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Water Quality Rules and Standards

Chapter 25

Public Comments

Water and Waste Advisory Board Meeting

June 14, 2013

List of Commenters

Gene Smith, Park County

Marcel Lopez, Fremont County

Steve Warner, Fremont County

Bo Bowman, Hot Springs County

Louis Harmon

Dwight Reppa, Macy's Services

James Brough, DEQ

Seth Tourney, DEQ

Richard Bachelder, Infiltrator Systems

John Woodward, Lincoln County

Jim Stevenson, Rock Vale Systems

Comments and Responses

Entity: Louis Harmon

Comment: "I find the proposed regulations unnecessarily complex and in some instances, too restrictive. Chapter25, Small Wastewater Systems, is unique among Water Quality regulations in that it is read and used by an individual home or property owner as opposed to professional staff employed by the regulated community. Consequently Chapter 25 needs to be written clearly with a minimum of technical jargon."

Response: It is agreed that Chapter 25 is used by individual home or property owners but it is also used by the professional staff of the regulated community as well as private engineering consultants. We have attempted to minimize the technical language but in some instances it cannot be avoided. In those cases we have added definitions to help with the understanding. If the content is over simplified and generalized some of the

important considerations will be lost and there is the possibility that functionality, health and safety will be jeopardized.

Entity: Louis Harmon

Comment: "W.S. § 33-29-139 requires that "All maps, plats, plans or designs filed with --any other office of public record shall be made and certified by a professional engineer- registered under this act." Any other office of public record includes the DEQ/WQD and any delegated small wastewater program. Immediately after DEQ/WQD R&R Chapter II was adopted in 1984, it was recognized that requiring every small wastewater system to be designed and certified by a registered professional engineer placed an unnecessary financial burden on the individual home owner. A compromise was worked out between the Wyoming State Board of Registration for PE's and PLS's that allowed the application package for an individual small waste water system to be prepared as a "cookbook design" and certified by a registered professional engineer employed by the WQD. The State Board of Registration agreed that this approach satisfied the requirements of W.S. § 33-29-139. This agreement is reflected in Section 11 (b) for a standard soil absorption system that states "worksheet and calculations were prepared by a registered professional engineer employed by the Wyoming Department of Environmental Quality, Water Quality Division" and is subsequent sections for other common small wastewater systems. This agreement is periodically challenged by an attorney or engineer not familiar with the history. Chapter 25 should explicitly describe the agreement and why Chapter 25 fulfills the requirements of W.S. § 33-29-139."

Response: A description of the agreement and why Chapter 25 fulfills the requirements of W.S. § 33-29-139 is not needed and is addressed in a DEQ policy.

Entity: Louis Harmon

Comment: "Unfortunately this draft of Chapter 25 does not address the one common situation that has resulted in multiple illnesses and even death in Wyoming. That situation is the location of drainfields over fractured rock aquifers with water wells completed into the fractures."

Response: A separation to fractured rock has been added to Section 6 (c)

Entity: Gene Smith, Park County

Comment: "I see Section Two and Section Five in the new regulations as a hindrance to the Issuing of Presby Systems..." DEQ/WQD has "a Policy13.41.8 which was released in a Memorandum on June 23, 2011...Nowhere in this Policy does it mention the need for WY State Engineer stamp. This added requirement adds additional expense and time to the home owner…" Chapter 25, Section 12(c) and Section 13(d) "are current designs which have required WY State Engineer stamp under the current DLO agreement since there are considered 'enhanced systems'. However, it appears if these changes are adopted then as long as these worksheet are followed then the current required stamped permits will be waved. This is a streamlining of the permitting process which I applaud…" "We basically have the same steps already in place with Policy 13.41.8 and the Wyoming Design and Installation Manual copyright May 2011 and the

revised Installation Manual of March 2012. With requirement of joint review of the Presby Applications I see no reason for this system to fall under Section #5. These application will be reviewed on a case by case basis my a WY State PE in our local WDEQ Regional office and during that review it can: 1. Approved as designed; 2. Approved as long as suggested changes are made; 3. Rejected; 4. Be rejected and asked for further justification by a WY State PE and a new application submitted and stamped. Which would then go though WDEQ Review."

Response: As part of the revision process for Chapter 25, Policy 13.41.8 and the Wyoming Design and Installation Manual were reviewed resulting in several issues being identified. The primary issue identified was that the Wyoming Design and Installation Manual was not approved by DEQ and was not prepared or stamped by a Wyoming Professional Engineer. All wastewater systems in the State of Wyoming must be designed by a Wyoming Professional Engineer.

As you pointed out, a District Engineer will be involved in the review process for all Presby system permits. When a permit is received, it is reviewed by the District Engineer to determine if it meets the requirements of our regulation. The District Engineer does not stamp and sign the submitted design. As a Professional Engineer, we cannot stamp and sign any design unless is it prepared by us or under our direct supervision.

As you pointed out, requirements for sand mounds and pressure dosing systems have been added to Chapter 25. These requirements are based on decades of experience and from designs submitted by Wyoming Professional Engineers. The worksheets to meet these requirements were prepared also by Wyoming Professional Engineers. At this time, we do not have adequate experience with the Presby system to create regulatory requirements and worksheets. Therefore, all Presby systems must be designed and stamped by an independent Wyoming Professional Engineer.

Entity: Seth Tourney, DEQ

Comment: "The proposed regulation does not specify when Advanced Treatment is required by the applicant. Under section 2 it discusses Advanced Treatment being required by a PE when proposed by the applicant; however, this regulation does not provide requirements when advanced treatment is required for the homeowner. Should Advanced Treatment be specified under Chapter 25 at all. All systems not specifically covered under Chapter 25 will require a professional engineer per Section 5 of the proposed draft."

Response: Advance treatment definition has been removed from Chapter 25.

Section 2

Entity: Louis Harmon

Comment: "When Chapter 25, formerly Part D of Chapter 11, was removed from Chapter 11, the necessary language actually requiring a permit and an application for a permit to construct

was left behind. Chapter 25 as presently written does not require either a permit or an application for a permit for the standard systems. A sentence needs to be added to the first paragraph of Section 2 that requires a permit and an application for the permit."

Response: "These standards pertain to permits required pursuant to Chapter III and XXV, Wyoming Water Quality Rules and Regulations" has been added to Section 2.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider revising the 60 mpi limit to 90 mpi. Contractor soil percolation tests and soil absorption system designs are reliable up to 90 mpi and setting the limit at 60 mpi could be overly restrictive considering the range of soil types found in Wyoming."

Response: Our original regulations considered any soil loading rates over 60 minutes per inch unacceptable for standard absorption systems. The current regulations are allowing soils greater than 60 minutes per inch to be acceptable for small wastewater systems designed by a Wyoming professional engineer.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "PE certification of small wastewater systems that incorporate advanced treatment technology should not be required for non-mechanical (passive) systems that are installed in hydrologically simple settings. No technical justification would appear to exist to require PE certification of each Presby AES small system drainfield while not requiring it of chamber drainfields. In both 2011 and 2013, RockVale provided WDEQ significant justification and completed numerous successful installations in Wyoming within the past two years without PE certification, as well as many thousands nationwide, to show this requirement is unnecessary for non-mechanical systems meeting NSF 40 Class 1 standards."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. Though Presby has provided large amounts of data supporting their product, they have not submitted a permit application and Wyoming Professional Engineer stamped document satisfying the professional engineering requirements.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Both chambers and pipe/stone systems are considered disposal-based technologies rather than treatment-based technologies. Even so, pipe/stone has been shown to provide a roughly 30% reduction of septic tank effluent BOD5 and TSS. However the application of untreated effluent directly to the soil via chambers provides no treatment and therefore relegates the technology to a strictly disposal definition. By adopting into statute within Chapter 25 chamber technology in a direct soil application mode, WDEQ could present the appearance of favoring a technology that is even more threatening to groundwater quality than historic pipe/stone technology. Since basic chambers technology applies untreated STE directly to the soil, it presents both a greater threat to groundwater quality and a relatively high drainfield failure rate due to soil pore clogging. From this perspective, of the two technologies adopted into

statute within Chapter 25, chambers would appear to be the least protective of groundwater quality. Due to a relatively high failure rate and applying raw STE to the absorptive surface, WDEQ could justify mandating both PE certification and site-specific hydrogeologic studies of any small wastewater system desiring to use chamber technology. WDEQ could as well consider gradually phasing out the direct soil application mode of chambers and/or limit the conditions of its application. Simultaneously WDEQ could demonstrate that it is in fact actively adopting passive aerobic technologies proven to meet or exceed NSF 40 Class 1 standards while being more protective and reliable than chambers."

