

Responsiveness Summary for Wastewater System and Potable Water Supply Rules
January 28, 2019

Comments Received and ANR Responses:

1. I would suggest that the design values on Table 8-1 be to the nearest 5 gpd.

Response:

Table 8-1 is the same as Table 8-1 in the 2007 Wastewater System and Potable Water Supply Rules (Rules). Table 8-3, although not mentioned in this comment, was developed by subtracting either the 10 percent or 20 percent reductions allowed by the 2007 Rules from the flow identified in the 2007 Rules. A change was not needed.

2. Table 8-1 is easy to read but 8-2 and 8-3 are cumbersome. Is there some other way to create a table that fits on one or two pages? On Table 8-3, one of the design flows is to the ½ gallon per day, why?

Response:

Table 8-2 needs to identify different types of campgrounds, amenities required for each campground, and types of structures or recreational vehicles that will occupy campsites for sizing wastewater systems that may not serve the entire campground. It is necessary to break out different flow categories for all the possible types of campgrounds and amenities. Table 8-3 was expanded because of the multitude of facilities which will connect to a wastewater system or potable water supply. The Table, albeit long, is intended to clarify flow figures for many different facilities for designers to base a design without needing to justify a flow number. The design flow for a brewery is 4.5 (the only ½ gallon in the tables) based on the industry's range in flow and represents an average of the industry range. A change was not needed.

3. For the section on Water Meter Data (1-804), why are daily meter readings for a year necessary? Why not some other representative sample for some required period of time. 365 readings seem excessive. And to require a daily record of the number of users seems like an unattainable request.

Response:

The Rules allow for those facilities that operate for a shorter period than 12 months to monitor during the actual use. Schools will fall in that category. § 1-804(d) was amended, based on the comment, to allow less than 1 year of readings. The Subsection will read:

- (1) A minimum of daily water meter readings for a year, unless:
 - (A) the wastewater system and potable water supply will be operated for less than 180 days of days, in which case, daily water meter readings shall be taken for each day in operation; or
 - (B) the wastewater system and potable water supply will be operated for 180 days or more and the Secretary concludes that 1 year of daily water meter readings is not necessary to demonstrate the wastewater strength and quantity of water necessary for the proposed use and the Secretary

provides approval, prior to the collection of water meter readings, for daily water meter readings to be taken for 180 consecutive days. An applicant seeking such approval shall submit the following information:

- (i) the nature the existing use of the building or structure, including equipment that may be part of the use and any manufacturing process, that will be in use when meter readings will not be taken;
- (ii) seasonal variations in occupancy or water usage of the building or structure demonstrating that all variations will be recorded during the 180 days;
- (iii) wastewater strength and characteristics, including BOD and TSS, that may be required to adjust the sizing of the leachfield according to § 1-904 and as further described in Subsection (e), for the days when meter readings will not be taken; and
- (iv) other information the Secretary deems necessary based on the specific proposed use and request.

Additionally, “by the Secretary” and “and based in information submitted by the applicant” was inserted into (2).

4. Section 1-912(f) is open ended and leaves a lot of risk on the designer not knowing how large an isolation distance may be.

Response:

The Secretary must be able to state why, within the context of the technical standards identified in the Rules, a greater isolation distance is necessary to protect a feature or object from a wastewater system or that may impact the performance of the wastewater system. The Secretary needs to make this decision based on a scientific analysis of many types of site conditions. A change was not needed.

5. I don’t understand what section 1-913(a) is trying to say. What about wells with a rate of more than 2 gpm?

Response:

10 V.S.A. § 1973(j) requires that an applicant seeking a permit notify adjacent landowners when the isolation distances for the applicant’s proposed wastewater system or potable water supply extends onto the adjacent lot. The Rules establish different required isolation requirements between a potable water supply and a wastewater system depending on the size and type of potable water source and wastewater system. With many permit applications, the adjacent lot is undeveloped. Thus, the Agency needs to determine what isolation requirements apply when the adjacent lot lacks a source or supply to base the isolation upon. As indicated in § 1-913, when an application seeks a permit for a wastewater system the Agency bases the isolation requirement for notification purposes upon the ability of an adjacent landowner to install a potable water source of 2 gallons per minute or less drilled into bedrock or a confined surficial aquifer, which represents the required flow rate for a potable water supply with the smallest isolation zone. This is called the Wastewater System Presumptive Isolation Zone. Also,

as stated in § 1-1105, when an application seeks a permit for a potable water supply, the Agency bases the isolation requirement for notification purposes upon the ability of an adjacent landowner to install a wastewater system of less than 2000 gallons per day, which represents the design flow for a soil-based wastewater system with the smallest isolation zone. This is called the Potable Water Supply Presumptive Isolation Zone. A change was not needed.

6. And we have to have isolation zones shown on the plan for wastewater tanks?

Response:

Question 6 was an additional thought to the question 5 so is understood to be asking about drawing a presumptive isolation distance around a tank for notification purposes. Under ANR's current guidance, to meet the purposes of 10 V.S.A. § 1973(j), isolation zones are required around leachfields, tanks, and sewer pipes and, when these zones extend onto adjacent lots, adjacent landowners need notification. Moving forward for notification purposes, the Rules require these isolation zones (the wastewater system presumptive isolation zone) to be designated around proposed leachfields, replacement areas, and wastewater tanks. Note, questions 5 and 6 concern notification. Isolation distances need to be shown for all components of a wastewater system when necessary to demonstrate the component will not be located too close to a water source, water service line, or public water system. A change was not needed.

7. Under section 1-920 regarding at-grade systems, requiring quantifying of boulders and tree stumps is cumbersome. And "approximate" equal percentage?

Response:

The current Rules require boulders and tree stumps to remain and to plow around them prior to placing the stone. Depending on the site characteristics, large boulders or many large trees can greatly reduce the infiltrative area that is required for the long-term viability of the at-grade. Designers, in their professional judgement, must decide how the operation of the at-grade will be affected by the decrease in infiltrative area and determine if additional area is needed to off-set the loss of area to boulders or stumps. A change was not needed.

8. Under (g) construction the first item is construct the swale. Item 16 is also to construct the swale.

Response:

Yes, thank you. The Rules were changed to delete construction of the swale in (16). Wording for § 1-920(g)(16) is now "The area surrounding the at-grade leachfield shall be graded, to divert stormwater away from the at-grade leachfield."

9. Instead of saying under the section for each type of system, "a licensed designer is required to inspect the installation", just have that listed only once somewhere in the rules.

Response:

This was a conscious decision for clarity. The Rules include 4 types of designers authorized to design different wastewater systems and leachfields. § 1-311(b) also allows installers to provide the installation certification for certain type potable water supplies and wastewater systems. This ties the design to the type of designer authorized to provide the installation certification and eliminates the installer as a certifying official. A change was not needed.

10. Same with the “construction shall not occur if a sample of soil obtained...moisture content is too high...”.

Response:

Because different types of leachfields have slightly different construction standards, it was decided each construction standard be as complete as possible without searching through the Rules for other construction requirements. A change was not needed.

11. I think there is a typo under section 1-1007(a)(2)(B)(ii). It says “...sewer service line shall be water works grade 50 psi...”. I think it should say “150” psi. This is also found in (b)(1)(B)(i) and (b)(2)(A).

Response:

Yes, thank you. The Rules was changed to say “150 psi”.

12. The new rules seem to specifically target the agricultural sector and not any other industry (i.e. isolation distances).

Response:

The Agency of Agriculture has specific isolation distances in their Required Agricultural Practices Rule. The Wastewater System and Potable Water Supply Rules incorporated their distances to eliminate confusion and potential violations created by two sets of Rules with two different isolation distances. A change was not needed..

13. Is there an exemption for single family residences for the requirement of including the supporting data and narratives in Appendix A(d)(4)?

Response:

There is not an exemption for the supporting data and narratives for a single-family residence. Typically, one single-family residence served by one water source does not require more than the location of the water source and the water service pipe so there is no other component. Within the Rules are expectations for a potable water supply with exceptions carved out for one supply serving one single-family residence. There is also the exemption that allows for the replacement of a potable water supply that serves one single family residence. A change was not needed.

14. Because there were such extensive changes to the proposed rules, is the state considering multiple trainings/meetings for designers to alleviate the “learning curve” on expectations for permit applications?

Response:

Yes, the Agency will hold training/meetings for designers. A change was not needed.

15. In the WWPWS rules, I see the definition for “family child care home”, “child care facility”, and “home occupation”. How do you address a day care that isn’t licensed with the state of VT?

Response:

A “child care facility” is defined in the Rules to be consistent with the Agency of Human Services definition, as is the definition of “family child care home.” Child care facilities require approval by the Agency of Human Services and the type of approval depends on the number of children, among other factors. No type of child care facilities is considered to be a home occupation for the purposes of these Rules. A change was not needed.

16. S1-903(d): Ground slope requirements. Why are we limiting ground slope to 20% on new lots while allowing it to be 30% on old lots (June 14, 2002)? If 30% works on old lots, why won’t it work on new lots? We should not have unjustifiable restrictions on good septic sites.

Response:

This is a requirement established in statute. 10 V.S.A. § 1978(d) provides that “The Secretary shall not adopt rules under this chapter that allow wastewater systems that serve lots created after June 13, 2002 to be constructed on ground with a maximum slope in excess of 20 percent.” A change was not needed.

17. § 1-903(r) and § 1-927: Why are professional engineers prevented from using D’Arcy’s Law? D’Arcy was an engineer after all, and most if not all of us were introduced to this law in undergraduate soil courses. D’Arcy’s Law simply requires us to apply elementary algebra to the same data used in the simplified method. Certainly P.E.s can handle the math required. Would this be allowed under the note on page 146?

Response:

The requirement to have an analysis performed by a qualified hydrogeologist was in the September 10, 1982 Rules and carried forward through the September 29, 2007 Rules. The only change is to remove “qualified”. The Division will follow past procedure, if a designer demonstrates he or she has the qualifications that comply with the definition, the designer may perform a hydrogeological analysis. The Agency found that some designers do not understand the principals of Darcy or wrongly apply the principals of Darcy. When this happens, the definition allows the Agency to advise the designer they do not meet the qualifications of a hydrogeologist. A change was not needed.

18. Regardless of the method, could we use the full length of the mound footprint instead of the length of the bed? Obviously, the flow spreads out in the mound sand before it hits

the native soil. We should be able to take advantage of this to save mound sand and cut a little off the cost of these rather expensive systems.

Response:

The fill material outside the basal area may, in some situations, be considered when conducting a hydrogeological analysis for sizing a leachfield in the mound. The hydrogeological analysis, based on slope, soil type, flow, and type of leachfield, must demonstrate the induced water table is 6 inches below the ground surface at the limit of the fill material. For mounds where a hydrogeological analysis is not performed, the full length of the mound footprint is a safety margin to allow effluent to enter the naturally occurring soil and maintain the 6-inch unsaturated soil at the limits of the fill material. A change was not needed.

19. 1-903(f): Please define “special flood hazard areas.” Do you mean the 100-year flood plain? We need some advice on how we are supposed to fulfill this requirement.

Response:

Agreed. The Vermont Flood Hazard Area and River Corridor Rule defines “*Flood hazard area*” means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. The term has the same meaning as “area of special flood hazard” under 44 C.F.R. § 59.1. The Rules were changed to delete the definition of “Special Flood Hazard Area” and define “Flood Hazard Area – means flood hazard area as defined in the Vermont Flood Hazard Area and River Corridor Rule.” The following subsections were correspondingly changed to remove “special”: § 1-903(f), § 1-1103(b), § 1-1205(d), § 1-1205(e), and § 1-1205(f).

20. S1-914(d)(2)(A): This should be changed to Schedule 40 PVC pipe or equal.

Response:

The Agency has not found that designers are specifying pipes that are not suitable for pressure distribution. The Subsection remains unchanged leaving to designers to select the proper rigid pipe material within the leachfield. A change was not needed.

21. S1-911(c)(1)(A) Table 9-3: Why aren’t gravels shown on this table? They should definitely be included.

Response:

The USDA-NRCS Field Book for Describing and Sampling Soils is the adopted standard for soil description. “Soil texture is the numerical proportion of the sand, silt, and clay separates in the fine-earth fraction (< 2mm).” The matrix (fine-earth fraction) dominates the infiltration and treatment capacity. The infiltration rate in matrix-free gravel is too high to enable effective treatment. The use of texture modifiers including gravelly (15 to 35%), very gravelly (35 to 60%), and extremely gravelly (60 to 90%) may be used and are encouraged. A change was not needed.

