tank Approvals Between Manufacturers

The committee expressed hesitation on commenting and approval of this section due to the heavy emphasis on engineering specifications for septic tank design and construction requirements. The committee feels this is something that DEQ should be approving. Tyler Fortunati explained that since it is information located in the TGM that is being moved to another section the TGC must approve the content change. Tyler Fortunati also explained that DEQ's Wastewater Program Lead Engineer had reviewed and amended much of the section to describe the minimum requirements for manufacturers when preparing a submittal for tank approval to DEQ. The committee requested that DEQ's Wastewater Program Lead Engineer be present for review of this section at the next meeting.

Motion: Joe Canning moved that the TGC recommend preliminary approval to DEQ for Section 1.4.2.1.1 Initial Septic Tank Approvals and 1.4.2.1.2 Transfer of Septic Tank Approvals Between Manufacturers and that final approval be supported by DEQ engineering staff.

Second: Mike Reno.

Voice Vote: Motion carried unanimously.

See **Appendix M** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

3.2.3 Septic Tanks and Dosing Chambers

The committee reviewed the proposed revision to this section of the TGM. Tyler Fortunati clarified that much of the change is simply moving the tank design and construction specifications to the proposed section 1.4.2.1.1 and 1.4.2.1.2.

Motion: Mike Reno moved that the TGC recommend preliminary approval to DEQ of Section 3.2.3 Septic Tanks and Dosing Chambers.

Second: Joe Canning.
Voice Vote: Motion carried unanimously.

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

4.1.3 Combination of Multiple Alternative Systems in One System Design

The committee reviewed the proposed addition of this section to the TGM. There was discussion on why this section was added. Tyler Fortunati stated that there had been a few inquiries on allowances for sizing reductions and separation distance reductions when multiple alternatives are combined. Additionally, there were inquiries as to whether this was allowed at all since it wasn't discussed in the TGM. Tyler Fortunati stated that this is something that was being drafted prior to his arrival at DEQ and that this is a first attempt at reviving it and bringing it to the TGC for their input and recommendation.

The committee asked that table 4-1 be amended to add section numbers next to the written system description to the numbers across the top of the table could be understood. The committee also asked that the dashes be replaced with something else to portray that the two system types were not compatible. The committee would also like to see a definition of united system.

The committee would like DEQ to revise this section and bring it back to the committee at the next meeting for preliminary review. There was a request to simplify and provide more clarity to the text.

Motion: Dale Peck moved that the TGC table Section 4.1.3 Combination of Multiple Alternative Systems in One System Design.

Second: Michael Reno.

Voice Vote: Motion carried unanimously.

Section is tabled until the next meeting. See **Appendix O**.

4.10.3 Extended Treatment Package System Operation, Maintenance, and Monitoring

The committee reviewed the proposed revision to this section of the TGM and Mike Reno explained why this allowance was setup with restrictions to limiting the allowance to systems where all the treatment units are from the same manufacturer. Tyler Fortunati provided additional input that product approvals are tied to the testing results for extended treatment package systems and if multiple manufacturer's systems were discharging to one dosing chamber then results for each manufacturer may be skewed when tested from this point.

Motion: Dale Peck moved that the TGC recommend preliminary approval to DEQ of Section 4.10.3 Extended Treatment Package System Operation, Maintenance, and Monitoring.
Second: Michael Reno.

Voice Vote: Motion carried unanimously.

See **Appendix P** and provide public comment to Tyler Fortunati at 208-373-0140 or by email at tyler.fortunati@deq.idaho.gov.

2:45 p.m. Break

2:55 p.m. Meeting Resumed

Product Review – ARC 36 LP Gravelless Chamber

Infiltrator Systems, Inc. submitted a product approval request for their ARC 36 low profile (LP) gravelless chamber. The committee was provided the product specific materials prior to this meeting, but the request for product approval was not received until September 10, 2014 so this topic was a late addition to the meeting agenda.

Matt Gibbs from Infiltrator Systems, Inc. presented the gravelless chamber to the committee for their approval. The committee expressed concerns regarding the use of this chamber in pressure distribution designs due to the support rows interfering with the wetting pattern from the distribution piping. Matt was not sure whether this issue had been examined for this particular product but explained he could check into it with his company. The committee also expressed concerns regarding the strength of the gravelless dome in saturated soils since all of the strength tests were done in unsaturated soils. Matt was not sure whether this had been evaluated by his company or not but described that the chamber was approved for H-10 loading with 12 inches of soil cover.

Dale Peck requested an explanation as to why a sizing reduction is allowed for gravelless products. Matt Gibbs explained that the reduction is due to a lack of masking that is present in gravel systems due to the interface of the gravel and the trench bottom. Dale also inquired as to why the gravelless product manufacturers voluntarily lowered their reduction from 40% to 25% if failure and masking weren't an issue. Matt explained this was a voluntary reduction out of an understanding that Idaho has the smallest required disposal area for septic systems in the United States. The reduction was decreased voluntarily by the manufacturers to ensure that their systems functioned properly and had an adequate system life. The committee

expressed that they have concerns regarding the presence of the support rows due to their masking and compaction capability and would like to know what percentage of trench bottom is used by these support rows.

Matt Gibbs will address these questions with representatives of his company. Tyler Fortunati will follow-up with Infiltrator Systems, Inc. to let them know of the committee's questions and concerns so they can address the committee at the next meeting.

Motion: Bob Erickson moved that the TGC table the review of this product and any subsequent recommendation by the committee until the next meeting.

Second: Joe Canning.

Voice Vote: Motion carried unanimously.
The review of this product and any recommendation by the committee is tabled until the next meeting.

Dale Peck Addressed the Committee

Dale Peck made a request that the committee look into guidance for floating vault toilets for the various lakes located in the Panhandle Health District. Dale also expressed that he has interest in ensuring that the guidance that is created by the committee helps maintain efficiency in permitting of subsurface sewage disposal systems by the health districts. Dale also discussed the direction of the subsurface program and the volume of change and updates that have occurred to the manual. Dale stated this has been hard for everyone to keep up with and expressed hope that this would change in the near future.

Tyler Fortunati addressed the committee to state that updating the manual was something that has been needed for many years. Tyler's goal was to get the manual updated in a rough two year timeframe. This has essentially been accomplished and there are only a few updates left before the manual has been covered in its entirety. Tyler stated that the volume and amount of updates will likely slow down after this is accomplished. Tyler expressed that his next goal for the committee is to focus on research for new systems. The purpose of this would be to open up and expand the toolbox that the TGM provides by exploring alternative systems that are not included in the manual with an emphasis on alternatives that may help reduce total nitrogen in effluent.

NEXT MEETING:

The next committee meeting is scheduled to be on December 10, 2014 at the Idaho Correctional Industries building (1301 North Orchard, Suite 110, Boise).

Motion: Mike Reno moved to adjourn the meeting.

Second: Bob Erickson.

Voice Vote: Motion carried unanimously.

The meeting adjourned at 3:42 p.m.

Appendix B

4.11 Extra Drainrock ~~Drainfield~~Trench

Revision: ~~June 24, 2011~~December 10, 2014

4.11.1 Description

An extra drainrock ~~drainfield~~ trench is an ~~standard~~ aggregate-filled ~~drainfield~~ trench (1 to 6 feet wide) with more than 6 inches of aggregate under the perforated pipe. Figure 4-13 shows a typical cross section of a standard trench using extra drainrock. Figure 4-14 shows a typical cross section of an extreme capping fill trench using extra drainrock. When more than 6 inches of aggregate is installed under the perforated pipe in a drainfield, the required drainfield length may be reduced. This section explains the conditions and calculations involved.

~~4.11.2 Purpose~~

~~When more than 6 inches of aggregate under the perforated pipe is included in a standard drainfield, the required drainfield length may be reduced. This section explains the conditions and calculations involved.~~

4.11.~~3~~2 Approval Conditions

1. Site The site must meet the requirements for ~~a standard system~~site suitability (IDAPA 58.01.03.008.02, section 8.1), ~~as defined in IDAPA 58.01.03.003 (section 8.1).~~except that:
   a. The site may have a slope between 21% and 46% if the system is constructed according to the steep slope system requirements (section 4.27) and more than 12 inches of aggregate is installed under the perforated pipe in the drainfield, 12 inches of which is not used in determining the multiplication factor.
   ~~a.~~b. The site slope may not exceed 20% if the top of the drainfield is less than 24 inches below ground surface and 12% if the drainfield aggregate extends above the ground surface. The drainfield must be constructed according to the capping fill system requirements (section 4.5) except that the drainfield may not exceed 6 feet in width.
2. ~~Bottom~~ The bottom of the drainfield may be no deeper than 48 inches below the ground surface.
3. Multiplying factors cannot be used in addition to alternative soil application rates allowed by extended treatment package systems, recirculating gravel filters, or intermittent sand filters.
4. Extra drainrock trenches may not be used to reduce trench length in sand mounds.
5. Multiplication factors less than 0.50 are not allowed.
~~2.~~6. Gravelless drainfield components may not be substituted for aggregate.

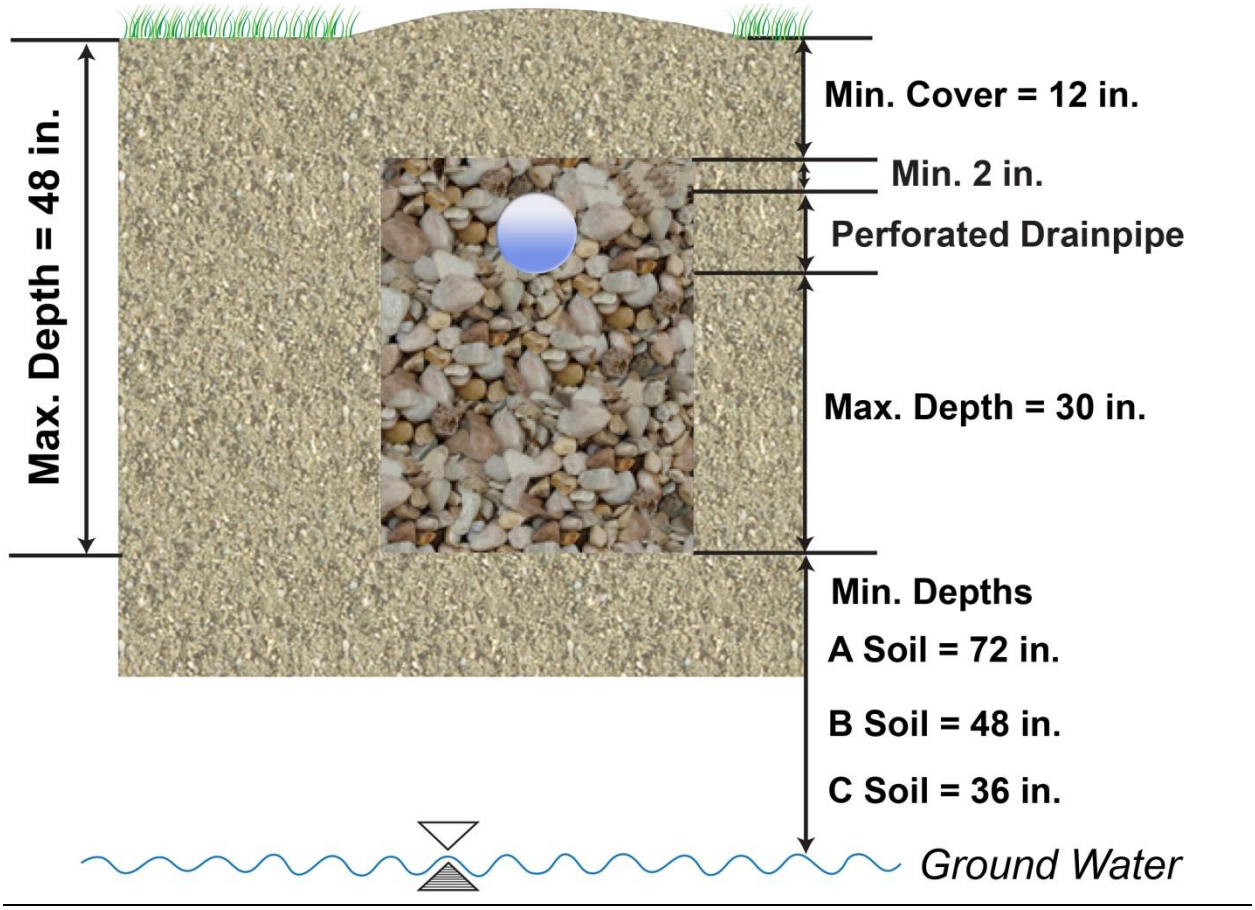

Figure 4-13. Cross section of standard trench with extra drainrock.

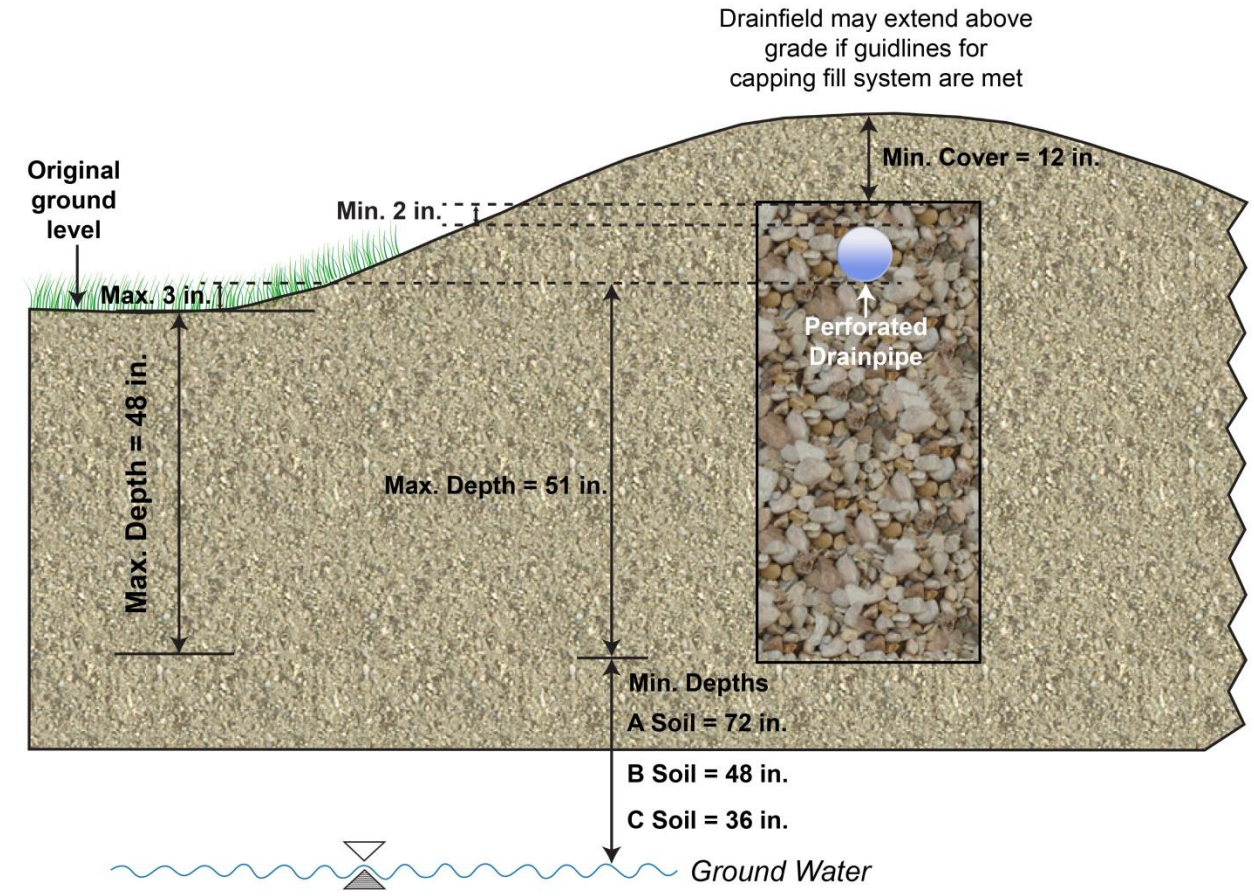

Figure 4-14. Cross section of an extreme capping fill trench with extra drainrock.

4.11.43 Calculations

To determine required drainfield length when extra drainrock is ~~included~~installed, use the appropriate multiplication factor to adjust the standard trench length. Standard length is indicated in Table 3-2 (section 3.2.4).

The appropriate multiplication factor depends on the trench width and depth of gravel below the ~~drainpipe~~perforated pipe in the drainfield. Determine the appropriate multiplication factor by:

- Locating the factor in Table 4-7 for the particular combination of trench width and gravel depth below the drainpipe, or
- If the particular combination of trench width and gravel depth is not given in Table 4-7, use Equation 4-10.

Table 4-7. Multiplication factors to adjust drainfield length for extra drainrock.

Gravel Depth Below ~~Drain~~ Perforated Pipe (inches)	Trench Width (inches)							
	12	18	24	30	36	48	60	72
12	0.75	0.78	0.80	0.82	0.83	0.86	0.87	0.89
18	0.60	0.64	0.66	0.69	0.71	0.75	0.78	0.80
24	0.50	0.54	0.57	0.60	0.62	0.66	0.70	0.73
30	~~0.43~~*	~~0.47~~*	0.50	0.53	0.55	0.60	0.64	0.67
36	*	*	*	*	0.50	0.54	0.58	0.61
42	*	*	*	*	*	0.50	0.54	0.57
48	*	*	*	*	*	*	0.50	0.53

* - Multiplication factor is less than 0.50, use 0.50 if this depth and width are desired.

$$\text{Multiplication Factor} = \frac{\text{Trench Width} + 2}{\text{Trench Width} + 1 + (2 \times \text{Gravel Depth})} = \frac{W + 2}{W + 1 + (2 \times D)}$$

Equation 4-10. Multiplication factor.

where:

W = trench width in feet
D = gravel depth in feet

Example 1:

$$\text{Multiplication Factor} = \frac{W + 2}{W + 1 + (2 \times D)} = \frac{3 + 2}{3 + 1 + 2(1)} = \frac{5}{6} = 0.83$$

where:

Trench width (W) = 36 inches or 3 feet.
Gravel depth (D) = 12 inches or 1 foot.

Example 2:

$$\text{Multiplication Factor} = \frac{W + 2}{W + 1 + (2 \times D)} = \frac{6 + 2}{6 + 1 + 2(3.5)} = \frac{8}{14} = 0.57$$

where:

Trench width (W) = 72 inches or 6 feet.
Gravel depth (D) = ~~12~~ 42 inches or ~~1~~ 3.5 foot.

Example 3:

A three-bedroom home is proposed to be located on a ~~small lot. The effective soil is~~site with ~~a~~ uniform silt loam soil (soil design subgroup B-2; section 2.1.2, Table 2-4) ~~with~~ and normal high ground water at 7 feet. Section 2.2.2, Table 2-5 shows the minimum distance from trench bottom

to normal high ground water as 3 feet for this soil design subgroup. Maximum depth of the trench is 4 feet. The total absorption area required for the home is 556 ft^2 ([250 gallons/dwelling]/[0.45 GPD/ft^2/day]), equivalent to trench dimensions of 3-feet wide and 185.5-feet in length (no trench may exceed 100 feet in total length for gravity distribution). With 30 inches of aggregate under the perforated pipe in the drainfield and a trench width of 36 inches, the trench length would be reduced to 55% of the 185.5-foot standard length (0.55 = 55%) or 102 feet, according to the appropriate multiplication factor (Table 4-7). This was calculated as follows:

1. Calculate the drainfield area required for a three-bedroom home.

$$Trench\ Bottom = \frac{daily\ flow}{application\ rate} = \frac{250\ GPD}{0.45\ GPD/square\ foot} = 556\ square\ feet$$

2. Calculate the length of trench required for ~~a standard~~the drainfield.

$$\text{Trench Length} = \frac{\text{trench bottom}}{\text{trench width}} = \frac{556\ \text{square feet}}{3\ \text{feet}} = 185.5\ \text{foot trench}$$

3. Using the appropriate factor from Table 4-7, calculate the reduced trench length for a ~~standard trench~~drainfield 185.5 feet long, 36 inches wide with 30 inches of gravel under the drain pipe.