Response: Wyoming DEQ does not recognize chambers and pipe/stone systems as disposal-based technologies. These are soil treatment systems in which the four (4) feet of soil below the soil absorptive surface provides wastewater treatment. For performance of this soil treatment, please refer to Table 3-18 on page 3-28 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002.

All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "If enacted, it would appear likely the only small systems exempt from PE certification within Chapter 25 would be those employing chambers or pipe and stone technology. The requirement for PE certification is often viewed by small system owners as an extra cost and time expense and therefore the requirement for certification by a class of system while no PE certification is required of chambers and pipe/stone, could be viewed as giving chambers an unfair market advantage over other technologies."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer.

Section 3

Entity: Seth Tourney, DEQ

Comment: Under Section 3 Pretreatment is defined but it does not appear that this is used within proposed regulation. Should this definition be removed from the draft?"

Response: Pretreatment definition has been removed from Chapter 25.

3(a)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider restricting the definition of "absorption surface" to mean only native soil, as otherwise it could potentially create confusion throughout this chapter and with others. The word "fill" is undefined and confusion could arise where sand, gravel or other engineered media are used in a mounds, beds or trenches."

Response: This definition is intended to define the interface between the wastewater distribution and the fill material used in a mounded system.

3(b)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "The separate definitions of Chapter 25 "advanced treatment" and Chapter 23 "enhanced treatment" could result in significant confusion on the part of regulators, counties, engineers, contractors and residents."

Response: The advanced treatment definition has been deleted from Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "The threshold limit of 100 mg/l BOD5 as defining "advanced treatment" would appear to be a high numerical value relative to EPA secondary standards and to virtually all other states that have set such treatment standards. Specifying a TSS limit would also appear to be important, if not required, since soil pore clogging by fine solids is known to be the initial cause of drainfield failure. BOD5 alone has not been shown to be as causative of drainfield failure as suspended solids. The existing requirement for septic tank effluent filters is WDEQ acknowledgement of the foregoing. Alternative to the 100 mg/l specification, WDEQ could consider defining advanced treatment as meeting or exceeding NSF 40 Class 1 standards which is widely recognized and a standard in which a TSS limit is included. To that end, most all effluent treatment technology manufacturers applicable to small systems achieve NSF 40 Class 1 standards, while even relatively crude treatment technologies can achieve <100 mg/l BOD5."

Response: The advanced treatment definition has been deleted from Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "It is understood that typical mechanical NSF 40 Class 1 technologies when operated out of specification have the potential to emit 100 mg/l or greater BOD5 wastewater and therefore additional professional oversight and management is typically afforded mechanical systems. However of similar concern is that a significant number of small systems exhibit <100 mg/l BOD5 at the outlet of a standard septic tank and/or standard lift station (virtually none exhibit NSF 40 Class 1 at the outlet). In setting 100 mg/l as the "advanced treatment" standard, will WDEQ be requiring PE certification of certain standard systems since septic tanks and lift stations (passive treatment devices) have the potential to discharge less than the 100 mg/l standard? Similarly, placing a simple mechanical bubbler in a small system septic tank can yield STE lower than 100 mg/l BOD5. Such simple mechanical devices are clearly not "advanced systems" that would warrant PE certification simply due to being capable of achieving <100

mg/l. Clearly, as is typical in Chapter 23 and in statutes of other states, the background quality and use of the groundwater at each site should define the need for "advanced treatment ", while the system type (private or public) and discharge volume (exceeding 2,000 gpd) should dictate PE certification. As a potential resolution, WDEQ could differentiate between mechanical treatment which is prone to high rates of mechanical failure and passive treatment technologies which generally exhibit much lower failure rates. Septic tanks are an example of a passive primary treatment or "pretreatment" device."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer; however, the advanced treatment definition has been deleted from Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "It is well-proven, well-documented that regulators are appropriately safe and justified to grant soil loading area reductions and/or vertical separation reductions to treatment-based technologies that meet or exceed NSF 40 Class 1. Therefore it could be claimed by some that WDEQ is proposing to adopt a unique 100 mg/l BOD5 limit as the definition of "advanced treatment" with the express intent of disallowing the granting of these reductions to the relatively high number of NSF 40 Class 1 technology providers. In this way WDEQ could then claim it is being protective of groundwater by not granting soil loading area and vertical separation reductions to "advanced treatment" technologies which discharge a 100 mg/l BOD5 effluent. It could be claimed that by effectively disallowing soil loading area and vertical separation reductions for the entire class of NSF 40 Class 1 technologies, that WDEQ has constructed a highly subtle and unique regulatory barrier that ensures no technology will have a technical advantage over chambers. As a means to avoid even the remote appearance of the foregoing, and in the interest of completeness and consistency with the rest of the nation, NSF 40 Class 1 should be set as Wyoming's advanced treatment standard."

Response: The advanced treatment definition has been deleted from Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "When the 100 mg/l BOD5 threshold definition of "advanced treatment" is considered in combination with the Section 2 requirement that PE certification is required of all "advanced treatment" systems, it could be interpreted as WDEQ once again ensuring that virtually any treatment process will be disadvantaged relative to chambers and pipe/stone in regard to application to small systems. If WDEQ took the foregoing into consideration when proposing Section 3 (b) in combination with Section 2, then prior to finalizing Chapter 25 WDEQ should likely make publically available its notes, technical references and supporting information indicating its rationale for proposing the relatively unique 100 mg/l threshold."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer; however, the advanced treatment definition has been deleted from Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "As part of the Section 3 (b) definition, WDEQ could consider proactively stating within Chapter 25 that systems achieving NSF 40 Class 1 should be provided a soil loading area reduction relative to traditional pipe and stone systems. The rationale for these reductions is supported by numerous investigators, the EPA and numerous states such as Washington, Minnesota, Montana and others. Granting area and vertical separation reductions for NSF 40 Class 1 technologies would signal that WDEQ is acknowledging that many Wyoming land owners are confronted with SHGW and/or space constraints and are seeking safe and economical solutions."

Response: Wyoming DEQ does not agree that it is appropriate to reference NSF 40 Class 1 standards in the definition of advanced treatment. Wyoming DEQ prefers to allow soil loading reductions to be evaluated within the permit applications through variance requests with supporting documentation.

3(c)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider deleting the word "soil" in view of soil being undefined and potential confusion arising where sand (ASTM C-33), gravel (2") or other engineered media are used in trenches, beds and mounds to effect treatment."

Response: Wyoming DEQ considers the four (4) feet of soil below the traditional pipe and stone installation as part of the treatment for small wastewater systems. Therefore, soil is very applicable to this definition.

3(i)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "By including only chambers in Section 3, it could be interpreted that WDEQ favors one proprietary technology over others. To avoid this, consider also defining in Section 3 drip systems, pipe and stone and passive aerobic treatment system (Presby AES) within Section 3. The rationale for listing passive aerobic treatment as a recognized drainfield technology is that it competes directly with chambers, has been applied for over 15 years and 250,000 installations in the US and Canada with less than 0.5% failure rate, has been approved in a majority of US states, all Canadian provinces as well as a number of European countries, carries BNQ, NSF 40 Class 1 and CE certifications. Additionally, Presby AES has a sound track record of installation within Wyoming under close WDEQ scrutiny via Policy 13.41.08. For sample language to include passive aerobic treatment in Chapter 25, please see attached Missoula Alternative Systems Manual - Chapter 17. By adopting not only chambers into statute but passive aerobic treatment and drip systems as well, Chapter 25 would be less partial to a single technology. As opposed recognizing only one proprietary technology in Chapter 25, WDEQ and Wyoming residents would likely benefit from recognizing at least two competitive proprietary technologies."

Response: These regulations are addressing the standard treatment system in which the soil treatment system in the drainfield includes the system distributing the effluent over the adsorptive surface area and the four (4) feet of soil.

The Presby system has the opportunity to establish design package for their systems through submitting a permit application and design package prepared by a Wyoming Professional Engineer under Section 5 of the proposed regulations. The certifications mentioned above would support the Wyoming Professional Engineer in applying their certification to the design package.

3(v)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider specifying as to whether the 200 mg/l BOD5 limit is measured at the inlet or outlet of the primary or pretreatment device (septic tank or lift station for small systems) and define whether it is the allowable peak or a geometric mean of 30 days, or other."

Response: The 200 mg/L BOD5 limit is measured at the inlet of the entire small wastewater system or more specifically at the influent of the septic tank.