22. § 1-919(b): Sites with perc rates of less than 1 min/inch are quite rare. I may have found 1 or 2 in the almost 50 years that I've been designing systems. I believe that they are limited to gravels just consisting of small clean stone with no sand. Most gravels have considerable sand mixed in. Sand generally do not have a perc rate of less than 1 min/inch. Indeed, I've often found gravels with perc rates of over 4 min/inch. This requirement in most cases will result in replacing sand with sand, and will not increase the treatment capability of the system. This will place an additional financial burden on the home/land owner. In some places the existing sand will actually meet the specifications of § 1-921(g) Table 9-8, as we do find deposits in situ. In this case the requirement is absurd as well as expensive. This section should certainly be revisited and revised.

Response:

Table 9-3 is revised to breakout Very Coarse Sand from Coarse Sand and Sand so the table will read:

Soil Characteristics		Application Rates (gallons per square foot per day)			
Texture	Structure Type ¹	In-Ground Trench	In-ground Bed	At-Grade Leachfield	Leachfield in a Bottomless Sand Filter
Very Coarse Sand or Coarser	SG	See § 1-919(b)	See § 1-919 (b)	1.00	1.00
Coarse Sand, Sand	SG	1.50	1.20	1.00	1.00

Additionally, § 1-919(b) is revised to read: “For sites where the soil that will be directly beneath the proposed infiltrative surface of an in-ground leachfield has a percolation rate faster than 1 minute per inch or a soil texture of very coarse sand or coarser and there is no soil with a thickness of 1 foot or greater with a percolation rate 1 minute per inch or slower or a soil texture of coarse sand or finer between the bottom of the proposed infiltrative surface of an in-ground leachfield and the seasonal high groundwater table or bedrock.”

Correspondingly, § 1-920(c)(2) is revised to read: “At-grade leachfields shall not be constructed on soil with a percolation rate of faster than 1 minute per inch or a soil texture of very coarse sand or coarser, unless there is a soil with a thickness of 1 foot or greater with a percolation rate 1 minute per inch or slower or a soil texture of coarse sand or finer between the bottom of the proposed infiltrative surface of the leachfield and the seasonal high groundwater table or bedrock.”

23. Is 1-802(e)(2)(A)(i) missing the word "of" after the word "development"?

Response:

Yes, thank you. The section now states “development of.”

24. In our changing demographic, I see many requests to convert a 3 to a 2+1 or a 4 to a 3+1 in order to help a family member moving in such as a parent. This task can be extremely difficult due to the potential of flows increase (70 gpd). It would be great to see a "waiver" granted for something like this where having the required space for the additional 70 gpd as this here in Addison County can prove to be very expensive.

Response:

The Agency had an exemption to allow an in-family residential unit determined that, when the unit no longer was occupied by the family member, the unit was rented to a non-family member without applying for a permit for the additional non-family residential unit. The decision was to eliminate the exemption and work within the Rules so the residence has the proper wastewater system and potable water supply for a second living unit. A change was not needed.

25. Also, along these lines, if we have to go from 4 to 3 (bedrooms), what happens to the 70 gpd leftover? Perhaps some clarity here?

Response:

The 70 gallons may be reserved in a permit condition if requested by the landowner, and the Program agrees, to apply to future modifications to the residence. A change was not needed.

26. I read that all wells will need to be tested as part of the permit. Will this be a requirement of the Certification Letter?

Response:

The permit will condition the contaminants for testing and where to file the sample results, with the Health Department or, with the Health Department and the Drinking Water and Groundwater Protection Division. An installation certification will not be required to include the results of the water testing. A change was not needed.

27. Design flows for residential dwellings on municipal water/wastewater systems (section 1-803). Therefore, I recommend that the water and wastewater design flows for residential dwellings connected to municipal systems of 50,000 gpd or more be reduced to 150 gpd per dwelling, with an allowance for further reduction for one-bedroom dwelling units (e.g., 100 gpd).

Response:

When considering a reduction for wastewater flows from 210, to 150, the design flow needs to represent a number that may be seen at the treatment facility each day, that has a factor of safety for changing demographics, and represents a number that applies to each municipality, not just an average for the year one municipality may find. The 210 gpd per residential unit represents a number each municipality can use with confidence the wastewater treatment plant will not see a hydraulic failure. When a municipality reserves the 210 gpd per residential unit, and the residential unit is built and occupied, the flows seen at the treatment plant will convert to actual flows and any difference between the

210 gpd and the actual flows seen at the plant will convert the difference to reserve capacity for the treatment plant. A change was not needed.

28. Page 36: 1-311 (b)(1): Can a minimum standard for accuracy of the GPS coordinates be established? If one is not provided, then there will be varying degrees of accuracy. Applications such as ANR Atlas could be used which could be beneficial for many, but would need some sort of baseline. Will there only need to be one GPS location in the center of the finished leachfield?

Response:

The Rules were changed to remove the need to provide the coordinates of the leachfield and well at the time of submitting the installation certification. In place of this requirement, an application that involves one lot, or the subdivision of a lot into multiple lots, shall include the coordinates for the center of each lot that is included in the application. The requirements shall mirror the requirement in the 2007 Rules, “When the application includes one or more existing or proposed lots, the latitude and longitude for the center of each existing or proposed lot identified in the application shall be reported on the application form using a global positioning system receiver using the NAD 83 coordinate system or a NAD 83 base map. The coordinates shall be reported in decimal degrees to five decimal places with an accuracy of +/- 50 feet. Because many lots are irregularly shaped, the center location can be approximate.”

29. Page 151: 1-1002 (i): This is then saying that septic tank effluent sanitary lines will not need lateral cleanouts? Even in cases of >45 deg. turns or long runs >100 ft?

Response:

Correct. The Rules establish the minimum design standards. The designer may propose cleanouts based on the characteristics of flow, the length of pipe, and concern of possible clogging/blockage. This will be at the designer’s discretion when the pipe carries only liquids. A change was not needed.

30. Regarding Campsite flows (Table 8-2): What is the technical justification for removing the 7 month/year +/- (i.e. seasonal) basis? Has there been evidence that there is no significant difference between seasonal and full year operation in-regards to flow, resting periods and long-term effectiveness of treatment? Reiterating the comments provided at the public hearing, the significant change in campsite flows for the seasonal state park campgrounds, which currently operate with public facilities open for no more than 6 months/year, will have profound effect on the economics and viability of future campgrounds, expansions to existing campgrounds, or redesigns of failed systems. Unless there is recent technical data that supports overturning previous determinations that, allowed lower flow criteria for seasonal campgrounds, what is the justification? Finally, with modernized fixtures with lower flow capacities, and state park programs to change out fixtures whenever there are replacements needed or renovations (waterless urinals as a state park standard upon replacement; high flow flush valves to low flow flush tanks for toilets, aerators to control flow at sinks, coin op showers), flows in the

state parks are being systematically reduced. Relying on older flow studies likely does not capture this trend.

Response:

The Agency agrees and modified Table 8-2 as follows:

Design Flows for Campsites

<i>Use of Campsite</i>		
Type or description of campsite use	Units	Gallons Per Day Per Unit
<i>Campsites for Tents and Other Camping Units with No Interior Plumbing</i>		
central toilets with showers	site	75
central toilets no showers	site	50
<i>Campsites for Camping Units with Interior Plumbing but No Sewer Hook-Up</i>		
central toilets facilities	site	50
dumping station	site	25
<i>Campsites for Camping Units with Sewer Hook-Up</i>		
with or without central toilet facilities serving the units	site	75
<i>Cabins with Plumbing; Park Model Recreation Vehicles</i>		
with or without kitchen but w/o laundry	sleeping space*	50
with or without kitchen but with laundry facilities	sleeping space*	70

* Design flow shall be calculated based on a minimum of four sleeping spaces.

31. Page 101: 1-911(c)(2) - Would there be any exceptions to requirement that perc tests resulting in use of higher application rate are not allowed (i.e. deference to table/soil classification). Number of tests corroborating (ie. Within certain %)? Witnessing of perc test methods used by Regional staff?

Response:

No. The expectation is to properly classify the soil and use an application rate appropriate for the soil texture and structure. A change was not needed.

32. Change to design flows for campgrounds, Table 8-1, eliminated flexibility for design flows for year-round versus open 7 months. My paraphrase, an application filed after adoption involving an existing campground permitted under a different set of Rules, and there is a change increasing campsites, will we apply the new design flows when evaluating any increase in design flow.

Response:

See response to #30. Some design flows in Table 8-2 were modified.

33. Designer, seems easier to list what a design can do rather than two lists stating what a design may and may not do. Have one list.

Response:

Having two lists, albeit making the document longer, is to provide clarity. Even though there is a list of what a designer may do, there would remain a number of inquiries for what is not identified in the can-do list. Therefore, the list of what a designer may not do. A change was not needed.

34. Is Water Supply and us in agreement on the design flows?

Response:

The Wastewater System and Potable Water Supply program and the Public Water Supply program discussed design flows prior to this rulemaking and the Public Water Supply program intends to revisit their design flows in a future rulemaking. A change was not needed.

35. Mandatory water testing, when a potable water, unintended consequence for treating, potables do not require the treatment system have an operator similar to Public supplies. Should we have Public review all treatment systems who has the compliance wing to be sure testing occurs. How will we ensure treatment systems are operating properly?

Response:

In reviewing a proposed water treatment system for a potable water supply, the Wastewater System and Potable Water Supply program may seek the assistance of Public Water Supply staff, including seeking their recommendations for what conditions to include in the permit to ensure compliance. A change was not needed.

36. There is no safety factor when metering design flow, no formula. Give thought to how a designer determines a safety factor.

Response:

This was a conscious decision. Metering is unique to each facility, and the designer needs to look at different consideration during the metering period to decide the peaking factor for a wastewater system. The Rules identify the considerations without creating a set peaking factor that may not apply to many projects. Water, for potable supplies, will be the peak reading which the designer will need to decide if this number is appropriate or wishes to use a peaking factor for additional safety. A change was not needed.

37. Be certain guidance documents were incorporated in the proposed Rules.

Response:

Yes, this was done and § 1-304(28) was added to codify an exemption that is currently in guidance and is similar to other exemptions:

The periodic and temporary creation of a campground provided:

- (A) The campground is not connected to a water service line, water service pipe, or sanitary sewer service line;
- (B) there are no more than 10 nights of camping per year; and
- (C) there is no discharge of wastewater to the ground surface.

38. There is a discrepancy for 150 gpd/bedroom for Public and 140 under potables and hopes this was resolved.

Response:

There will be the same number upon re-writing the Water Supply Rule. A change was not needed.

39. Why are we involved in subdivisions?

10 V.S.A. § 1973 requires a Wastewater System and Potable Water Supply permit to subdivide land. Both the statute and Rules include exemptions for some scenarios involving the act of subdividing land. A change was not needed..

40. § 304(7) design flows of less than 560, should that be less than or equal to.

Response:

The wording in the Rules is correct and states “for the uses is 560 gallons per day or less”. A change was not needed.

41. § 304(18) & (20) added statute exemption. Identify the statute number.

Response:

The Rules contain many provisions that originate in statute. Adding statutory references throughout the Rules will add length to the Rules without adding clarity and is not a common practice among agencies. A change was not needed.

42. § 304(a)(12) exemption for connecting to public water at the time of construction. Choose different words for connecting to municipal water at the time of construction because often connections are made 3 months later.

Response:

To fall within this exemption from needing a permit, the installation of the water service line must be accomplished at the time of initial construction and operation of the water main. If the water service line is not constructed when the water main is constructed, or prior to operation of the water main, a permit is needed for the water service line when it is to be constructed. A change was not needed.

43. 1-501(b) says a reconsideration decision by the Director represents the final decision by the Secretary. Clarification is in order that the Director's decision may be made to the Environmental Court.

Response:

The ability to seek an administrative reconsideration of a Regional Office decision within the Agency in certain circumstances is in addition to the statutory ability to appeal a decision to the Environmental Division of the Vermont Superior Court. The Rules discuss appeals in § 1-502 and indicate when the appeal period starts should administrative reconsideration be sought pursuant to § 1-501. In response to this comment, the heading of Subchapter 5 has been clarified to add the term administrative reconsideration and be titled "Administrative Reconsiderations; Appeals; Enforcement."

44. Are we eliminating lists of designers now that designers licensed by Secretary of State? We have indicated we will not maintain a list of P.E.s.