Trench Reduction = (Trench length)(Multiplying Factor) = (185.5 ft. trench)(0.55) = 102 ft. total trench length

Example 4:

A three-bedroom home is proposed to be located on a site with uniform clay loam soil (soil design subgroup C-2; section 2.1.2, Table 2-4), normal high ground water at 5 feet, and a slope less than 6%. Section 2.2.2, Table 2-5 shows the minimum distance from trench bottom to normal high ground water as 2.5 feet for this soil design subgroup. Maximum depth of the trench is 2.5 feet. The total absorption area required for the home is 1250 ft^2 ([250 gallons/dwelling]/[0.2 GPD/ft^2/day]), equivalent to trench dimensions of 6-feet wide and 209-feet in length (no trench may exceed 100 feet in total length for gravity distribution). To maximize the multiplication factor the system is chosen to be constructed as an extreme capping fill-extra drainrock trench. This allows 33 inches of aggregate under the perforated pipe in the drainfield. With a trench width of 72 inches, the trench length would be reduced to 64% of the 209-foot standard length (0.64 = 64%) or 134 feet, according to the appropriate multiplication factor (Equation 4-10). This was calculated as follows:

1. Calculate the drainfield area required for a three-bedroom home.

$$Trench\ Bottom = \frac{daily\ flow}{application\ rate} = \frac{250\ GPD}{0.2\ GPD/square\ foot} = 1{,}250\ square\ feet$$

2. Calculate the length of trench required for a standard drainfield.

$$\text{Trench Length} = \frac{\text{trench bottom}}{\text{trench width}} = \frac{1{,}250 \text{ square feet}}{6 \text{ feet}} = 209 \text{ foot trench}$$

3. Using the appropriate multiplication factor calculated through Equation 4-10, the reduced trench length for a drainfield 209 feet long, 72 inches wide with 33 inches of gravel under the drain pipe.

Trench Reduction = (Trench length)(Multiplying Factor) = (209 ft. trench)(0.64) = 134 ft. total trench length. Two trenches will need to be constructed that in total provide 134 feet of trench length.

Appendix C

4.16 Incinerator Toilets

Revision: ~~April 21, 2000~~December 10, 2014

4.16.1 Description

Incinerator toilets are toilets, within a dwelling or other structure, that store and incinerate nonwater-carried human urine and feces. Incineration ~~may be~~ is facilitated by petroleum fuels or electricity.

4.16.2 Approval Conditions

1. Water under pressure shall not serve the dwelling unless ~~a~~ public sewer is available or a~~nother acceptable method of on-site disposal is available~~ full sized subsurface sewage disposal system is installed.
2. Incinerator toilets may be located ~~used wherever pit privies are applicable~~in structures other than the dwelling if the structure is constructed to meet the requirements of a pit privy building (section 4.18.4).
3. Units are restricted to disposal of human feces and urine and shall be installed and operated according to the manufacturer's recommendations.
4. Incinerating toilet models must be approved by DEQ prior to installation (section 5.6).

~~3.~~5. Proper electrical, plumbing, and gas line permits must be obtained through the Idaho Division of Building Safety or other applicable regulatory agency for the area the toilet is installed within.

4.16.3 Design

1. All materials used in ~~toilet~~ construction of the incinerator toilet must be durable and easily cleaned. ~~The combustion area and flue must be constructed of heat-resistant, noncorrosive metals.~~ Styrene rubber, PVC, and fiberglass are examples of acceptable materials for toilet components.

~~4.~~2. The combustion area and flue must be constructed of heat-resistant, noncorrosive metals.

~~5.~~3. The design must demonstrate adequate resistance to internal and external stresses.

~~6.~~4. All mechanical and electrical components should be designed to operate safely and be capable of providing continuous service under reasonably foreseen conditions such as extremes in temperature and humidity.

~~7.~~5. ~~The~~ For standard dwellings the toilet unit must be capable of accommodating full ~~or part~~ time use based on two people in the first bedroom and one person in every other bedroom. Full time use for other structures or dwelling uses will be determined on actual capacity and projected visitors per day.

6. Continuous positive ventilation of the storage or treatment chamber must be provided to the outside.

a. Ventilation components should be independent of the other ~~household~~ structure ventilation systems.

b. Venting connections must not be made to room vents or to chimneys.

~~a.~~c. All vents must be designed to prevent flies and other insects from entering the treatment chamber.

Note: Toilets, as plumbing fixtures, are under the regulation of the Idaho Division of Building Safety, ~~State Plumbing Board~~Plumbing Program. Current plumbing code prohibits using incinerator toilets without the permission of the health district. ~~Supply a copy of the approved permit application to the local plumbing authority~~Proof of permission will be provided through a permit issued by the health district.

4.16.4 Operation & Maintenance

1. The toilet should be inspected regularly to check the quantity of incinerated waste for removal needs.

~~1.~~2. The toilet components should be inspected and maintained according to the manufacturer's recommendations.

Appendix D

4.27 Steep Slope System

Revision: ~~April 21, 2000~~December 10, 2014

4.27.1 Description

A steep slope system is a trench system for slopes greater than 20% but less than 46%.

4.27.2 Approval Conditions

~~Steep slope systems may be considered where the slope at the site is greater than 20% but less than 46%.~~

1. Soil must be well-drained, with no evidence of saturation and of soil design group A or B without any evidence of textural change in the effective depth.
2. Except as listed in this section, all regulations applicable to a standard system will apply.
3. Trenches must be separated by at least 8 horizontal feet of undisturbed soil.
4. Trenches may not exceed 36 inches in width.
5. The drainfield bottom must be installed at a minimum depth of 30 inches below the natural soil surface on the downhill side of the trench, and:
   a. The drainfield bottom may not exceed 48 inches below the natural soil surface on the downhill side of the trench, and
   b. The required vertical separation distances from the bottom of the drainfield to features of interest (IDAPA 58.01.03.008.02.c) must be capable of being met from the uphill side of the drainfield trench.
6. A gravel drainfield must:
   a. Contain a minimum of 18 inches of drainrock, 12 inches of which must be installed below the perforated distribution pipe, and
   b. Restriction on the credit for the installation of extra drainrock below the drainfield in the steep slope system shall follow Section 4.11
7. A gravelless drainfield must:
   a. Be constructed with an approved gravelless trench component (Section 4.12) configuration, and
   ~~a.~~b. No reduction in drainfield disposal area shall be credited for the installation of the gravelless trench component in the steep slope system.

4.27.3 Construction

~~Parallel trenches must be separated by at least 8 feet of undisturbed soil.~~

1. ~~If more than one trench is used, serial distribution will be required.~~ Trenches may be constructed using serial or equal distribution.

a. Pressure distribution is recommended but not required.

b. If serial distribution is utilized it is recommended that the system is constructed using drop boxes (Section 3.2.6.2).

c. ~~If equal distribution is utilized it is highly recommended that~~ a distribution box (Section 3.2.5.2) be utilized, access to the distribution box from grade be made available, and that equal flow to each trench be verified prior to backfilling the system.

2. Regardless of the distribution method used the drainfield trenches should follow the natural contour of the land surface.

~~Trenches must be installed at a minimum depth of 30 inches below the natural soil surface on the downhill side of the trench and contain a minimum of 18 inches of drainrock and 12 inches of soil backfill or be constructed to gravelless trench specifications with a 30 inch minimum depth.~~

3. In consideration of safety and plumb trench sidewalls, hand excavation of trenches ~~paralleling the contour of the land surface~~ may be necessary.

4. Figure 4-33 illustrates the relationship between the site's vertical drop and horizontal run.

Equation 4-17 shows the calculation for determining a site's percent slope.

$$\frac{\text{Elevation Difference from Uphill Point to Downhill Point (Rise)}}{\text{Length Between Uphill and Downhill Point (Run)}} \text{ X } 100$$

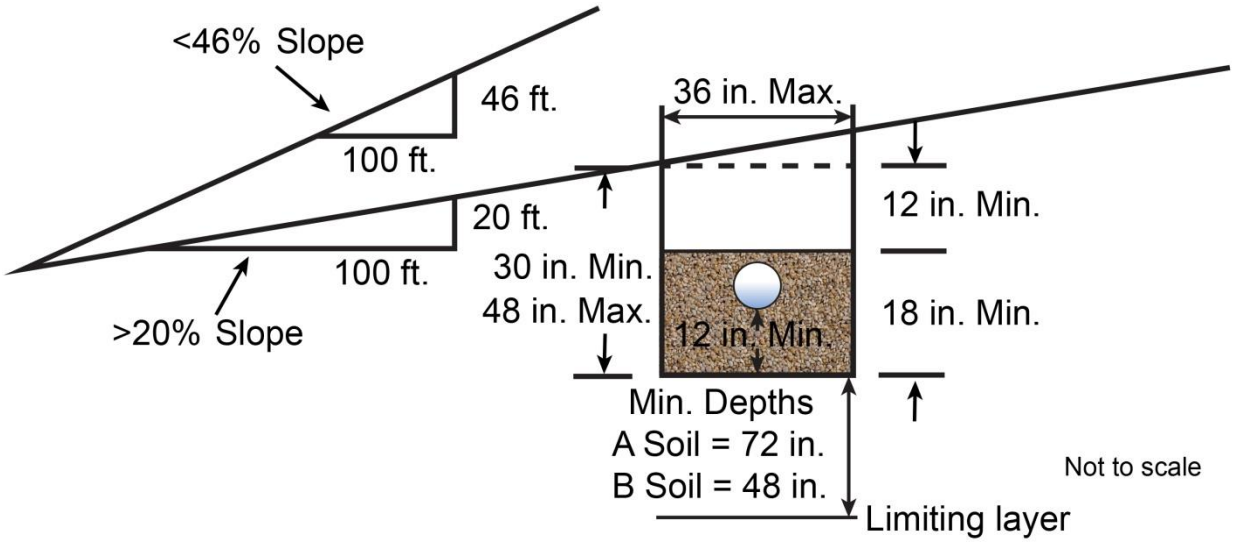

Figure 4-33. Illustration of a steep slope trench with an example of ~~rise over run~~maximum and minimum slope.

Appendix E

4.10.3 Operation, Maintenance, and Monitoring

Procedures relating to operation, maintenance, and monitoring are required by IDAPA 58.01.03 (section 8.1) or may be required as a condition of issuing a permit, per IDAPA 58.01.03.005.14 (section 8.1) to ensure protection of public health and the environment.

1. Operation and maintenance
   a. Annual maintenance shall be performed on the ETPS unit as described in the ETPS manufacturer's O&M manual for the ETPS model as submitted under section 4.2.
   b. Additional maintenance not specified in the O&M manual may be required to ensure the ETPS functions properly.
   c. Records of each maintenance visit shall be kept and should include the following information for the primary maintenance visit:
      1) Date and time.
      2) Observations for objectionable odors.
      3) Observation for surfacing of effluent from the treatment unit or drainfield.
      4) Notation as to whether the system was pumped since the last maintenance visit including the portions of the system pumped, pumping date, and volume.
      5) Sludge depth and scum layer thickness in the primary septic tank and treatment unit.
      6) If responding to an alarm event, provide the cause of the alarm and any maintenance necessary to address the alarm situation.
      7) Field testing results for any system effluent quality indicators included in the approved sampling plan as submitted under section 4.2.4 or as recommended in item 2(b) below.
      8) Record of any cleaning and lubrication.
      9) Notation of any adjustments to control settings or equipment.
      10) Test results for pumpers, switches, alarms, and blowers.
      11) Notation of any equipment or component failures.
      12) Equipment or component replacement including the reason for replacement.
      13) Recommendations for future service or maintenance and the reason for the recommendations.
      14) Any maintenance occurring after the primary annual maintenance visit should only record and address the reason for the visit and the associated activities that occur.

2. Monitoring

   a. Annual effluent monitoring will be required for all ETPS units that discharge to a reduced size drainfield, to a drainfield with a reduced separation distance to limiting layers, and/or to a drainfield located in an environmentally sensitive area (area of concern).

      Annual monitoring included in the annual report must occur within the reporting period (Figure 4-8).

   b. Effluent monitoring may be done for a group of ETPS units from a common dosing chamber resulting in the sample from the common dosing chamber being applied to all of the associated ETPS units if:

      1) Annual operation and maintenance is performed as described in item 1 above for each individual ETPS unit and operation and maintenance records are submitted for each individual unit as described in Section 4.10.4.

      2) All of the ETPS units connected to the common dosing chamber are from the same manufacturer. If there are multiple manufacturers' ETPS units connected to the common dosing chamber each ETPS unit must be monitored individually. Additionally, if there are multiple common dosing chambers discharging to a single drainfield each common dosing chamber must be monitored and if there are any individual ETPS units discharging to the same system independently of the common dosing chamber those individual units must also be monitored.

      3) If the effluent sample from the common dosing chamber does not meet any one of the required effluent constituent levels for the system then each individual ETPS unit connected to the common dosing chamber must be sampled independently for the failing constituent to determine what individual units do not meet the effluent monitoring requirements.

         i. Individual units that do not meet the effluent constituent levels upon individual sampling must follow the operation, maintenance, and retesting requirements described in item 2.g below.

         ii. Individual units that do meet the effluent constituent levels upon individual sampling do not need to continue with the operation, maintenance, and retesting requirements.

   c. DEQ recommends prior to collecting effluent samples from the treatment unit for laboratory analysis that effluent quality indicators be field tested as described in the approved sampling plan for the O&M entity. Recommendations included in this section are recommendations only and should be verified with the treatment technology manufacturer as acceptable with their field sampling plan and as suitable effluent quality indicators. Field testing is recommended to include, but may not be limited to the following:

      1) Visual examination for wastewater color, odor, and effluent solids

      2) Constituents shown in Table 4-5:

Table 4-5. Recommended field testing constituents for effluent quality indication.

Constituent	Acceptable Range
• pH	• 6 to 9
• Dissolved oxygen	• ≥2 mg/L
• Turbidity	• ≤40 NTU

Notes: milligram per liter (mg/L); nephelometric turbidity unit (NTU)

d. Monitoring samples provided to a laboratory will analytically quantify that the units are operating in compliance if samples do not exceed 40 mg/L (40 ppm) for $CBOD_5$ and 45 mg/L (45 ppm) for TSS.

Results for $CBOD_5$ and TSS that exceed these levels indicate the ETPS unit is not achieving the required reduction levels.

e. For those systems installed in areas of concern, including nitrogen sensitive areas, or are used to fulfill NP evaluation results and requirements, the following additional constituents may be monitored as stipulated on the permit:

1) Total Kjeldahl nitrogen (TKN)

2) Nitrate-nitrite nitrogen (NO3+NO2-N)

3) Results for total nitrogen (TN = TKN + [NO3+NO2-N]) that exceed the levels stipulated on the installation permit, in the subdivision approval for sanitary restrictions release, or the approved NP evaluation, indicate that the device is failing to achieve the required reductions

f. Samples will be collected, stored, transported, and analyzed according to the latest version of *Standard Methods for the Examination of Water and Wastewater* (Rice et al. 2012) and other acceptable procedures.

1) Each sample will have a chain-of-custody form, identifying, at a minimum, the sample's source (street address or installation permit number), date and time of collection, and the person who extracted the sample.

2) Chain-of-custody form should also specify the laboratory analyses to be performed on the sample.

3) Sample storage and transport will take place in appropriate containers under appropriate temperature control.

g. Sample analysis will be performed by a laboratory capable of analyzing wastewater according to the acceptable standards identified in Table 4-6, and the monitoring results will be submitted as part of the annual report to the local health district.

1) ETPS effluent analysis shall be performed using the standards in Table 4-6 from the *Standard Methods for the Examination of Water and Wastewater* (Rice et al. 2012) or the equivalent standards from EPA. NSF uses the same standards in their Standard 40 and 245 evaluations.

2) Annual reports submitted with laboratory analysis results differing from these standard methods will be rejected.

Table 4-6. Standard methods required for the analysis of ETPS effluent in annual testing.

Analysis	Standard Method Number	EPA Method Equivalent to Standard Method
Total suspended solids (TSS)	SM 2540 D	—
Carbonaceous biological oxygen demand ($CBOD_5$)[a]	SM 5210 B	—
Total Kjeldahl nitrogen (TKN)	SM 4500-N_{org} B	351.2
Nitrate-nitrite nitrogen (NO_3 + NO_2-N)	SM 4500-NO_3^- F	353.2

a. Person requesting the analysis from the laboratory must specify the $CBOD_5$ on the chain-of-custody form.

h. Samples failing to achieve the required effluent constituent levels shall require the following:

1) Additional operation and maintenance within 15 days of the failed sample results as determined by the date provided on the laboratory form.

   If additional operation and maintenance or component replacement is necessary as determined from this service, the reason, maintenance necessary, and dates must be provided as part of the service record.

2) Additional sampling to demonstrate the operation and maintenance performed successfully restored the treatment system to proper operation.

3) Sample extraction and analysis needs to occur within 30 days after servicing the system (as determined in item 1 above).

   The 30-day time frame for sample extraction will begin based on the last documented operation and maintenance visit required under item 1 above.

4) A maximum of three sampling events, within 90 days (as determined from the last documented operation and maintenance visit from item 1 above), will be allowed to return the system to proper operation. Failure to correct the system within this time frame will result in the system being classified as a *failing system* (Figure 4-9).

5) If an annual report, as described in section 4.10.4, for a system identifies that an effluent sample fails to meet the limits provided in item 2.c and d above, and the required resampling of the system did not occur, the regulatory authority will issue the Failure to Resample letter provided in the DEQ program directive, "Extended Treatment Package System Education and Enforcement Letters."

   If resampling as described in this section does not occur by the date provided in the Failure to Resample letter, the actions will be considered a refusal of service as described in section 4.10.6, and the enforcement procedures provided in section 4.10.6 shall be followed by the regulatory authority.

Appendix F

1.4.2.1.1 Initial Septic Tank Approvals

To obtain initial approval of a septic tank a manufacturer must submit the following information for each individual septic tank model and variations of that model to DEQ. The documentation must be stamped, dated and signed by a PE licensed in Idaho (IDAPA 58.01.03.009.02):

1. Detailed construction drawings, including the rebar or welded-wire mesh rigging details
2. Structural design plans, specifications, and calculations,
3. Capacity calculations,
4. List of construction materials, and
5. The manufacturer's installation and operation and maintenance instructions.

DEQ~~'s Lead Wastewater Program Engineer~~ will review the septic tank submission and any other relevant information deemed necessary for approval. Minimum design standards considered suitable include the General Tank Specifications, listed below, and assume a ~~minimum~~maximum bury depth of 3 feet. If the tank is designed for a deeper bury depth, the engineering calculations must identify and incorporate the specified depth throughout the calculations.

General Tank Specifications

1. The tank shall meet all of the design and construction standards described in IDAPA 58.01.03.007 (Section 8.1).
2. The tank lid should be capable of supporting a minimum of 375 pounds per square foot.
3. Walls shall be designed to withstand an inside hydrostatic water pressure to the level of the outlet and for an outside earth pressure equivalent to the pressure exerted by a fluid weighing 62.4 pounds per cubic foot, in accordance with accepted engineering practice. Alternatively, tanks may be designed to anticipated earth and hydrostatic pressures when the tank is either full or empty, if the load is anticipated to exceed the ~~30~~62.4 pounds per cubic foot.
4. The tank shall be structurally designed to withstand all anticipated earth or other loads based on the specified bury depth.
5. The tank shall be capable of being filled with water above ground for 24 hours without leaking or a major deflection in shape occurring.
6. The tank's inlet and outlet baffle system shall be included in the design and if constructed of pipe shall meet or exceed the rating of ASTM D3034.

Concrete Tank Specifications

1. The walls and bottom slab shall be poured monolithically or be constructed with water stops if monolithic pours are not used in the tank construction.

~~1.~~2. Reinforcing steel shall be ASTM A615 Grade 60, yield strength (f_y) = 60,000 pounds per square inch (psi).

a. Details and placement shall be in accordance with American Concrete Institute (ACI) 315 and ACI 318 or equivalent.

b. The certifying engineer shall be experienced in the use of structural reinforcement fibers if reinforced fibers are used.

3. Concrete shall be ready-mix with cement conforming to ASTM C1227-13.

a. The concrete shall have a cement content of not less than 5 sacks per cubic yard with a maximum aggregate size of 3/4 inch.

b. The water and cement ratio shall be kept low (0.45±).

c. The concrete shall achieve a minimum compressive strength of 4,000 psi in 28 days.

4. The form release fluid used on the tank mold shall be compatible with the water-seal method used.

5. Tanks shall not be moved from the manufacturing site to a job site until the tank has cured for 7 days or has reached 2/3 of the design strength.

Polyethylene and Fiberglass Tanks

1. The tank shall meet or exceed Canadian Standard CAN/CSA-B66-M90.

2. Verification of compliance with this standard shall be submitted through a report from an independent testing company certifying that the tank meets this standard.

Plan Submission

1. Upon submission of plans and specifications described above for approval of a septic tank DEQ shall complete a review of those plans within 42 calendar days from the date of submittal.

2. If the plans and specification are acceptable and complete, DEQ shall issue a preliminary approval letter to the manufacturer. This preliminary approval letter will specify the tank/model, volume, number of compartments, number of pieces, any special applications for the tank and include any minor deficiencies that must be corrected prior to the test tank construction. This preliminary approval letter will also notify the manufacturer to complete construction of a test tank which will be subjected to a dimensional inspection and leak test prior to receiving final approval.