The intention of high strength wastewater is to be applicable for non-domestic sources with BOD5 loadings greater than 200 mg/L. Therefore, we are adding the wording "non-domestic" to the definition.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "If the 200 mg/l definition of HSW is based on the septic tank outlet, then it would appear to be a reasonable value to select relative to most state definitions of small system HSW, which range from 150 to 300 mg/l at the septic tank outlet. However WDEQ should consider as well specifying both TSS and Fat, Oil & Grease (FOG) limits on the septic tank outlet. Sound references exist on TSS and FOG ranges for small systems."

Response: The 200 mg/L BOD5 limit is measured at the influent of the septic tank.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "If the 200 mg/l definition of HSW is at the septic tank inlet, then based on the the following comments it may be an unreasonably low value, as well as difficult to sample and measure accurately, and potentially in conflict with both the definition of both "advanced treatment" and "pretreatment".

i. It is well documented and largely recognized that small system septic tanks with effluent filter provide a 30% to 50% reduction in both BOD5 and TSS. Similarly, typical small system STE exhibits average outlet BOD5 concentrations ranging from 125 to 175 mg/l and TSS concentrations ranging similarly. Therefore working backward, typical small septic tank inlet BOD5 concentrations can easily exceed 200 mg/l when homes are equipped with modern water

conservation fixtures and appliances. This fact in combination with a lack of HSW definition, could render the HSW regulation irrelevant or unenforceable. Alternatively, it could cause residents to dilute their wastewater to avoid regulation or require WDEQ to expand its enforcement division in order to sample and cite a large number of small system dischargers in violation. Sampling and measuring small system septic tank influent BOD5 concentrations is difficult due to the pronounced concentration of BOD5 into the solid fraction. This and a lack of HSW definition could make this regulation challenging to enforce.

ii. Working forward, if WDEQ research found that most all small system septic tank influent is safely under 200 mg/l BOD5 HSW limit, then upon undergoing a 30% 50% reduction within the septic tank, likely a very large number of small system septic tanks with effluent filters would be classified as "advanced treatment" devices, based on discharging <100 mg/l BOD5 effluent to the absorptive surface via a chamber drainfield. In aggregate, the very real potential exists that through operating a standard septic tank at low flow, a small system owner could be cited by WDEQ for both exceeding the HSW limit while simultaneously operating an "advanced treatment" unit that not certified by a PE. It would appear that a least some potential for conflict exists among key Chapter 25 definitions however that may be based on a lack of this reviewer's understanding of WDEQ rationale.

iii. Based on the foregoing, the questions could be asked: Did WDEQ write an internal position paper considering the combined effects of setting the 200 mg/l HSW limit and the 100 mg/l advanced treatment limit and as well requiring PE certification of all treatment based technologies? Did WDEQ actively research and assess the combined effect of setting a 200 mg/l HSW limit while simultaneously decreasing the per bedroom residential design flow? If in fact small system septic tanks have an influent BOD5 relatively close to 200 mg/l, then Chapter 25 presents the potential for numerous small systems to be designed by non-engineers and then be violation of the HSW limit. Therefore many non-engineers could be cited for designing systems that threaten groundwater quality and public health without PE certification. In all, before finalizing Chapter 25, WDEQ may desire to make publically available its internal written rationale on how these key definitions work in consort."

> Response: Wyoming DEQ does not agree that the 200 mg/L BOD5 limit is an unreasonably low value. According to Table 3-7 on page 3-11 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002, it indicates that the typical residential wastewater has a BOD5 concentration range between 155-286 mg/L based on an assumed water usage of 60 gallons/person/day. Our proposed regulations are based on a water usage of 75 gallons/person/day, which would infer that BOD5 concentrations would be more diluted, thus, 200 mg/L seems to be a reasonable value.
>
> According to Table 3-15 in the Wastewater Engineering Treatment and Reuse Fourth Edition prepared by Metcalf & Eddy dated 2003, the typical BOD5 in untreated domestic wastewater for low and medium strength are 110 and 190 mg/L, respectively. Therefore, 200 mg/L seems to be a reasonable value.

The intention of high strength wastewater is to be applicable for non-domestic sources with BOD5 loadings greater than 200 mg/L. Therefore, we are adding the wording "non-domestic" to the definition.

The advanced treatment definition has been deleted from Chapter 25.

All small wastewater systems are required to be prepared directly by a professional engineer registered in Wyoming or through a design packet prepared by a Wyoming professional engineer; however, the advanced treatment definition has been deleted from Chapter 25.

3(dd)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Since uniform linear distribution is the goal of a properly designed pressure distribution system, the term "Uniform Distribution" should be used throughout the Chapter while "Pressure Distribution" could be defined as one of several methods of achieving uniform distribution. As examples, Presby AES achieves uniform distribution via gravity while drip systems present yet another form of pressure distribution. By inferring within the statute that only one form of uniform distribution exists and that form almost exclusively incorporates chamber technology, it could be construed that WDEQ favors one proprietary technology over others. Presby AES can be used in pressure distribution mode though achieves uniform distribution via gravity. Presby AES in serial gravity arrangement provides a sound, more reliable and lower first cost alternative to pressure distribution - attributes typically important to small system owners."

Response: Wyoming DEQ has decided to differentiate the regulation of these systems by the method of force driving the movement of wastewater over the drainfield. Therefore Section 10 and Section 12 will remain differentiated by gravity or pressurized forces.

3(ee)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider replacing the word "pretreatment" with "primary treatment". The rationale is that primary treatment is a recognized term in the wastewater treatment industry and commonly defined as solids separation, which in small systems is provided by a septic tank. Secondary treatment is commonly defined as BOD reduction to 30/30 standards while tertiary treatment typically means better than 10/10. In general, the term "pretreatment" is not succinctly defined within the wastewater treatment industry. The typical progression of treatment is primary treatment, followed by secondary treatment, followed by tertiary treatment. Understanding that

"advanced treatment" is now defined within Chapter 25, it seems logical to use the term "primary treatment" rather than "pretreatment"."

Response: The pretreatment definition has been deleted from the Chapter 25.

3(hh)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Since a septic tank meets the definition of "Pretreatment" of Section 3 (ee), and septic tanks are universally required in small systems, consider referencing septic tanks as an example of either "pretreatment" or "primary treatment". Such an example would decrease the vagueness of the current definition."

Response: The pretreatment definition has been deleted from the Chapter 25.

3(ii)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "As noted above, consider the potential confusion caused by Wyoming statutes containing both "advanced treatment" and "enhanced treatment"."

Response: The advanced treatment definition has been deleted from Chapter 25.

3(jj)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider replacing the word "pretreated" with "primary treated"."

Response: Section 3 (jj) has been revised to state the wastewater effluent from the septic tank is discharged.

Section 4

Entity: Louis Harmon

Comment: "Tables 1 and 2 fail to take into account the national standards for low flow plumbing fixtures and energy efficient appliances. The daily flow numbers are all much higher than today's water consumption."

Response: Table 1 and 2 reflect the peak daily usage for residential and non-residential units and represent the low end of the range of flows from Metcalf and Eddy's Wastewater Engineering Handbook. The installation of low flow plumbing fixtures and energy efficient appliances has reduced flows in a portion of the systems in Wyoming.

However, the flows in Table 1 and 2 account for traditional flow rates because not every home and business in Wyoming have low flow fixtures and appliances.

Entity: James Brough, DEQ

Comment: "The flow rates for mobile homes in Table 2 should be comparable to residential flows."

Response: The flow rate for mobile homes in Table 2 has been revised to require mobile homes flows to be bases on the number of bedrooms in Table 1.

Entity: James Brough, DEQ

Comment: "In reference to the flows for meals at restaurants, the sizing of grease interceptors needs to be considered."

Response: Table 2 has been revised to include the kitchen waste only flow for restaurants.

Section 5

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "The first subsections of Section 5 would appear to present the opportunity for WDEQ to clearly define and formalize either: a) how candidate new technologies can first be granted an Administrative Policy and then take the same Policy-to-Statute pathway as demonstrated by chambers, or b) how, similar to Idaho, Minnesota and other states, candidate new technologies are reviewed and approved, along with specification of the composition of a voluntary technology review board. Further, within Section 5 it could be stated that approvals from recognized national/international certifying entities may be accepted as well as qualifying third-party test data from other jurisdictions. For example, Presby AES and drip systems are well proven technologies and the anticipation might be that they too will soon take the same Policy-to-Statute pathway as has been provided chambers. Rather than broad adoption of chambers into Chapter 25, the regulatory criteria and process for technology review and approval should likely be well documented for all parties to follow."

Response: Section 5 is clarifying the Wyoming Professional Engineer requirement for new technologies. Chapter 3 of the Water Quality Rules and Regulations clarify the process in reviewing these application packages.

