Virginia Department of Health
Sewage Handling and Disposal Advisory Committee (SHADAC) Meeting
Agenda

Date: August 18, 2021
Time: 10 am to 2 pm
Location: 109 Governor Street
5th Floor Large Conference Room
Richmond, VA 23219

Remote Location: Webinar using Webex

SHADAC Members

Mike Lynn, Chairman – Home Builders Association of Virginia
Danna Revis – Virginia Onsite Wastewater Recycling Association
Laura Farley – Virginia Realtors
Matt Tolley – Virginia Association of Professional Soil Scientist
Valerie Rourke – Virginia Department of Environmental Quality
V'lent Lassiter – Chesapeake Bay Local Assistance
Bill Timmins – General Public Representative
Lance Gregory – Virginia Department of Health

Members of the Public

Patrick Fanning	Joel Pinnix	Tom Aston	Anna Killius
Anne Powell	Brent Hunsinger	David Tiller	David Jurgens
David Morgan	Erin Trimyer	Tanya Pettus	Pat Calvert
Marcia Degen			

Administrative

1. Welcome and instruction on using Webex system.

Chairman Lynn welcomed the committee members and the public.

2. Approve agenda.

There were no suggested edits to the agenda.

3. Review summary from June 17, 2021 meeting.

Mr. Gregory noted that while the summary was posted on www.townhall.virginia.gov, he had failed to share the summary with the SHADAC.

Chairman Lynn motioned to table the review of the summary until the next meeting.

Ms. Rourke seconded the motion.

All were in favor.

Public Comment Period

There were no comments.

Standing Agenda Items

1. Issues related to internal VDH policies and processes.
    - Open discussion

Mr. Gregory reminded members of an emailed he shared on July 22, 2021 regarding emergency tickets for marking. He noted several recent incidents where gas lines were punctured by septic contractors probing for septic tanks. In those cases the property had not been marked in advance of probing.

Ms. Revis noted that she brought it to Virginia 811's attention that installation of gas lines near drainfields was a potential violation of sewage regulations, and that utilities need to be keep away from existing drainfields.

Old Business

1. Proposed Fast-track Amendments to the Sewage Handling and Disposal Regulations.

Dr. Degen presented again the proposed fast-track amendments to the Sewage Handling and Disposal Regulations to incorporated rescinded guidance on designs for pads. Dr. Degen focused only on the few edits made based on feedback following the last SHADAC meeting. She noted that VDH's goal is to bring the proposal before the Board of Health at their December 2021 meeting.

She noted that section 880 of the draft was modified just to say to provide for working access to control panel. The section on conveyance pumps was modified to clarify that section does not apply to pumps integral to treatment systems.

Dr. Degen noted that "after settling" was added to language for soil cover, as well as language about the minimum quality of soil cover.

Mr. Tolley asked who would be the arbitrator of how much cover is 6 inches "after settling".

Dr. Degen suggested the arbiter is the designer and installer to determine how much soil cover is need.

Chairman Lynn asked whether the proposal need to address class IV soils for cover; not to be used. He asked whether what the designer specifies would be the guide for the install.

Dr. Degen agreed, and stated the regulations would be a minimum.

Dr. Degen then noted language added to section 960 to draw a distinction between mounds and pads; mounds are always above ground.

Ms. Rourke commented the language was a little confusing, and suggested clarifying language regarding “elevated sand mounds”.

Dr. Degen also noted clarifications for basal area and the orientation of pads based on feedback from SHADAC members.

Regarding the installing pad level, Dr. Degen mention that “plus or minus 2 inches” was added based on comments received from members. That lanaguage comes from GMP 147.

Ms. Revis commented the level bottom issue could be expressed as a percentage of the depth of the pad; perhaps 10%, up to 2 inches. That way really shallow pads can’t vary by 2 inches.