Response:

The Agency does have a list of P.E.s on the Regional Office website. The Agency will continue to maintain an unofficial list of Class 1 and Class A, B, and BW designers. The Agency will seek assistance from the P.E. Board (as it did in the past) and the Office of Professional Regulation (OPR) to make the lists accurate. The OPR will maintain the official list. A change was not needed.

45. 804(d) requiring 1 year of meter data, which may be punitive for some people such as schools. Places that have high usage such as ski areas only need specific dates to cover high flows. This may create problems for many people.

Response:

See response to comment #5.

46. Construction in a Class A, will more than one lot be allowed, such as a 3-lot subdivision, provided the design flow for each lot is less than 1000 gpd?

Response:

Yes. A change was not needed.

47. Diagrams, when placed on the web, will we be able to make changes or are the diagrams frozen in time.

Response:

Diagrams will be placed in the Appendix of the Rules.

48. Metering needs to include attendance. Has thought been given how a multi-use building/resort can keep attendance records?

Response:

Yes, although this will be facility dependent. It may require multiple water meters and multiple sampling ports for wastewater strength to fully assess flows to strength. It is anticipated, when there are multiple uses, to consider the wastewater strength from the combined uses at the final point of treatment. Working together will be important to determine how to meter based on the purpose of the metering in multi-use buildings based on which use the owner wants to increase. A change was not needed.

49. Design flows, are they fully coordinated between Wastewater Section and Public Water Supply Sections of the Division?

Response:

See response to comment #34. A change was not needed.

50. Are the potable standards vetted with WS such as water storage tank, how much of a tank needs to be above or below grade and how this corresponds to the WS Rules.

Response:

The Water Supply Program worked with us in developing the standards. Subchapter 12, which contains many of the design requirements, are flexible. Additionally, a designer needs to discuss with the owner whether the owner may wish to change the water supply from a potable to a public and the differences in the design standards. This will allow the owner to decide which standard the designer will use. A change was not needed.

51. Any discussion on application fees such as municipal connections for reviews of a 3000 gal. connection is not the same as a review for a 3000 gpd soil-based.

Response:

The Wastewater System and Potable Water Supply Rules do not dictate fees. Fees are established in 10 V.S.A. § 2822. A change was not needed.

52. Change in use of a building with increase in flow has less review than new construction.

Response:

A change in use of an existing building or structure or campground that results in a decrease flow does not require a permit unless there is some other modification of operation that will require a permit. A change was not needed.

53. § 1-305(i) an applicant, should change description from “may not” to “shall not” and change so not so wordy and descriptive.

Response:

The wording and content of this provision was developed by the Agency in consultation with the Technical Advisory Committee and is intended to advise landowners of the inherent risk in using surface water as a potable water source as well as the need for upkeep of the water treatment system. The use of “may not” in the first sentence is accurate and an intentional choice. A change was not needed.

54. § 309(a) add “within reason”.

Response:

The phrase “within reason” is subjective and would not add clarity to the Rules. It was not added to the provision. A change was not needed.

55. § 311(f) for GPS coordinates need to include accuracy and parameters, is this at the corners or where the reading will be taken for a well or wastewater system.

Response:

See response to comment #28.

56. Installation certification needs changing because a designer cannot observe all installation.

Response:

The installation certification language is in statute at 10 V.S.A. § 1973(e). A change was not needed.

57. 312(b) should have 14 days rather than 30 days for review of failed wastewater systems.

Response:

The Program has a policy to review a failed water supply or a failed wastewater system prior to other applications to abate a health hazard. Most applications can reasonably be reviewed less than 30 days. There are applications that are more difficult, particularly those with a PEP standard of 60 days, that require consideration of variances or a hydrogeological analysis. The average number of days to review and permit all applications is less than 14 days. The average number of days to review a failed system is generally less than 14 days. The Program will continue to make failed systems a priority. The Agency concluded it is a reasonable timeframe. A change was not needed.

58. Sub. 5 § 501(a)(2), the program manager to call other individuals outside the department and change make a decision within 30 days rather than 60 days may be better because 60 days is the construction season.

Response:

§ 1-501(a)(2) is a provision addressing requests for reconsideration that includes the potential the Programs Manager may call on individuals within or outside the Department. Because the 60-day period includes weekends, it will be approximately 44 business days, possibly less if there are intervening holidays. 60 days was selected to allow time to perform a complete review of the file and reconsideration request, correspond with the requester if necessary, and identify the applicable requirements. The Agency concluded it is a reasonable timeframe. A change was not needed.

59. § 803(c) design flows for individual components must be based on 2 bedrooms, how this works for holding tanks using a 1-bedroom unit using best fix for calculating holding storage.

Response:

By “best fix” the Agency assumes you are referring to applications filed that seek a variance pursuant to § 1-802 Variances. In the circumstances identified in § 1-802, the Agency has the authority to issue permits for designs that do not comply with specific technical standards, including the possibility of a design for a holding tank to serve a one-bedroom living unit, provided the requirements in § 1-802 are met. A change was not needed.

60. § 903(a)(2) eliminates cesspool, dry wells, seepage pits. Hopes there is an exemption to allow dry wells and gravel systems for water treatment backwash.

Response:

Water treatment backwash from a potable water supply, that is intended to be discharged to a dedicated soil-based wastewater system solely for the backwash, is subject to the UIC Rules. A change was not needed.

61. Page 120, soil testing 9” for testing soil, working in Addison county only considering the 8” of soil, so moot point what’s happening at 9”.

Response:

Each section of the Rules referencing 9 inches will be changes to state: “Construction shall not occur if a sample of soil obtained from approximately 8 inches below the surface can be easily rolled into a wire.”

62. Hydrogeologist definition needs clarification. Some people may not be covered and no classification on State or Federal level for a hydrogeologist.

Response:

The definition for a “Hydrogeologist” has not changed since the September 10, 1982 Rules except for eliminating the word “Qualified”. The Program will not change how a hydrogeologist is viewed for the past 36 years. A change was not needed.

63. Can designers do desk top analysis?

Response:

Yes. A change was not needed.

64. Page 23, subdivision of an improved lot requires plan drawn by designer or land surveyor and recorded and indexed, VT statute title 26, chapter 45 section 2503 no exemption for a definer for a designer to perform land surveying. Title 26 chapter 45 2502 section 4 does not allow designer to do surveying.

Response:

The Rules do not require the plan be a survey, only a plan drawn to scale. The Rules do not require a surveyor to complete the plan, and it is standard practice for designers to do so. A change was not needed.

65. Professional engineer is defined. Land surveyor is not defined.

Response:

The term “land surveyor” was added to the definitions.

66. Sewer collection pipe, with 2 or less connections, a designer’s license will allow for up to 3 connections. Class b license should allow for what license allows.

Response:

The proposed Rules allow for more than 2 connections provided the length of the sanitary sewer collection line and all sanitary sewer service lines are is less than 300 feet. The total length is necessary because, when designing any other sanitary sewer collection line, a manhole is installed at the end of the collection line and every 300 feet thereafter for maintenance, cleaning, and inspection. A change was not needed.

67. Manholes no longer allowed to be designed by a designer. A septic tank and manhole are similar for design and testing. A designer B should be able to design manholes.

Response:

The development of the designer program always included the installation of a septic tank. If the Rules change in the future to allow a designer other than a P.E. to design a sewer collection line with a manhole, the program will consider including design and testing of manholes in the Class B exam. A change was not needed.

68. Certification language in the Rules the same certification language in the application?

Response:

The certification language in the application form will need to be modified prior to the adoption date of the proposed Rules to remove referencing the Vermont Water Supply Rules.

69. GPS coordinates, fails to describe the accuracy.

Response:

See response to comment #28.

70. Page 55 § 704(a)(9)(C) limiting manholes for designers may make systems less maintenance friendly. Maintenance will be compromised.

Response:

The decision was made during drafting of the Rules that manholes is engineering for a P.E. The Agency does not agree maintenance will be compromised by allowing a sanitary sewer collection line without a manhole pursuant to § 1-1002(k). A change was not needed.

71. § 706(a)(b)(c) a designer has never been tested minimum testing standards for manholes for licensing a designer B or BW. Should test to allow design of manholes.

Response:

If a designer is allowed in the future to design a manhole, consideration will be given to require the designer to demonstrate proficiency in design, construction, and testing a manhole. A change was not needed.

72. Table 11-1 unconfined water systems, understanding well driller's rule requires wells to be drilled 20 feet into competent bedrock.

Response:

This is correct when wells are drilled into bedrock, but not all wells are drilled into bedrock. There are many wells that draw water from an unconfined aquifer or a confined aquifer. A change was not needed.

73. Add definition for composting toilets to include testing standards NSF 41 or equivalent.

Response: See response to comment #87 below. A change was not needed.

74. Add in definition storage requirement of 2 years for eradication of pathogens.

Response:

The Rules anticipate the compost will contain pathogens and needs to be bagged and taken to a landfill or buried in a manner that complies with the Rules and is approved by the Secretary. A change was not needed.

75. Add composting toilet maintenance requirements.

Response:

When appropriate, maintenance requirements for composting toilets will be included as a permit condition. A change was not needed.

76. § 803(g)(2) to increase design flow reduction from 25% to 50% for residential use similar to other states.

Response:

The comment does not provide sufficient data to support making this change in the Rules. A change was not needed.

77. § 929 clarification to allow composting solids separate from liquids can be buried when in compliance for protecting public health and the environment.

Response:

The Rules allows composting solids to be buried when the burial complies with § 1-929(c). A change was not needed.

78. Give the Secretary the ability to permit other uses of the solids or liquids from composting toilets when comply with public health and safety.

Response:

The Agency has the authority to allow recycling wastewater from composting toilets pursuant to an approved innovative/alternative system design. § 1-929 allows on-site disposal of wastes pursuant to the Vermont Solid Waste Management Rules. A change was not needed.

79. Table 8-2 design flows will result in significant viability for existing design flows. Systems not failing due to hydraulic overload, more to poor maintenance practices. What is the basis for using the higher design flow. Design flows should be decreasing with use of low flow fixtures.

Response:

See response to comment # 30.

80. Section 1-201: Definition, Clivus requests that the Department add a definition for Composting Waste Treatment System that would require a maintenance contract. Ongoing maintenance of composting systems is crucial to ensure that public health and safety standards continue to be met, that routine upkeep is performed, that contact records are provided as required to the Department, and that the system remains in compliance with National Sanitation Foundation (NSF) Standards. Section 1-201 (19) Composting Waste Treatment Systems – means a unit that includes a composting toilet and meets the following descriptions:

- a unit that complies with the requirements of the NSF Standard 41 “Non-Liquid Saturated Treatment Systems”;

- a unit that is designed to store compostable and composted solids for at least two years, unless otherwise approved by the Secretary;
- a unit for which the owner holds a valid maintenance contract at all times with an entity or individual that is certified by the composting toilet vendor to provide maintenance of the composting toilet. The minimum maintenance contract term shall be two (2) years;
- Two (2) years after the issuance of the Certificate of Conformance, and every two (2) years thereafter, the owner shall submit a report prepared by a system inspector documenting the condition of all aspects of the system, including, but not limited to, certification that the permitted system has not been modified and the design remains as permitted.

Response:

The Rules does not specify a unit needs to comply with a national standard, the designer needs to propose a make and model of a unit based on the manufacturer's specifications and the intended use of the composting unit. This allows the designer to propose an alternative design such as a watertight concrete vault. The retention time in a composting unit is to be determined by the designer. A maintenance schedule for a composting will be a condition of a permit when determined appropriate by the Program. The Agency feels that establishing a set report by a designer, there is no other person recognized in the Rules to perform such inspection, would be costly for landowners. The inspection shall be a permit condition when warranted. A change was not needed.

- 81. Section 1-803: Design Flows.** Clivus requests that the Department increase the standard for residential system design flow reduction. This would allow for a higher quality of effluent being produced using less land and bring Vermont rules in alignment with other New England states including Maine, Massachusetts, Rhode Island and Connecticut. Section 1-803 (g)(2): If not more than four living units will be served by a component and each living unit contains only composting or incinerating toilets, the design flow for the component may be reduced by 50 percent.

Response:

The comment does not provide sufficient data to support making this change in the Rules. A change was not needed.

- 82. Section 1-929: Disposal of Contents of Composting or Incinerating Toilets.** Clivus requests that the Department clarify section 1-929 (a). The rules as drafted do not make it clear that if the liquid by-product is removed from the site, compost solids can be disposed/reused per section 1-929(c).

Response:

The Rules remain basically unchanged for the disposal of the compost. The Rules are clear on the options for disposal of the solids from a composting unit. A change was not needed.