Wyoming DEQ Policies do not grant approvals for construction. Policies are clarifications of the agency's interpretation of the rules and regulations, and these policies are not enforceable. All systems are required to be directly designed by Wyoming Professional Engineer or under a design package prepared by a Wyoming Professional Engineer.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "As currently drafted, Section 5 could require WDEQ to review and administer a large array of ongoing pilot tests under relatively uncontrolled conditions. This would be expensive and potentially subject to challenge if it is not fully funded for implementation. Unfortunately, the veracity of results from such expensive field pilot studies could be legally challenged by Infiltrators, other manufacturers or special interest groups. Forcing all candidate new technologies to conduct expensive field pilot tests in Wyoming with the results potentially subject to litigation by special interests presents a massive barrier to entry. In this fashion, Section 5 as drafted could be viewed as effectively ensuring that a single chamber manufacturer could exercise uncontested pricing power in the state."

Response: Please note the applicant shall include information from a full scale study, bench scale study, theoretical evaluations, or flexibility of the system to adjust to meet objective goals.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Similar to chamber technology, the only current avenue by which Presby and other technologies can gain entry to the Wyoming market is via DEQ Administrative Policy. In the interest of fairness, WDEQ may be justified in not providing chamber technology such a broad statutory superiority to others by more effectively holding chambers at the Administrative Policy level."

Response: DEQ Administrative Policy does not provide a uniform approval for Presby systems in Wyoming. All small wastewater systems are prepared directly by a professional engineer or through a design packet prepared by a Wyoming professional engineer. To date, no permit application to establish a general design packet has been submitted by Presby or RockVale for their technology.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "In specific regard to chambers, only one major US chamber manufacturer exists today, Infiltrators. When DEQ Policy 13.41.08 was crafted, 3 to 5 chamber manufacturers existed and therefore no advantage was being provided to any single company. However in 2005 it was estimated that Infiltrators controlled 80% of the world chamber market and upon buy-out of ADS's chamber division in 2011, Infiltrators now holds very close to 100% of the US chamber market. Therefore, a potential exists for the current Chapter 25 draft to be viewed as providing one manufacturer a significant statutory advantage over all other technology providers. Such a dominant player as Infiltrators likely does not need a statutory advantage over all other proprietary technologies. Of potential concern to Wyoming small system owners might be that with only one manufacturer controlling 100% of the Wyoming drainfield market, that manufacturer could increase its product prices to where residents would have only pipe/stone technology as an alternative. The question could be asked whether or not Wyoming residents are benefited by and protected from the adoption of only one proprietary technology into statute. If WDEQ due diligence includes research of chamber technology and Infiltrators' related market share, it may desire to make that document publically available before finalizing Chapter 25."

Response: Administrative Policies do not grant approvals for construction. These policies only clarify the Agency's interpretation of the rules and regulations.

Wyoming DEQ is allowing Presby the opportunity to provide a permit application to establish a design application package. Presby has chosen to have this application package apply only to their patented technology. Therefore, Presby is required to provide a permit application prepared by a third-party Wyoming Professional Engineer.

Wyoming DEQ does not agree that any preference has been granted in the proposed draft of Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Corollary to the foregoing, WDEQ has in fact been working to bring viable market choices to residents and businesses, as evidenced by its recent crafting of DEQ Policy 13.41.08 for Presby AES. We firmly believe that WDEQ should maintain that same thorough, open, impartiality to new technologies in Chapter 25. WDEQ could therefore focus Chapter 25 on ensuring that Wyoming residents are afforded consistent ongoing access to viable, well-proven and up-to-date technologies."

Response: Administrative Policies do not grant approvals for construction. These policies only clarify the Agency's interpretation of the rules and regulations.

Wyoming DEQ would like to encourage Presby and RockVale to submit a permit application with a Wyoming Professional Engineer to bring

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "While Presby AES has been deployed within the context of a DEQ Administrative Policy, we can see how over the long term a multitude of policies could become administratively cumbersome. As an example, as a new entrant into Wyoming, RockVale had no single integrated source document to assist in understanding the various DEQ Policies in effect, how to go about gaining one and our statutory rights as applicants and eventual recipients. Two years later, RockVale still does not fully understand the Administrative Policy system, in view of DEQ Policy 13.41.08 recently being called under WDEQ technical scrutiny prior to its typical five year schedule. Of potential concern to WDEQ might be that the department could be viewed as calling for an unscheduled review and questioning of the only DEQ policy providing competition to chamber technology while simultaneously making revisions to Chapter 25 that appear to specifically favor chamber technology."

Response: Administrative Policies do not grant approvals for construction. These policies only clarify the Agency's interpretation of the rules and regulations.

Presby needs to submit a permit application with a design application package prepared by a Wyoming Professional Engineer.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "As an alternative to what would appear to be a potentially disparate DEQ Administrative Policy system, Wyoming might best be served by combining all current and future Administrative Policies into a single technology-related document (Guidance or Circular, etc) that is reviewed and updated on a regular basis so as to maintain step with technology. Since chamber technology would be contained in this compendium of Policies, chambers would remain on an equal regulatory status with all other proprietary technologies. This would also enable Chapter 25 to remain relatively free of technology- and practice-specific language."

Response: Administrative Policies are not designed to be focused on single technology approvals, because these policies do not have the authority to grant this approval. Administrative Policies are only intended to provide clarification of the Agency's interpretation of the rules and regulations.

The current draft of Chapter 25 does not grant any approvals or any additional advantage for any patented technologies.

Section 6

Entity: Louis Harmon

Comment: "Figures 1-6 may look pretty and technical but are unnecessary with the requirements of Section 6 (c) and (d) being part of the regulation. They should be deleted."

Response: Figures 1-6 allow for a non-technical person to estimate the mounding of water the proposed soil absorption field to meet the requirements of Section 6 (d).

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "WDEQ should proof this section closely to ensure that it is absolutely impartial with respect to disposal-based technology and that it is not simultaneously setting prohibitively high barriers for treatment-based technology."

Response: Wyoming DEQ does not differentiate disposal-based technology. Wyoming DEQ considers the four (4) feet of soil below the distribution infrastructure in the drainfield as part of the soil treatment system.

6(b)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "If significant surfacing and ponding of effluent is present, is it always feasible to excavate and install a new trench system only 3 ft away? Have system replacements been proven effective when new trenches are installed between failed trenches spaced at 9 ft?"

Response: The excavation and installation a new trench system with 3 feet trench wall to wall separation is and has been feasible. Typically the limiting factor of

installation is the duration the wastewater system is operated in failing condition with ponding effluent. At the 9 feet spacing, a reserve trench can be installed and provide the minimum trench wall to wall spacing of 3 feet to the old trenches. Trench systems with this spacing have functioned properly for decades.

6(d)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "This provision may induce a significant amount of confusion and ambiguity in its application, monitoring and enforcement. Of importance, investigations have shown that both trench/bed spacing and overall drainfield layout have large impacts on groundwater mounding. As an example, either a long and narrow drainfield layout or a relatively wide trench/bed spacing will impart a much lower groundwater mound than a square drainfield layout and/or closely spaced trenches/beds. Based on the foregoing, if Section 6 (d) was developed based on modeling a drainfield as either a single point hydraulic load or a single linear hydraulic load while not considering the multitude of potential drainfield layouts, the graphs could be significantly in error. To be useful, the model and related graphs should be proven accurate for trench spacings from 3 ft to 9 ft and for chambers in parallel operation within the first two years of operation and at 5 year intervals thereafter. If Section 6 (d) is to be applied to bed systems, then similar spacing considerations should be taken into consideration for beds as well. If Section 6 (d) is not accurate over a significant portion of the foregoing range, then it may be expensive and difficult for WDEQ to apply and then attempt to monitor and enforce. Similar to other states publishing the full technical basis and bibliography for their rulemaking, WDEQ is encouraged to proactively make a copy of the technical basis for Section 6 (d) along with WDEQ internal written rationale for extrapolation to the potential range of trench and bed layouts."