Dr. Degen addressed a comment about zones as noted in the draft amendments. GMP 147 did not allow designers to use pads and trenches in the same system. VDH really doesn’t see why you couldn’t do that as long as the pads and trenches are designed properly. She added language to “follow the respective design criteria found in this chapter”. Also GMP 147 said pads had to be 20 feet apart and the proposal is to use the width of the pad instead.

Ms. Revis commented that if the reserve is upslope the separation requirement may need an exception.

Dr. Degen noted the separation from a pad reserve was to address potential damage from driving over it during installation of the primary.

Ms. Revis noted that if designers had to keep pads 10 feet apart, it would be hard to fit everything in. She saw the need for that kind of separation with mounds, but when you are in the ground with pads she was not sure it is as necessary.

Chairman Lynn commented that the reserve issue is more about install depth.

Dr. Degen asked if the reserve is upslope, does it matter as much.

Chairman Lynn commented that if you are allowing a trench 6 feet below, what is the difference with a pad.

Ms. Revis commented that the out is if it is designed by an engineer then you don’t have to follow it.

Dr. Degen noted that GMP 147 required 20 feet. The width of the pad is less restrictive. She suggested that we could keep the language as is, and insert language below that designs

following a manufacturers manual can deviate, to allow for a deviation from the separation distance in accordance with an approved manufacturers manual.

Dr. Degen asked if VDH should specify that pad reserve must be up slope? So the separation distance may be reduced to 6 feet when the reserve is upslope.

Mr. Gregory suggested that VDH bring the proposal back to the SHADAC one more time once the revisions from this discussion are included. He will check on timing and see whether the SHADAC would need a special meeting, or if we can bring it back at the October SHADAC meeting.

2. Overall Revisions to the Sewage Handling and Disposal Regulations.

Mr. Gregory started the discussion on revisions to the Sewage Handling and Disposal Regulations by reiterating what VDH is seeking to accomplish with the revisions. The revision are intended to be comprehensive and cover all necessary updates. Goals included ensuring that all systems are fully protective of public health, reducing complexity, addressing programmatic changes and industry practices over the last 20 years, and ensuring that a broad range of stakeholders are involved in the process.

During the previous meeting, members asked VDH to define what systems are fully protective of public health and the environment. Mr. Gregory noted that the intent was not to imply that the existing regulations are not protective. He commented that by and large the existing regulations are protective. However, there are some areas for improvement such as clarifying redoximorphic features as being indicators of seasonal high water table.

Mr. Gregory commented that the next step is to being developing smaller workgroups to evaluate specific sections of the regulations and draft recommend revisions. Mr. Gregory shared the attached spreadsheet, and state that VDH would send out a survey based on the spreadsheet to see which small workgroups stakeholders would be interested in. Stakeholders not represented on the SHADAC will be invited to participate as well.

Ms. Rourke noted that an emerging topic that all of state agencies are going to have to grapple with is environmental justice. She commented it might be useful to consult with the policy staff at VDH to consult on expectations for incorporation of environmental justice into regulations.

Mr. Tolley asked how long VDH anticipates workgroups to take.

Mr. Gregory noted he expects workgroups to need to four to five meeting over the next six months; however some groups may not require that much time.

New Business

1. Fee Regulations and Policy Revisions

Mr. Gregory shared the attached draft revision to the Fee Regulations with the SHADAC. Mr. Gregory stated that VDH plans to submit an exempt regulatory action to incorporated fees for

repairs, voluntary upgrades, and safe, adequate, and proper. These fees were established by the state budget and began implementation in 2019. The fees for these applications are specific, stating that VDH "shall charge", thus the revision are an exempt action because there is no discretion in how to implement the new fees. Following revisions to the regulations, VDH also plans to update existing policy on the Fee Regulations.

2. 2022-2023 Chesapeake Bay Watershed Implementation Plan Milestones.

Mr. Gregory noted that VDH is in the process of developing milestones for 2022 and 2023 for the Chesapeake Bay Watershed Implementation Plan. He asked the SHADAC for suggestions on possible milestones.