Construction and Leak Testing

1. Upon preliminary approval the manufacturer shall complete construction and leak test either through a PE licensed in Idaho or an Environmental Health Specialist (EHS) from one of Idaho's health districts.

2. The PE or EHS shall completely fill out DEQ's septic tank inspection form, available through the DEQ website, and submit the signed document to DEQ's On-Site Wastewater Coordinator.

a. Prior to filling the tank to perform the leak test the PE or EHS shall inspect the dimensional elements of the tank listed on the inspection form and note the date and time the tank is filled with water to the bottom of the tank's outlet.

b. 24 hours after the tank is filled with water the PE or EHS shall inspect the tank for the presence of any leaks, seeps, and note the difference in elevation of water in the tank.

c. Alternatively, a PE licensed in Idaho may witness a vacuum test, performed as specified in section 9.2.1 of ASTM C1227-13, in place of the water pressure leak test. The tank must be evacuated to 4 inches of mercury vacuum. To pass the test the tank must retain at least 90% of this vacuum (3.6 inches of mercury) after 2 minutes.

~~1.~~3. If the construction and leak test documentation are consistent with the plans used for preliminary approval DEQ will issue a final approval letter for the septic tank, place the septic tank on DEQ's approved septic tank list (Section 5.2), and notify the manufacturer and health districts of the approval.

1.4.2.1.2 Transfer of Septic Tank Approvals between Manufacturers

If a manufacturer purchases or obtains another septic tank manufacturer they must obtain approval for the other manufacturer's septic tank configurations from DEQ prior to any installation of the new septic tank models occur. If the manufacturer or any of the septic tank models purchased are not listed on DEQ's approved septic tank list (Section 5.2) the manufacturer seeking approval must submit the information listed in Section 1.4.2.1.1 to obtain approval from DEQ. If the manufacturer and all of the septic tank models purchased are listed on DEQ's approved septic tank list (Section 5.2) then the purchasing manufacturer must submit the following information to DEQ in order to transfer the previous manufacturer's septic tank approvals:

1. A written and signed notification regarding the buyout of the manufacturer and the specific septic tank models that the purchasing manufacturer is seeking approval for. The written notification shall also include:

   a. Information on which construction plans will be used for each septic tank model.

   b. A statement regarding whether any of the purchased septic tank models will no longer be manufactured and that they may be removed from the approved septic tank list (Section 5.2).

2. Upon notification DEQ shall review the request and inform the manufacturer if the request is acceptable or if additional information is necessary.

   a. If the request is acceptable the manufacturer must have a PE or EHS complete the construction and leak test requirements listed in Section 1.4.2.1.1 and the information must be submitted to DEQ for review.

   ~~a.~~b. If the construction and leak test information is acceptable DEQ will issue a transfer approval for each septic tank model, place each septic tank model on DEQ's approved septic tank list (Section 5.2) under the new manufacturer's name, remove the model from the purchased manufacturer, and notify the purchasing manufacturer and health districts of the transfer approval.

Appendix G

3.2.3 Septic Tank~~s~~ and Dosing Chamber~~s~~ Installation

Septic tanks and dosing chambers may not be modified from their approved design (e.g., core drilling, roto-hammer, etc.) without prior approval from DEQ, which must be obtained through a manufacturer's submittal described in section 1.4.2.1.1 detailing the proposed structural changes.

~~Both concrete s~~Septic tanks and dosing chambers shall be installed level and should be placed on undisturbed original soil if possible. Some fill is often needed to make a smooth bearing surface in the bottom of the excavation that will receive the tank or chamber. ~~They~~ A tank or chamber should not be ~~placed~~ installed on unconsolidated or un-compacted fill greater than 6 inches deep. If fill material greater than 6 inches in depth is necessary to level the installation surface it should be compacted to 95% proctor to mitigate potential settling issues. ~~Some fill is often needed to make a smooth bearing surface in the bottom of the excavation that will receive the tank or chamber.~~ All plastic, polyethylene, and fiberglass tanks must be installed according to the manufacturers' recommendations including required bedding material for the tank excavation (IDAPA 58.01.03.007.18).

Concrete tanks or chambers ~~often~~ may leak if they are not coated with a bituminous coating or other sealer. Such sealing is recommended in all dosing chambers and septic tanks placed in or near ground water or in porous soils. The sealant should cover all of the tank walls and the tank bottom. The sealant may be placed on the inside or outside of the septic tank. If located on the inside of the tank the sealant should be compatible with sewage. If located on the outside of the tank the required manufacturer labeling must still be legible for the inlet and outlet, manufacturer's name or trademark, or the liquid capacity of the tank somewhere on the tank body or tank lid.

If a septic tank or dosing chamber is installed in seasonal high ground water a vertical separation distance of 2 feet shall be met from the ~~joint between the tank body and the~~ tank lid (IDAPA 58.01.03.007.17). Monolithically constructed tanks (one piece tanks) are highly recommended to be used if the tank is to be installed in seasonal high ground water. Multi-piece tanks should be avoided for ground water installations if possible. If a multi-piece tank is installed in ground water the vertical separation distance shall be to the top of the tank ~~if a lid-body joint is absent~~. Multi-piece tanks installed in ground water shall be leak tested upon installation.

~~All plastic, polyethylene, and fiberglass tanks must be installed according to the manufacturers' recommendations (IDAPA 58.01.03.007.18).~~

All septic tanks must have a riser if the manhole opening of the tank is deeper than 24 inches below the ground surface. The riser must ~~come~~ bring the access lid within 18 inches of the ground surface (IDAPA 58.01.03.007.19). It is highly recommended that all tank access lids be brought to grade with a riser and fitted with a secured lid regardless of the tank's installation depth. ~~Dosing~~ All dosing chambers must have the access manholes extended to the ground surface regardless of the chamber's installation depth.

ABS Schedule 40 or equivalent is recommended to span the tank excavation, or connect septic tanks to dosing chambers or other septic tanks in series (IDAPA 58.01.03.007.21). ~~It is also recommended as t~~The pipe used to span ~~the~~ septic tank and dosing chamber excavations ~~and~~ must also extend at least 3 feet beyond the excavation (IDAPA 58.01.03.007.21). Thinner-walled ASTM D3034 plastic pipe may be used for these applications if the excavation void at the tank's sides is compacted with fill material (IDAPA 58.01.03.007.21.b). The material must be granular, clean, and compacted to 90% proctor density. The ASTM D3034 grade of plastic pipe is also suitable if it is placed on undisturbed earth.~~, used as the house sewer, and used as the distribution line to the drainfield and within the drainfield. There should not be less than 12 inches of cover over thin-walled plastic pipe. ASTM D2729 pipe is acceptable for use as the effluent pipe. ASTM D2729 is not a suitable class of pipe to span the septic tank or dosing chamber excavation. ASTM D2729 must be laid on a stable base and not driven over by excavation equipment.~~ See IDAPA 58.01.03.007.21 for inlet and outlet piping requirements.

~~***Specifications***~~

~~3. General~~

~~a. The manufacturer shall provide structural design and certification by an engineer licensed in Idaho.~~

~~b. The tank shall be designed for the following minimum loading conditions assuming a maximum coverage of 3 feet:~~

~~Top: 375 pounds per square feet~~

~~Walls shall be designed for an inside hydrostatic water pressure to the level of the outlet and for an outside earth pressure equivalent to that exerted by a fluid weighing 30 pounds per cubic foot, in accordance with accepted engineering practice.~~

~~Each tank shall be structurally designed to withstand all anticipated earth or other loads. If the tank is to be stable with greater than 3 feet of cover, the loading requirements should be increased accordingly and the maximum cover depth marked on the tank.~~

~~c. All tanks shall be capable of being filled with water above ground for 24 hours without leaking or a major deflection in shape.~~

~~d. All tanks shall be installed in strict accordance with the manufacturer's recommended installation instructions.~~

~~e. If pipe is used as the tank baffle system, it shall meet or exceed the rating of ASTM D3034.~~

~~2. Concrete Tanks~~

~~a. The walls and bottom slab shall be poured monolithically; alternatively, water stops may be provided.~~

~~b. Reinforcing steel shall be ASTM A615 Grade 60, yield strength (f_y) = 60,000 pounds per square inch (psi). Details and placement shall be in accordance with American Concrete Institute (ACI) 315 and ACI 318 or equivalent as certified~~

~~by a licensed professional engineer experienced in the use of structural reinforcement fibers.~~

~~c. Concrete shall be ready-mix with cement conforming to ASTM C150, Type II. It shall have a cement content of not less than 5 sacks per cubic yard and a maximum aggregate size of three-quarter inch. Water and cement ratio shall be kept low (0.45±), and concrete shall achieve a minimum compressive strength of 3,000 psi in 28 days.~~

~~d. Form release used on tank molds shall be compatible with the water-seal method used.~~

~~e. Tanks shall not be moved from the manufacturing site to the job site until the tank has cured for 7 days or has reached two-thirds of the design strength.~~

~~f. To demonstrate watertightness, tanks shall be tested before acceptance. The tank shall be tested by filling with water to the soffit and letting stand. After 24 hours, the tank shall be refilled to the soffit and examined for visible leaks.~~

~~3. Polyethylene and Fiberglass Tanks~~

~~a. Polyethylene and fiberglass tanks shall meet or exceed Canadian Standard CAN 3-B66-M85. A report from an independent testing company certifying that the tank meets the Canadian Standard is required.~~

~~b. Installation instructions, prepared by the manufacturer, shall accompany each tank. Strict conformance with the backfill instructions will be required.~~

~~c. On-site hydrostatic testing is suggested before installation. The tank should be filled with water for 1 hour. Any leakage or dimensional change greater than one-half inch shall be cause for rejection.~~

~~4.~~

After installation septic tanks and dosing chambers require periodic inspection and maintenance. Inspection and maintenance of these tanks is easier if the manhole access lids are brought to grade as described above. Minimum maintenance includes periodic pumping of the tank as described in Section 6. Other maintenance may include cleaning of a septic tank effluent filter (Section 5.9) or cleaning of a pump screen in a dosing chamber. All materials washed from a filter or screen should be discharged into the inlet side of the septic tank. It may also be necessary to perform periodic inspection or maintenance of the inlet and outlet baffle of the septic tank.

On occasion it may be necessary to abandon a septic tank due to age, condition, or replacement. ~~Septic Tank Abandonment. I~~Septic tank abandonment may also be necessary if in the opinion of the Director (see IDAPA 58.01.03.003.10 for definition), a septic system is abandoned (IDAPA 58.01.03.003.01), and it is necessary to protect the public's health and safety from the eventual collapse of the septic tank or its misuse, the Director shall require the septic tank to be abandoned. If a septic tank or dosing chamber must be abandoned it must be done in accordance with the following requirements ~~by~~ (IDAPA 58.01.03.007.23):

a. Disconnecting the inlet and outlet piping, and

b. Pumping the scum and septage by a permitted pumper with an approved disposal location, and

c. Filling the septic tank with earthen materials, or

d. Physically destroying or removing the septic tank from the ground.

Appendix H

6 Septic Tank ~~Pumpers'~~ Pumping ~~Guidance Manual~~ and Septage Disposal

6.1 Introduction

Revision: ~~April 24, 2000~~December 10, 2014

A septic ~~tank~~ system requires periodic maintenance that includes pumping out the accumulated scum~~, and~~ sludge, and wastewater ~~, called~~ (cumulatively called septage) from the septic tank. Septage~~, because of its source, may give off~~ generates offensive odors and presents public health hazards~~, including several diseases~~. To prevent nuisance conditions and public health hazards septage must be collected (pumped), transported, stored, and disposed of in accordance with the following rules:

- IDAPA 58.01.15, Rules Governing the Cleaning of Septic Tanks (section 8.2), and
- IDAPA 58.01.16, Wastewater Rules, and
- 40 CFR Part 503, Standards for the Use or Disposal of Sewage Sludge.

~~The s~~Septic tank pumpers ~~has~~ have the important task of not only helping the homeowner maintain the system by pumping the septic tank, but protecting the ~~homeowner~~property owner and public from the various health hazards associated with septage. To protect and help the ~~homeowner~~property owner, ~~the~~ a pumper needs to understand how the ~~sewage~~ septic system operates and proper procedures for pumping the septic tank and septage disposal.

6.2 Septage and Public Health

~~Many d~~Pathogens~~iseases, including any~~ that will pass in urine ~~and~~, feces, or bodily fluids can be found in sewage. Septage may contain ~~some or all of them~~any number of these pathogens. The following list provides an example of the types of pathogens present in septage including, but not limited to:

- Bacterial ~~diseases~~ organisms ~~of diarrhea~~ such as ~~(~~*Salmonella*, *Shigella*, and *Clostridium*~~)~~ and typhoid (*Salmonella typhi*) ~~may be present.~~
- Parasites~~,~~ such as pinworm, roundworm, and hookworm ~~are often found in septage, (~~especially in the scum layer~~).~~
- Organisms that cause amoebic dysentery, polio, and hepatitis ~~can also exist in septage.~~

Proper management of septage upon its removal from the septic tank through its ultimate disposal or beneficial reuse is critical in ensuring the protection of public health from the pathogens present in septage.

6.2.1 Classifications of Septage

While all wastewater that enters a septic tank is septage the source of the wastewater prior to the septic tank determines the classification of the septage. All septage that comes from domestic or residential activities is classified as domestic septage. Examples of wastewater sources that result

in domestic septage include, but are not limited to, single and multi-family residential housing, restrooms (including shower facilities), and break rooms. Domestic septage includes the contents removed from septic tanks, portable toilets, privy vaults, wastewater holding tanks, type III marine sanitation devices, recreational vehicle holding tanks, very small wastewater treatment plants, or semipublic facilities (e.g., schools, motels, mobile home parks, campgrounds, and small commercial endeavors) that receive wastewater from domestic sources.

Industrial or commercial process wastewater is classified as nondomestic septage. Nondomestic septage includes the contents removed from septic tanks or wastewater holding tanks that receive wastewater from industrial or commercial sources. Nondomestic septage also includes, but is not limited to, the contents removed from grease traps or sand oil separators. If industrial or commercial wastewater is mixed in any ratio with domestic wastewater the entire mixture is classified as industrial or commercial wastewater. If nondomestic septage is mixed in any ratio with domestic septage the entire mixture is classified as nondomestic septage.

The classification of septage can have an impact on the allowable disposal or beneficial reuse of the septage. Septic tank pumpers need to be aware of the septage classifications of the materials they pump and haul so the proper disposal of the septage can be achieved. Additionally, it is recommended that facilities that produce domestic and nondomestic wastewater isolate the wastewater plumbing and discharge these wastewater sources to separate septic tanks. This allows the domestic and nondomestic septage to be segregated so that the disposal and beneficial reuse options are maximized.

6.3 ~~Parts and Mechanics of a~~ Septic System Components

The most common septic ~~tank~~ system consists of ~~the~~ a septic tank~~, either rectangular or round and usually made out of concrete,~~ and a ~~disposal field~~drainfield. Septic tanks are commonly constructed of concrete, polyethylene, polypropylene, or fiberglass (see section 5.2 for approved products). Drainfields are installed at varying depths under the ground, ~~usually~~either in the form of trenches (up to six feet wide and 100 feet long) or an absorption bed (greater than six feet wide and up to 100 feet long). Drainfields are also filled with gravel containing a perforated plastic pipe~~.~~ or gravelless system components (see section 5.7 for approved products). Figure 6-1 shows the components of a standard ~~sewage~~ septic system.

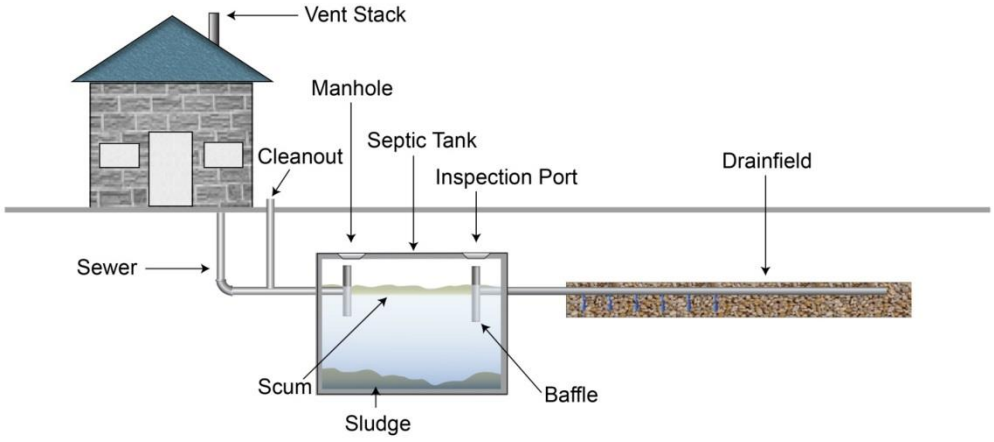

Figure 6-1. Components of a standard ~~sewage~~ septic system.

Several alternative system designs may have additional tanks referred to as dosing chambers, recirculating chambers, or extended treatment package systems (ETPS). These types of tanks typically contain less accumulation of scum and sludge but are recommended to be pumped to remove these accumulations whenever the septic tank is pumped. These types of tanks also contain mechanical components that must be considered prior to pumping of the tank's contents. It is highly recommended that the component manufacturer's recommendations be followed when these alternative tanks are pumped. In the case of ETPS the property owner's operation and maintenance entity should be contacted for approval prior to pumping the unit's tank.

6.4 Mechanics of a Septic System

Wastewater from ~~the~~ a home or business enters the septic tank where the ~~flow~~ velocity slows quickly. Because of the slowing, ~~(with a loss of energy)~~ material in the wastewater that is heavier than water~~,~~ such as feces and garbage~~,~~ settle to the bottom as sludge. Material in the wastewater that is ~~Lighter~~lighter ~~-~~than ~~-~~water ~~matter ~~, such as grease and plastics, float to the top as scum. The liquid in the center of the tank, now with the sludge and scum ~~removed~~settled out, is called effluent and is the liquid that flows from the septic tank to the drainfield. Upon being dispersed to the drainfield the effluent ~~for treatment~~is treated by the soil and organisms in the ~~ground~~soil. For a septic tank to function properly (scum and sludge settling and retention) the inlet and outlet baffles within the tank must be intact and in good condition. Proper baffle design is described in IDAPA 58.01.03.007.10 and 58.01.03.007.11 (section 8.1). Anytime a septic tank is pumped or a drainfield is repaired the inlet and outlet side of the septic tank should be uncovered and the baffles should be inspected to ensure the septic tank is in good working order.

The septic tank ~~and drainfield~~ will ~~work~~ function satisfactorily until the sludge fills over 40% of the volume of the tank (as measured from the bottom of the septic tank to the invert of the tank outlet) or the scum ~~fills the air space~~reaches the top of the inlet or outlet baffle in the tank. Before the tank reaches these levels it should be pumped by a permitted pumper. If the tank is not pumped~~,~~ it will be unable to perform its wastewater separation function ~~and will let~~which will allow the solids and greases to be carried out into the drainfield. ~~There the~~If solids and greases reach the drainfield they will fill and clog the soil pores causing the drainfield to fail resulting in sewage ~~to~~ back~~ing~~ up into the ~~house~~ home or business, ~~or to even overflow~~ the tank to overflow, or effluent to reach the surface of the ground around the drainfield. Under regular use (two people in the first bedroom and one person in every other bedroom) it is recommended that the septic tank be inspected every 3-5 years and pumped as needed.

6.45 Checking the Level of Scum and Sludge in a Septic Tank

The scum and sludge levels in the septic tank should be checked at least once every 3 years under regular use. ~~and, preferably, once a year, i~~If the ~~sewage~~ septic system receives ~~heavy~~ more than regular use the scum and sludge levels should be checked annually. ~~The~~ A ~~homeowner~~ property owner, ~~or a~~permitted septic tank pumper, or permitted septic system installer can check the scum and sludge levels in the septic tank.

The following outlines a procedure for ~~checking the scum and sludge~~locating a septic tank.

1. ~~First, locate the septic tank~~Review the final as-built drawing located on the final inspection form for the property owner's septic permit. If the ~~homeowner~~ property owner does not have a plot plan of the tank location, often the health district will have its location on file.
2. If no drawings can be found, a guess as to where the tank is located can be made by finding the 3- or 4-inch vent stack on the roof, or a cleanout near the foundation. The tank is often located directly out from ~~that~~the stack or cleanout.
3. ~~Also t~~If the previous methods do not work the building sewer can also be located ~~under~~ in the crawl space and the place where it exits under the house foundation can be noted.

~~1.~~4. With a steel rod, probe the ground to locate the tank. The tank, or the manhole cover on a riser, should be within 18 inches of the ground surface. Once located, excavate to the top of the tank and pull off the manhole cover.