Response: Chapter 25, the associated worksheets, and calculations have been developed to allow home owners to lay out a new onsite wastewater treatment system. Figures 1-6 allow for a non-technical person to estimate the mounding of the proposed soil absorption field to meet the requirements of Section 6 (d). These tables have been in use since 1984 and Wyoming DEQ has not seen a history of premature failure of soil absorption field resulting from improper estimation of groundwater mounding.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "In view of the complex provisions of Section 6 (d), the necessary gathering and interpretation of site-specific soil and groundwater data, interpretation of subtle influences of seasonality combined with drainfield layout, utilization and age, and finally application of Section 6 (d) graphics could, in total, be viewed as requiring not only a Wyoming PE in order to adequately design each small system. It could be argued that the complexity of this one provision requires Wyoming PE certification of all chamber and pipe/stone system designs. In this reviewer's estimation, likely less than 2% of all Wyoming residents have the technical ability to competently apply this provision, provided the myriad of drainfield layouts, types and site situations. If WDEQ has documentation of other states where non-professionals have applied this

provision successfully for a number of years, it may desire to make those documents publically available prior to finalizing Chapter 25."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "As an alternative to endeavoring to protect groundwater quality strictly through vertical separation from disposal-based technologies, in its adoption of Chapter 23 "enhanced treatment" and now Chapter 25 "advanced treatment", Wyoming (similar to most other states) appears to be moving toward treatment based standards. This is a reasonable and proven course, as demonstrated in Minnesota, Washington and elsewhere. In these states, smaller vertical separation distances are allowed based on achieving higher levels of effluent treatment. However while Wyoming is proposing a somewhat unique 100 mg/l "advanced treatment" standard within Chapter 25 it is also adopting chambers into statute, a technology that provides no treatment . This could represent a large divergence in regulatory direction since many states, along with adopting treatment based standards, are allowing reduced vertical separation based on increased levels of treatment. It would appear however that WDEQ is moving the state in exactly the opposite direction by adopting only chambers into statute and further supporting it with Section 6(d) which is meant to ensure 4 ft of separation is maintained at all times. This could be construed as ensuring the future of highly basic, disposal-based technologies such as chambers and pipe/stone. Alternatively, if embracing treatment based standards is a long-term WDEQ goal, then Section 6 (d) could be eliminated along with a reduction of what would appear in Chapter 25 to be a singular preference for disposal based technology. As in a number of states, WDEQ could craft a provision stating that for technologies meeting NSF 40 Class 1 standards, WDEQ will grant a soil loading area reduction and/or a decreased vertical separation from occluding layer or SHGW, provided appropriate supporting technical data. By implementing DEQ 13.41.08 for Presby AES, WDEQ has already taken significant and what might be viewed as progressive steps away from a strict preference for disposal-based technology. Within Policy 13.41.08, WDEQ approved a 30" vertical separation from bottom of Presby AES pipe to SHGW as well as a 50% soil loading area reduction relative to pipe/stone technology. WDEQ policy was correctly based on the technology exceeding NSF 40 Class 1 standards and the submittal of a large amount of supporting technical data."

Response: The advanced treatment definition has been deleted from Chapter 25.

Wyoming DEQ does not differentiate disposal-based technology. Wyoming DEQ considers the four (4) feet of soil below the distribution infrastructure in the drainfield as part of the soil treatment system.

Administrative Policies do not grant approvals for construction. These policies only clarify the Agency's interpretation of the rules and regulations. Therefore, DEQ 13.41.08 does not have the authority to grant soil loading area reductions and decreased vertical separations.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Since many Wyoming residents are confronted with SHGW issues, if retained Section 6 (d) could become viewed negatively when companioned by a Chapter 25 with the appearance of bias toward a technology controlled by one company."

Response: The proposed draft of Chapter 25 does not grant any additional approvals for patented technology or design application packages prepared under a Wyoming Professional Engineer.

Section 7

7(b)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Referencing page 11 of the attached Washington Dept of Health study, we believe that no subsurface distribution structure (chambers, beds or pipe/stone) should be provided credit for sidewall loading area. The report and numerous references show that sidewall infiltrative area is utilized only when untreated effluent is standing stagnant throughout the length of the structure, which indicates that progressive anaerobic failure of the entire drainfield bottom area. Prior to complete failure of the bottom area and subsequent deep ponding of effluent throughout, little or none of the sidewall surface area is utilized. Therefore it has been shown that the only time that sidewall surface area is used for effluent infiltration is for a brief period immediately preceding complete anaerobic failure. The period that sidewall surface area is used is relatively brief because once the side vents are inundated, gas exchange to the chamber interior is then completely cut off. This leads to rapid anaerobic slime coating of the entire chamber interior. Based on study conclusions, no infiltrative area reduction credit should be given to sidewalls of chambers, beds or pipe/stone trenches. The only soil loading area reduction that has been fully justified by numerous studies, EPA and states is for systems that treat effluent to 30/30 standards or better before contact with the fine grained infiltrative surface. Further, any area reduction granted should be applied only to the bottom area of the bed, trench or mound. Therefore chambers should not be provided absorptive area credit for sidewall loading. As well, no soil loading area reduction should be given chambers based on the technology being incapable of treating to 30/30 or better."

Response: This comment does not reference an approved or published document. Therefore, the report cannot be used as a supporting document for change.

Historically, Wyoming DEQ has granted sidewall credit for trenched systems due to the ability for wastewater to infiltrate at the sidewall. Wyoming DEQ design flow rates are based on the maximum day flow for purposes of sizing the absorptive surface. The working draft referenced above does not present the design flow rates; therefore, it is unknown if the design rates are comparable to maximum day flow rates, or if the draft is using the average day flows.

Wyoming DEQ does not agree with the request for removing the soil loading area reduction for chambers. The International Association of Plumbing and Mechanical Officials (IAPMO) Uniform Plumbing Code (UPC) allows chambers to have a 30% reduction (or 0.70 multiplier) in bottom area compared to pipe and stone systems.

7(b)(i)

Entity: Richard Bachelder, Infiltrator Systems

Comment: "The calculations as proposed in Section 7(b)(i) and (ii) to determine infiltrative area for standard (pipe and aggregate) trenches and chamber trenches are virtually identical. There is no other language in the proposed regulations which relates to chamber system sizing. Therefore, the regulations as proposed eliminate DEQ's 25-year-old policy of sizing chamber systems with "equivalent area" (or reduced) sizing. Without well-documented performance concerns, we strongly assert that DEQ's proposal to eliminate the "equivalent area" sizing of gravelless chamber systems is wholly unsupported and, as such, unjustified."

Response: Section 7 (b) has been revised to provide for a 30% reduction in the bottom area required. The 30% reduction was determined from the review a requirements in surrounding states and the UPC.

7(c)

Entity: Bo Bowman, Hot Springs County

Comment: "In Table 5 (application rates), it is noted that percolation rates less than 5 mpi will trigger the requirement for a WY Registered Engineer to determine the loading for the system. At present, the loading rate of 0.80 is applied to percolation rates up to 5 mpi. I consider the proposed language to be an improvement, but it does increase the likelihood of a landowner "cooking the books" on his perc test in order to avoid the cost of an engineer. I concede that possibility already exists under the present regulations, but this redraft of the regulations presents an opportunity for these regulations to deal more clearly with enforcement protocols. Landowner-generated perc tests are the weakest link in our residential small wastewater system permit process. While I do not disagree with the notion of requiring engineered design for percolation rates of 1 to 5 mpi, I must play devil's advocate and ask if the requirement is truly warranted."

Response: Table 5 allows percolation rates from 1 to 60 minutes per inches. For soils with a percolation rates less than 1 minute per inch, a fine sand or loamy sand can be placed below the constructed soil absorption system. A Wyoming registered professional engineer is required to design wastewater systems with a percolation rates higher than 60 minutes per inch.

Entity: Louis Harmon

Comment: "Table 5 should allow two options. The first option should be to use the infiltration rate given for the soil type as determined from the NRCS County Soils Map for the

location of the drainfield. The second option should be to perform percolation tests to determine the percolation rate. Table 5 is ridiculously detailed, far exceeding the accuracy or reproducibility of the specified percolation testing method. Table *5* should be simplified to not more than five loading rates, each rate based on a range of percolation test results."

Response: The NRCS County Soil Maps are general and do not provide adequate detail for the design of an onsite wastewater system. Percolation test have been used since 1984 and have provided reliable results for design. Percolation test provide sufficient accuracy to allow for the detail provided in Table 5.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Since the terms "fine sand" and "loamy sand" are undefined in terms of particle size distribution or infiltration rate, consider rewording: "…backfilled with a medium sand meeting ASTM C-33." Rationale: Provide a consistent and unambiguous sand specification. ASTM C-33 is commonly available throughout Wyoming.

Response: The use of "fine sand" and "loamy sand" are general descriptions for the home owner to use. After the sand is in place, a new percolation test must be performed to size the allowable loading rate.

Section 9

9(a)(i)

Entity: Richard Bachelder, Infiltrator Systems

Comment: "Infiltrator proposes the addition of this material to the Wyoming rules, as follows: 'Septic tanks shall be fabricated or constructed of concrete, fiberglass, thermoplastic, or an approved material…'"

Response: Wyoming DEQ can approve other types of septic tanks as part of the permit approval process.