83. Clivus requests that the Department include a provision to allow the Secretary to approve alternative methods of compost disposal. This change would allow for flexibility in the land application of compost and liquid by-product in Department-approved locations after consideration of public health and safety requirements. For example, this would allow State Parks to collect compost from their systems and use that material at an approved on-site location.

Response:

The Rules are based on three basic methods for wastewater treatment, a soil-based wastewater system of less than 6500, disposal to an indirect discharge system, and disposal to a wastewater treatment facility. Also, see response to comment #78. A change was not needed.

84. Add: Section 1-929 (c)(3) Other use as approved by the Secretary.

Response:

See response to comment #90.

85. Regarding Campsite flows (Table 8-2): What is the technical justification for removing the 7 month/year +/- (i.e. seasonal) basis? Has there been evidence that there is no significant difference between seasonal and full year operation in-regards to flow, resting periods and long-term effectiveness of treatment? Reiterating the comments provided at the public hearing, the significant change in campsite flows for the seasonal state park campgrounds, which currently operate with public facilities open for no more than 6 months/year, will have profound effect on the economics and viability of future campgrounds, expansions to existing campgrounds, or redesigns of failed systems. Unless there is recent technical data that supports overturning previous determinations that allowed lower flow criteria for seasonal campgrounds, what is the justification? Finally, with modernized fixtures with lower flow capacities, and state park programs to change out fixtures whenever there are replacements needed or renovations (waterless urinals as a state park standard upon replacement; high flow flush valves to low flow flush tanks for toilets, aerators to control flow at sinks, coin op showers), flows in the state parks are being systematically reduced. Relying on older flow studies likely does not capture this trend.

Response:

See response to comment #30.

86. Recommendation I: In order to prevent potential future confusion, maintain the FEMA based definition of floodway in the Wastewater Rules, rather than referencing the Vermont Flood Hazard Area and River Corridor Rule.

Response:

See response to comment #19.

87. Recommendation II: In order to ensure alignment of Agency policies and reduce the potential for conflicting and contradictory standards, eliminate references to wastewater and potable water supply systems in the Department of Environmental Conservation Flood Hazard Area and River Corridor Protection Procedure (September 7, 2017), specifically those found in the definition of Below Ground Improvements. This recommendation is consistent with long standing State level policy that the location of wastewater system and potable water supply systems should be governed solely by the Wastewater Rules.

Response:

The Department of Environmental Conservation Flood Hazard Area and River Corridor Protection Procedure (September 7, 2017) establishes standards restricting activities, which include a potable water supply or wastewater system, allowed within a river corridor. There are other State regulations that restricts activities, which include a potable water supply or wastewater system, i.e., the Vermont Wetland Rules Effective August 15, 2018. The Procedure does not establish design and construction standards so is consistent with other regulations that prohibits certain activities. A change was not needed.

88. We request that ANR clarify in writing whether, as a result of the proposed amendment, ANR depicted "River Corridors" will be used to delineate the floodway as it relates to the Rules, or will in any other way restrict or dictate the location or design of a wastewater system or drinking water supply.

Response:

The term "river corridor" is not a defined term in the Wastewater System and Potable Water Supply Rules. This comment appears to speak to the interpretation of the Vermont Flood Hazard Area and River Corridor Rule, which is outside the scope of this rulemaking. A change was not needed.

89. We also request clarification in writing as to whether ANR's current practice of utilizing the River Corridor as the "Act250 Floodway" for projects subject to Act250 Jurisdiction - as articulated in the "Department of Environmental Conservation Flood Hazard Area and River Corridor Protection Procedure (September 7, 2017)" -- will place any additional limitations on the location of wastewater system or potable water supply components serving development subject to Act250 Jurisdiction, beyond those articulated in the Amended Wastewater Rules.

Response:

The interpretation of Act 250 is not within the scope of this rulemaking. A change was not needed.

90. § 1-903(g) "No portion of a wastewater system shall be located in a Zone 1 of a Public Community Water System Source Protection Area, except a replacement system that replaces an existing wastewater system located in the same Zone 1."

- Consider adding a reference in the statement above to Table 9-6 - Distances, in Feet, Used to Create Isolation Zones Around Drinking Water Sources (page 110)
- Table 9-6 includes setback distances for Public water sources for community water systems, non-community non-transient water systems, and transient non-community water systems
- The distances given in the Table 9-6 vary by aquifer type, design rate and design flow (from 50 feet to 1000 feet)
- In addition, please clarify in Table 9-6 that for Public Community Water Systems, the setback distances cannot be closer than Zone 1 of a Source Protection Area (generally 200 feet)

Response:

The following was added below Table 9-6: “Note: See § 1-903(g) for additional restrictions concerning the location of a wastewater system components in proximity of a Public Community Water System.”

- 101.** Definitions (7), (8), and (35). Why are you referencing the River Corridor Rule. The RCR just references the language that you are removing from this definition. The language is not from RCR it is from FEMA. The RCR rule is for specific projects such as land exempt from municipal regulation. You’re not referencing the definition of a stream or wetland to another ANR rule? Put back definitions or just reference FEMA.

Response:

See response to comment #19.

- 102.** 1-803 Design Flow Design flow for 7 month or less campgrounds proposed to be increased to only a year-round campground. Shouldn’t year-round campground be removed as they don’t seem to exist in VT.? We are not aware of any issues with the current design flow for 7 months. The result of this rule change will increase the size of leach fields and costs which is not necessary. Waste stream flows are not increasing and remain much lower flow than current design flows. If anything, waste stream flows are historically low which result in higher effluent concentrations. Increasing the bed size does not improve the treatment, especially with gravity fields.

Response:

See response to comment #30.

- 103.** Need definition of food service and meal.

Response:

The term meal is used in § 1-803 and defined in Subsection (b). The Agency does not agree food service need to be a defined term. A change was not needed.

- 104.** Tasting Rooms – How about outdoor beer gardens with food trucks? This has been a growing industry in NEK. Tasting rooms are required to have snacks, reason for defining meals or food service.

Response:

Food trucks, or mobile units requiring licensing by the Vermont Department of Health as a Temporary Food Stand or motorized or push cart type mobile units, are generally not buildings or structures. A food truck that doubles as structure used for other purposes may be a building or structure under the definition in § 1-201(13), depending on its use, particularly if it is connected to a potable water supply or wastewater system. A change was not needed.

105. 1-1001 Flexible Specific Technical Standards Technical Standards should remain “guidelines” for the Engineer or Municipality to make the final decision. Engineers have licenses for a reason.

Response:

The flexible technical standards contained in Subchapters 10 and 12 allow a designer to propose a design based on accepted engineering principles that differ from the technical standards in Subchapters 10 and 12. The Agency believes they provide sufficient options for designers. A change was not needed.

106. Minimum bury depth for sanitary sewer services, 48-inch needs to be removed. Depths may range as little as 12-inches of cover. Insulation varies based on judgement. Sanitary sewer thermal conditions vary significantly depending on the site.

Response:

The 48-inch depth needs to remain as the technical standard. The 48-inch requirement is in Subchapter 10, a subchapter with flexible technical standards, which means the Rules establish a proven technical standard with the flexibility for a designer to propose an alternative design based on accepted engineering principles. A designer can propose a different depth pursuant to § 1-1001(a) provided the sewer will function without collapsing due to loads and without freezing. A change was not needed.

107. We have worked on many sites in existing communities where existing services have been reconnected that do not meet the “technical standards”, such as minimum slope or bury depth and no problems exist. Judgement is used to determine if reconnects will continue to work based on acceptable practice and experience or if another design is required which would conform to the technical standards that are used when we have the ability.

Response:

A proposal to replace a potable water supply or a wastewater system, including water service lines and sanitary sewer service lines, may be able to seek approval pursuant to § 1-802 Variances, provided the requirements in § 1-802 are met. A change was not needed.

108. Rules are being changed for a problem that does not exist.

Response:

The Rules were last updated in 2007. This revision is necessary to incorporate legislative changes to 10 V.S.A., Chapter 64 adopted subsequent to the last rule update, including but not limited to requirements that permit applicants notify other landowners of pending applications, that groundwater potable water sources be tested for water quality prior to use, and that surface water can be used as a source for potable water supplies serving single-family residences. The revision also consolidates the standards for potable water supplies into one rule. It also establishes new water quality sampling requirements; expands the options for the design of wastewater systems to include technologies and practices that have been proven effective in the field; and creates additional permitting exemptions to reduce administrative burdens on the public. The revision comprehensively reorganizes and revises the rule to increase clarity and promote understanding. A change was not needed.

109. 1-1007 Separation Why are we continuing to use old standards that were used for VC (3' lay length with no gasketed joints or AC pipe or even cast that breaks easy when exposed to trench crossings? The more we apply this 18-inch standard, the more we compromise the constructability of modern pipe.

Response:

The section mentioned is in Subchapter 10, a subchapter with flexible technical standards, which means the Rules establish a proven technical standard with the flexibility for a designer to propose an alternative design based on accepted engineering principles. A change was not needed.

110. (a)(1)(A).C900 pressure classes are 165, 235 and 305. Water mains are usually constructed with DR18 (235). What about C909? C909 is more resistant to rupture when working around it. Test to 150#'s? Clarify to say "with water", some will tell contractors to use air...Mechanical joints and joint restraints within 10' of water pipes? Push on couldn't be tested without thrust blocks. Temporary megalug caps? 150psi in 8-inch pipe will produce 7500 lbs. of thrust. Final connections would then require solid sleeves. Solid sleeves result in a total of 4 additional joints for the connection that will not be able to be pressure tested and will have ID transition issues. This creates more of a potential risk.

Response:

This design criteria was developed with the Public Water Supply program and the TAC. This subsection is in Subchapter 10, a subchapter with flexible technical standards, which means the Rules establish a proven technical standard with the flexibility for a designer to propose an alternative design based on accepted engineering principles. A change was not needed.

111. (a)(2)(A). Define sleeve materials if pressure pipe is defined in "(a)(1)(A)". How do you propose to seal the pipe water tight?

Response:

This design criteria was developed with the Public Water Supply program and the TAC. Water tight is only to prevent water from entering the sleeve. This subsection is in Subchapter 10, a subchapter with flexible technical standards, which means the Rules establish a proven technical standard with the flexibility for a designer to propose an alternative design based on accepted engineering principles. A change was not needed.

112. (b)(1)(B) Same comments as horizontal separation. Consistency with pipe materials AWWA C-600? C-900?

Response:

This design criteria was developed with the Public Water Supply program and the TAC. This subsection is in Subchapter 10, a subchapter with flexible technical standards, which means the Rules establish a proven technical standard with the flexibility for a designer to propose an alternative design based on accepted engineering principles. A change was not needed.

113. Separation needs to remain guidelines. ANR needs to work with industry to develop a consistent approach for improving technical standards that doesn't create more compromising joints, disconnect of inner diameter continuity and transitioning from standards that were developed for brittle, poorly sealed pipe system from the mid-20th century.

Response:

The requirements identified in the comment are in Subchapter 10 and Subchapter 12, subchapters with flexible technical standards, which means the Rules establish a proven technical standard with the flexibility for a designer to propose an alternative design based on accepted engineering principles. A change was not needed.

114. Concerned about the lack of a "grace period" to use "old" test pit data. I'm certain I'm not the only designer with data gathered this last summer, that I consider still valid as basis for a design, despite the lack of formal Munsell colors. Similarly, I occasionally have the opportunity to modify a design or permit from several years ago. Having to repeat test pits solely to gather Munsell color codes will add significant expense for my clients, with no real value gained. I therefore ask that you reconsider the possibility of a grace period (to allow continuation of currently active designs), and/or a design alternative to allow the continued use of older data (which, at least on my part, includes "plain English" colors, structure, consistency, etc.).

Response:

The following language will be inserted in § 1-910 of the Rules:

- (f) Notwithstanding Subsection (e), soil descriptions and recordings completed on or after January 1, 2007 and prior to the effective date of these Rules may be accepted by the Secretary, when the descriptions and recordings identify:
- (1) the soil texture corresponding to the name or acronym in Subsection (e)(3);
 - and

- (2) soil structure corresponding to the structure types identified on Table 9-3, or, in the absence of identifying structure, the soil evaluation shall be based on the most limiting soil structure identified in Table 9-3 for the reported soil texture.