The following outlines a procedure for checking the scum and sludge levels in the septic tank:

1. With a shovel, break through the scum layer, making a hole about 1 foot in diameter.
2. Wrap a strip of terry cloth toweling spirally around a pole and lower the pole into the tank. If the pole is fitted with a hinged flapper about 2 feet from its bottom, the flapper swings down and the scum level can be checked.
3. Lower the pole into the septic tank liquid until the flapper is about 1 foot below the scum. Pull the pole towards you a little to get the flapper under the scum, then raise the pole until the scum begins to move up, indicating that the flapper has made contact with the scum. Mark the pole at the top of the scum so that the depth of the scum can be measured from the pole after it is removed.
4. Continue to lower the pole into the septic tank until it meets the bottom. Tap the bottom of the tank two or three times with a sharp rap, which permits the sludge to enter into the coarse weave of the terry cloth. Slowly remove the pole. The depth of the sludge will then be seen in the terry cloth.

~~1.~~5. Alternatively, manufactured products are available for obtaining a representative profile of the septic tank sludge, liquid, and scum depths in place of the tool described above. These manufactured products are recommended for septic tank pumping or septic system installing professionals due to the ability to clean and maintain the tool for repeated use.

Calculate the depth of the sludge as a percent of the liquid depth (measured from the bottom of the tank to the top of the liquid/bottom of the scum layer. Equation 6-1 can be used to determine if a septic tank needs pumping.

$$\text{Percent sludge depth} = \frac{\text{Depth of sludge, in inches}}{\text{Liquid depth of tank, in inches}} \times 100$$

Equation 6-1. Percent sludge depth.

When sludge is greater than 40% of the liquid volume, or the scum layer is at or above the top of the inlet or outlet baffle, the tank should be pumped.

Figure 6-2 illustrates methods used to check scum and sludge depths.

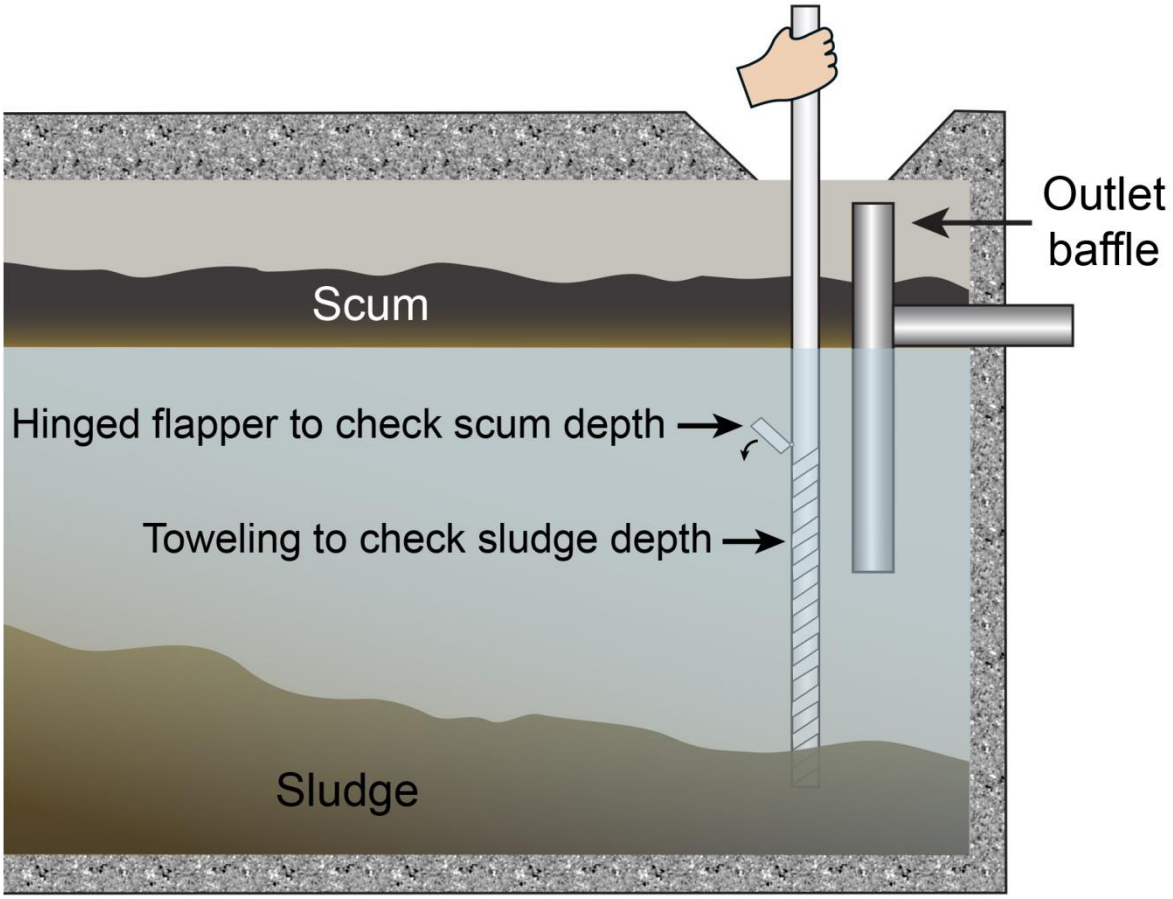

Figure 6-2. Methods used to check scum and sludge depths.

6.56 ~~Practices of the Septic Tank~~Septage Pumping~~er~~

All persons, firms, or corporations operating any tank truck, device, or equipment used or intended to be used for the purpose of pumping and transporting septage must comply with IDAPA 58.01.15, Rules Governing the Cleaning of Septic Tanks. The following subsections provide guidance and recommendations on septage pumping and transporting equipment and requirements.

6.~~5~~6.1 Equipment for Pumping and Transporting Septage

The major and most expensive piece of equipment necessary to pump septage is the pumper's truck. Capacity of a truck used to pump septic tanks, RV dump stations, or wastewater holding tanks should be at least 1,000 gallons. Capacity of a truck used to pump portable toilets or vault privies should be at least 500 gallons. The truck should also have:

- An access port for the periodic inspection, maintenance, and cleaning of its interior. The truck should also have a gauge to indicate the volume of liquid it contains.
- ~~The tank should also have a~~A gravity drainage valve that can be safely locked during transportation and storage. The discharge valve used to dispose of the septage should be

at least 2.5 inches in diameter and equipped with a cam-lock quick couple or screw cap. The valve should be located so that the discharge stream is not blocked in any way, unless it is necessary for disposal.

- The pumping equipment on the truck should be sized to provide at least 15 feet of suction lift and should be able to reverse flow.
- There should be a water trap between the tank and pump to prevent liquid from entering the pump in case the pump pulls a vacuum on the tank.
- Several lengths of hoses capable of stretching from the pumping vehicle to a client's tank. The hoses from the tank and pump should be at least 3 inches in diameter.

All equipment used to pump or transport septage must be watertight and constructed so that spilling or leaking of septage during pumping, transportation, or unloading is prevented (IDAPA 58.01.15.003.01). Additionally, all equipment used to pump or transport septage must be constructed in a manner that allows every portion of the interior or exterior of the equipment to be cleaned and maintained in a clean condition when not in use (IDAPA 58.01.15.003.02). All permitted vehicles used to pump or transport septage must also have the permit number for each vehicle displayed at all times on the door of the vehicle in a manner that is easily legible (IDAPA 58.01.15.004.03). Easily legible is considered to be in letters at least 3 inches high on both sides of the truck. It is also recommended that the name of the firm, address, business phone number, and tank capacity be displayed on the side of the truck. ~~On the side of the truck, the name of the firm, address, business phone number, and tank capacity should be displayed. All the information should be in letters at least 3 inches high on both sides of the truck. The tank capacity should be at least 1,000 gallons. It should have an access port for the periodic inspection and maintenance of its interior and some sort of gauge to indicate the volume of liquid it is to contain. The tank should also have a gravity drainage valve that can be safely locked during transportation and storage. The pumping equipment on the truck should be sized to provide at least 15 feet of suction lift and should be able to reverse flow. If the pump pulls a vacuum on the tank there should be a water trap between the tank and pump to prevent liquid from entering the pump. The hoses from the tank and pump should be at least 3 inches in diameter. The discharge valve used to dispose of the septage should be at least 2.5 inches in diameter and equipped with a cam-lock quick couple or screw cap. The valve should be located so that the discharge stream is not blocked in any way, unless it is necessary for disposal.~~

Septage pumpers may also want to consider the inclusion of several other pieces of equipment with their pumping and transportation vehicles. These recommended pieces of equipment will help a pumper complete their job and provide their clients with information regarding the condition of their septic tank. Other recommended equipment includes:~~An additional piece of equipment that should be included is a spray bar or splash plate for use in land spreading. There are also several other small pieces of equipment that should be included in the truck:~~

- Flashlight
- Steel lid probes
- Manhole sealer
- Bucket

- 50-foot garden hose
- Long-handled shovel
- Pry bar or pick
- Container of Quick Lime
- Pole, hoe, or rake for scum mixing
- A pole or equipment that allows the depth of scum and sludge to be determined
- Extension mirror used to inspect the tank's inlet and outlet baffles
- A spray bar or splash plate for use in domestic septage land application (if contracted with an approved site and approved by the health district)

6.~~5~~6.2 Permit~~s and Licenses~~ Requirements

A ~~Septic Tank Pumpers' Permit~~ permit is required throughout Idaho for the pumping, transportation, and disposal of septage (IDAPA 58.01.15.003 and 58.01.15.004). A permit can be obtained from any health district within Idaho and allows the permittee to pump, transport, and dispose of septage throughout the state. Permits must be renewed annually and applications for renewal must be submitted to the health district on or before March 1 of each year (IDAPA 58.01.15.004).~~The permit is good for 1 year and must be renewed at the end of the year. It can be obtained from the health district~~. An application must be submitted to obtain a permit from a health district for pumping, transportation, and disposal of septage (IDAPA 58.01.15.004.01). Permit applications must include the following information:

- Number of tank trucks operated
- Vehicle license number of each tank truck
- Name and address of the owner and/or operator of the tank trucks
- Name and address of the business
- Method of septage disposal to be used in all areas of the operation
- Location of all disposal sites used by the applicant (location information must be accompanied by a signed approval of the disposal site operator indicating that all the trucks included in the application are able to dispose of septage at that location)
- Payment of the permitting fee as set by each health district

Upon submission of a permit application to a health district ~~A~~an environmental health specialist ~~at the health district~~ will inspect the tank trucks and associated equipment prior to issuing the permit. A permit will not be issued until all the requirements of IDAPA 58.01.15 are met by the applicant.

6.~~5~~6.3 Pumping ~~the~~ a Septic Tank

Once ~~the~~ a septic tank has been located and the manhole cover exposed and removed the depth of scum and sludge should be determined. Next, draw down the liquid level 6 inches to 1 foot,

then break the scum up using a pole, rake, or hoe and mix it and the rest of the tanks contents. Continue pumping the tank until most of the contents are removed. It may be necessary to force septage back into the tank to mix up and remove the sludge on the bottom of the tank. After the tank's contents have been mixed be sure not to let the septage come back up to the outlet as sludge may then run into the drainfield. Leave a few inches of sludge in the bottom of the tank as seed to restart bacterial action as the tank refills. Do not ~~clean or~~ disinfect the interior of the tank.

When pumping is completed, thoroughly inspect the tank and note the following on a pumping receipt for the client:

- The date
- The volume of septage removed from each tank
- The depth of scum and sludge in each tank
- The condition of the inlet and outlet baffle in each tank
- The condition of the walls and floor of the tank for the presence of cracks, corrosion, or damage
- ~~Is the outlet baffle in good condition?~~
- ~~Is the inlet baffle in good condition?~~
- Is water running back into the tank from the drainfield? (Possible sign of high ground water in the drainfield or back pressure from a failing drainfield)
- Is water running in through the sides of the tank? (Sign of a leaking tank in high ground water)
- ~~How much septage was pumped out?~~
- Does the sewer line from the house appear to be free-flowing? (~~Flush a toilet~~Turn a fixture on inside the structure~~house~~ to ensure that there is no obstruction~~.~~)

NEVER enter ~~the~~ a tank as the methane gas produced by the septage can kill quickly! Entry into any tank requires a confined space entry permit through the Occupational Safety and Health Administration and proper personal protective equipment.

If ~~the~~ a manhole cover of ~~the~~ a tank ~~was~~ is found to be more than 18 inches belowground (as may be the case with older tanks or tanks serving basements), the ~~homeowner~~ property owner should be advised to add a concrete or plastic standpipe/riser that would place the manhole cover within 18 inches of the ground surface. This is recommended to be done for both the inlet and outlet side of a tank.

After the ~~lid~~ manhole cover is replaced, replace soil and sod if the manhole ~~was~~ is belowground. Put a little Quick Lime on any places where septage ~~has~~ may have spilled.

6.7 Septage Storage

Some septage pumpers, transporters, composters, or land application site operators may find it necessary for their operation to store septage prior to disposal or beneficial reuse. If a pumper,

transporter, composter, or land application site operator desires to store septage, the facility they construct to accomplish this must meet the requirements of IDAPA 58.01.16.519, Septage Transfer Stations. Any proposed septage transfer station must be reviewed by the applicable DEQ Regional Office. A party proposing a septage transfer station must also meet the following Wastewater Rule (IDAPA 58.01.16) requirements and submit the associated documents to the DEQ Regional Office along with their septage transfer station plans:

- Review of plans for municipal wastewater treatment or disposal (IDAPA 58.01.16.400)
- Demonstration of technical, financial, and managerial capacity (IDAPA 58.01.16.409)
- Facility plans (IDAPA 58.01.06.410)
- Preliminary engineering reports (IDAPA 58.01.16.411)
- Submission of plans and support documents (IDAPA 58.01.16.420)
- Operation and maintenance manuals (IDAPA 58.01.16.425)
- If a screening facility is also to be constructed in association with a septage transfer station the designs for that component must also be included with the transfer station plans but is exempt from the requirements of IDAPA 58.01.16.460, Screening and Grit Removal.

The act of screening septage is defined as treatment (IDAPA 58.01.16.010.85). Based on the designation of screening as treatment any septage transfer station that employs screening must have a properly licensed wastewater operator in charge of the wastewater system and screening facility (IDAPA 58.01.16.203). DEQ exempts all stand-alone septage transfer stations and associated septage screening facilities from the licensed operator requirement as long as the septage transfer station is:

- Located at a permitted pumper's place of business, or
- Located at a permitted domestic septage land application site or approved composting site, and
- Is owned, operated, and maintained by the permitted pumper, ~~or~~ land application site or composting site operator, and
- No additional wastewater treatment components or processes are included in the septage transfer station design.
- Septage transfer stations located at, or associated with, a wastewater treatment plant are not subject to these exemptions.

6.~~6~~8 ~~Septage~~ Disposal of Septage

~~One of the conditions for a license to pump septic tanks is the approval of all sites where septage is disposed. Therefore, the pumper must use only those methods approved by the health district or DEQ.~~Septage may only be disposed of in conformance with the methods allowed by IDAPA 58.01.15.003.03. Those methods include:

1. Discharging to a public sewer;

2. Discharging to a sewage treatment plant;
3. Burying under earth in a location and by a method approved by DEQ; or
4. Drying in a location and by a method approved by DEQ.

The first two methods of disposal require approval from the owner or superintendent of a wastewater treatment plant or the owner/operator of the public sewer. It is important for a pumper to note that discharging to a public sewer without the proper approvals puts the pumper in violation of National Pollutant Discharge Elimination System pretreatment requirements and associated federal codes. Disposal at a wastewater treatment plant should be used whenever practical.

Disposal methods 3 and 4 are associated with ~~one-time~~ disposal or land application of domestic septage. Nondomestic septage may not be approved for one-time disposal or beneficial reuse ~~(see section 6.9)~~. Approval for one-time disposal of domestic septage must be obtained through the health district that the one-time disposal site is located within. Written approval from the property owner must be supplied to the health district along with the request for one-time domestic septage disposal. Pumpers seeking approval of continuous domestic septage land application sites need to contact DEQ regional offices and follow DEQ's guidance for land application of domestic septage.

One-time disposal accomplished through burial shall ensure that:

- Complete burial is accomplished within 6 hours of domestic septage disposal, and
- The disposal depth meets the separation distance requirements of IDAPA 58.01.03.008.02.c for ground water and IDAPA 58.01.03.008.02.d for surface water in soil design group C soils.

One-time disposal accomplished through drying shall ensure that:

- The domestic septage is pH adjusted to a pH of at least 12 for a full 30 minutes prior to domestic septage disposal, and
- The disposal depth meets the separation distance requirements of IDAPA 58.01.03.008.02.c for ground water and IDAPA 58.01.03.008.02.d for surface water in soil design group C soils.

~~Septage may be disposed of in several ways:~~

~~5. At a municipal wastewater treatment plant. Some plants have special facilities just for the disposal of septage. These should be used whenever practical.~~

~~6.9 Beneficial Reuse of Domestic Septage~~

~~DEQ recognizes the value of domestic septage as a soil amendment product and/or fertilizer supplement for agricultural operations. This beneficial reuse of domestic septage is referred to as Land Application of Domestic Septage. Only septage that is classified as domestic septage is allowed to be land applied. Land application occurs by repeatedly spreading domestic septage on agricultural land in accordance with IDAPA 58.01.15 and 40 CFR Part 503. Agricultural land~~

~~used for the land application of domestic septage is subject to public access, grazing, and crop harvesting restrictions as described in 40 CRF Part 503. Prior to land application of domestic septage a pumper or land application site operator must obtain approval through the DEQ Regional Office that the land application site is located within. Approval is accomplished by submitting an acceptable Septage Management Plan for Land Application (SMPLA). To assist an interested party in developing a SMPLA DEQ has developed a document titled *Guidance for the Land Application of Domestic Septage* that is available through DEQ's website or any DEQ State or Regional Office. Refer to this document for further information and guidance on the land application of domestic septage.~~

~~2. By land spreading on private or public land in accordance with 40 CFR Part 503. If septage spreading is done on private land, the pumper should have written permission of the landowner and a permit from the health district. Check with the local health district on any restrictions. The following general rules should be observed:~~

~~a. Do not apply septage to any land used for root crops, such as potatoes, unless that land will not be used for growing those kinds of crops for 20–38 months depending on the method of land application.~~

~~b. Do not apply septage in a floodplain.~~

~~c. Do not apply septage on porous soils or where it can contaminate ground water or surface water.~~

~~d. Do not let animals, whose products (milk, meat) will be eaten, use land where septage has been applied for 1 month.~~

~~e. Populations of vectors, such as flies, should be minimized by rapidly drying the septage, adding lime, covering, or other appropriate techniques as per 40 CFR Part 503 Subpart D.~~

~~Be aware that the property owners next to the disposal site can cause enforcement action and have been successful in court when odors create a problem for them.~~

~~Public sites for septage disposal on land are preapproved by the health districts and DEQ. Such sites may be a municipal sludge management farm or farm areas leased or rented for sludge disposal.~~

~~After dumping the sludge, clean the truck inside and out. The wastewater from such cleaning should be considered the same as septage and handled accordingly.~~

Appendix I

4.22 Recirculating Gravel Filter

Revision: ~~October 13, 2004~~September 18, 2014

4.22.1 Description

A recirculating gravel filter is a bed of ~~coarse sand~~filter media in a container that filters and biologically treats septic tank effluent. The filter effluent is returned to the recirculation tank for blending with untreated septic tank effluent and recirculated back to the filter. The treated effluent is distributed to a disposal trench of reduced dimension. System components include a septic tank, recirculating tank ~~with float valve and~~, low-pressure distribution system, free access filters, dosing chamber, mechanical flow splitter, and a drainfield.

4.22.2 Approval Conditions

1. Nondomestic wastewater with BOD or TSS exceeding normal domestic wastewater strengths (section 3.2.1, Table 3-1) is required to be pretreated to these levels before discharge into the recirculating gravel filter system.
2. The bottom of the filter must not come within 12 inches of seasonal high ground water.
3. All pressurized distribution components and design elements of the recirculating gravel filter system that are not specified within section 4.22 must be designed and installed according to the guidance for pressure distribution systems in section 4.20.
4. The recirculating gravel filter container shall meet the same separation distance requirements as a septic tank.

~~2.~~5. System must be designed by a PE licensed in Idaho.

4.22.3 Design

Minimum design requirements for the recirculating gravel filter components are provided in the sections below.

4.22.3.1 Recirculating Tank

1. Minimum recirculating tank volume shall be capable of maintaining 2 times the daily design flow of the system.
2. The recirculating tank may be a modified septic tank or dosing chamber selected from section 5.2 or section 5.3.
   a. Alternatively, the recirculation tank may be designed by the system's design engineer to meet the minimum necessary requirements of this section and IDAPA 58.01.03.007.
   b. Recirculating tank design is exempt from subsections .07, .08, .10, .11, and .13 of IDAPA 58.01.03.007.
3. The recirculating tank shall be accessible from grade and the return line, pump, pump screen, and pump components shall be accessible from these access points.