Chairman Lynn suggested a requirement for wastewater treatment plants to accept sewerage. He noted it is getting harder to find places to that will accept pump out septage. He also suggested making sure at all alternative systems are inspected at least once.

3. American Rescue Plan Act – Septic and Well Funding Opportunities

Mr. Gregory shared that as part of the recent special session of the General Assembly, VDH received funding for septic and well repairs for households at or below 200% of federal poverty guidelines. Specifically, VDH will receive $5.75 million in 2021 and $5.75 million in 2022 to fund improvement. Mr. Gregory stated that VDH is still working on the plan for expending the funds, but welcomed feedback and ideas from the SHADAC

Mr. Jurgens asked whether the funds could be used to assist in connecting to public systems.

Mr. Gregory said he felt that paying to connect owner of septic systems to public sewer is a possibility.

Chairman Lynn commented that it would be good to work with Housing and Urban Development to see if they have processes already set up.

Ms. Revis stated that it always bothered her that there is no money for operation and maintenance. She noted that in Washington, when they fund an alternative system they provide an additional $2,000 to cover maintenance.

Adjourn

12VAC5-610 New Definitions Proposed:

“Infiltrative surface” means the designated interface where effluent moves from distribution piping, media, and fill to natural soil.

"Treatment level 2 effluent" or "TL-2 effluent" means secondary effluent as defined in 12VAC5-610-120 that has been treated to produce BOD_5 and TSS concentrations equal to or less than 30 mg/l each.

"Treatment level 3 effluent" or "TL-3 effluent" means effluent that has been treated to produce BOD_5 and TSS concentrations equal to or less than 10 mg/l each.

"Treatment unit" or "treatment system" means a method, technique, equipment, or process other than a septic tank or septic tanks used to treat sewage to produce effluent of a specified quality before the effluent is dispersed to a soil treatment area.

“Working volume” means the volume in a pump tank between the pump off level and the high water alarm level.

[No changes from 03 2021 version]

12VAC5-610-250. Procedures for Obtaining a Construction Permit for a Sewage Disposal System.

1. Construction permits are issued by the commissioner but all requests for a sewage disposal construction permit shall be directed initially to the district or local health department. . Formal plans and specifications are waived for designs with design flows less than or equal to 1000 gallons per day that are exempt from the license requirements for professional engineers under §§ 54.1-402A.11.

A. Type I. A Type I sewage disposal system is an individual sewage disposal system incorporating a septic tank and subsurface soil absorption (septic tank-subsurface drainfield) serving a single residence. The submission of an application is all that is normally necessary to initiate procedure for obtaining a permit under this subsection. If after a site investigation, it is determined that pumping, enhanced flow distribution (see 12VAC5-610-930 A) or low pressure distribution (see 12VAC5-610-940) is necessary, the system shall be considered a Type II system.

B. Type II. A Type II sewage disposal system is a sewage disposal system incorporating a septic tank and subsurface soil absorption system which serves a commercial or other establishment, more than a single family dwelling unit, or where pumping, enhanced flow distribution (see 12VAC5-610-930 A) or low pressure distribution (see 12VAC5-610-940) is necessary. The procedure for obtaining a permit includes the following steps:

1. The submission of an application;

2. A preliminary conference as necessary; and

3. The submission of informal plans, specifications, design criteria, and other data, as may be required by the district or local health department. Depending on the size and complexity of the system, the submission of formal plans and specifications may be required.

C. Type III. A Type III sewage disposal system includes sewage disposal systems other than a septic tank subsurface soil absorption system, and subsurface soil absorption systems, regardless of design, with design flows greater than 1,000 gpd. The procedure for obtaining a permit under this subsection includes the following steps:

1. The submission of an application;
2. A preliminary conference; and
3. The submission of formal plans, specifications and design criteria. Other supporting data may be required on a case-by-case basis.

When high strength wastes are proposed for subsurface disposal, the treatment methodology shall comply with the requirements found in 12VAC5-580-10 et seq. of the Sewage Regulations.

12VAC5-610-880. Pumping.