115. I've recently started work on a couple different lakeshore projects, each of which has an existing lake water supply, and each of which wants a single-lot subdivision. Reviewing the draft rules' impact, it appears to me that each new lot, to use lake water, will need to install a new service from the lake to comply with the "on its own system" requirement. I think I understand the intent - that each homeowner is individually responsible for the maintenance (or lack thereof) for their own household only. It makes sense to me in these cases though, to share an intake pipe: there is less impact to the environment (digging in only one pipe, or using one already existing) and therefore less initial expense, and there is little that can go wrong with the pipe once construction is complete... essentially no maintenance. Any treatment systems, and even the pumping and pressurization systems could still be individual house-specific, but I don't see any significant benefit to requiring a separate intake pipe for each house. Please consider clarifying this requirement.

Response:

10 V.S.A. § 1981(2) limits the buildings or structures that can be served by a potable water supply utilizing a surface water source. It states that “only one single-family residence shall be served by a potable water supply using a surface water as a source.” A potable water supply includes all of the infrastructure from the surface water source to the residence. This leaves total responsibility for any monitoring, operation, and maintenance of the potable water supply serving the residence to the owner of the residence. A change was not needed.

116. § 1-805 Wastewater Strength (c)(3) literature review of BOD5, TSS, and Fats, Oil, & Grease from buildings or structures, or campgrounds with similar uses, using the highest strength value identified for the particular uses. I believe that using the “highest strength value” can be overly conservative based upon a large sample size with the higher possibility of extreme outliers. In conjunction with the fact that the design flows represent values well above the literature search averages, it is my recommendation that the following alternate language be entertained. (c)(3) literature review of BOD5, TSS, and Fats, Oil, & Grease from buildings or structures, or campgrounds with similar uses, using: (i) the average value with flows derived from Table 8-3 or (ii) the average value plus one standard deviation when using meter derived values identified for the particular uses. Even the use of the average value (when the outliers are included) as opposed to the median value raises the relative factor of safety in this situation.

Response:

§ 1-805 Wastewater Strength (c)(3) is not intended to apply using the design flows in Table 8-3 but intended for use when there is no design flow in Table 8-3, other than for breweries, or when an existing facility undergoes water metering. The highest recorded value, although conservative, allows for fluctuations in operation of a facility without

stressing the wastewater system. Introducing the concept of one standard deviation would conflict with the Rules establishing the 90th percentile for water meter data in § 1-804(c). A change was not needed.

117. I understand that graphics will be available on the Divisions web page. Human nature being what it is, I believe that the success of the interpretation and application of the Rules can be greatly increased by finding a way to include the supporting graphics in the main body of the rules so that a secondary search is not required.

Response:

Diagrams will be placed in the Appendix of the Rules.

118. The next is a general observation that has progressed over time as it relates to intent of minimizing the potential for partially treated effluent from being introduced to surface waters. The requirements for the setback from a downgradient foundation drains is 75 feet. Interestingly, the requirement for separation from a system to a downgradient surface waters is only 50 feet. And for performance-based system, effluent can surface anywhere after 25 feet (requirement to maintain mounded effluent no closer than 6” to the surface and to maintain an area of no disturbance). With all of the work we have done is bringing along certain engineers with the Performance Based approach, it would appear prudent to perhaps modify these distances in a manner where the distances more closely reflect the character of the soil in which the effluent is passing through and being renovated by. An example being: Flow with a hydraulic gradient of 5% through sand (K value of 50) to travel 75’ feet to perforated drain, the travel time is 3.4 days. For a Performance based system where the slope is 10% in a fine sandy loam (K = 20 FT/Day), the travel time over 25 feet is 1.4 days. At 5%, the time of travel is 2.8 days. My general recommendation is to revise the setback distances to require the greater of 25 feet or 3 days of travel time.

Response:

The 50 feet is established as a distance to accommodate many soil types and is anticipating introduction into the groundwater beneath the length of a leachfield thereby diluting the effluent. The effluent will be further diluted upon reaching the surface water. Introduction of effluent to a curtain drain will result in collecting the effluent across the contour downslope of a leachfield and discharging the concentrated water to the ground surface. Further, the Rules do not imply it is acceptable for wastewater to surface 25 feet from a leachfield. The Rules establish the minimum distance a designer needs to demonstrate the effluent will remain 6 inches below ground surface. It is expected the isolation distances to other items that will result in surface discharges will be met. A change was not needed.

119. Add to § 1-928 “The Secretary shall approve the use of holding and pump out tanks as a supplementary system, whether or not the building or structure is publicly owned, when: (1) The use of the tank is for storing a source-separated waste fraction (e.g. urine), and (2) The remaining wastewater from the building, structure, or campground is delivered to an approved wastewater system (e.g. a soil-based wastewater

system or sanitary sewer service line that conveys wastewater to a wastewater treatment facility or indirect discharge system)”).

Response:

Response: A urine diversion design for a wastewater system or wastewater system component, for example a method for installing a holding tank, transporting the urine, treatment of the urine, and point of dispersion to the soil, can be proposed pursuant to Subchapter 4, Innovative/Alternative Systems and Components. A change was not needed.

120. § 1-928(f) Any building or structure or campground served by a holding and pump out tank, other than a marine holding and pump out tank [or urine holding and pump out tank], shall have a water meter, or meters, installed that measures all water that will be discharged as wastewater from the building or structure or campground.
- (g) A permit issued for the use of a holding and pump out tank shall require a designer to periodically inspect the tank, visible piping, and alarms and meet the following requirements:
- (4) Unless permitting a marine holding and pump out tank [or a supplemental holding and pump out tank pursuant to Section (xx proposed above)], the designer shall also inspect the water meter or meters and verify that they are installed, calibrated, and measuring all water that is discharged as wastewater.
- (5) Unless permitting a marine holding and pump out tank [or a supplemental holding and pump out tank pursuant to Section (xx proposed above), the designer shall read the meters and compare the metered flow to the pumping records.

Response:

See response to comment #119. The decision for installing water meters shall be made as a condition of an approval if a proposal is approved. A change was not needed.

121. Could a design flow be added to Table 8-3 for the expected flow for handwashing only, using a high-efficiency sink faucet, applicable to structures with a composting or incinerating toilet?

Response:

The design flow for handwashing only, if such a wastewater system is submitted for review, will be determined case-by-case basis using Table 8-3, and § 1-803(g). A change was not needed.

122. In regard to Permit Exemptions and Variances, our industry asserts that it is essential that the Permit Exemption 1-304(15) that allows for the construction of a replacement well also includes a provision for a variance 1-802(e). Our understanding of the Department’s position is that the permit exemption is provided rather than a permit and therefore the need for a variance from the permit technical standards does not apply. Currently, the Exemption Form allows for the licensed well driller and the land owner to certify that a variance is required by the physical limitations of the site and that additional construction methods have been implemented to offset any reductions in isolation

distances. To safeguard and make this policy clear for future members of our industry and the Department, we feel it would be helpful to include the current Exemption Form for a Replacement Water Supply in the Appendix (?). For clarification we would also like to offer the following language to be considered to 1-304(15)(D); “a permit exemption form, which includes a variance from the technical standards in accordance with 1-802(e), provided by the Secretary that corresponds to the type of replacement supply is recorded and indexed in the land records of the municipality where the single family residence is located, and, if different, where the replacement supply will be located; and”.

Response:

Response: The exemption anticipates the location of a replacement water supply may not comply with all isolation distances since the landowner nor well driller is required to research permits to identify permitted but not constructed wastewater systems. The exemption relies on the professional judgement of the well driller when drilling a well and for the well driller to identify, as part of the exemption form, construction techniques to protect a water source when an isolation distance cannot be met. If § 1-802, Variances, is referenced in the exemption form, the request needs to be prepared by a designer. A change was not needed.. A change was not needed.

- 123.** In regard to Permit Exemptions for Replacement Water Supplies, in many instances a replacement well for a single-family home is sought due to insufficient yield provided by the original source. There are also occasions when the replacement well also offers less than a desired yield and it is reasonable and advantageous to utilize both sources to provide for the needs of the home. There are also examples of people desiring to use their original well as geothermal borehole after a successful well is drilled. While 1-304(15) does not appear to preclude a property from installing and maintaining two sources to meet the needs of the property, the current Exemption Form on Page 1, at the end of the first paragraph, includes; “This exemption does not apply if the proposed well will be used in conjunction with an existing well.” We feel it would be helpful to replace this language with: “When a replacement well is to be used in conjunction with the existing well, allowing for more than one source to meet the demands of a residence, this exemption applies only if the replacement source meets the requirements of 1-1102(b)(2), otherwise a permit may be necessary to demonstrate the need for multiple sources to meet the demands of the residence.” This or similar language, in our opinion, would provide the opportunity for more than one well to provide for a residence while not allowing a loophole for split wells.

Response:

§ 1-1102(b) indicates when a building or structure can be served by more than one well. To the extent current forms do not conform with the amended Rules, they will be updated when the Rules are adopted. Additionally, § 1-304(16) was added that states: The development of a potable water source to supplement an existing potable water source serving only one single-family residence on a lot with no other buildings or structures and with no campground, provided:

- (A) the supplemental potable water source will not be located in an area classified by the Secretary as a Class IV groundwater area;
- (B) the supplemental potable water source is not a surface water source;
- (C) there is not a change in use of the single-family residence to also be a child care facility;
- (D) the potable water supply presumptive isolation zone for the supplemental potable water source does not extend onto land owned by a person different than the owner of the single-family residence;
- (E) a plan, with contours, drawn to scale, prepared by a designer, showing the location of the existing and supplemental potable water sources, the location of the potable water supply presumptive isolation zone for the supplemental potable water source, and the boundary lines for the lot on which the single-family residence is located, and, if different, the lot with the existing potable water source and the lot the supplemental potable water source will be located;
- (F) a form provided by the Secretary, which includes the plan, is recorded and indexed in the land records of the municipality where the single-family residence is located, and, if different, the existing and supplemental potable water sources will be located; and
- (G) water sampling that complies with § 1-1113(b) and (c) is conducted prior to any consumptive use of the water from the additional potable water supply.

124. In regard to Isolation Distances and Table 11-1 - While many Vermonters may understand the theoretical concept of “first in” for isolation standards, I believe there is less than tepid support for “overshadowing”. The horizontal isolation distances in Table 11-1 seem to apply only to the isolation distances between a water source and sources of contamination with no regard to property ownership. It is hard for me to believe that the generators of these sources of contamination do not have to own the property required for the isolation of their applied contaminants. The isolation distances for the growing number of storm water infiltration galleries and the increased isolation distance to agricultural cropland are of specific concern. My understanding is that storm water catch basins can be constructed with the edge of the berm located at the edge of the property line. Therefore, the isolation distance may overshadow and extend primarily onto the adjacent property owner’s property. I am not sure that I can fully appreciate the difference between the isolation standard of 25’ for a traveled roadway with its volume of vehicular traffic, commensurate application of vehicle leakage and salt applications and isolation standard of 100’ to a catch basin for a parking lot. On the Agricultural Cropland Isolation Standard, it is common sense and appropriate to not “cuss the farmer with your mouth full” and I certainly appreciate the hard work and dedication of farmers, however, Table 11-1 seems to require that every planted acre and cornfield in Vermont will require a 100’ buffer, again to be potentially wholly located on neighboring properties. There are a lot of cornfields in Vermont, and the application of this isolation standard will deny permits and prevent the building of homes on acreage previously purchased and believed to be developable by adjacent owners. It appears that a permit applicant may request a reduction in the required isolation distance in 1-1104(k) and this

would seem appropriate. As stated in 1-1104(k)(1) “The Secretary shall authorize the use of a reduced isolation distance or isolation zone between a potable water source and a particular source of contamination when the Secretary determines that the isolation distance specified in Table 11-1 or the isolation zone identified pursuant to Subsection (f) I unnecessary to protect human health because the specific site conditions, or the construction techniques and pipe materials for the potable water supply or wastewater system will prevent the performance of the potable water supply from being impacted by the potential source of contamination.” For clarity we believe that a statement referencing 1-1104(k) be included in 1-802(a) and not be necessarily precluded by 1-802(b) which states that “Variances are not available in circumstances other than those identified in Subsection(a)”. If there is no conflict can the Department offer clarity to the statement in 1-802(b)? I am not sure that I understand how 1-802(b) can be applied if 1-1104(k) is available for use.

Response:

§ 1-1104(k) allows the Secretary to authorize a reduction of an isolation distance or zone otherwise required pursuant to § 1-1104 only after making the finding, based on information provided by the applicant or prospective applicant, that the isolation distance or zone “is unnecessary to protect human health because the specific site conditions, or construction or the construction techniques and pipe materials for the potable water supply or wastewater system will prevent the performance of the potable water supply from being impacted by the potential source of contamination.” A reduction cannot be granted without this finding.