4. The recirculating filter effluent return point shall be located before the recirculation tank and shall enter at the inlet of the recirculating tank.

~~1.~~5. The recirculating tank shall meet all other minimum design and equipment requirements of section 4.20.3.4.

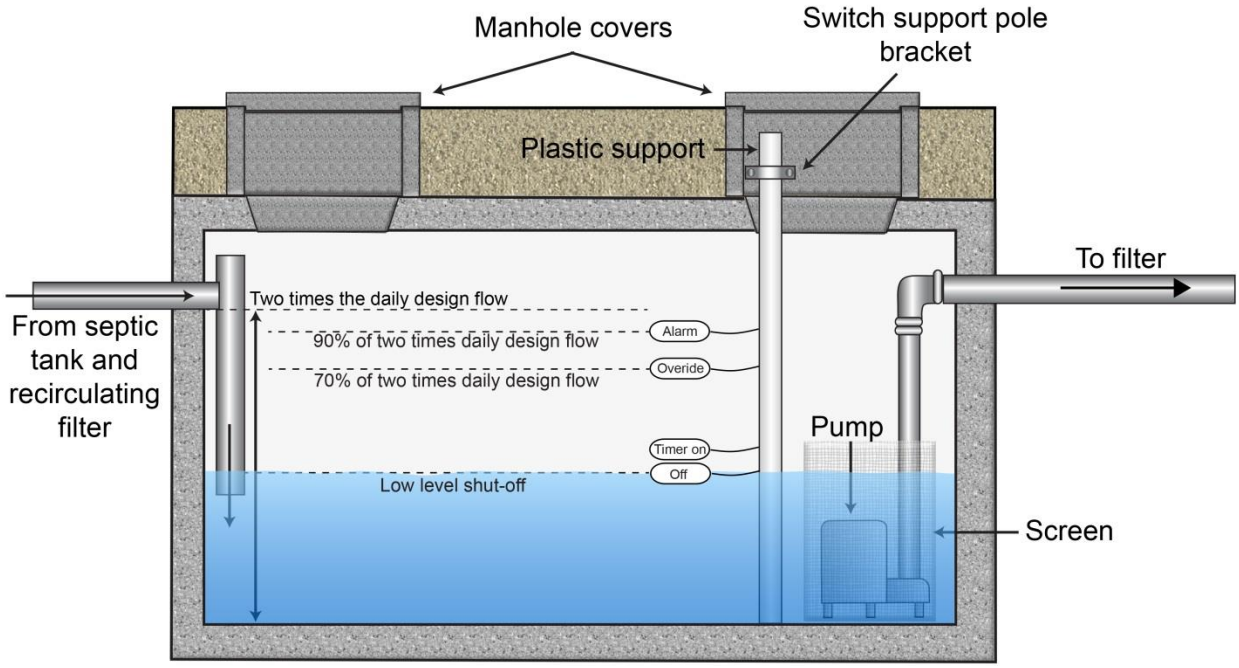

Figure 4-24. Recirculating tank.

4.22.3.2 Recirculating Filter

1. Filter container shall be constructed of reinforced concrete or other materials where equivalent function, workmanship, watertightness and at least a 20-year service life can be documented. The following requirements must be met for flexible membrane liners:
   a. Have properties equivalent to or greater than 30-mil PVC.
   b. Have field repair instructions and materials provided to the purchaser of the liner.
   c. Have factory fabricated boots for waterproof field bonding of piping to the liner.
   d. Liner must be placed against smooth, regular surfaces free of sharp edges, nails, wire, splinters, or other objects that may puncture the liner. A 4-inch layer of clean sand should provide liner protection.
2. The filter surface area is sized at a maximum of 5 gallons/ft²/day forward flow (forward flow is equivalent to the daily design flow from the structure).
3. Filter construction media shall meet the specifications in section 3.2.8.1.3 ~~(~~for pea gravel~~)~~ and 3.2.8.1.1 for drainrock.

~~2.~~4. Minimum filter construction ~~media depth shall be 24 inches~~specifications (i.e., media depth, geotextile fabric placement, cover slopes, filter container height, and piping placement) shall meet the dimensions and locations depicted in ~~(see~~ Figure 4-25~~)~~.

~~The pressure distribution laterals shall be located in aggregate meeting the specifications in section 3.2.8.1.1 (drainfield aggregate) with a minimum depth of 64 inches below the laterals and 2 inches above the laterals.~~

~~Drainrock meeting the specification in section 3.2.8.1.1 shall be placed below the filter construction media ensuring a minimum depth that places 2 inches of drainrock cover over the underdrain.~~

5. The bottom of the filter may be sloped at least 1% to the underdrain pipe.

6. An underdrain must be located at the bottom of the filter to return filtered effluent to the ~~recirculation tank~~dosing chamber meeting the following requirements:

   a. May be placed directly on the bottom of the filter.

   ~~a.~~b. ~~Minimum diameter of 4 inches.~~

   c. Placed level throughout the bottom of the filter.

   d. Constructed of slotted drain pipe with 1/4 inch slots 2.5 inches deep and spaced 4 inches apart located vertically on the pipe, or perforated sewer drain pipe with holes located at 5 and 7 o'clock.

   e. One underdrain should be installed for each filter cell zone.

   ~~b.~~f. The distal end is vented to the atmosphere, protected with a screen, and located within the filter to allow entry of air flow into the bottom of the filter and access for cleaning and ponding observation.

   g. Connected to solid pipe meeting the construction requirements of IDAPA 58.01.03.007.21 that extends through the filter and is sealed so the joint between the filter wall and pipe is watertight.

   ~~c.~~h. ~~If gravity flow is not achievable from the underdrain to achieve flow splitting, return of effluent to the recirculating tank, and discharge of effluent to the drainfield then the underdrain must connect to an approved dosing chamber (section 5.3) or modified septic tank (section 5.2) that is separate from the recirculating filter and sized and constructed as described in section 4.20.3.4. Upon discharge from the dosing chamber flow splitting requirements of every dose must still be met if splitting cannot be met prior to the dosing chamber.~~

~~3.~~7. ~~Three 4 inch diameter~~ Two observation tubes should be placed in the recirculating filter to monitor for ponding and clogging formation. ~~The first should extend to the filter construction media/underdrain aggregate interface. The second should extend to the pressure distribution aggregate/filter construction media interface. The third should extend to the bottom of the underdrain aggregate and may be substituted by a properly designed vent from the underdrain that may be accessed.~~

   a. The monitoring tubes must be secured and perforated near the bottom.

   ~~a.~~b. The monitoring tubes must extend through the recirculating filter cover and have a removable cap.

8. ~~No soil cover is required~~The surface of the recirculating filter must be left open to facilitate oxygenation of the filter. No soil cover is to be placed above the upper layer of drainrock in the recirculating gravel filter. However, the filter must be designed to prevent accidental contact with effluent from the surface. The following minimum ~~cover~~ requirements must be followed:~~.~~

   a. Chain-link fence or another acceptable protective barrier (Figure 4-25) shall be placed at the top of the filter container and cover the entire surface of the filter to prevent access, unless fencing is placed around the entire system to prevent access.

   b. ~~Media and pipe shall be covered to prevent accidental contact and to provide access to the filter surface for filter maintenance~~Geotextile filter fabric shall be placed over the ~~aggregate covering the pressurized distribution laterals~~ access barrier.

   ~~Extreme climates may require insulation of the recirculating sand filter lid or cover to prevent freezing of the media~~~~A minimum of 12 inches of drainfield aggregate or decorative landscape stone shall be placed over the geotextile filter fabric~~.

   ~~The filter and aggregate or stone cover shall be constructed to divert any surface waters away from the recirculating filter.~~

   d. Fencing around the recirculating gravel filter is recommended for all central systems.

   ~~The design engineer should account for potential freezing conditions in the design of the recirculating filter and pressure distribution system.~~

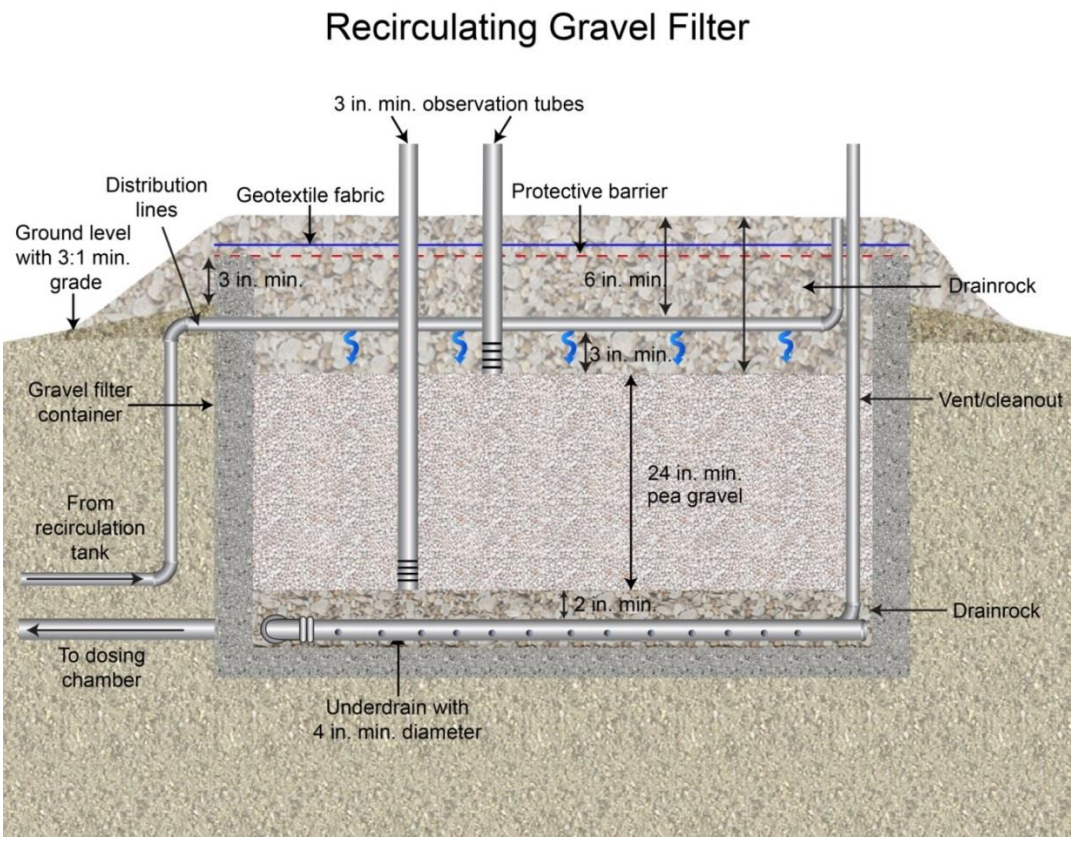

Figure 4-25. Recirculating filter.

4.22.3.2.1 Recirculating Filter Cells

Depending on the volume of effluent and the type of structure utilizing a recirculating gravel filter, the recirculating filter may need to be split into cells that contain dosing zones (see Figure 4-26). A filter cell is the total filter area that can be served by a single dosing pump or set of pumps. A filter zone is the area of a cell that can be dosed by a single dosing pump at any one time. Zone sizing is dependent upon pump size, lateral length, perforation size, and perforation spacing. The minimum filter design requirements for cells, zones, and pumps include:

1. Single family homes: one cell, one zone, and one pump. If more than one cell or zone ~~are~~is used for a single family home duplex pumps are not required.
2. Central systems or systems connected to anything other than a single family home (flows up to 2,500 GPD): one cell, two zones, and one pump per zone.
3. Large soil absorption systems (flows of 2,500 to 5,000 GPD): one cell, three zones, and one pump per zone.
4. Large soil absorption systems (flows over 5,000 GPD): two cells, two zones per cell, and one pump per zone.
5. An alternative to installing one pump per zone is to install duplex pumps connected to sequencing valves that alternate zones for each pressurization cycle. For systems with multiple cells, each cell must have a dedicated set of duplex pumps. Pumps should alternate between each cycle.
6. Filter cells are recommended to be hydraulically isolated from one another and shall be constructed according to the minimum requirements in section 4.22.3.2.
7. Each cell shall be equivalent in surface area and volume and have the same number of zones.

~~1.~~8. Each zone shall have the same number of laterals and perforations.

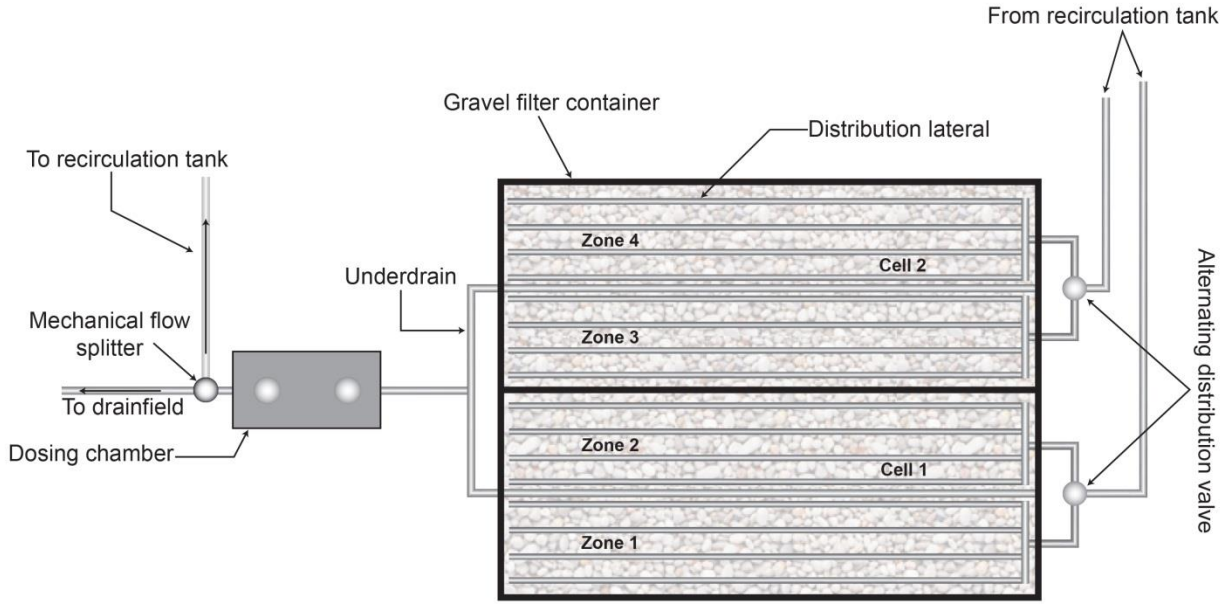

Figure 4-26. Overhead view of a recirculating gravel filter with multiple filter cells and dosing zones.

4.22.3.2.2 Recirculating Filter Dosing

1. The minimum recirculation ratio of the filter is ~~4~~5:1 and the maximum recirculation ratio is 7:1 (the daily flow moves through the filter a minimum of 5 times or a maximum of 7 times prior to discharge to the drainfield).
2. Timed dosing is required and the filter dosing cycle should meet the following minimum recommendations:
   a. Pumps are set ~~by timer~~ to dose each zone approximately ~~5–10 minutes per 30 minutes~~2 times per hour.
   b. Dose volume delivered to the filter surface for each cycle should be 10.4% of the daily flow from the structure (forward flow).
   c. A pump on override float should be set at a point that equates to 70% of the recirculating tank's volume.
   d. A high level audio and visual alarm float should be set at 90% of the recirculating tank's volume.
   e. A low level off float should be placed to ensure that the pump remains fully submerged at all times.
3. The pump controls should:
   a. Be capable of monitoring low and high level events so that timer settings can be adjusted accordingly.
   b. Have event counters and run time meters to be able to monitor daily flows.

~~Orifices are recommended to be oriented up with an orifice shield used to minimize orifice blockage from the filter construction media.~~

~~Longer dosing cycles may be desirable for larger installations, e.g., 20 minutes every 2–3 hours~~. ~~Hydraulic loading is 5 gallons/ft²/day (forward flow)~~.

~~Filter media is very fine washed gravel (pea gravel), with 100% passing the three-eighths inch sieve, an effective size of 3–5 mm, a uniformity coefficient (C_u) < 2, and < 1% passing a #50 sieve.~~

~~Minimum recirculating chamber size is one-half the volume of the septic tank.~~

~~Gravel filter container, piping, gravel, and gravel cover should meet the minimum requirements as shown herein.~~ ~~No soil cover is required.~~

~~5. Filter container shall be constructed of reinforced concrete or other materials where equivalent function, workmanship, watertightness and at least a 20-year service life can be documented. The following requirements must be met for flexible membrane liners:~~

~~a. Have properties equivalent to or greater than 30-mil PVC.~~

~~b. Have field repair instructions and materials provided to the purchaser of the liner.~~

~~c. Have factory fabricated *boots* for waterproof field bonding of piping to the liner.~~

~~d. Liner must be placed against smooth, regular surfaces free of sharp edges, nails, wire, splinters, or other objects that may puncture the liner. A 4-inch layer of clean sand should provide liner protection.~~

6. ~~Float valves or equivalent bypass alternatives are required in the recirculation tank. Discharge to the drainfield must occur after filtration.~~

7. ~~Media and pipe shall be covered to prevent accidental contact and to provide access to the filter surface for filter maintenance.~~

~~8. Extreme climates may require insulation of the recirculating sand filter lid or cover to prevent freezing of the media.~~

4.22.3.3 Dosing Chamber

1. A dosing chamber meeting the minimum requirements of section 4.20.3.4 shall be installed after the recirculating filter and all effluent passing through the recirculating filter shall be returned to the dosing chamber.

2. A mechanical flow splitter (Figure 4-27 and 4-28) capable of simultaneously returning effluent to the recirculating tank and discharging effluent to the drainfield shall be located ~~prior to, or~~ outside of the dosing chamber and prior to the recirculation tank. The flow splitter shall meet the following minimum requirements:~~Float valves or equivalent bypass alternatives are required in the recirculation tank.~~

   a. The flow splitter must be capable of returning effluent to the recirculating tank and discharging to the drainfield in a volume ratio equivalent to the designed recirculation ratio (e.g., if a recirculation ratio of 5:1 is used then 80% of the filtered effluent by volume shall be returned to the recirculating tank and 20% shall be discharged to the drainfield).

   b. Float valves that do not allow for continual splitting of filtered effluent prior to discharge to the drainfield and non-mechanical weirs and flutes shall not be used to split flows.

~~2.~~3. Dosing of effluent from the dosing chamber may be either timed or on-demand.

~~3.~~4. Discharge of effluent to the drainfield must occur after filtration and flow splitting.

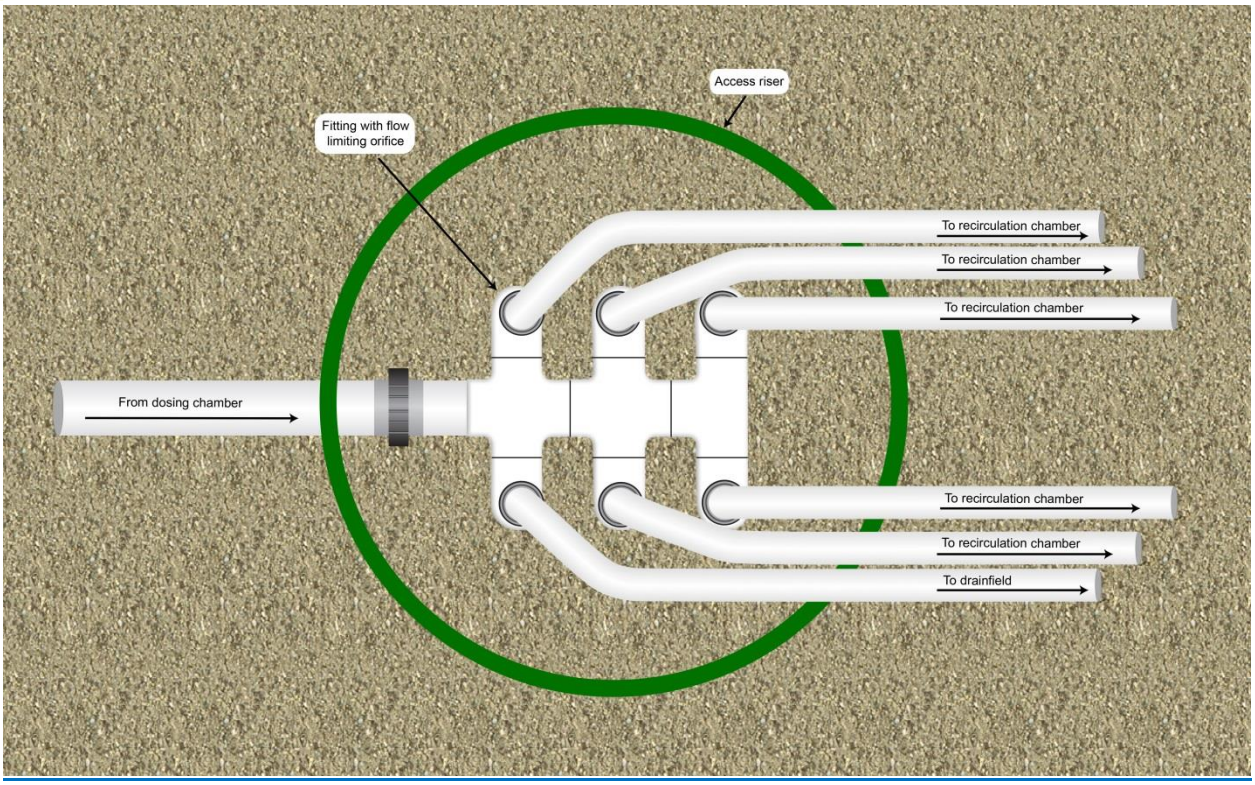

Figure 4-27. Bottom view of a mechanical flow splitter for gravity distribution that delivers wastewater to all transport pipes with each dose.