880 is split into General and then 2 new pump categories. The <2 fps was eliminated from the general category and is only found in 'conveyance pumps' for final treated TL2 or TL3 treated effluent.

A. Force mains. General.

1. Velocity. At pumping capacity, a minimum self-scouring velocity of two feet per second shall be maintained. A velocity of eight feet per second should not be exceeded.

2. Air relief valve. Air relief valves shall be placed at high points in the force main, as necessary, to relieve air locking.

3. Bedding. All force mains shall be bedded to supply uniform support along their length.

4. Protection against freezing. Force mains shall be placed deep enough to prevent freezing.

5. Location. Force mains shall not pass closer than 50 feet to any drinking water source unless pressure tested in place at pump shut-off head. Under no circumstances shall a force main come within 10 feet of a nonpublic drinking water source.

6. Materials of construction. All pipe used for force mains shall be of the pressure type with pressure type joints.

7. Anchors. Force mains shall be sufficiently anchored within the pump station and throughout the line length. The number of bends shall be as few as possible. Thrust blocks, restrained joints and/or tie rods shall be provided where restraint is needed.

8. Backfilling and tamping. Force main trenches shall be backfilled and tamped as soon as possible after the installation of the force main has been approved. Material for backfilling shall be free of large stones and debris.

B. Pumping station and pumps. General.

1. Sizing. Pumping station wet wells shall provide at least one quarter (1/4) day storage above the high level alarm set point. Actual volume between high and low level limits is determined on a case-by-case basis depending on the objective of pumping: (i) when low pressure dosing is utilized see 12VAC5-610-940 A for sizing requirements; (ii) when pumping to a gravity distribution box the wet well shall be sized to provide a working volume between 1/4 the daily flow and the daily flow; (iii) when pumping for the purpose of enhancing flow distribution (see 12VAC5-610-930 A) the working volume of the wet ~~wall~~ well shall be 0.6 of the volume of the percolation piping.

2. Materials. Materials for construction of pumping stations are the same as for septic tanks (see 12VAC5-610-810). All materials and equipment utilized in pumping stations shall be unaffected by the corrosive action of sewage.

3. Access. An access manhole terminating above the ground surface shall be provided. The manhole shall have a minimum width dimension of 24 inches and shall be provided with a shoe box type cover adequately secured.

4. Construction. Pumping stations constructed of precast or poured in place concrete shall conform with the construction requirements contained in 12VAC5-610-815 E. When precast concrete pipe is utilized for a pumping station, the pipe shall be placed on and bonded to a concrete pad at least six inches thick and having a width at least one foot greater than the diameter of the pipe. All pumping stations shall be watertight. All conduits entering or leaving the pumping stations shall be provided with a water stop. The influent pipe shall enter the pumping station at an elevation at least one inch higher than the maximum water level in the wet well (total usable volume).

5. Installation. Placement of pumping stations shall conform to the requirements for placement of septic tanks contained in 12VAC5-610-815 F.

6. Pumps. All pumps utilized shall be of the open face centrifugal, vertical turbine, or suction lift type designed to pump sewage. Pumps utilized for the sole purpose of pumping effluent to a higher elevation shall have a capacity approximately 2.5 times the average daily flow in gallons per minute but not less than five gallons per minute at the system head. Pumps utilized for the purpose of enhancing flow distribution (See 12VAC5-610-930 A) shall have a minimum capacity of 36 gallons per minute at system head per 1200 linear feet of percolation piping. Pumps discharging to a low pressure distribution system shall be sized in accordance with 12VAC5-610-940 A. Dual alternating pumps are required on systems 1800 linear feet or greater in accordance with 12VAC5-610-930 B. Pumps shall be so placed that under normal start conditions it shall be subjected to a positive suction head. When multiple pumps are used, each pump shall have its own separate suction line. Suitable shutoff valves shall be provided on the discharge line and suction line (if provided) for normal pump isolation. A check valve shall be placed in the discharge line between the pump and shutoff valve. When the pump discharge is at a lower elevation than the high liquid level in the pump station, an antisiphon device shall be provided on the pump discharge. Pumps shall be piped so that they can be removed for servicing without having to dewater the wet well.