9(a)(ii)(A)

Entity: Bo Bowman, Hot Springs County

Comment: "In Section 9, (a)(ii)(A) states that the minimum cover over a septic tank shall be six inches, not the 12 inches currently required. My concern is that such a minimum depth could lead to increased risk of damaging the tank, and that a 12 inch minimum is more desirable."

Response: Delegated counties can always be more stringent than the minimum standards of the proposed Chapter 25. As for the possibility of damage to the tanks from the minimum cover, the proposed regulation states that the tanks need to be designed to with stand any anticipated loads.

9(a)(iii)(A)

Entity: Marcel Lopez, Fremont County

Comment: "This is a good adjustment in light of the adjusted flows. It would be illogical to adjust one without adjusting the other."

Response: Section 9 (a)(iii)(A) has been revised to allow up to 4 bedrooms for a 1000 gallon septic to provide 48 hour retention time. When the tank is half full of sludge, the septic tank will still provide a 24 hour retention time. Please refer to page 4-40 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002.

Entity: Dwight Reppa, Macy's Services

Comment: "A 1000 gallon septic tank for a 6 bedroom home is too small if all the bedrooms are used. You are going to see more soil absorptions systems failing as a result of this change. Typically septic tank pumping is not done on a regular basis. If you want to keep this minimum, you should establish a pumping frequency based on solids accumulation in the septic tank. This opinion is based on my experience in the septic pumping business."

Response: Section 9 (a)(iii)(A) has been revised to allow up to 4 bedrooms for a 1000 gallon septic to provide 48 hour retention time. When the tank is half full of sludge, the septic tank will still provide a 24 hour retention time. Please refer to page 4-40 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002.

Entity: James Brough, DEQ

Comment: "Sizing for septic tanks should be 48 hours to allow 24 hour detention time after sludge and scum accumulation."

Response: Section 9 (a)(iii)(A) has been revised to allow up to 4 bedrooms for a 1000 gallon septic to provide 48 hour retention time. When the tank is half full of sludge, the septic tank will still provide a 24 hour retention time. Please refer to page 4-40 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002.

Entity: Richard Bachelder, Infiltrator Systems

Comment: "Infiltrator suggests leaving the 1,000-gallon minimum working volume in place for 4 bedrooms, increasing the 5-bedroom working capacity to 1,250 gallons (2.3 days residence time), and using a 1,500-gallon (2.4 days residence time) tank for 6 bedrooms. These size increments are consisting with tank sizing across the United States."

Response: Section 9 (a)(iii)(A) has been revised to allow up to 4 bedrooms for a 1000 gallon septic to provide 48 hour retention time. When the tank is half full of sludge, the septic tank will still provide a 24 hour retention time. Please refer to page 4-40 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002.

9(a)(iv)(A)

Entity: Marcel Lopez, Fremont County

Comment: "With the lowering of the daily flows I hate to see the state move toward allowing Single compartment tanks."

Response: The current Chapter 25 and proposed draft of Chapter 25 have allowed single compartment tanks.

Entity: Steve Warner, Fremont County

Comment: "A partitioned single compartment tank is no longer a single compartment tank. Single compartment tanks should not be allowed in my opinion. Too much of a chance for solids to migrate out to the leachfield."

Response: The current Chapter 25 and proposed draft of Chapter 25 have allowed single compartment tanks.

9(a)(iv)(B)

Entity: Richard Bachelder, Infiltrator Systems

Comment: "We suggest separating the liquid level requirement from the requirements for 2-compartment tanks at the beginning of Section 9(a)(C)(iv)(B) to make the requirement applicable to single-compartment tanks."

Response: Section (9)(iv) has been revised to require both single compartment and multiple compartment tanks to have the same depth requirements.

9(a)(iv)(D)(I)

Entity: Dwight Reppa, Macy's Services

Comment: "The inlet and outlet baffle lengths need to be defined. An inlet baffle extended 1/3 into the liquid depth and the outlet baffle extending 9 inches below the liquid level could cause scum and or solids to carry out to the soil absorption area. The outlet baffle needs to be defined to extend to 1/3 of the liquid depth."

Response: This section has been revised to require the tees and baffles to be extended 30% to 40% of the liquid depth below the liquid level. According to page 4-42 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002, the descending leg of a tee should extend to 30 or 40 percent of the liquid depth.

Entity: Richard Bachelder, Infiltrator Systems

Comment: Similar to the IAPMO/ANSI Z1000-2013 ballot draft document, "Infiltrator suggests establishing a similar range of baffle and tee penetration in the Wyoming rules, as follows:

(I) The tees or baffles shall

(a) extend a minimum of six (6) inches above the liquid level; and

(b) extend within 50% and 75% of the liquid depth below the liquid level, measured from the inside floor of the tank."

Response: This section has been revised to require the tees and baffles to be extended 30% to 40% of the liquid depth below the liquid level. According to page 4-42 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002, the descending leg of a tee should extend to 30 or 40 percent of the liquid depth.

9(a)(iv)(D)(II)

Entity: Richard Bachelder, Infiltrator Systems

Comment: "Infiltrator suggests the use of 1 or 2 inches as a minimum space above the top of baffle or tee. This gap will certainly meet the objective, which is to promote air flow and prevent a vapor lock from occurring. Adding space beyond 2 inches will provide no material benefit in air flow or tank performance, but will in fact increase the amount of material a septic tank manufacturer needs to use for fabrication of a tank, which is a burdensome and unnecessary requirement in a time of difficult economic circumstances."

Response: According to page 4-41 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002, a clear space of 9 inches should be provided above the liquid depth to allow for scum storage and ventilation and the rising leg of the tee should extend to at least 6 inches above the liquid level to prevent the scum layer from plugging the inlet. The difference of 3 inches is our requirement for clear space.

9(a)(iv)(D)(III)

Entity: Richard Bachelder, Infiltrator Systems

Comment: "Infiltrator proposes amending the minimum allowable airspace requirement to allow the manufacturer the option of using 20% or 9 inches. This would eliminate the "whichever is greater" clause from the rule. Under either scenario, adequate provisions will be in place within the tank for the retention of scum (floating solids). Note that Section 9(a)(C)(iv)(D)(I) already requires tees and baffles to extend a minimum of 6 inches above the liquid level to prevent scum from exiting the tank and entering the soil absorption system. Having an additional 6 inches of space above the outlet tee or baffle will be sufficient for air flow within the tank. The proposed amendment is as follows:

(III) The inlet pipe shall be at least two (2) inches higher than the outlet pipe. The outlet elevation shall be designed to provide a minimum distance of nine (9) inches or twenty (20) percent of the liquid depth, whichever is greater, between the top of the liquid and the bottom of the septic tank cover for scum storage and the venting of gases.

On a related note, we suggest adding a requirement for a minimum freeboard of 6 inches on the baffle for a 2-compartment tank to restrict scum from migrating from the first to second compartment."

Response: The use of 20% at a 3 feet liquid depth will only provide 7.2 inches between the liquid level and the bottom of the septic tank cover. This is not adequate and needs to be 9 inches as required by the use of "whichever is greater"

9(a)(v)(B)

Entity: Richard Bachelder, Infiltrator Systems

Comment: "Infiltrator suggests adjusting the language to expand the definition of 'secure'… Infiltrator's suggested alternative language for the Wyoming rules is as follows: (B) The riser shall terminate at a maximum of six (6) inches below the ground surface. Riser covers terminating above grade shall have an approved locking device, have a locking device, only be removable with tools, have a minimum weight of 66 pounds, or provide another approved method of being secured."

Response: According to page 4-42 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002, riser should be above grade and fitted with a lockable cover. DEQ can approve other types of locking devices as part of the permit review and approve process.

Entity: Richard Bachelder, Infiltrator Systems

Comment: The Oklahoma rules (Section 252:641-7-2. Types of tanks) address the use of thermoplastic and fiberglass tanks, requiring certification by IAPMO or CSA. Note that Oklahoma, Utah, North Carolina, New Jersey, and Maine require CSA certification of thermoplastic tanks. Infiltrator suggests adopting the Oklahoma DEQ's rule language, as follows: Fiberglass and plastic tanks shall meet either IAPMO or CSA standards for septic tanks and shall be installed according to the manufacturer's recommendations. If the tank does not bear the IAPMO or CSA mark, then the installer must submit documentation from IAPMO or CSA stating the tank meets the applicable standard."

Response: DEQ can approve other types of tanks as part of the permit review and approve process.

9(a)(vii)

Entity: Louis Harmon

Comment: "The term "permit by rule" appears in Section 9(a)(vii). Permit by rule is not defined."

Response: A permit by rule definition has been added to Section 3.