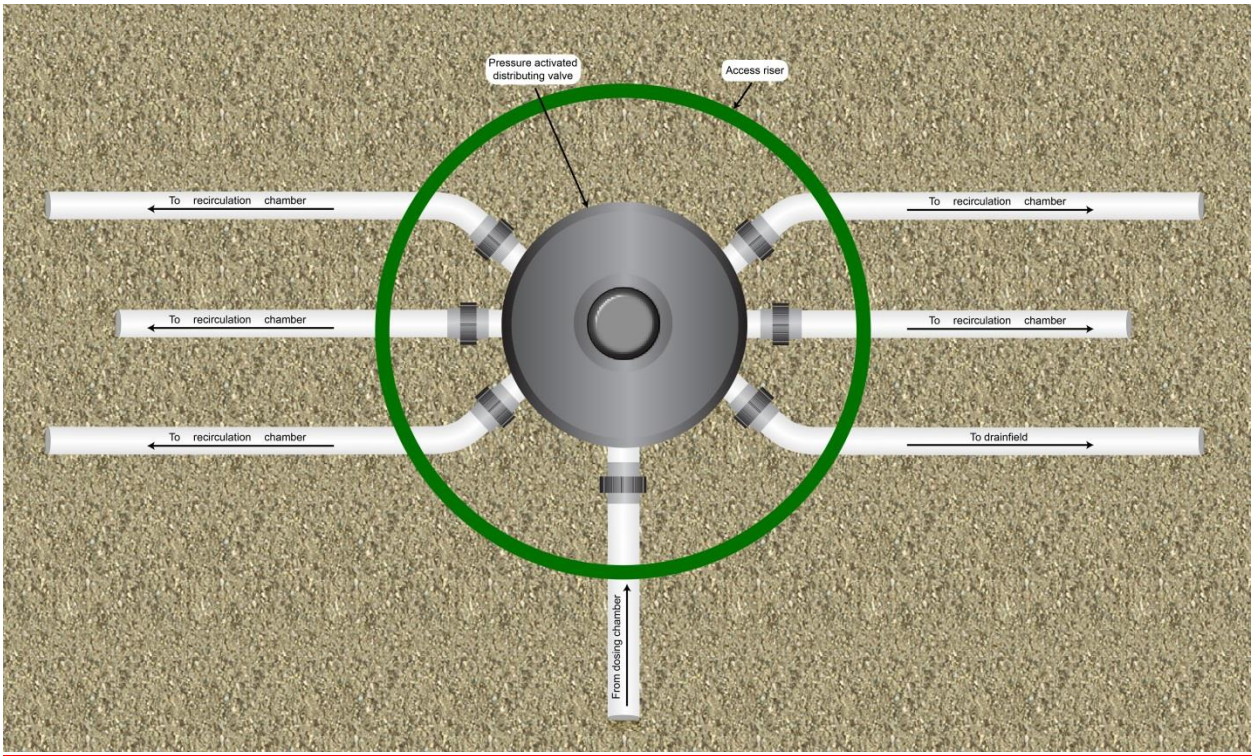

Figure 4-28. Overhead view of a mechanical flow splitter for pressure distribution that only delivers wastewater to one transport pipe with each dose.

4.22.4 Filter Construction

1. All materials must be structurally sound, durable, and capable of withstanding normal installation and operation stresses.

~~3.~~2. Components that may be subject to excessive wear must be readily accessible for repair or replacement.

~~4.~~3. All filter containers must be placed over a stable level base.

~~5.~~4. ~~Pressure system must be designed and installed according to the guidance given for pressure distribution systems in section 4.20.~~ Geotextile filter fabric shall ~~not~~ only be ~~used in the recirculating gravel filter~~placed over the top of the filter and must not be used in-between the filter construction media and underdrain aggregate.

~~6.~~5. Access to the filter surface must be provided to facilitate maintenance and aeration.

4.22.5 ~~Gravity Disposal~~Drainfield Trenches

~~7. Except as noted herein, the final disposal trenches must meet the requirements of a standard trench system.~~

1. Distances shown in Table 4-19 must be maintained between the trench bottom and limiting layer.

2. ~~Capping fill may be used to obtain adequate separation from limiting layers.~~

3. Pressure distribution, when used, ~~may~~shall ~~be~~ meet the following design considerations:

   a. ~~The~~If a pressure distribution system ~~related to~~is designed within the drainfield ~~is~~it must be designed in accordance with section 4.20.

   b. If the pressurized line from the mechanical flow splitter breaks to gravity prior to the drainfield it must be done in accordance with section 4.20.3.6.

   ~~b.~~c. The recirculation ~~chamber~~tank and recirculating filter may not be used as the dosing chamber for the drainfield or for flow splitting purposes.

~~2.~~4. The minimum area, in square feet of bottom trench surface, shall be calculated from the maximum daily flow of effluent divided by the hydraulic application rate for the applicable soil design subgroup listed in Table 4-20.

Table 4-19. Recirculating gravel filter vertical ~~setback~~ separation to limiting layers (feet).

Limiting Layer	Flow <2,500 GPD	Flow ≥2,500 GPD
	All Soil Types	All Soil Types
Impermeable layer	2	4
Fractured rock or very porous layer	1	2
Normal high ground water	1	2
Seasonal high ground water	1	2

Note: gallons per day (GPD)

Table 4-20. Secondary biological treatment system hydraulic application rates.

Soil Design Subgroup	Application Rate (gallons/square foot/day)
A-1	1.7
A-2	1.2
B-1	0.8
B-2	0.6
C-1	0.4
C-2	0.3

4.22.6 Inspection

1. A preconstruction meeting between the health district, responsible charge engineer, and installer should occur prior to commencing any construction activities.
2. The health district should inspect all system components prior to backfilling and perform inspections of the filter container construction prior to filling with drainrock and filter construction media.
3. The responsible charge engineer shall conduct as many inspections as necessary for verification of system and component compliance with the engineered plans.

~~1.~~4. The responsible charge engineer shall provide the health district a written statement that the system was constructed and functions in compliance with the approved plans and specifications. Additionally, the responsible charge engineer shall provide as-built plans to the health district if any construction deviations occur from the permitted construction plans. (IDAPA 58.01.03.005.15)

4.22.7 Operation and Maintenance

1. The recirculating gravel filter design engineer shall provide a copy of the system's operation, maintenance, and monitoring procedures to the health district as part of the

permit application and prior to subsurface sewage disposal permit issuance (IDAPA 58.01.03.005.04.k).

2. Minimum operation, maintenance, and monitoring requirements should follow each system component manufacturer's recommendations.
3. Instructions on how to trouble shoot the pump control panel should be included to allow the adjustment of pump cycle timing if the low level off or high level alarm switch are frequently tripped in order to maintain the minimum 5:1 recirculation ratio.
4. Operation and maintenance directions should be included regarding the replacement of the filter construction media and the direction to the system owner that a permit must be obtained from the health district for this activity.
5. Maintenance of the septic tank should be included in the O&M manual.
6. All pressure distribution system components should be maintained as described in section 4.20.5.
7. Check for ponding at the filter construction media/underdrain aggregate interface through the observation tube in the recirculating filter.
8. Clean the surface of the filter regularly to remove leaves and other organic matter that may accumulate in the aggregate or rock cover.
9. Check the recirculating filter for surface odors regularly. Odors should not be present and are an indicator that something is wrong. Odors are likely evidence that the dissolved oxygen in the filter is being depleted and that BOD and ammonia removal are being impacted.

Figure 4-24 26 shows two examples of recirculating flow splitters. Figure 4-25 is a diagram of a recirculating/dose tank. Figure 4-26 27 shows an example of a distribution box flow splitter constructed out of piping. Figure 4-28 shows a cross section of a recirculating gravel filter system with gravity distribution to the drainfield. Figure 4-29 shows a cross section of a recirculating gravel filter system with pressure transport to, and/or distribution within, the drainfield.

Figure 4-2426. Two examples of recirculating flow splitters.

Figure 4-27. Distribution box flow splitter using piping.

Figure 4-25. Recirculating/dose tank.

Figure 4-2628. Cross section of a recirculating gravel filter system with gravity discharge to the drainfield.

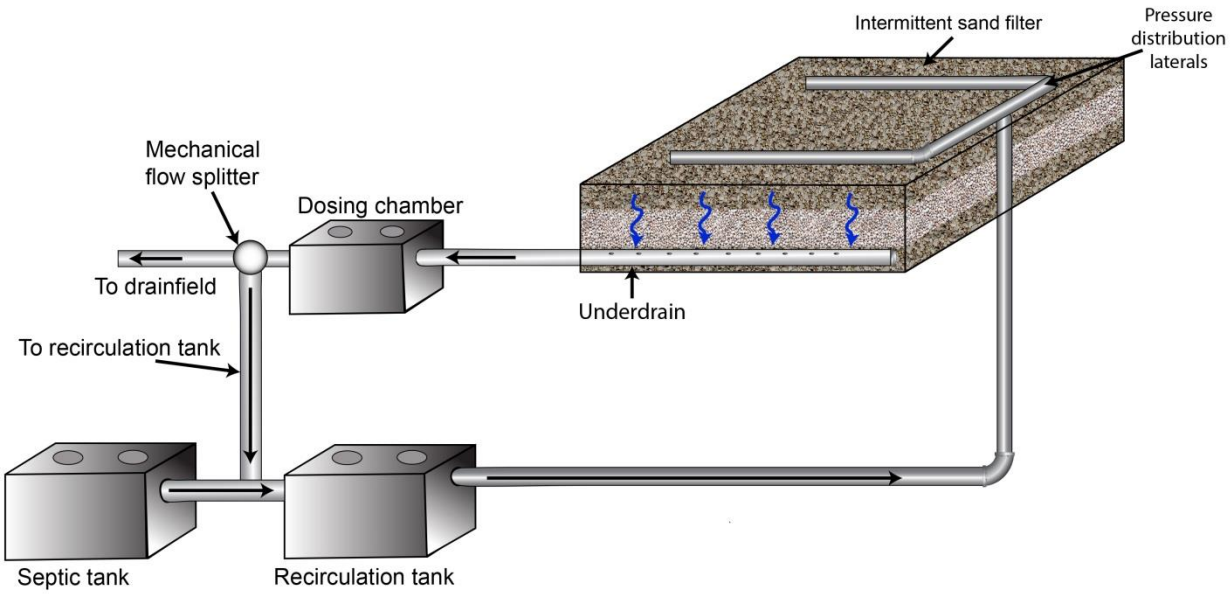

Figure 4-29. Cross section of a recirculating gravel filter system with pressure transport to, and/or distribution within, the drainfield.

Appendix J

4.23 Intermittent Sand Filter

Revision: ~~July 18, 2013~~September 18, 2014

4.23.1 Description

An intermittent sand filter is a bed of medium sand in a container that filters and biologically treats septic tank effluent. Effluent is pressure dosed across the top of the medium sand in small doses and percolates through the filter media. The filter effluent is then collected by an underdrain at the bottom of the filter and is distributed to a disposal trench of reduced dimension. Components of the intermittent sand filter include a septic tank, dosing chamber, pump (or siphon) and controls, distribution network, sand filter, and drainfield.

4.23.2 Approval Conditions

1. The system must be designed by a PE licensed in Idaho.
2. All pressure distribution components shall be designed according to the pressure distribution system guidance (section 4.20).
3. The design engineer shall provide an O&M manual for the system to the health district prior to permit issuance.
4. The intermittent sand filter container shall meet the same separation distance requirements as a septic tank.

~~3. Slope must be 30% or less.~~

~~Maximum wastewater flow must be 600 GPD or less.~~

~~3~~5. Bottom of the filter must not come within 12 inches of seasonal high ground water.

6. Effluent shall not discharge to the drainfield without passing through the filter first.
7. Nondomestic wastewater must be pre-treated to residential strength prior to discharge to the intermittent sand filter.

4.23.3 ~~Filter~~ Design

Minimum design requirements for the intermittent sand filter components are provided in the section below.

4.23.3.1 Intermittent Filter

1. Filter container shall be constructed of reinforced concrete or other materials where equivalent function, workmanship, watertightness, and at least a 20-year service life can be documented.
2. The following requirements must be met for flexible membrane liners:
   a. Have properties equivalent to, or greater than, 30-mil PVC.
   b. Have field repair instructions and materials provided to the purchaser of the liner.

c. Have factory-fabricated *boots* for waterproof field bonding of piping to the liner.

d. Liner must be placed against smooth, regular surfaces free of sharp edges, nails, wire, splinters, or other objects that may puncture the liner. Provide a 4-inch layer of clean sand for liner protection.

3. Application rate of septic tank effluent to the filter must be 0.7~~The rate of effluent flow to the filter surface area is a maximum of 1.0~~ gallons/ft^2/day.

4. ~~Filter sand must conform to ASTM C-33 with less than 2% passing the #200 sieve~~Filter construction media shall meet the specification in section 3.2.8.1.~~2~~1 for drainrock, section 3.2.8.1.2 for medium sand, and section 3.2.8.1.3 for pea gravel.

a. ~~Filter construction media~~Medium sand should be placed in a maximum of 8 inch lifts.

b. Each lift should be wetted prior to installation of the next lift to minimize settling.

~~4.~~5. Minimum filter construction ~~media depth shall be 24 inches~~specifications (i.e., media depth, geotextile fabric placement, cover depth and slopes, filter container height, and piping placement) shall meet the dimensions and locations depicted in ~~(see~~ Figure 4-24~~)~~.

~~5.~~6. ~~The pressure distribution laterals shall be located in aggregate meeting the specifications in section 3.2.8.1.1 with a minimum depth of 6 inches below the laterals and 2 inches above the laterals.~~

~~6.~~7. ~~A 4 inch layer of pea gravel meeting the specification in section 3.2.8.1.3 shall be located between the filter construction media and drainrock that covers the underdrain.~~

~~7.~~8. ~~Drainrock meeting the specification in section 3.2.8.1.1 shall be placed below the pea gravel and over the underdrain ensuring a minimum depth that places 2 inches of drainrock cover over the underdrain.~~

9. The bottom of the filter should be sloped at least 1% to the underdrain pipe for flexible membrane liners.

10. An underdrain must be located at the bottom of the filter to drain the intermittent filter meeting the following requirements:

a. May be placed directly on the bottom of the filter.

~~a.~~b. ~~Minimum diameter of 4 inches.~~

c. Placed level throughout the filter.

d. Constructed of slotted drain pipe with 1/4 inch slots 2.5 inches deep and spaced 4 inches apart located vertically on the top of the pipe, or perforated sewer drain pipe with holes located at 5 and 7 o'clock.

e. One underdrain should be installed for each filter cell zone.

~~b.~~f. The distal end is vented to the atmosphere, protected with a screen, and located within the filter to allow entry of air flow into the bottom of the filter and access for cleaning and ponding observation.

g. Connected to solid pipe meeting the construction requirements of IDAPA 58.01.03.007.21 that extends through the filter and is sealed so the joint between the filter wall and pipe is watertight.

~~c.~~h. If gravity flow is not achievable from the underdrain to the drainfield then the underdrain must be connected to an approved dosing chamber (section 5.3) or approved septic tank (section 5.2) modified to a dosing chamber that is sized and constructed as described in section 4.20.3.4 to deliver effluent to the drainfield by pressure transportation or distribution. Dosing of the drainfield may not occur from a pump that is located within the intermittent sand filter.

11. ~~Three~~Two ~~4 inch diameter~~ observation tubes should be placed in the intermittent sand filter to monitor for ponding and clogging formation. ~~The first should extend to the filter construction media/underdrain aggregate interface. The second should extend to the pressure distribution aggregate/filter construction media interface. The third should extend to the bottom of the underdrain aggregate and may be substituted by a properly designed vent from the underdrain that may be accessed.~~

a. The monitoring tubes must be secured and perforated near the bottom.

b. The monitoring tubes must extend through the intermittent filter cover and have a removable cap.

12. The surface of the intermittent sand filter shall be covered meeting the following requirements:

~~a. Geotextile filter fabric shall be placed over the aggregate covering the pressurized distribution laterals.~~

~~b. A minimum of 6, but no more than 12 inches, of loam or sandy loam soil shall be placed over the geotextile filter fabric.~~

c. The soil cover shall be graded to divert any surface waters away from the intermittent sand filter.

d. Vegetation on top of the soil cover must be managed so that deep rooting vegetation does not plug the distribution system.

~~c.~~e. The design engineer should account for potential freezing conditions in the design of the intermittent sand filter and pressure distribution system.

~~Sand filter container, piping, gravel, gravel cover, and soil crown material should meet the minimum requirements as shown herein.~~

~~4. Filter container shall be constructed of reinforced concrete or other materials where equivalent function, workmanship, watertightness, and at least a 20-year service life can be documented. The following requirements must be met for flexible membrane liners:~~

~~a. Have properties equivalent to, or greater than, 30-mil PVC.~~

~~b. Have field repair instructions and materials provided to the purchaser of the liner.~~

~~c. Have factory-fabricated *boots* for waterproof field bonding of piping to the liner.~~

~~d. Liner must be placed against smooth, regular surfaces free of sharp edges, nails, wire, splinters, or other objects that may puncture the liner. Provide a 4-inch layer of clean sand for liner protection.~~

4.23.3.2 Intermittent Filter Cells

Depending on the volume of effluent and the type of structure utilizing an intermittent sand filter, the intermittent filter may need to be split into cells that contain dosing zones. A filter cell is the total filter area that can be served by a single dosing pump or set of pumps. Cell sizing is limited to 600 GPD. The minimum filter design requirements for cells and pumps include:

1. Filter cells are hydraulically isolated from one another and shall be constructed according to the minimum requirements in section 4.23.3.
2. Each cell shall be equivalent in surface area and volume.
~~1.~~3. Each cell shall receive equal volumes of wastewater per dose.

4.23.3.3 Intermittent Filter Dosing

1. Timed dosing is required and the filter dosing cycle should meet the following minimum recommendations:
   a. Pumps are set to dose each cell once per hour.
   b. Dose volume delivered to the filter surface for each cycle should be 4% of the daily design flow.
   c. A pump on override float should be set at a point that equates to 70% of the dosing chamber's volume.
   d. A high level audio and visual alarm float should be set at 90% of the dosing chamber's volume.
   e. A low level off float should be placed to ensure that the pump remains fully submerged at all times.
2. The pump controls should:
   a. Be capable of monitoring low and high level events so that timer settings can be adjusted accordingly.
   ~~a.~~b. Have event counters and run time meters to be able to monitor daily flows.

Figure 4-24 provides a cross-sectional view of an intermittent sand filter cell.