7. Controls. Each pumping station shall be provided with controls for automatically starting and stopping the pumps ~~based on water level~~. When float type controls are utilized, they shall be placed so as to be unaffected by the flow entering the wet well. Provisions shall be made for automatically alternating the pumps. The electrical motor control center and master disconnect switch shall be placed in a secure location above grade and remote from the pump station. Each motor control center shall be provided with a manual override switch. The control panel shall be located to allow for working access, ~~and shall be set a minimum of 30 to 42 inches above~~ taking into consideration the finished ground surface elevation.

8. Alarms. A high water alarm with remote sensing and electrical circuitry separate from the motor control center circuitry shall be provided. The alarm shall be audiovisual and shall

alarm in an area where it may be easily monitored. When multiple pumps are utilized, an additional audiovisual alarm shall be provided to alarm when a pump motor fails to start on demand.

9. Ventilation. Positive ventilation shall be provided at pumping stations when personnel are required to enter the station for routine maintenance.

a. Wet wells. Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least 12 complete air changes per hour; if intermittent, at least 30 complete air changes per hour. Such ventilation shall be accomplished by mechanical means.

b. Dry wells. Ventilation may be either continuous or intermittent. Ventilation, if continuous, shall provide at least six complete air changes per hour; if intermittent, at least 30 complete air changes per hour. Such ventilation shall be accomplished by mechanical means.

C. Pumps Integral to Treatment Systems. Pumps integral to treatment systems are pumps that move wastewater within the treatment unit and are required to achieve the desired effluent quality, 12VAC5-610-880.A and B do not apply to these integral pumps that are internal to a treatment systems.

D. Conveyance pumps and pump stations that move TL-2 or TL-3 final effluent to a soil dispersal system shall comply with the following. This does not apply to pumps integral to treatment systems.

1. 12VAC5-610-880.A. shall apply except that the minimum velocity in the force main may be reduced to 1 foot per second.

2. Pump station wet wells shall provide at least one quarter (1/4) day storage above the high level alarm set point. Alternatively, storage may be provided in a treatment tank such as a recirculation tank, but the maximum water level must be 1 inch below the invert from the septic tank.

3. 12-VAC5-610-880.B 2, 3, 4, 5, 7, 8 and 9 shall apply.

4. All pumps utilized shall be of the open face centrifugal, vertical turbine, or suction lift type designed to pump sewage. Pumps utilized for the purpose of enhancing flow distribution (See 12VAC5-610-930 A) shall have a minimum capacity of 36 gallons per minute at system head per 1200 linear feet of percolation piping. Pumps discharging to a low pressure distribution system shall be sized in accordance with 12VAC5-610-940. Dual alternating pumps are required on systems 1800 linear feet or greater in accordance with 12VAC5-610-930 B. Pumps shall be so placed that under normal start conditions it shall be subjected to a positive suction head. When multiple pumps are used, each pump shall have its own separate suction line. Suitable shutoff valves shall be provided on the discharge line and suction line (if provided) for normal pump isolation. A check valve shall be placed in the discharge line between the pump and shutoff valve. When the pump discharge is at a lower elevation than the high liquid level in the pump

station, an anti-siphon device shall be provided on the pump discharge. Pumps shall be piped so that they can be removed for servicing without having to dewater the wet well.

12VAC5-610-950. Absorption area design.

A. The absorption area is the undisturbed soil medium utilized for absorption of the effluent. The absorption area includes the infiltrative surface in the absorption trench and the soil between and around the trenches when trenches are used.