9(a)(viii)

Entity: Steve Warner, Fremont County

Comment: "Should there be mention of proper procedures for decommissioning septic tanks somewhere?"

Response: Section 9 (f) discusses the proper procedure for decommissioning tanks.

Entity: Bo Bowman, Hot Springs County

Comment: "There is an incomplete sentence in (viii) on the lower half of this page. "

Response: We will review and correct any grammatical or punctuation errors.

Entity: Dwight Reppa, Macy's Services

Comment: "Remove (small diameter) from the pressure distribution system sentence. I don't believe this was to be inserted there."

Response: Small diameter is appropriate for this section.

9(b)(i)

Entity: Bo Bowman, Hot Springs County

Comment: There is a typo in paragraph (b) in the middle of this page."

Response: We will review and correct any grammatical or punctuation errors.

Entity: Dwight Reppa, Macy's Services

Comment: "The dosing tank minimum opening should be increased to a 24 inch diameter opening. This is essential for access and maintenance of pumps, filters, siphons, etc. If you permit a 20 inch diameter opening it will be used. This smaller diameter opening is less expensive to use and may not allow for proper removal of pumps, filters and other equipment. We have experienced applications where a 20 inch riser was installed and the removal of pumps and equipment for maintenance or repair was difficult or impossible."

Response: A 20 inch riser is a standard for the industry and this section allows for the larger sized to be installed.

9(d)(vi)

Entity: Dwight Reppa, Macy's Services

Comment: "The grease interceptor minimum openings should be increased to 24 inches in diameter. This is essential for pumping and cleaning. The liquid level of the grease interceptor accumulates a grease buildup on the walls of the tank and should be scraped off during the

cleaning of the grease interceptor. A larger opening allows for a more effective cleaning of the grease interceptor."

Response: A 20 inch riser is a standard for the industry and this section allows for the larger sized to be installed.

Section 10

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider eliminating section 12 and moving its contents to Section 10. Also consider changing the title of Section 10 to "Uniform Effluent Distribution". The rationale is that uniform effluent distribution is the goal of d-boxes, laterals as well as pressure distribution within the drainfield and gravity distribution within the drainfield. Presby AES has been shown to provide uniform linear distribution of effluent by gravity and therefore should be included."

Response: Wyoming DEQ has decided to differentiate the regulation of these systems by the method of force driving the movement of wastewater over the drainfield. Therefore Section 10 and Section 12 will remain differentiated by gravity or pressurized forces.

10(a)(iv)

Entity: Steve Warner, Fremont County

Comment: "Does the Zoeller Tru Flow Splitter System meet these requirements?"

Response: DEQ can approve distribution boxes as part of the permit review and approval process.

10(a)(v)

Entity: Marcel Lopez, Fremont County

Comment: "Who is going to adjust the flow equalizers? Do you realize that some d-boxes are designed to equalize the flow and by adding flow equalizers you are doubling up? I have attached specs for such a box."

Response: The flow equalizers would need to be adjusted during construction and by the home owner if the distribution box settles. The regulations are general in nature and are not intended to cover all the possible types of D-boxes that are out there. Any part of the small wastewater system that deviates from the proposed rule is evaluated when the application is reviewed.

10(a)(v)(b)

Entity: Steve Warner, Fremont County

Comment: "Would like to see language added that prohibits the use of standard T's."

Response: Section 10 identifies distribution devices that are acceptable. The use of any other devices, including straight tees would require a variance to be issued.

Section 11

11(a)(i)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "The term "soil" should be modified to include fill and/or sand to make it consistent with Section 3 (a) and 3 (c) definitions."

Response: Wyoming DEQ considers the four (4) feet of soil below the distribution infrastructure in the drainfield as part of the soil treatment system.

11(a)(iv)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "The depth of cover specification should make it clear that 1 ft of total cover over the top of the distribution device (perforated pipe, passive aerobic treatment pipe or chamber). A related question: Should depth of cover be specified for drip systems as well?"

Response: This section states the minimum soil cover depth over the soil adsorption system. The soil adsorption system means a shallow, covered, excavation made in unsaturated soil into which pretreated wastewater is discharged through distribution piping for application onto absorption surfaces through porous media or manufactured components placed in the excavation. Thus, soil cover depth refers to the depth of cover over all components placed in the excavation.

Drip systems are only defined for greywater systems through irrigation use. Wyoming DEQ has decided not to specify the depth of cover for drip system.

11(a)(vii)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider inserting the following as the first sentence: "When proprietary trench or bed distribution technology, approved by WDEQ, is used in lieu of perforated pipe and aggregate, it shall be installed in conformance with the manufacturer recommendations." This will provide all approved technologies equal opportunity within the statutes. Otherwise WDEQ could be viewed as favoring proprietary chamber technology over all others, as demonstrated in

Sections 11 (viii) and (ix) where the chamber manufacturer specifications are allowed to supersede WDEQ pipe/stone drainfield design criteria."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems.

Wyoming DEQ does not agree that any preference has been granted in the proposed draft of Chapter 25.

11(a)(vii)(A)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider rewording this section to read: "The soils shall have percolation rates faster than 90 minutes per inch. Unless otherwise authorized by the technology manufacturer, the bottom of the bed must be level." In both 2011 and 2013, RockVale submitted extensive data and field test information showing that Presby AES has a comprehensive bed design system that enables sand beds to be installed and operated while meeting 30/30 standards in clay soils up to and exceeding 90 mpi. As well, it has been shown that the Presby AES bed design system accounts for installation with bed slopes ranging from 0% to 25% and on site slopes ranging from 0% up to 30% - all depending on soil type and percolation rate. The word "clay" should be deleted since all soil types contain some fraction of clay and the terms "clay" or "clay soil" are not defined in Section 3."

Response: Our original regulations considered any soil loading rates over 60 minutes per inch unacceptable for standard absorption systems. The current regulations are allowing soils greater than 60 minutes per inch to be acceptable for small wastewater systems designed by a Wyoming professional engineer.

11(a)(vii)(B)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider deleting the second sentence of this section. In both 2011 and 2013, RockVale submitted extensive data and field test information showing that Presby AES has a comprehensive bed design system that enables sand beds to be installed and operated while meeting 30/30 standards with laterals installed within 6 inches of the bed sidewall."

Response: Section 11(vii) B has been revised to require the sidewalls to be not more than 3 feet from a distribution lateral. Therefore, laterals installed within 6 inches of the bed sidewall will be acceptable in the proposed draft of Chapter 25.

11(a)(vii)(C)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider deleting this section. In both 2011 and 2013, RockVale submitted extensive data and field test information showing that Presby AES has a comprehensive bed design system that enables sand beds to be installed and operated while meeting 30/30 standards in bed width exceeding 25 ft and at bed spacing distances that are dependent on soil type."

Response: According to page 4-15 in the Onsite Wastewater Treatment Systems Manual prepared by EPA dated February 2002, infiltration bed surface widths of greater than 10 feet are not recommended because oxygen transfer and clogging problems can occur. According to Section 7080.2210 Subpart 4 in the Minnesota Administrative Rules, the seepage bed must not be wider than 12 feet if gravity distribution is used and 25 feet if pressure distribution is used.

Considering that the supporting documentation is actually recommending the maximum bed with to be less than 25 feet, Wyoming DEQ has chosen to remain with the 25 feet maximum bed width at this time.

11(a)(viii)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider revising the first sentence to read: "When proprietary trench or bed distribution technology, approved by WDEQ, is used in lieu of perforated pipe and aggregate, it shall be installed in conformance with the manufacturer recommendations." This will provide all approved technologies equal opportunity within the statutes."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems.

Wyoming DEQ does not agree that any preference has been granted in the proposed draft of Chapter 25.

11(a)(viii)(F)

Entity: Marcel Lopez, Fremont County

Comment: "Percolation rates slower than 60 are not allowed so this line is confusing."

Response: Percolation rates slower than 60 (more than 60 mpi) for standard absorption systems are allowed as long as they are designed by a PE.

11(a)(ix)

Entity: Steve Warner, Fremont County

Comment: "Would like to see language stating that all backfilling of beds or trenches utilizing aggregate or chambers be "crowned" to account for settling."

Response: The DEQ does not think this is practical to put in the regulations because of all the variables that affect how soil settles.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider revising the first sentence to read: "When proprietary trench or bed distribution technology, approved by WDEQ, is used in lieu of perforated pipe and aggregate, it shall be installed in conformance with the manufacturer recommendations." This will provide all approved technologies equal treatment in the statutes."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems.

Wyoming DEQ does not agree that any preference has been granted in the proposed draft of Chapter 25.