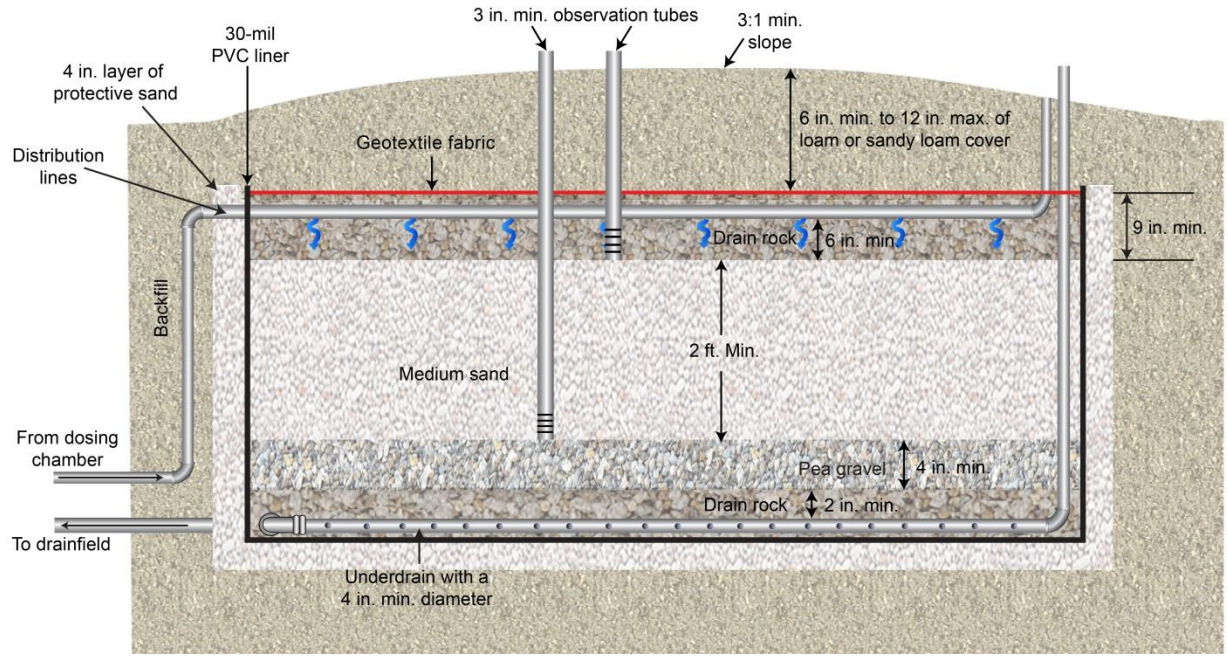

Figure 4-24. Cross section of flexible membrane intermittent sand filter cell.

~~4.23.4 Filter Construction~~

~~2. All materials must be structurally sound, durable, and capable of withstanding normal installation and operation stresses. Components that may be subject to excessive wear must be readily accessible for repair or replacement.~~

~~3. All filter containers must be placed over a stable level base.~~

~~3. Pressure system must be designed and installed according to the guidance given for pressure distribution systems in section 4.20.~~

4.23.5 ~~Gravity Disposal~~Drainfield Trenches

~~4. Except as noted herein, the final disposal trenches must meet the requirements of a standard trench system.~~

1. Distances shown in Table 4-17 must be maintained between the trench bottom and limiting layer.

2. Capping fill may be used to obtain adequate separation from limiting layers but must be designed and constructed according to the guidance for capping fill trenches in Section 4.5.

3. Pressure distribution may be used with the following design considerations:

   a. The pressure distribution system related to the drainfield is designed in accordance with Section 4.20.

   ~~a.~~b. The dosing chamber for the intermittent sand filter may not be used as the dosing chamber for the drainfield.

2.4.Minimum The drainfield is area, in square feet of bottom trench surface, shall be calculated from the maximum daily flow of effluentsized by dividinged the maximum daily flow by the hydraulic application rate for the applicable soil design subgroup listed in Table 4-18.

Table 4-17. Intermittent sand filter vertical setback to limiting layers (feet).

Limiting Layer	Soil Group AFlow <2,500 GPD	Soil Group B	Soil Group C	Flow ≥2,500 GPD
	All Soil Types			All Soil Types
Impermeable layer	2	2	2	4
Fractured rock or very porous layer	1	1	1	2
Normal high ground water	1	1	1	2
Seasonal high ground water	1	1	1	2

Note: gallons per day (GPD)

Table 4-18. Secondary biological treatment system hydraulic application rates.

Soil Design Subgroup	Application Rate (gallons/square foot/day)
A-1	1.7
A-2	1.2
B-1	0.8
B-2	0.6
C-1	0.4
C-2	0.3

4.23.6 Inspection

1. A preconstruction meeting between the health district, responsible charge engineer, and installer should occur prior to commencing any construction activities.

3.2.The health district should inspect all system components prior to backfilling and perform inspections of the filter container construction prior to filling with drainrock and filter construction media.perform the following inspections:

a. All system components prior to backfilling

b. Filter container construction prior to filling with drainrock

c. Filter construction media.

d. Other inspections as needed.

3. The responsible charge engineer shall conduct as many inspections as necessary for verification of system and component compliance with the engineered plans.

4. The responsible charge engineer shall provide the health district with a written statement that the system was constructed and functions in compliance with the approved plans and specifications. Additionally, the responsible charge engineer shall provide as-built plans to the health district if ~~substantive~~any construction deviations occur from the permitted construction plans. (IDAPA 58.01.03.005.15)

4.23.~~6~~7 Operation and Maintenance

1. The intermittent sand filter design engineer shall provide a copy of the system's operation, maintenance, and monitoring procedures to the health district as part of the permit application and prior to subsurface sewage disposal permit issuance (IDAPA 58.01.03.005.04.k).

2. Minimum operation, maintenance, and monitoring requirements should follow each system component manufacturer's recommendations.

~~5.~~3. Instructions on how to trouble shoot the pump control panel should be included to allow the adjustment of pump cycle timing if the low level off or high level alarm switch are frequently tripped in order to maintain the hourly dosing cycle timing.

4. Operation and maintenance directions should be included regarding the replacement of the filter construction media and the direction to the system owner that a repair permit must be obtained from the health district for this activity.

5. Maintenance of the septic tank shall be included in the O&M manual.

6. All pressure distribution system components shall be maintained as described in section 4.20.5.

7. Check for ponding in the intermittent sand filter observation ports.

~~6.~~8. Vegetation over the intermittent sand filter should be maintained regularly.

~~7. Operation and maintenance tasks for sand filters should be specified in an operation and maintenance manual referred to on the permit.~~

~~8. Conventional sand filters, or sand filters of comparable operation and maintenance, are the responsibility of the system owner.~~

~~9. Permits may not be issued for a sand filter that, in the judgment of the Director, would require operation and maintenance significantly greater than conventional sand filters, unless operation and maintenance arrangements for system O&M meeting the Director's approval are secured.~~

~~10. Filters with special approvals should be inspected every 12 months and checked for necessary corrective maintenance.~~

~~11.~~9. Sludge depth in the septic tank should be checked annually and the tank shall be pumped when sludge exceeds 40% of the liquid depth.

Figure 4-25 shows a cross section of an intermittent sand filter system with gravity distribution to the drainfield. Figure 4-26 shows a cross section of an intermittent sand filter system with pressure transport to, and/or distribution within, the drainfield.

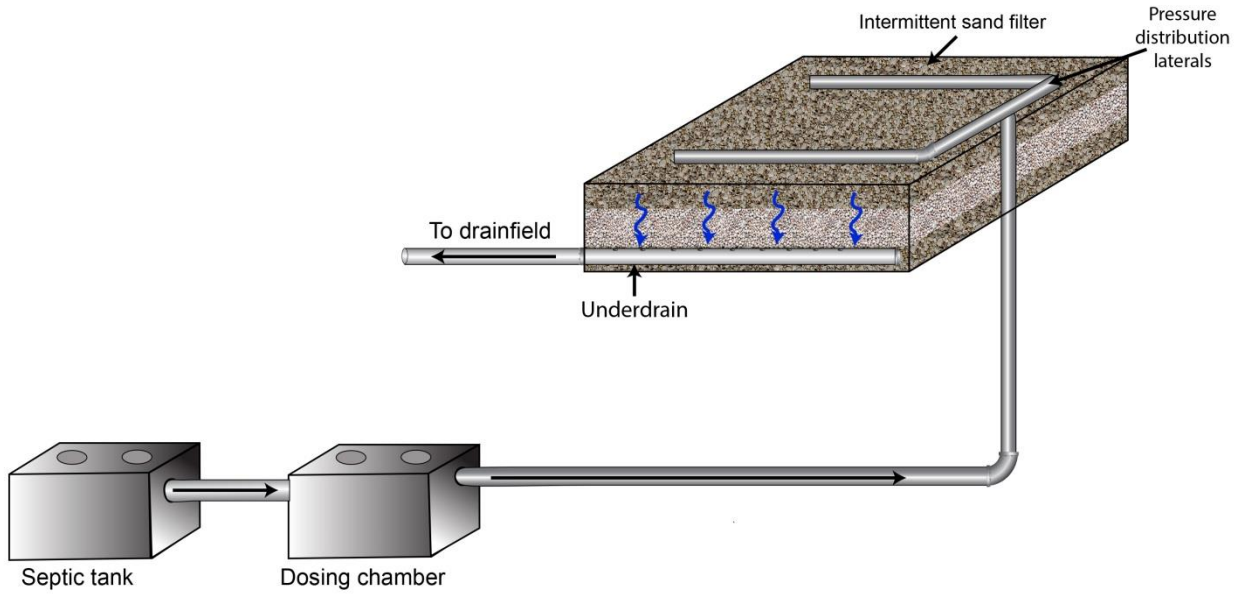

Figure 4-25. Cross section of an intermittent sand filter system with gravity discharge to the drainfield.

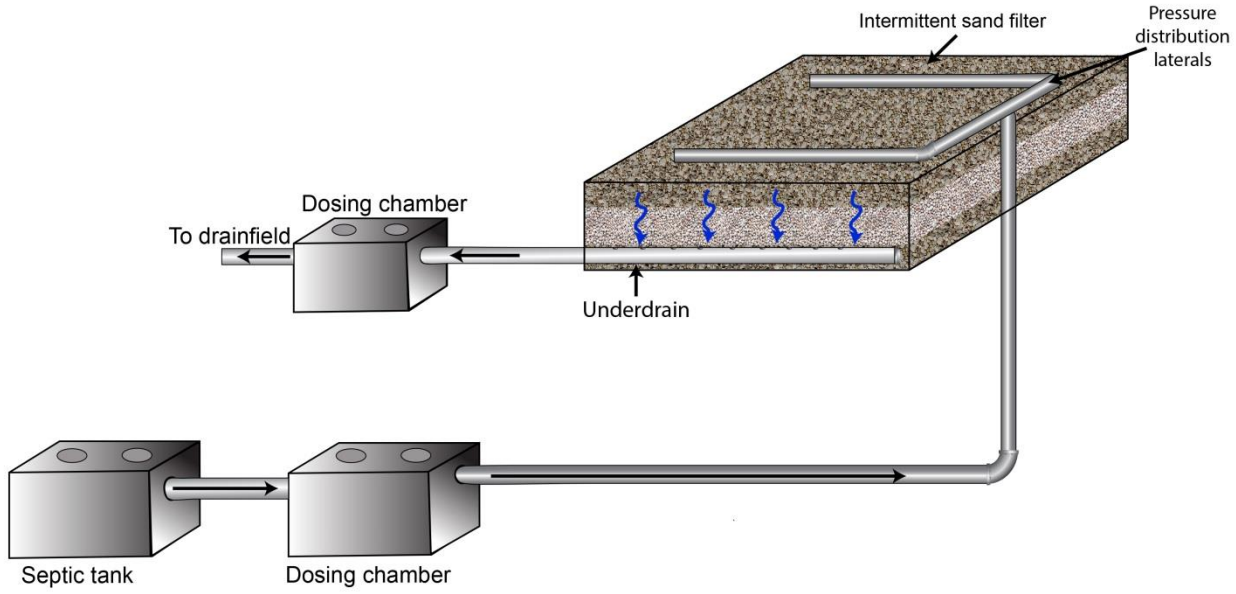

Figure 4-26. Cross section of an intermittent sand filter system with pressure transport and/or distribution within the drainfield.

Appendix K

4.1.3 Combination of Multiple Alternative Systems in One System Design

An alternative system is any system that DEQ has issued design guidelines for (IDAPA 58.01.03.003.02), which are contained within Section 4 of this manual. Alternatively, a standard system is any system that DEQ's Board of Environmental Quality has recognized through the adoption of design and construction regulations in IDAPA 58.01.03. Standard systems include a septic tank and aggregate filled drainfield or absorption bed. ~~All~~Any modification~~s~~ of a standard system ~~other system~~ design~~s~~ as described in IDAPA 58.01.03.008 ~~are~~is considered an alternative system~~s~~. Alternative systems may either be classified as a basic alternative system or a complex alternative system. All complex alternative systems are listed in Section 1.5. Any system not considered a standard system or listed as a complex alternative system in Section 1.5 is considered a basic alternative system.

Alternative systems are allowed to be used to address difficult sites that are not capable of supporting a standard system. Alternative systems have helped to provide property owners more options to meet their subsurface sewage disposal needs. Even though alternative systems have helped to create subsurface sewage disposal solutions for difficult sites they do not always provide a solution for all sites. Some sites are not suitable for subsurface sewage disposal due to limiting site conditions (e.g., shallow soils, high ground water, surface water, steep slopes) or size. To help reduce the number of sites that are not considered suitable for subsurface sewage disposal the Technical Guidance Committee and DEQ encourage the use of multiple alternative system designs in a single system's design. The following restrictions are in place for the combination of multiple alternative systems into one system design~~s~~:

1. The bottom of a drainfield may not be installed deeper than 48 inches below native grade.
2. Systems requiring the use of pressurization for any component may not substitute gravity flow for the pressurization of that component.
3. The most restrictive site slope requirements for any one alternative used in a system's design shall be adhered to.
4. The design guidance for all alternative systems used in a system's design shall be followed.
5. Only one allowance for the reduction of trench length, total disposal area, or an alternative hydraulic application rate shall be used in a system's design regardless of the number of alternative designs combined into one system that provide these types of reduction allowances.

~~1.~~6. Only one allowance for the reduction of separation distance to limiting layers or features of interest shall be used in a system's design regardless of the number of alternative designs combined into one system that provide these types of reduction allowances.

~~Systems that are considered united alternative systems may always be permitted in conjunction with a standard or basic/complex alternative system. A united alternative system is an alternative that must be permitted in conjunction with some other form of standard or basic/complex alternative system. The only united alternative system is the grey water sump.~~

~~Systems that are considered a stand-alone alternative system may be permitted independently of any other system. Some stand-alone alternative systems may also be permitted in conjunction with another standard or basic/complex alternative system. Stand-alone systems that may be permitted in conjunction with another alternative system are identified with an astrix (*). Stand-alone alternative systems include:~~

- ~~Composting Toilet*~~
- ~~Evapotranspiration and Evapotranspiration/Infiltrative System~~
- ~~Grey Water System*~~
- ~~Emergency Holding Tank~~
- ~~Incinerator Toilet*~~
- ~~Individual Lagoon~~
- ~~Pit Privy*~~
- ~~Recreational Vehicle Dump Station*~~
- ~~Two-Cell Infiltrative System~~
- ~~Vault Privy*~~

Table 4-1 provides a matrix of compatible alternative systems that may be used in combination for a single system's design ~~but does not include united or stand-alone alternative systems~~. Any number of alternative system designs may be used in a single system's design as long as all of the alternatives are compatible with one another.

Alternative System	4.5													
Capping Fill System (4.5)	S	4.7												
Drip Distribution System (4.7)	A	S	4.9											
Experimental System (4.9)	A	A	S	4.10										
Extended Treatment Package System (4.10)	A	A	A	S	4.11									
Extra Drainrock Trench (4.11)	A	A*	A	A	S	4.12								
Gravelless Trench System (4.12)	A	N	A	A	N	S	4.20							
Pressure Distribution System (4.20)	A	A	A	A	A	A	S	4.22						
Recirculating Gravel Filter (4.22)	A	A**	A	A	A	A	A	S	4.23					
Intermittent Sand Filter (4.23)	A	A**	A	A	A	A	A	A	S	4.24				
In-Trench Sand Filter (4.24)	A	A*	A	A	A	A	A	A	A	S	4.25			
Sand Mound (4.25)	N	A*	A	A	N	A	A	A	A	N	S	4.26		
Seepage Pit/Bed (4.26)	N	N	A	A	N	N	N	A	A	N	N	S	4.27	
Steep Slope System (4.27)	N	A*	A	A	A	A	A	A	A	A	N	N	S	4.30
Drainfield Remediation Component(4.30)	A	A	A	A	A	A	A	A	A	A	A	A	A	S

~~X~~A- ~~Allowed to be used in conjunction with this~~Compatible alternative system types; N- Not compatible alternative system types S- Same alternative system type; (*)- May be used as the distribution method within drainfield aggregate; (**)- May be used as distribution method within the filter as well as the drainfield.

Table 4-1. Matrix of compatible alternative systems that may be used in combination for a single system's design.

Appendix L

***Upon final approval of this section the following sections will move to section 1 of the TGM:**

- **4.2 Nonprofit Corporations in its current form → moves to section 1.6**
- **4.3 Existing and Approved Systems, Abandoned and Undocumented Systems, and Nonconforming Systems in its newly approved form → moves to section 1.7**
- **4.4 Easement in its current form → moves to section 1.8**

4.3 ~~Vested~~Existing and Approved Systems ~~Rights~~, Abandoned and Undocumented Systems, and Nonconforming ~~Uses~~Systems

Revision: ~~October 31, 2013~~December 10, 2014

4.3.1 Existing Systems

An existing subsurface sewage disposal system is a system installed prior to January 1, 1973, which was not permitted or approved by a health district (IDAPA 58.01.03.003.11). Existing subsurface sewage disposal system rights allow a property owner to use, repair, or replace the system for its original use and daily wastewater flow. Subsurface sewage disposal permits for the repair or replacement of an existing system must meet the current requirements of IDAPA 58.01.03 and the Technical Guidance Manual. If it is not possible to repair or replace the existing system in full compliance with IDAPA 58.01.03 then the replacement system must meet as many requirements of IDAPA 58.01.03 as possible and meet the intent of the rules (IDAPA 58.01.03.004.01) for any requirements that will not be in full compliance with IDAPA 58.01.03.

Existing systems will be repaired or replaced to meet the current requirements of IDAPA 58.01.03. Some situations may not allow for the replacement to meet all of the requirements of IDAPA 58.01.03. ~~There~~ In those non-conforming cases there is no right to repair or replace an existing system with a system that does not meet the intent of the rules. Meeting the intent of IDAPA 58.01.03 may require that a property owner replace an existing system, upon the system's failure, with an alternative system. Some alternative systems may require engineering or electrical components depending on the site conditions and alternative system requirements necessary to meet the intent of IDAPA 58.01.03. Any repair or replacement of an existing system that will only meet the intent of the rules must be issued as a non-conforming permit as described in the DEQ memorandum "Failing Subsurface Sewage Disposal System," dated July 26, 1993. If the repair or replacement of an existing system is for a different use than originally permitted or for increased wastewater flows (system expansion) the permit must be in full compliance with IDAPA 58.01.03 and follow the DEQ issued program directive "Permit Requirements for Increased Flows at Single Family Dwellings," dated April 15, 2010.

4.3.2 Approved Systems

An approved subsurface sewage disposal system is a system installed after January 1, 1973, which has been permitted, inspected, and approved by a health district (IDAPA 58.01.03.003.03). Approval is documented by the health district in the form of a signed final

inspection document or a signed approval letter. Approved subsurface sewage disposal system rights are the same for use, repair, and replacement of a system as described in section 4.3.1 for existing systems.

4.3.3 Abandoned Systems

An abandoned system is defined by IDAPA 58.01.03.003.01. The termination of wastewater discharge to a subsurface sewage disposal system for no more than ~~one~~ two years is the ~~typical~~ timeframe used to determine system abandonment. -A health district's determination that a system is abandoned revokes any existing or approved system rights for the system and property. Abandoned systems may be used for subsurface sewage disposal if the property owner can demonstrate that:

- The system meets the current requirements of IDAPA 58.01.03 and the Technical Guidance Manual, and
- The system is not failing as defined by IDAPA 58.01.03.003.13.

If there is not a previous subsurface sewage disposal permit, ~~and~~ system authorization, ~~and~~ or approval issued for the abandoned system, the health district ~~must~~ may permit the system ~~and~~ , provide authorization, or approval for the system prior to its use.

4.3.4 Undocumented Systems

An undocumented subsurface sewage disposal system is a system that was installed after January 1, 1973 without a valid installation permit and record of a signed final inspection document or signed approval letter. Undocumented systems not acted upon within two years of identification are considered existing systems. An undocumented system may be replaced with a new system that meets the requirements of IDAPA 58.01.03 and the Technical Guidance Manual at any time, but the undocumented system must be abandoned once construction of the replacement system is completed unless the undocumented system is turned into an approved system. Undocumented and abandoned system may not be repaired, expanded, or placed into use unless it is first approved. To turn an undocumented system into an approved system the property owner must:

- Submit a complete subsurface sewage disposal permit application and fee to the health district of jurisdiction, and
- Have the system uncovered by a permitted installer or the property owner exposing the septic tank, effluent piping, and both ends of each drainfield trench, and
- Excavate at least one test hole within 10 feet of the existing drainfield at the time the system is uncovered unless there is existing soil documentation for the property, and
- Have the septic tank pumped by a permitted septic tank pumper so the health district can evaluate the tank for structural integrity and determination of the necessity of a leak test, and
- Allow the health district to inspect the exposed subsurface sewage disposal system and test hole to verify the installation meets all requirements of IDAPA 58.01.03 and the Technical Guidance Manual.