Pursuant to § 1-802, variances can be requested from one or more technical standards, including the provisions of § 1-1104. All of the requirements in § 1-802 must be met prior to the grant of a variance pursuant to § 1-802. A change was not needed.

125. In regard to Table 11-2 – I believe the intent of the Department is to have Confined Surficial Aquifers appear in the table with bedrock wells rather than with Unconfined Surficial Aquifers.

Response:

Yes, Table 11-2 is modified to state “Potable water sources in bedrock or confined surficial aquifer” and “or confined surficial aquifer” was removed from the unconfined section.

126. In regard to Closure of Potable Water Sources – There have been many instances of unqualified contractors attempting to close water wells and often doing so improperly. To provide clarity we suggest moving 1-1115(d) to become 1-1115(c). It would seem to offer better guidance for the Department to define who can perform the closure of a source and then present the appropriate steps for completing the closure.

Response:

The order is changed so who may close a well greater than 20 feet deep is now (c) and the steps for closing a well is now (d).

127. In regard to Water Source Design and Construction – Perhaps I have missed this or perhaps this is covered in another section of Rules, but, shouldn't the Rules include somewhere near 1-1102 or near 1-1205(a) include “the construction of a groundwater potable water source that is equal to or greater than 20 feet deep shall be performed by a Vermont Licensed Well Driller”. We mention that closure must be performed by a Vermont Licensed Well Driller in 1-1115(d). We reference the grouting of annular space in 1-1106 with references to drilling.

Response:

A condition added to § 1-1102(e) stating: “The construction, installation, or hydrofracturing, of a groundwater potable water source, except the construction or installation of a potable water supply using surface water, that is equal to or greater than 20 feet deep shall be performed by a well driller.”

128. Additionally, we have no reference to Hydro-fracturing of water wells. Again, perhaps in Subchapter 11, we should include language to the effect that; “the hydro-fracturing of bedrock water wells shall be performed by a Vermont Licensed Well Driller.” “Packers shall be set at a minimum of 40’ below the bottom of the well casing” For both Well Drilling and Hydro-fracturing it would be advisable to include; “Process water for Well Drilling and Injection water for hydro-fracturing of water wells shall be potable or if unavailable in sufficient quantity, obtained from a clear surface water source and disinfected with an initial dosage of at least 100 mg/L of Chlorine”.

Response:

Response: § 1-1205(a)(4) was added to state “ensure process water for drilling a source, or injection water for hydrofracturing a water source, is obtained from a potable water source or public water source; however, if such water is unavailable in sufficient quantity, ensure clear, non-potable water that is obtained from a surface water body and is disinfected with an initial dosage of at least 100 mg/L of chlorine prior to using it as the process water.”

129. The rules related to filtrate effluent do not appear to be geared for systems which passively distribute, treat and disperse filtrate effluent in the same footprint. We feel now would be the time to address these differences in technologies rather than needing to ask for exemptions in a brand-new rule set. When an advanced treatment system undergoes testing protocols to meet NSF/ANSI standards and the system tested does not utilize pressure or dosing applications, the state approvals for these systems should exempt their use as well, unless they are specified by the manufacturer of a proprietary product.

Response:

Pursuant to Subchapter 4, data to support a different I/A technology that the Rules does not include and the basis for considering the different I/A technology must be included with each application. One piece of information for accepting a different technology is third party testing. There are additional information and design considerations to be

resolved prior to the Agency making the decision to accept different technology or systems. A change was not needed.

- 130.** Also, sampling ports are designed to sample from single-point discharge systems and many innovative/alternative systems are not designed for single-point discharge. Therefore, requiring sampling ports in these systems could potentially cause the system to function in a way that they were not designed, or could provide inaccurate sampling results. Thus, we are requesting consideration for systems that have undergone third party testing and have proven results to the required level of treatment, be given an exemption from the sampling port requirements set forth in these regulations.

Response:

The decision for sampling ports, locations, and number, will be made by the Division during the review process for an innovative/alternative wastewater system. The I/A system typically allows a reduction in size of the wastewater leachfield or a decrease in vertical separation to the seasonal high groundwater table or other limiting soil condition. Because I/A systems are proposed for varying types of discharges, relying solely on third party testing may not provide similar test results for a different use. A change was not needed.

- 131.** 1-103 Statewide Technical Standards (a) – This section notes that the technical standards of these rules supersede existing municipal ordinances and bylaws. It is understood that the technical standards need to apply to those soil base wastewater systems but it is not likely the intent that these standards should supersede Municipal PW Standards, ordinances, etc. Many municipalities have PW standards which apply to new construction of municipal wastewater systems and if these standards meet and/or exceed the technical standards in these Rules, they should not be superseded. Also, many communities define allowable pipe materials, pump station types, etc. as part of their technical standards and they should have the flexibility to customize their preferences as long as they meet the intent of these Rules.

Response:

The Agency is not the author of the legal provision referenced in the comment. § 1-103 corresponds with language in 10 V.S.A. § 1976(b) which refers to governmental authority that the legislature, rather than the Agency, defines for municipalities. As indicated in the Rules, the superseded provisions of municipal ordinances and zoning bylaws are those that pertain to “technical standards for the design, construction, operation, and maintenance of potable water supplies and wastewater systems,” in other words, the extent of the Rules adopted by the Secretary pursuant to 10 V.S.A. § 1978. The comment received by the Agency on this topic is general and does not distinguish between infrastructure that is permitted by the Rules and infrastructure which is not. It also does not distinguish between business practices of individual facilities and municipality-wide governmental regulations. These are other factors relevant to a determination of whether a specific provision sought to be implemented by a municipality is superseded under 10 V.S.A. § 1976(b). A change was not needed.

132. 1-803 – The wastewater design flows as specified for connection to municipal wastewater systems are still a concern as being too conservative. There is usage data (billing based on metered water) from many communities that a single-family residential unit does not average 210 gpd. In most cases, these flows average 150 to 165 gpd and are less than this for residential units with only 2 or 3 bedrooms. If the 210 gpd is used, it is not representative of actual flows once the units are connected. This higher flow can also cause oversizing of new sewer infrastructure once the peaking factors are applied to the design flows. Residential water usage at 380 gpd is also conservative for a typical residential unit, especially for new construction where appliances, fixtures, etc. use much less water and the household sizes have continued to decrease. It would be much simpler if the allocation for both water and sewer flows for residential units were the same for simplicity but understand that the water demands can be slightly higher in summer with water uses that aren't discharged to the sewer.

Response:

See response to comment #27. The water allotment was a decision by the Public Water Supply program to ensure adequate water during all peak usage. A change was not needed.

133. As I understand the proposed Rules, all new buildings and structures require a permit and an associated fee except for the following: a cabin on a campsite in a campground, a primitive camp under certain conditions, buildings/structures used for no more than 28 days of events per year and other conditions, buildings/structures built and used for seasonal outdoor activities under certain conditions, and a few other exemptions that don't apply to private residential or farm situations. Considering the above, I sincerely request for the following exemptions to permitting to be added:

- farm buildings such as chicken coops, pig pens, storage buildings, hoopouses, and greenhouses, etc.
- accessory buildings such as sheds, detached non-plumbed garages, carports, etc.
- bonafide primitive or wilderness campgrounds.

Response:

In response to the request for additional exemptions to cover a multitude of objects which might generally be considered structure or buildings, an exemption is not necessary. Pursuant to § 1-301(a), the action of constructing a “building or structure” requires a permit for the construction and operation of a wastewater system and potable water supply. However, not all objects that one might characterize as a “structure” fall within the definition of “building or structure” in § 1-201(13), and neither do all objects that one might characterize as “buildings,” because not all generic “structures” or “buildings” have a use or useful occupancy that requires a potable water supply or wastewater system. For instance, the construction and common use of a garden shed, carport, or hoop house do not require a potable water supply or wastewater system. The definition of building or structure in § 1-201(13) identifies common examples that do fall within the definition.

In response to the request for an exemption for some types of camping or campgrounds, an exemption is not needed to cover primitive camping. Areas used for primitive camping are excluded from the definition of "campsite" in § 1-201(15) and do not constitute a campground. Areas used for non-primitive camping fall within the definition of campsites, and the creation of campgrounds with these campsites does require a permit for the construction and operation of a wastewater system and potable water supply. A change was not needed.

134. As I understand the proposed Rules, they place the same requirements upon mainstream residences as upon low-impact or low-water-capacity or "primitive" residences (which are legal in VT as non-public buildings in terms of the Fire & Safety Building Code). Considering this, I sincerely request that permitted options be added that are degree- and kind-appropriate to the following:
- "primitive" year-round residences such as yurts, cabins, traditional-Amish-style houses, indigenous wigwam residences, and other structures whereby water is supplied by hand-carried or -pumped or rain-collected or similar means; there are no plumbed appliances like washing machines; human waste is managed via any of various "alternative" toilets; and as a result, wastewater produced and public health risk are minimal.

Response:

The Rules have a permit exemption for primitive camps. All other buildings or structures with residential uses need a potable water supply and wastewater system because people need a sink and some form of bathing that is available year-round; and the ability to dispose of the wash water. The wash water contains pathogens, so the wastewater system needs to comply with the technical standards and capable of functioning year-round so wastewater does not surface on the ground. Rain water or similar water is not considered a potable water source under the proposed Rules. A change was not needed.

135. More specifically, as I understand the proposed Rules, they don't allow for the following that I sincerely request be added as primary, independent, permitted options for residences:
- hand-carried, hand-pumped, and roof-rainwater-collected water supplies
 - compost and moldering toilets, vermicomposting toilets, pit privies (with proper distance from water table, etc),
 - no interior plumbing
 - leachfield-only greywater systems without septic tanks.

Response:

Rainwater from a roof is not an allowed source for a potable water supply in the Rules. Water coming off roofs will contain pathogens derived from birds, animals, and insects, as well as pollutants potentially derived from roofing material, transmitted through the air, or contained in precipitation. Composting toilets are allowed by the Rules. Other type of composting of human wastes, such as moldering toilets, are under the jurisdiction of another program within the Agency and therefore have not been included in these Rules. Septic tanks are important for all wastewater systems to remove floatables, scum, etc.,

even with the absence of solids from a toilet, and to begin the treatment process prior to discharging to a leachfield. A change was not needed.

- 136.** For your convenience, below I have included website addresses and quotes in the form of cropped screenshots of the governments of the neighboring states of NH and Maine that, though not ideal in my opinion, are examples of allowances for non-mainstream and low-impact residences, which the VT WSPWS Rules do not seem to allow.

-NH's Dept. of Environmental Services has in its Rules shown here,

<https://www.des.nh.gov/organization/commissioner/legal/rules/documents/env-wq1000.pdf>, the allowances shown in this email's attachment titled "screenshot NH DES alternate systems". Please see the full document for complete information.

-Maine's Division of Environmental Health has in its Rules shown here,

<https://www.maine.gov/sos/cec/rules/10/144/144c241.docx>, the allowances shown in this email's attachment titled "screenshot Maine DEH primitive and limited disposal systems". Please see the full document for complete information.

Response:

The Rules address similar type of facilities, such as primitive camps, only with variations for performance expectations. These Rules are based on the life of the structure and expectations that sanitary facilities are necessary for human health. A change was not needed.

- 137.** Structures used for overnight or day-use recreational purposes on a year-round or temporary basis shall not be required to have a grey water/leachfield septic system when there is no running water. This should apply to structures located on both public and private land. In such situations, composting privies, vaulted privies, pit latrines, or similar outhouse may be utilized for human waste.

Response:

The following was added to § 1-201(13)(C): “For the purposes of these Rules, a remote hut used by outdoor recreationists with no connection to a water source, no connection to a wastewater system (other than a composting or incinerating toilet that does not yield a liquid, provided its contents are disposed of in compliance with § 1-929), and accessible only by foot or water, is not a building or structure.”

List of Changes to Wastewater System and Potable Water Supply Rules

The following changes were made to the proposed Wastewater System and Potable Water Supply Rules in response to comments received.