B. Suitability of soil horizon. The absorption trench bottom shall be placed in the soil horizon or horizons with an average estimated or measured percolation rate less than 120 minutes per inch. Soil horizons are to be identified in accordance with 12VAC5-610-480. The soil horizon must meet the following minimum conditions:

1. It shall have an estimated or measured percolation rate equal to or less than 120 minutes per inch;

2. The soil horizon or horizons shall be of sufficient thickness so that at least 12 inches of absorption trench sidewall is exposed to act as an infiltrative surface; and

3. If no single horizon meets the conditions in subdivision 2 of this subsection, a combination of adjacent horizons may be utilized to provide the required 12-inch sidewall infiltrative surface. However, no horizon utilized shall have an estimated or measured percolation rate greater than 120 minutes/inch.

C. Placement of absorption trenches below soil restrictions~~-~~. Placement of the soil absorption trench bottom below soil restrictions as defined in 12VAC5-610-490 D, whether or not there is evidence of a perched water table as indicated by free standing water ~~or~~ gray mottlings or redoxymorphic features ~~coloration~~, requires a special design based on the following criteria:

1. The soil horizon into which the absorption trench bottom is placed shall be a Texture Group I, II or III soil or have an estimated or measured percolation rate of less than 91 minutes per inch.

2. The soil horizon shall be a minimum of three feet thick and shall exhibit no characteristics that indicate wetness on restriction of water movement. The absorption trench bottom shall be placed so that at least two feet of the soil horizon separates the trench bottom from the water table or rock. At least one foot of the absorption trench side wall shall penetrate the soil horizon.

3. A lateral ground water movement interceptor (LGMI) shall be placed upslope of the absorption area. The LGMI shall be placed perpendicular to the general slope of the land. The invert of the LGMI shall extend into, but not through, the restriction and shall extend for a distance of 10 feet on ~~either~~ both sides of the absorption area (See 12VAC5-610-700 D 3).

4. Pits shall be constructed to facilitate soil evaluations as necessary.

D. Sizing of absorption trench area for septic tank effluent.

1. Required area. The total absorption trench bottom area required shall be based on the average estimated or measured percolation rate for the soil horizon or horizons into which the absorption trench is to be placed. If more than one soil horizon is utilized to meet the sidewall infiltrative surface required in subsection B of this section, the absorption trench bottom area shall be based on the average estimated or measured percolation rate of the "slowest" horizon. The trench bottom area required in square feet per 100 gallons (Ft^2/100 Gals) of sewage applied for various soil percolation rates is tabulated in Table 5.4. The area requirements are based on the equation:

$\log y = 2.00 + 0.008 (x)$

where $y = Ft^2$/100 Gals

x = Percolation rate in minutes/inch

Notwithstanding the above, the minimum absorption area for single family residential dwellings shall be 400 square feet.

2. Area reduction. See Table 5.4 for area reduction when gravelless material or low pressure distribution is utilized. A reduction in area shall not be permitted when flow diversion is utilized with low pressure distribution. When gravelless material is utilized, the design width of the trench shall be used to calculate minimum area requirements for absorption trenches.

E. Minimum cross section dimensions for absorption trenches.

1. Depth. The minimum trench sidewall depth as measured from the surface of the mineral soil shall be 12 inches when placed in a landscape with a slope less than 10%. The installation depth shall be measured on the downhill side of the absorption trench. When the installation depth is less than 18 inches, the depth shall be measured from the lowest elevation in the microtopography. All systems shall be provided with at least 12 inches of cover to prevent frost penetration and provide physical protection to the absorption trench; however, this requirement for additional cover shall not apply to systems installed on slopes of 30% or greater. Where additional soil cover must be provided to meet this minimum, it must be added prior to construction of the absorption field, and it must be crowned to provide positive drainage away from the absorption field. The minimum trench depth shall be increased by at least five inches for every 10% increase in slope. Sidewall depth is measured from the ground surface on the downhill side of the trench.

2. Width. All absorption trenches utilized with gravity distribution shall have a width of from 18 inches to 36 inches. All absorption trenches utilized with low pressure distribution shall have a width of eight inches to 24 inches.