If the subsurface sewage disposal system is found to be in compliance with all the requirements of IDAPA 58.01.03 and the Technical Guidance Manual the health district will issue a subsurface sewage disposal permit for the system and provide the permit holder with written approval of the system in the form of a completed and signed final inspection document. If additional construction is required to bring the system into compliance with IDAPA 58.01.03 and the Technical Guidance Manual the health district will issue a subsurface sewage disposal permit for the necessary requirements. Written approval of the system will be provided once the permit requirements have been installed, inspected by the health district, and verified to meet the permit requirements.

4.3.5 Nonconforming Systems

If it is necessary to issue a nonconforming subsurface sewage disposal permit, the permit shall require that the system meet as much of IDAPA 58.01.03 as possible and the nonconforming permit requirement must meet the current intent of the rules (IDAPA 58.01.03.004.01). This may require the installation of an alternative system to meet separation distances or effective soil depths to features of interest or concern as described in IDAPA 58.01.03.007.17 and 58.01.03.008.02.c-d.

A nonconforming system is a system that does not fully comply with all of the requirements of IDAPA 58.01.03. Nonconforming systems are typically existing systems or older approved systems that were installed after changes to IDAPA 58.01.03. For property owners to retain their existing or approved system rights in a nonconforming system, the system cannot be considered abandoned as described in section 4.3.3. All nonconforming systems must be brought into compliance with the intent of IDAPA 58.01.03 upon the repair, replacement, or enlargement of the system (IDAPA 58.01.03.004). The intent of the rules is best met by fully complying with the current requirements of IDAPA 58.01.03 at the time of permit issuance (IDAPA 58.01.03.004.02).

Some existing or approved systems may be located on properties that are no longer capable of meeting the requirements of IDAPA 58.01.03 due to changes in the rule requirements over time. If the property owner has maintained their existing or approved system right for the use, repair, or replacement of the system then they have the right to obtain a nonconforming repair or replacement permit for their property. All nonconforming permits shall be issued as described in the DEQ memorandum "Failing Subsurface Sewage Disposal System," dated July 26, 1993 contained within Section 8.7 of the Idaho Subsurface Sewage Disposal Standard Operating Procedures. Issuance of a nonconforming permit shall only be for the original use and wastewater flow for the structure located on the property and neighboring features of interest (e.g., wells and water lines) shall take priority in separation distance requirements.

~~If it is necessary to issue a nonconforming subsurface sewage disposal permit, the permit shall require that the system meet as much of IDAPA 58.01.03 as possible and the nonconforming permit requirement must meet the current intent of the rules (IDAPA 58.01.03.004.01). This may require the installation of an alternative system to meet separation distances or effective soil depths to features of interest or concern as described in IDAPA 58.01.03.007.17 and 58.01.03.008.02.c-d.~~

When issuing a nonconforming repair or replacement permit an emphasis shall be placed on meeting the intent of IDAPA 58.01.03.004.01.d, preserving the existing or potential

beneficial uses of the waters of the State. This emphasis arises out of the direction of Idaho's legislative bodies as stated in Idaho's water quality policy (Idaho Code §39-3601) and policy on environmental protection (Idaho Code §39-102).

~~Failed system: Repair or replacement of an existing system.~~

1. ~~Dwelling or structure unit served by the system must not be altered, remodeled, or otherwise changed so as to result in increased wastewater flows (IDAPA 58.01.03.004.04).~~
2. ~~Reason for failure should be determined if possible.~~
3. ~~If failure is due to age, the system may be repaired or replaced with a similar system that shall be constructed as close as possible to current dimensional and setback requirements for standard systems (IDAPA 58.01.03.008.12).~~
4. ~~If failure has occurred in less than 10 years and is due to increased wastewater flows or poor site characteristics, an alternative or larger system must be constructed as close as possible to current dimensional and setback requirements for alternative systems (IDAPA 58.01.03.008.12).~~
5. ~~System replacement must follow the requirements of the subsurface program directive, "Failing Subsurface Sewage Disposal System," issued by DEQ on July 26, 1993.~~

~~Additions or alterations: Changes to an existing structure or dwelling.~~

1. ~~Addition or alteration will not cause the existing system to become unsafe or overloaded (IDAPA 58.01.03.004.04).~~
2. ~~Enough reserve area for both the original and additional system shall be preserved (IDAPA 58.01.03.004.06).~~
3. ~~Wastewater flow will not be significantly increased (IDAPA 58.01.03.004.04). Significant increases shall be considered to be any increase in wastewater flow that exceeds the design flow of the system.~~
4. ~~Area reserved for replacement cannot be used for the addition (IDAPA 58.01.03.004.06).~~
5. ~~A subsurface sewage disposal permit may be required for system enlargement or adjustments based upon the addition or alteration plan.~~
    a. ~~A permit may be required due to possible impacts on separation distances from the addition or alteration to the existing subsurface sewage disposal system or due to additional wastewater flows from the addition or alteration that exceeds the original design flow of the system.~~
    b. ~~Permit issuance shall be required to conform with the subsurface program directive, "Permit Requirements for Increased Flows at Single Family Dwellings," issued by DEQ on April 15, 2010.~~

~~Abandoned system: An abandoned system is considered to be a system that has not received wastewater flows or blackwaste for 1 year or more due to the removal of a wastewater generating structure from the system.~~

1. ~~An abandoned system may be used if the system was originally permitted and approved, and~~
2. ~~Wastewater flows and blackwaste characteristics are similar to the system's original permit requirements for waste strength and flow rate received by the system, and~~
3. ~~The site is inspected and approved.~~
4. ~~If the system is not an approved system (i.e., no issuance of a previous subsurface sewage disposal permit regardless of the installation date), it must be~~

a. Uncovered by a permitted installer or the property owner (IDAPA 58.01.03.011.02). Uncovered means exposure of the septic tank, effluent piping, and the front and back ends of each subsurface sewage disposal trench.
b. Pumped by a permitted septic tank pumper, and
c. Inspected by the health district while uncovered (IDAPA 58.01.03.011.02).
d. The system must meet all current requirements, including permit issuance (IDAPA 58.01.03.005.01).
    1) If the system does not meet all current requirements, it must be brought into compliance with the current requirements prior to use according to the issued permit requirements.
    2) If the system, or any portion thereof, cannot be brought into compliance with the current requirements, the system or portion of the system not in compliance must be abandoned and replaced in compliance with the current requirements and in accordance with the issued permit.

Appendix M

4.18 Pit Privy

Revision: ~~June 5, 2000~~December 10, 2014

4.18.1 Description

A pit privy is a building that contains a ~~stool, urinal, or seat~~toilet facility located over an excavation in natural soil for the disposal of blackwaste~~s~~.

4.18.2 Approval Conditions

1. Surface water will be excluded.
2. Pit privies shall not be located in floodways.
3. ~~Distance limitations~~Effective soil depths (IDAPA 58.01.03.008.02.c) and separation distances (IDAPA 58.01.03.008.02.d) ~~of a standard trench can~~shall be met from the pit excavation with the following exceptions:
   a. Clay soils of all types are acceptable.
   b. Impermeable layer restrictions are waived.
4. ~~Dwelling~~Structures on the property ~~is~~shall not be served by water under pressure~~, or a standard system could otherwise be constructed~~.
5. The ~~P~~pit ~~should~~shall be abandoned when the ~~sewage~~blackwaste comes within 16 inches of the ground surface.
6. The pit privy installation permit shall contain a statement that requires the pit and structure be abandoned upon the installation of a subsurface sewage disposal system

4.18.3 Pit Construction Requirements

1. Area where the privy is placed must be:
   a. Firm and level for at least 12 inches from the sides of the building. ~~and~~
   b. ~~s~~Shall be at least ~~6~~12 inches above the highest ground elevation as measured 18 inches from the sides of the building.
   c. Shall be graded at a maximum slope of 3:1 starting 18 inches from the sides of the building.

~~2. Bottom of the pit should be between 3 and 6 feet below the original ground level.~~

2~~3~~. ~~Volume of the pit~~Pit dimensions should be at least 3 feet wide on all sides and 4 feet deep, but no deeper than 6 feet below original ground level ~~50 gallons per seat~~.

3. Pit cribbing, when required, shall:
   a. Fit firmly
   b. Be in uniform contact with the earth walls on all sides.

c. Rise at least 6 inches above the original ground line and descend to the full depth of the pit.

4.18.4 Building Construction Requirements

~~Pit privy buildings must be constructed to meet the same requirements as portable sanitation unit buildings except for the following:~~

1. The privy building shall be firmly anchored and rigidly constructed.
2. All openings, spaces, and cracks that would permit flies to access the pit must be no wider than one-sixteenth of an inch. This would include doors and seats when closed.
3. Doors shall be self-closing.
4. The privy building shall be ventilated with two screened openings that each have a cross-sectional area of 1 ft^2 per seat located at the top of opposite walls.
5. All gaps larger than one-sixteenth of an inch shall be screened with a maximum screen size of 16-mesh.
6. The pit must be vented through the building with a screened ~~flue or~~ vent stack having a ~~cross-sectional area of at least 7 square~~minimum diameter of 3 inches per seat and extending at least 12 inches above the roof of the building.
7. The seat opening shall be at least 12 inches from the side walls in all privies and spaced so that there is at least 24 inches between seats in multiple-seat installations.
8. The seat shall have an inside clearance of at least 21 inches from the front wall and 24 inches from the rear wall of the privy.
9. The seat top shall not be less than 12 inches nor more than 20 inches above the floor.
10. The floor and toilet riser shall be built of nonabsorbent and sealed material or tongue and groove lumber and in a manner to deny access to insects.
11. The seat shall be constructed of nonabsorbent material.

4.18.5 Abandoning a Pit Privy

1. The privy building should be ~~either:~~dismantled and the portions of the building that may have come into contact with human sewage should be disposed of in a landfill.

   ~~a. Dismantled~~

   ~~b. Moved to cover a freshly dug pit, or~~

   ~~c. Stored for future use as a privy building~~

2. The pit shall be filled with soil~~,~~ that is free of rock~~,~~ and graded to allow~~ing~~ for about 12 inches of settling.
3. The site should be marked and protected from traffic or excavation activities.

Appendix N

4.19 Portable Sanitation Units

Revision: ~~June 5, 2000~~December 10, 2014

4.19.1 Description

Portable sanitation units are prefabricated, portable, self-contained toilets that may be housed in trailers or as stand-alone units used for special or temporary events, construction sites, parks, and other events or locations with restroom needs ~~such as fairs, races, or construction projects~~.

4.19.2 Approval Conditions

1. Permanent sewage disposal facilities are not available~~, and their installation is impractical~~.
2. All units must be serviced by a pumper with equipment that is permitted through a health district under IDAPA 58.01.15.
3. Units must be manufactured to meet the most current version of ANSI standard Z4.3.
4. Chemicals and biologicals, if used in the waste container, must be compatible with the final disposal site. Chemicals considered hazardous wastes must not be used.
5. Toilets shall contain an adequate supply of toilet paper and hand sanitizer (potable water hand washing stations may be supplied instead of hand sanitizer).

~~6. The event served is temporary (i.e., 1 year or less).~~

~~7. The event is one in which the Occupational Safety and Health Administration requires portable sanitation units.~~

~~4. Units can be made freely available to users.~~

4.19.3 Units Required

1. Table 4-11 and Table 4-12 provides work site requirements.
2. Campouts and overnight event requirements are at least 1 unit for every 50 participants.
3. Table 4-13~~2~~ provides special event requirements.

~~4. Urinals may be substituted for one-third of the total units specified if facilities will not serve women.~~

5. The following should be taken into consideration when selecting the number of units for an event:
    a. If the units are serving an event with food and beverage service 10-20% more units should be added to the recommended totals in Table 4-12.
    b. Traffic flow.
    c. Outside temperature (i.e., warmer days attendees will take in more liquids).
    d. Special needs (e.g., changing tables, children use, handicapped accessibility).

~~d.~~e. Urinals may be substituted for one-third of the total units specified if facilities will not serve women.

Table 4-11. Portable units required per number of workers if the units are serviced once per week.

Total Number of ~~Workers~~Employees	Minimum Number of Units (8-hour days/40-hour week)
1–10~~5~~	1
11~~6~~–20~~30~~	2
~~3~~21–30~~51~~	3
31~~52~~–40~~72~~	4
~~73–93~~	~~5~~
Over ~~93~~40	1 additional unit for each 10 additional ~~20 workers~~employees.

Table 4-12. Portable units required per number of workers if the units are serviced more than once per week.

Total Number of Employees	Minimum Number of Units (8-hour days/40-hour week)
1–15	1
16–35	2
36–55	3
56–75	4
76–95	5
Over 95	1 additional unit for each 20 additional employees.

Table 4-13. Portable unit requirements for number of people per event hours based on a 50/50 mix of men and women.

Number of People	Number of Hours for the Event									
	1	2	3	4	5	6	7	8	9	10
0–500	42	4	4	65	6	67	89	89	810	812
501–1,000	4	6	68	68	69	89	811	812	813	1213
1,001–2,000	85	86	89	812	814	1216	1218	1220	1223	1625
2,001–3,000	86	89	1012	1016	1020	1224	1626	1630	2034	2038
3,001–4,000	8	813	1216	1222	1625	1630	2035	2440	2445	2850
4,001–5,000	12	1215	1220	1625	2031	3038	3044	3050	3056	3463
5,001–6,000	12	12	16	16	20	30	30	36	36	40
6,001–7,000	12	12	16	20	30	32	40	40	48	52
7,001–8,000	12	12	20	24	32	32	40	44	52	54
8,001–9,000	16	16	24	28	40	40	52	52	60	64
9,0015,000–10,000	1615	1625	2838	4050	4063	5275	5288	60100	60113	72125
10,000–15,000	20	38	56	75	94	113	131	150	169	188
15,000–20,000	25	50	75	100	125	150	175	200	225	250
20,000–25,000	38	69	99	130	160	191	221	252	282	313
25,000–30,000	46	82	119	156	192	229	266	302	339	376
30,000–35,000	53	96	139	181	224	267	310	352	395	438
35,000–40,000	61	109	158	207	256	305	354	403	452	501
40,000–45,000	68	123	178	233	288	343	398	453	508	563
45,000–50,000	76	137	198	259	320	381	442	503	564	626

4.19.4 General Requirements

1. Portable sanitation unit buildings may be mobile trailers or prefabricated skid-mounted, or otherwise portable structures. If a unitthey contains more than one stool, each stool should occupy a separate compartment with a door and walls or partitions between stools sufficient to ensure privacy. Urinals need not occupy separate compartments.

2. Where it is impractical to locate a portable sanitation unit building, such as in mines or high-rise structures, units may be located without buildings so long as privacy while using the facilities is ensured.

~~3. Interior floors, walls, ceilings, partitions, and doors of all sanitation unit buildings should have a finish that can be easily cleaned.~~

~~4. Every portable sanitation unit room must provide adequate space for the user with minimum inside dimensions of 3 feet front to back and side to side, inside clear height of 6 feet 6 inches, and a stool riser height of 14–20 inches.~~

~~5. The door of a building or partitioned area in a building housing a stool should be provided with an inside latch. Any door leading to the outside shall be self-closing.~~

~~6. Waste containers must be fabricated from nonabsorbent, watertight materials.~~

~~7. The waste container must be vented to the outside of the building with a minimum nominal vent area of 7 square inches.~~

~~8. Buildings that are not provided with mechanical ventilation must be provided with a screened ventilation area having a cross-sectional area of at least 1 ft^2 per stool.~~

~~5. Portable chemical and biological toilets and urinals that are free-standing and not installed in a building do not require a ventilation system.~~

10. ~~Chemicals and biologicals, if used in the waste container, must be compatible with the final disposal site. Chemicals considered hazardous wastes must not be used.~~

4.19.~~45~~ Service Requirements

1. Work site units should be serviced weekly.
2. Special events with more than 500 people in attendance should have a service attendant on site during the event.
3. The employer, event promoter, or manager must be responsible for the hygiene and use of each portable sanitation unit.
4. Units should be serviced and removed from ~~the~~a site as soon as possible~~, but no longer than 7 days,~~ after the completion of ~~the~~an event.
5. All equipment used to pump or transport sewage from a portable sanitation unit must be permitted by an Idaho health district under the requirements IDAPA 58.01.15.
6. All sewage removed from a portable sanitation unit must be disposed of at a location approved by the health district or DEQ through the pumper's permit application.

~~4.19.6 Waste Container Sewage Disposal~~

~~1. The final disposal site must be approved by the Director.~~

~~2. To remove sewage, suppliers of portable sanitation units must employ septic tank pumpers licensed in Idaho, unless the supplier is so licensed.~~

Appendix O

4.29 Vault Privy

Revision: ~~April 21, 2000~~December 10, 2014

4.29.1 Description

A vault privy is a sealed underground vault for the temporary storage of nonwater-carried sewage. The vault is pumped periodically by a permitted pumper and the sewage disposed of at an approved disposal site ~~a secondary treatment site~~.

4.29.2 Approval Conditions

1. Surface water will be excluded.
2. Vault Privies shall not be located in floodways.
3. The privy vault must meet the separation distance requirements of a septic tank (IDAPA 58.01.03.007.17).
4. ~~Dwelling~~ Structures on the property shall~~is~~ not be served by water under pressure ~~or a standard system could otherwise be constructed~~.
5. Vault privy must be accessible for maintenance.
6. The vault must be an approved septic tank (section 5.2) or vault toilet (section 5.11).
7. The vault vent stack ~~should~~is recommended to be ~~oriented~~ on~~to~~ the south side of the roof.
8. The vault must be pumped by an Idaho-permitted septic tank pumper.
9. The building and toilet structures over the privy vault shall meet the same requirements of structures and toilets over pit privies (section 4.18).

4.29.3 Vault Requirements

~~1. Privy must meet the distance limitations of a septic tank.~~

1. Privy vault must be watertight, constructed of durable materials, and not subject to excessive corrosion, decay, frost damage, or cracking.
2. Vault may be a modified septic tank with inlet and outlet openings sealed or a preapproved vault unit.
3. The volume of the vault tank must be 375 gallons for each toilet, except that no tank may be less than 500 gallons.
4. The vault shall be vented to the outside of the building with a black, screened (maximum screen size of 16-mesh) vent stack that has a minimum diameter or 3 inches per seat and extending at least 12 inches above the roof of the building.
5. An access pumping port (manhole) shall be located outside of any vault structure, have a minimum diameter equivalent to the diameter of the toilet opening, and have a secured cover that prevents the escape of gases, odors, and prevents unauthorized access.

6. The area where the vault is placed must be:
   a. Firm and level for at least 12 inches from the sides of the top of the vault.
   b. Shall be at least 12 inches above the highest ground elevation as measured 18 inches from the sides of the building.
   c. Shall be graded at a maximum slope of 3:1 starting 18 inches from the sides of the top of the vault.

~~**4.29.4 Sizing**~~

~~The volume of the tank must be 375 gallons for each toilet, except that no tank may be less than 500 gallons.~~

~~**4.29.5 Other Requirements**~~

~~1. Toilet structures over holding tanks must meet the requirements of structures over pit privies.~~

~~2. Access and pumping port should be located outside of any structure and should have a diameter of at least 8 inches.~~

3. ~~Tank shall be pumped by a Idaho-licensed septic tank pumper.~~

Appendix P

2.1.3 Soil Design Subgroup Corrections

A soil design subgroup will be ~~raised or~~ lowered ~~in a design subgroup~~ as indicated in this section. **(Subgroup correction is used to determine the application rate only; it will not change surface water or ground water separation requirements.)**

~~1. Porous silt loams and soils with strong vertical structure should be raised one soil subgroup for design purposes.~~

1. Soil with moderate or strong platy structure should be lowered one subgroup for design purposes.
2. Soil should be lowered one subgroup if 35%–60% of its volume is rock fragments (very gravelly, very stony).
3. Soil should be lowered by two subgroups if 60%–95% of its volume is rock fragments (extremely gravelly, extremely stony).
4. Soil with 95% or greater rock fragments is unsuitable as an effective soil for subsurface sewage disposal.
5. Uniform fine and very fine sand (e.g., blow sands) should be lowered two subgroups for design purposes. Soils that qualify for this modification have a coefficient of uniformity less than three (C_u <3.0).

Example:
A soil evaluation results in the designation of loamy sand with rock fragments volumes estimated at 70% of the total soil volume below the effective soil depth of the drainfield installation. The loamy sand would be assigned a soil design subgroup of A-2b consistent with Table 2-4. Due to the estimated volume of rock fragments the soil design subgroup would then be lowered by two subgroups resulting in an assigned soil design subgroup of B-2. Based on these determinations the drainfield would be sized consistent with the B-2 soil application rate (0.45 GPD/ft^2, Table 2-9) to increase the available soil surface available for effluent treatment due to the soil surface being reduced by large fraction rock. However, both the required vertical (effective soil depth, IDAPA 58.01.03.008.02.c) and the horizontal separation distances (IDAPA 58.01.03.008.02.d) shall meet the requirements for soil design group A soils.