- § 1-201(13)(A)(ii) was changed by removing “only used for less than 180 days in any calendar year” for consistency with the definition of campgrounds.
(Comment 30)
- § 1-201(13)(C) was changed to include “For the purposes of these Rules, a remote hut used by outdoor recreationists with no connection to a water source, no connection to a wastewater system (other than a composting or incinerating toilet that does not yield a liquid, provided its contents are disposed of in compliance with § 1-929), and accessible only by foot or water, is not a building or structure.”
(Comment 137)
- § 1-201(53) was added to define “land surveyor” to mean a land surveyor licensed by the Board of Land Surveyors under 26 V.S.A., Chapter 45.
(Comment 65)
- § 1-201(93) defining the term “Special Flood Hazard Area” was deleted and replaced with (36) defining the term “Flood Hazard Area.” The following subsections in the Rules were correspondingly changed to remove “special”: § 1-903(f), § 1-1103(b), § 1-1205(d), § 1-1205(e), and § 1-1205(f).
(Comment 19)
- § 1-304(15) was changed to add as (D) “if the replacement supply is a water service line and a booster pump will be installed in the single-family residence, the technical standards for the booster pump design in § 1-1111(d) are met (Secretary approval for the installation of the booster pump is not required).”
(Comment 2 in the Responsive Summary – Water Supply Rule)
- § 1-304(16) was added:
 - The development of a potable water source to supplement an existing potable water source serving only one single-family residence on a lot with no other buildings or structures and with no campground, provided:
 - (A) the supplemental potable water source will not be located in an area classified by the Secretary as a Class IV groundwater area;
 - (B) the supplemental potable water source is not a surface water source;
 - (C) there is not a change in use of the single-family residence to also be a child care facility;
 - (D) the potable water supply presumptive isolation zone for the supplemental potable water source does not extend onto land owned by a person different than the owner of the single-family residence;
 - (E) a plan, with contours, drawn to scale prepared by a designer, showing the location of the existing and supplemental potable water sources, the

location of the potable water supply presumptive isolation zone for the supplemental potable water source, and the boundary lines for the lot on which the single-family residence is located, and, if different, the lot with the existing potable water source and the lot the supplemental potable water source will be located;

- (F) a form provided by the Secretary, which includes the plan, is recorded and indexed in the land records of the municipality where the single-family residence is located, and, if different, the existing and supplemental potable water sources will be located; and
- (G) water sampling that complies with § 1-1113(b) and (c) is conducted prior to any consumptive use of the water from the additional potable water supply.

(Comment 123)

- § 1-304(28) was added to codify an exemption that is currently in guidance and is similar to other exemptions:

The periodic and temporary creation of a campground provided:

- (A) The campground is not connected to a water service line, water service pipe, or sanitary sewer service line;
- (B) there are no more than 10 nights of camping per year; and
- (C) there is no discharge of wastewater to the ground surface.

(Comment 37)

- § 1-311(b) was modified to remove “(1) The GPS coordinates for the potable water source and the leachfield, mound, at-grade, or bottomless sand filter system.”

(Comment 28)

- Subchapter 5 was retitled to “Administrative Reconsiderations; Appeals; Enforcement”

(Comment 43)

- § 1-802(e)(2)(A)(i) was edited to add “of” after development.

(Comment 23)

- Table 8-2 was replaced with the following:

<i>Use of Campsite</i>		
Type or description of campsite use	Units	Gallons Per Day Per Unit
<i>Campsites for Tents and Other Camping Units with No Interior Plumbing</i>		
central toilets with showers	site	75
central toilets without showers	site	50

<i>Use of Campsite</i>		
Type or description of campsite use	Units	Gallons Per Day Per Unit
<i>Campsites for Camping Units with Interior Plumbing but No Sewer Hook-Up</i>		
central toilets facilities	site	50
dumping station	site	25
<i>Campsites for Camping Units with Sewer Hook-Up</i>		
with or without central toilet facilities serving the units	site	75
<i>Cabins with Plumbing; Park Model Recreational Vehicles</i>		
with or without kitchen but without laundry facilities	sleeping space*	50
with or without kitchen but with laundry facilities	sleeping space*	70

(Comment 30)

- § 1-804(d) was updated to replace “a minimum of daily water meter readings for a year, unless the wastewater system and potable water supply will not be operated every day of the year, in which case daily water meter readings shall be taken for each day in operation” with:
 - (1) A minimum of daily water meter readings for a year, unless:
 - (A) the wastewater system and potable water supply will be operated for less than 180 days of days, in which case, daily water meter readings shall be taken for each day in operation; or
 - (B) the wastewater system and potable water supply will be operated for 180 days or more and the Secretary concludes that 1 year of daily water meter readings is not necessary to demonstrate the wastewater strength and quantity of water necessary for the proposed use and the Secretary provides approval, prior to the collection of water meter readings, for daily water meter readings to be taken for 180 consecutive days. An applicant seeking such approval shall submit the following information:
 - (i) the nature the existing use of the building or structure, including equipment that may be part of the use and any manufacturing process, that will be in use when meter readings will not be taken;
 - (ii) seasonal variations in occupancy or water usage of the building or structure demonstrating that all variations will be recorded during the 180 days;

- (iii) wastewater strength and characteristics, including BOD and TSS, that may be required to adjust the sizing of the leachfield according to § 1-904 and as further described in Subsection (e), for the days when meter readings will not be taken; and
- (iv) other information the Secretary deems necessary based on the specific proposed use and request.

Additionally, “by the Secretary” and “and based in information submitted by the applicant” was inserted into (2).

(Comment 3)

- § 1-910(e) was edited to add “according to the structure types identified on Table 9-3” after “structure” and § 1-910(f) was added:
 - (f) Notwithstanding Subsection (e), soil descriptions and recordings completed on or after January 1, 2007 and completed prior to the effective date of these Rules may be accepted by the Secretary when the descriptions and recordings identify:
 - (1) the soil texture corresponding to the name or acronym in Subsection (e)(3); and
 - (2) soil structure corresponding to the structure types identified on Table 9-3, or, in the absence of identifying structure, the soil evaluation shall be based on the most limiting soil structure identified in Table 9-3 for the reported soil texture.

(Comment 114)

- Table 9-3 was revised to separate “Very Coarse Sand or Coarser” from “Coarse Sand, Sand”

Soil Characteristics		Application Rates (gallons per square foot per day)			
Texture	Structure Type ¹	In-Ground Trench	In-ground Bed	At-Grade Leachfield	Leachfield in a Bottomless Sand Filter
Very Coarse Sand or Coarser	SG	See § 1-919(b)	See § 1-919(b)	1.00	1.00
Coarse Sand, Sand	SG	1.50	1.20	1.00	1.00

(Comment 22)

- The following note was added after Table 9-6:
 “Note: See § 1-903(g) for additional restrictions concerning the location of a wastewater system components in proximity of a Public Community Water System.”
 (Comment 90)
- § 1-917(d)(1), § 1-918(d)(1), § 1-920(g)(1), § 1-921(k)(2), and § 1-922(i) were modified to each read “Construction shall not occur if a sample of soil obtained from approximately 8 inches below the surface can be easily rolled into a wire. This indicates the soil moisture content is too high for construction purposes.”

(Comment 61)

- § 1-919(b) was revised to replace “texture of coarse sand or sand” with “texture of very coarse sand or coarser” and the following was added “and there is no soil with a thickness of 1 foot or greater with a percolation rate 1 minute per inch or slower or a soil texture of coarse sand or finer between the bottom of the proposed infiltrative surface of an in-ground leachfield and the seasonal high groundwater table or bedrock”
(Comment 22)
- § 1-920(c) was revised to replace “or has a soil texture of coarse sand or sand” with “or a soil texture of very coarse sand or coarser, unless there is a soil with a thickness of 1 foot or greater with a percolation rate 1 minute per inch or slower or a soil texture of coarse sand or finer between the bottom of the proposed infiltrative surface of the leachfield and the seasonal high groundwater table or bedrock.”
(Comment 22)
- § 1-920(g)(16) was edited to remove “Install the swale, or.”
(Comment 8)
- § 1-1007(a)(2)(B)(ii) was changed to state “150 pounds” rather than “50 pounds.”
(Comment 11)
- § 1-1102(e) was added: “The construction, installation, or hydrofracturing of a groundwater potable water source, except the construction of a potable water supply using surface water, that is equal to or greater than 20 feet deep shall be performed by a well driller.” The term licensed well driller was replaced with “well driller” throughout the Rules.
(Comment 127)
- Table 11-2 was modified to move “or confined surficial aquifer” to follow “bedrock” in the first column.
(Comment 125)
- § 1-1115(e) was moved to § 1-1115(c).
(Comment 126)
- § 1-1205(a)(4) was added: “ensure process water for drilling a source, or injection water for hydrofracturing a water source, is obtained from a potable water source or public water source; however, if such water is unavailable in sufficient quantity, ensure clear, non-potable water that is obtained from a surface water body and is disinfected with an initial dosage of at least 100 mg/L of chlorine prior to using it as the process water.”
(Comment 128)
- Appendix A was updated to add Subsection (b): “When the application includes one or more existing or proposed lots, the latitude and longitude for the center of each existing or proposed lot identified in the application shall be reported on the application form using a global positioning system receiver using the NAD 83 coordinate system or a NAD 83 base map. The coordinates shall be reported in decimal degrees to five decimal

places with an accuracy of +/- 50 feet. Because many lots are irregularly shaped, the center location can be approximate.”

(Comment 28)

- The following examples were placed in the Rules as Appendix C and associated notes were added to the Rules:

Figure C-1	Example of 50-foot Calculation for Reconstruction
Figure C-2	Detail of Typical Groundwater Monitoring Well
Figure C-3	Detail of Typical Site that was Re-Graded
Figure C-4	Example for Drawing Isolation Zone Around a Drinking Water Source
Figure C-5	Detail of Typical Time Dosing Pump Station
Figure C-6	Detail of Typical Shallow Trench Wastewater System
Figure C-7	Detail of Typical Trench Wastewater System With 24 Inches of Limiting Soil
Figure C-8	Detail of Typical Trench Wastewater System With 24 Inches to 5 Feet of Limiting Soil
Figure C-9	Detail of Typical At-Grade Leachfield with One Infiltration Area (0-3 % Site Slope)
Figure C-10	Detail of Typical At-Grade Leachfield with Two Infiltration Areas (> 3 % Site Slope)
Figure C-11	Detail of Typical At-Grade Leachfield with Interfingering Infiltration Areas (> 3 % Site Slope)
Figure C-12	Detail of Typical Bed in a Mound
Figure C-13	Detail of Typical Leachfield in a Bottomless Sand Filter
Figure C-14	Detail of Typical Leachfield using Subsurface Drip Distribution
Figure C-15	Example for Drawing Isolation Zone Around a Leachfield
Figure C-16	Detail of Typical Drilled Bedrock Well
Figure C-17	Detail of Typical Driven Well
Figure C-18	Detail of a Typical Shallow Well

(Comment 117)

The following administrative changes were made to the proposed Wastewater System and Potable Water Supply Rules to increase clarity.

- § 1-201(14) and (15), defining the terms “campground” and “campsite,” were modified to use consistent terminology between the terms. The words “occupied or made” were added to Subsection (14) and the definition of campground in Subsection (15) was modified to state “means an area that is occupied or made available to be occupied for vacation or rental purposes by a camping unit, such as a tent, yurt, teepee, lean-to, cabin, or recreational vehicle. For the purposes of this definition “primitive camping” means camping that involves temporary overnight occupancy in a natural environmental setting without a potable water supply, a wastewater system, picnic tables, or other developed structures or facilities and that is left in its original condition upon vacancy such that there is no, or minimal, evidence of human visitation. A campsite may rely on water faucets, central toilet facilities, or a dumping station or may have individual water service lines and sanitary sewer service lines.”

- § 1-201(36), now (37), defining the term “flowing artesian well,” was modified by adding “bedrock aquifer or” to be technically correct, a flowing artesian well can be in either a bedrock or confined aquifer.
- § 1-201(46), now (47), defining the term “indirect discharge system,” was changed by removing “pursuant to 10 V.S.A. § 1263 or § 1265 or is otherwise permitted” to promote readability and ensure accuracy.
- § 1-201(48), now (49), defining the term “injection well,” was changed by removing “pursuant to 10 V.S.A. § 1263 or § 1265 or” to promote readability and ensure accuracy.
- § 1-201(50), now (51), defining the term “instantaneous peak demand,” was modified by adding “or determined by these Rules” because the instantaneous demand of a residential living unit of 5 gallons per minute is only determined in the proposed Rules, not in the Vermont Plumbing Rules.
- § 1-201(56), now (57), defining the term “linear loading rate,” was modified by removing “or as determined by a hydrogeologist” because “linear loading rate” is a number for determining the length of a leachfield, regardless of who determines the number.
- § 1-201(64), now (65), was modified to include two additional examples of the defined term “modifies operational requirements,” to remove language in one, and add language to another that improve clarity. “Change in use of a single-family residence from seasonal to year-round” and “Change in the use of a building or structure that produces a waste or wastewater identified in § 1-301(e) which will be treated and disposed of via a wastewater system serving the building or structure” were added as examples (G) and (I). The unnecessary language “that is connected to a soil-based wastewater system or a sanitary sewer service line that conveys wastewater to a wastewater treatment facility or an indirect discharge system,” was removed from what is now example (H).
- § 1-201(69), now (70), defining the term “perched water table,” was modified to more clearly define what is a perched water table.
- § 1-201(72), now (73), defining the term “potable water supply presumptive isolation zone” was modified to add “It takes the size and shape identified in § 1-1105(a)” to ensure consistency in interpretation of the term.
- § 1-201(74), now (75), defining the term “potable water supply presumptive isolation zone” was modified to add “It takes the size and shape identified in § 1-1005(a)” to ensure consistency in interpretation of the term.
- § 1-201(82) and (83), now (84) and (85), defining the terms “sanitary sewer collection line” and “sanitary sewer service line,” were modified to replace “point of treatment at” with “leachfield of” for accuracy.