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Section 11 (vii) unjustifiably sets prohibitive limits on bed systems while Section 11 (viii) and (ix) provide specific and favorable provisions for chamber technology."

Response: This comment needs to be more specific on the aspects or reasons supporting the unjustified prohibitive limits on bed systems. Wyoming DEQ disagrees that unjustified limits have been established for bed systems.

11(a)(x)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider revising the first sentence to read: "When proprietary trench or bed distribution technology, approved by WDEQ, is used in lieu of perforated pipe and aggregate, it shall be installed in conformance with the manufacturer recommendations." This will provide all approved technologies equal treatment in the statutes. In both 2011 and 2013, RockVale submitted extensive data and field test information showing that Presby AES has a comprehensive bed design system that enables sand beds to be installed and operated while meeting 30/30 standards in serial flow arrangement and on site slopes up to 30% and bed slopes up to 25%."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. At this time, no permit application to establish a general design packet prepared by a Wyoming professional engineer has been received for Presby systems.

Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems. Presby needs to submit a permit application with a design application package prepared by a Wyoming Professional Engineer.

11(b)

Entity: Marcel Lopez, Fremont County

Comment: "Please give a link or say where at on your site as most of the contractors and public I have talked to find it VERY difficult to navigate the DEQ web site. My suggestion would be that you move all downloads to a single section."

Response: DEQ will evaluate our web site after the draft is enacted to provide better navigation.

Section 12

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider eliminating section 12 and moving its contents to Section 10. The rationale is that uniform effluent distribution is the goal of d-boxes, laterals, pressure distribution within the drainfield and gravity distribution within the drainfield. Presby AES has been shown to provide uniform distribution within the drainfield via gravity. While Presby AES can be used to house pressure dose manifolds similar to chambers, the ability of AES to provide uniform distribution by gravity is an advantage to residents and business with regard to system cost, power consumption and reliability. WDEQ may desire to go on record as actively considering technologies and methods that increase small wastewater system reliability while reducing cost to residents, relative to standard pressure distribution systems."

Response: Wyoming DEQ has decided to differentiate the regulation of these systems by the method of force driving the movement of wastewater over the drainfield. Therefore Section 10 and Section 12 will remain differentiated by gravity or pressurized forces.

12(a)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider inserting the following as the first sentence: "When proprietary trench or bed distribution technology, approved by WDEQ, is used in lieu of perforated pipe and aggregate, it shall be installed in conformance with the manufacturer recommendations."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems.

Wyoming DEQ does not agree that any preference has been granted in the proposed draft of Chapter 25.

12(c)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Since RockVale offers a proven proprietary online design spreadsheet for Presby AES drainfield systems and its design process may be certified by a third-party PE rather than a WDEQ PE, this provision should either be modified to provide equal opportunity to all WDEQ approved technologies or it should be eliminated in view of it potentially being viewed as favoring only WDEQ PE certified technologies."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. At this time, no permit application to establish a general design packet prepared by a Wyoming professional engineer has been received for Presby systems.

Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems. Presby needs to submit a permit application with a design application package prepared by a Wyoming Professional Engineer.

Section 13

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Consider inserting the following as the second sentence: "When proprietary trench or bed distribution technology, approved by WDEQ, is used in lieu of perforated pipe and aggregate, it shall be installed in conformance with the manufacturer recommendations."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems.

Wyoming DEQ does not agree that any preference has been granted in the proposed draft of Chapter 25.

13(d)

Entity: Jim Stevenson, RockVale Systems, LLC

Comment: "Since RockVale offers a proven proprietary online design spreadsheet for Presby AES drainfield systems and its design process may be certified by a third-party PE rather than a WDEQ PE, this provision should either be modified to provide equal opportunity to all WDEQ approved technologies or it should be eliminated in view of it potentially being viewed as favoring only WDEQ PE certified technologies."

Response: All small wastewater systems are prepared directly by a Wyoming professional engineer or through a design packet prepared by a Wyoming professional engineer. At this time, no permit application to establish a general design packet prepared by a Wyoming professional engineer has been received for Presby systems.

Chapter 3 of the Water Quality Rules and Regulations require WDEQ approval for the installation of these systems. Presby needs to submit a permit application with a design application package prepared by a Wyoming Professional Engineer.

Section 14

14(a)(iii)

Entity: Steve Warner, Fremont County

Comment: "If a site (>60 mpi) does not meet this requirement what alternative do we have to offer the homeowner?"

Response: An alternative system would have to be submitted by a Wyoming Professional Engineer under Section 5.

14(b)(vii)

Entity: Steve Warner, Fremont County

Comment: "Consider revising the "5 foot depth" to read "operating depth" as lagoons do vary in depth."

Response: The requirements of Section 14 are based on a 5 foot maximum operational depth. Any variance to this operating depth would require an alternative design to be submitted under Section 5. The "5 foot depth" is the "operating depth". The wording change suggested does not alter the intent of the sentence. The sentence will remain as written.

Entity: Steve Warner, Fremont County

Comment: "Consideration needs to be given to the idea of a dike constructed through the middle of the lagoon to create two cells. Experience has shown that it is difficult to keep enough water in lagoons to prevent freeze problems. The earthen dike would have a stone lined weir to allow the effluent to spill over to the second cell if needed while maintaining enough depth to cover the inlet pipe."

Response: DEQ can review and approve the construction of middle dike to create two cells as part of the review and approval process.

14(b)(x)

Entity: Steve Warner, Fremont County

Comment: “Is two feet really necessary? Field experience has shown that one foot is sufficient.”

Response: Two feet is needed to maintain the microbiology of the lagoon system.

14(b)(xiii)

Entity: Steve Warner, Fremont County

Comment: “I suggest ‘cleanouts’ instead of ‘cleanout’.”

Response: We will review this section and make the necessary revisions.

14(c)

Entity: Marcel Lopez, Fremont County

Comment: “same comment as on page 25-34”

Response DEQ will evaluate our web site after the draft is enacted to provide better navigation.

Section 15

Entity: Louis Harmon

Comment: “Section 15, Privies; and Section 16, Greywater Systems should both be identified as allowed by "permit by rule" with no correspondence required with DEQ or the delegated authority required unless specific rules are developed by the delegated authority requiring permitting. If the intention is that only water tight vaults are allowed for privies that should be stated. The present draft could be interpreted that a pit privy with an unlined vault is completely unregulated.”

Response: DEQ has decided that permits are needed for both privies and greywater systems. Section 15 has been revised to require all vaults to be sealed.

Section 16

Entity: Bo Bowman, Hot Springs County

Comment: “Page 25-30. In (b)(i)(A), the word should read “irrigate” not “irrigation.”

Response: We will review this section and make the necessary revisions.

Entity: Bo Bowman, Hot Springs County

Comment: “Page 25-30. In (b)(iii)(D), addressing the use of drip irrigation in buffer zones, I think I understand and agree with the intent. However, it is not described as clearly as it should be.”

Response: We will review this section and make the necessary revisions

Entity: Bo Bowman, Hot Springs County

Comment: “Page 25-31. In (A) at the top of the page, describing flow diverters for grey water systems, I understand the intent however the language should state that intent more clearly.”

Response: We will review this section and make the necessary revisions

Entity: Louis Harmon

Comment: “Section 16, Greywater Systems, is far too restrictive. It should be shortened to three sentences. "Greywater systems are permitted by rule. Greywater systems must not allow a discharge off of the residential property where the wastewater system is generated. Greywater reuse from other than residential wastewater sources shall be treated as land application of wastewater subject to the requirements of Chapter 21, DEQ/WQD R&R" Historically, across the nation there has not been health problems associated with the use of greywater. DEQ doesn't need to try to solve a problem that does not exist. The concern about washing diapers is unfounded. If the family is using enough soap and bleach to get the diapers clean, the wastewater will be safe for use as greywater. People that are willing to go to the work to use greywater are very passionate about water conservation and the environment. DEQ should not be making it difficult when it has been demonstrated that there are not health issues or water contamination issues resulting from the practice.”

Response: Greywater systems have numerous potential health issues and the proposed requirements are comparable to the requirements of Chapter 21, Standards for the Reuse of Treated Wastewater.

Section 17

17(b)

Entity: Dwight Reppa, Macy’s Services

Comment: “Septic tanks should be pumped as needed should be defined. As needed could be defined as when the system is failing or a percentage of the accumulation of the scum and sludge levels to the liquid depth of the tank. A recognized standard is 25%, but other percentages are used. Another standard is pumping your septic tank every 3 to 5 years based on occupancy. I believe you should make a recommendation in this section to help define a pumping frequency.”

Response: This section requires the tanks to be pumped out to prevent solids being carried over to the soil absorption system.