- § 1-201(102), now (103), defining the term “wastewater system presumptive isolation zone” was modified to add “It takes the size and shape identified in § 1-913(a)” to ensure consistency in interpretation of the term.
- § 1-301(e) was changed to add “any of” in the introductory statement and in (4) to add “which will not receive pretreatment prior to discharge to the septic tank or leachfield to prevent adverse effects” to clarify that the type of wastewater and waste identified in (4) may be able to permitted for treatment and disposal via a leachfield if it is pretreated. The term “wastewater or” was also added to the last sentence in (4) for clarity.
- § 1-304(11) was changed to add “the sanitary sewer service lines comply with the technical standards in Subchapters 8, 9, and 10” as (B) to create consistency across like permitting exemptions and make the requirement express. The term “wastewater system” was replaced with the term “sanitary sewer service lines” in what is now (D) for clarity and a correction was made to remove “sanitary sewer collection lines” from what is now (C).
- § 1-304(12) was changed to add “the water service lines comply with the technical standards in Subchapters 8, 9, and 10” as (B) to create consistency across like permitting exemptions and make the requirement express.
- § 1-304(19)(C) was changed to remove radon and radium and § 1-304(19)(D) was changed to add radon and radium because both contaminants can affect human health through drinking, bathing, preparation of food, and laundering.
- § 1-304(25)(D) became (26)(D) and was changed to remove the term “special” before “events” to comport with the use of the term “event” in the remainder of the provision.
- § 1-304(26)(G) became (27)(G) and was changed to remove the term “special” before “events” to comport with the use of the term “event” in the remainder of the provision. (27)(G) was also changed to add “and alternative hand washing supplies” to comport with (E) of the same section.
- Table 8-1 was edited to correct a math error. The calculation for the water supply serving 19 living units was changed from 7200 to 6840.
- Table 8-3 was modified to replace “Caterer” with “Catering or Take-Out Facility” and the following rows were added because “caterer” implies the facility is licensed by the Vermont Department of Health and would not apply to facilities serving ice cream. Identifying each provides clarity.

ice cream shop	N/A	100
ice cream shop	employee	13
bakery	N/A	100

bakery	employee	13
deli	N/A	100
deli	employee	13

- Table 8-3 was clarified by adding the following footnote in reference to design flows associated with seafood licenses:
 “** Design flow does not include disposal of ice used for storing and displaying seafood. If the ice is disposed of by spraying with water to melt the ice, the design flow needs to include the quantity of water needed to melt the ice.”
- § 1-903(i)(2)(C) was modified to replace 18, an error, with 14.
- § 1-903(i)(4) was edited for clarification to read “For at-grade leachfields, the minimum soil depths of naturally occurring soil shall be met for a distance of:
 - (A) 25 feet beyond the limits of the fill material in the downslope direction; and
 - (B) 10 feet beyond the limits of the fill material on all other sides.”
- § 1-903(j)(2) was edited for clarification to read “The minimum depths of naturally occurring soil shall be met:
 - (A) for a distance of 25 feet beyond the limits of the fill material of the mound in the downslope direction;
 - (B) for a distance of 10 feet beyond the limits of the fill material at each end of the mound; and
 - (C) at the limits of the fill material of the mound in the upslope direction.”
- § 1-903(k)(3) was edited for clarification to read: “The minimum depths of naturally occurring soil shall be met:
 - (A) for a distance of 25 feet beyond the limits of the fill material of the mound in the downslope direction; and
 - (B) for a distance of 10 feet beyond the limits of the fill material of the mound at each end of the mound; and
 - (C) at the limits of the fill material of the mound in the upslope direction.”
- § 1-903(l)(4) was modified for clarification to read “The minimum depths of naturally occurring soil shall be met:
 - (A) for a distance of 25 feet beyond the limits of the fill material of the mound in the downslope direction;
 - (B) for a distance of 10 feet beyond the limits of the fill material of the mound at each end of the mound; and
 - (C) at the limits of the fill material of the mound in the upslope direction.”
- § 1-903(m)(3), was modified for clarification to read “The minimum depths of naturally occurring soil shall be met for a distance of:
 - (A) 25 feet from the edge of the enclosure for the bottomless sand filter in the downslope direction; and

(B) 10 feet from the edge of the enclosure for the bottomless sand filter on all other sides.”

- § 1-904 was modified to insert as a new (a) “Wastewater systems designed to dispose of filtrate effluent shall:
 - (2) be designed using pressure distribution pursuant to § 1-914; and
 - (3) comply with all other technical standards in this Subchapter, except that a wastewater system designed to dispose of filtrate effluent may use up to twice the application rate of soil for sizing the leachfield required by § 1-911.”

This provision replaced the following two provisions: “(a) Except as provided in Subsection (c), wastewater systems designed to dispose of filtrate effluent shall comply with all technical standards in this Subchapter” and “(c) When a wastewater system designed to dispose of filtrate effluent is designed using pressure distribution pursuant to § 1-914, the wastewater systems may use up to twice the application rate of soil for sizing the leachfield required by § 1-911.” This change was made to reflect the need for systems designed using filtrate effluent to use pressure distribution and to reflect the real-world design of systems using filtrate effluent.

- § 1-906(a)(1)(B)(iv)(I) was edited to remove “high” in front of “permeable” because “high,” when used in this Subsection, is subjective and the Subsection identifies the allowed soil textures.
- § 1-908(e), establishing the following express language, was added in order to ensure consistency and compliance with requirements located elsewhere:
 - (e) The excavation for installing a septic tank shall not be located within:
 - (1) 10 feet of the edge of the leachfield stone or other infiltrative surface for an in-ground trench or in-ground bed;
 - (2) 25 feet of the limits of the fill material in the downslope direction, and 10 feet of the limits of the fill material in all other directions, for an at-grade leachfield;
 - (3) 25 feet of the limits of the fill material in the downslope direction, and 10 feet of the limits of the fill material in all other directions for a mound; and
 - (4) 25 feet of the edge of the enclosure in the downslope direction, and 10 feet from the edge of the enclosure in all other directions for a bottomless sand filter.
- § 1-909(a) was modified to add “only” between “serving” and “plumbing fixtures’ to ensure clarity.
- § 1-911(c)(1)(a) and (b), and § 1-920(2)(a)(i) and (ii) were modified to correct the reference to “0 to 4 feet” with “0 to 3 feet” and to comport with § 1-903(i) for the minimum depths of naturally occurring soil below the infiltrative area of an in-ground or at-grade leachfield to the seasonal high groundwater table.
- Table 9-3 was modified to replace the reference to § 1-919(b) in the application rate for at-grade leachfields located in “coarse sand, sand” with 1.00 to avoid confusion.

- Table 9-5 was modified to replace “Normal high-water elevation of surface water” with “Surface water, normal high water” for ease of location.
- § 1-917(c)(5) was deleted as it was redundant with (c)(11) and therefore unnecessary.
- § 1-920(e)(2)(A)(i) and (ii) was changed to correct “4 feet” to “3 feet.”
- § 1-922(i)(6)(C) was modified to add “¼ inch mesh” to be consistent with (i)(6)(D).
- § 1-1001(a)(4) was corrected to replace the reference to “potable water supply” with “wastewater system.”
- § 1-1004(a) was corrected to remove “sanitary sewer service lines and” because § 1-1002 identifies the general requirements for a sanitary sewer service line.
- § 1-1106(a) was edited to add “grouting using the methods identified in § 1-1205(j)” and Subsection (d) the moved to Subchapter 12, Flexible Standards and became § 1-1205(j) because Subchapter identifies when grouting is required while Subchapter 12 identifies construction standards which includes how grouting shall be placed around a well casing.
- § 1-1007(a)(2) was edited to remove “where site conditions prevent obtaining the 10-foot horizontal separation and” and add “when” before “one of the following requirements is met” to be consistent with § 1-1204(a).
- § 1-1007(b)(2) was corrected to add a missing “is” and was edited to remove “where site conditions prevent obtaining the 18-inch separation and” and add “when” before “one of the following requirements is met” to be consistent with § 1-1204(b).
- § 1-1009(a) was edited from “shall not be less than 4 inches” to read “shall be 4 inches” because the Subsection begins with “the minimum force main diameter” meaning the force main “shall not be less than” so is redundant.
- Table 11-1 was modified to replace “Normal high-water elevation of surface water” with “Surface water, normal high water” for ease of location. The following footnote was also added for consistency with Table 9-5: “The horizontal location to surface water shall allow for possible future widening of the surface water due to bank erosion.”
- Table 11-1 was modified to include “Property lines” which had been erroneously excluded and is consistent with current rule.
- § 1-1109(e) was edited to remove “licensed” in front of well driller for consistency in the use of the term well driller.
- § 1-1110(b)(2)(A)(ii) and (C)(i)(II) and (ii)(II) were modified to replace “measured below top of casing or, if major water bearing fractures exist above the PCL, measured

below top of casing to the water bearing fractures” with “pump cut-off level measured below top of casing” to simplify the method to calculate casing storage.

- § 1-1113(c)(2) was modified to add the following for when to take a lead sample: “Water samples taken for lead shall be first draw.”
- § 1-1202(g) was modified to replace “watertight” with “has a discharge pipe that terminates at least 18 inches above ground surface, shall passively drain water from the enclosure, and shall remain visible” to be consistent with § 1-1112(d).
- § 1-1205(b)(4)(i) was edited to add “for 7-inch casing” after “thickness” for clarification.
- § 1-1207(b)(3) was modified to add the following for clarification: “at an elevation below the calculated drawdown level.”
- § 1-1210(d) was simplified to read “Disinfection of water storage tanks shall be completed pursuant to AWWA Standard C652” to comport with the Vermont Water Supply Rule. (d) originally read: “Disinfection of water storage tanks shall be completed pursuant to the following method:
 - (1) fill 5 percent of the total volume of the water storage structure with a water/chlorine solution of 100 mg/L;
 - (2) allow the chlorinated water to rest in the water storage tank for a minimum of 6 hours; and
 - (3) then add water to fill the water storage tank with a combination of the original chlorinated water and additional water to the overflow pipe and allow the diluted chlorinated water to rest in the water storage tank for a minimum of 24 hours before disposing of the chlorinated water.”
- Appendix A, Subsection (b), now (c), (4)(B) was edited to add “limits of the infiltrate area for an in-ground leachfield” which was missing from the list.
- Appendix A, Subsection (b), now (c), (8) was clarified to include “except when the component of the potable water supply is a water service line or a water service pipe, and except when the component of the wastewater system is a sanitary sewer service line connecting to a sanitary sewer collection line.”
- Appendix A, Subsection (c), now (d), (1)(C) was modified to replace “plus a boundary that is 50 feet or less from the proposed leachfield” with “that ends 50 feet or less from the proposed leachfield” for greater clarity and consistency with other subsections.
- Appendix A, Subsection (c), now (d), (1)(G) and (H) was edited to limit identifying test pits and percolation tests to only those “conducted within 50 feet of a leachfield.”
- Appendix A, Subsection (c), now (d), (1)(I) and (J) was clarified to include “within 75 feet of the proposed leachfield.”

- Appendix A, Subsection (d), now (e), (1)(C) was modified to replace “with a boundary that is 50 feet or less from the proposed potable water source” with “that ends 50 feet or less from the proposed potable water source” for greater clarity and consistency with other subsections.
- Appendix A, Subsection (d)(3)(A) and Subsection (e)(3)(A) were added to require inclusion of the “Preparer’s signature, plan title, date, and revision date(s) on all plans.”
- Appendix B, Example 1 Table, was updated to include correct calculations for the examples.
- Formatting and typographical errors were also corrected where identified.