F. Lateral separation of absorption trenches. The absorption trenches shall be separated by a center to center distance no less than three times the width of the trench for slopes up to 10%. However, where trench bottoms are two feet or more above rock, pans and impervious strata, the absorption trenches shall be separated by a center to center distance no less than three times the

width of the trench for slopes up to 20%. The minimum horizontal separation distance shall be increased by one foot for every 10% increase in slope. In no case shall the center to center distance be less than 30 inches.

G. Slope of absorption trench bottoms.

1. Gravity distribution. The bottom of each absorption trench shall have a uniform slope not less than two inches or more than four inches per 100 feet.

2. Low pressure distribution. The bottom of each absorption trench shall be uniformly level to prevent ponding of effluent.

H. Placement of absorption trenches in the landscape.

1. The absorption trenches shall be placed on contour.

2. When the ground surface in the area over the absorption trenches is at a higher elevation than any plumbing fixture or fixtures, sewage from the plumbing fixture or fixtures shall be pumped.

I. Lateral ground water movement interceptors. Where subsurface, laterally moving water is expected to adversely affect an absorption system, a lateral ground water movement interceptor (LGMI) shall be placed upslope of the absorption area. The LGMI shall be placed perpendicular to the general slope of the land. The invert of the LGMI shall extend into, but not through, the restriction and shall extend for a distance of 10 feet on either side of the absorption area.

Table 5.4.
Area Requirements for Absorption Trenches Receiving Septic Tank Effluent.

Percolation Rate (Minutes/Inch)	Area Required (Ft^2/100 Gals)			Area Required (Ft^2/Bedroom)		
	Gravity	Gravity Gravelless	Low Pressure Distribution	Gravity	Gravity Gravelless	Low Pressure Distribution
5	110	83	110	165	124	165
10	120	90	120	180	135	180
15	132	99	132	198	149	198
20	146	110	146	218	164	218

25	158	119	158	237	178	237
30	174	131	164	260	195	255
35	191	143	170	286	215	260
40	209	157	176	314	236	264
45	229	172	185	344	258	279
50	251	188	193	376	282	293
55	275	206	206	412	309	309
60	302	227	217	452	339	325
65	331	248	228	496	372	342
70	363	272	240	544	408	359
75	398	299	251	596	447	375
80	437	328	262	656	492	394
85	479	359	273	718	539	409
90	525	394	284	786	590	424
95	575	489	288	862	733	431
100	631	536	316	946	804	473
105	692	588	346	1038	882	519
110	759	645	379	1138	967	569
115	832	707	416	1248	1061	624
120	912	775	456	1368	1163	684

J. Controlled blasting. When rock or rock outcroppings are encountered during construction of absorption trenches the rock may be removed by blasting in a sequential manner from the top to remove the rock. Percolation piping and sewer lines shall be placed so that at least one foot of compacted clay soil lies beneath and on each side of the pipe where the pipe passes through the area blasted. The area blasted shall not be considered as part of the required absorption area.

Section K establishes that all trenches must be constructed using standard methods and materials. The shallowest sidewall on a gravel trench is 12 inches. The shallowest sidewall on a gravelless product in 8 inches. It reiterates that timed dosing is required when trenches are less than 12 inches deep. There is an allowance for approved manufacturer products to deviate from the sidewall and the dosing. To date these have been sand lined treatment products that are being used for dispersal.

K. Trenches receiving TL-2 or better quality effluent are exempt from the increase in trench depth with slope and the cover requirements as found in 12VAC5-610-950.E. The following additional requirements shall apply.

1. Soil dispersal loading rates shall not exceed the values in Table 5.5.

2. The minimum vertical standoff to a limiting feature shall be maintained under the entire infiltrative surface in accordance with 12VAC5-613

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3. The minimum soil cover over the absorption area after settling is 6 inches. ~~—~~ On sloping sites, cover shall be tied back into the existing slope to facilitate stabilization of the slope and maintenance of the site. The soil cover, with amendments as needed, shall be of a quality, character, and fertility suitable to establish a vegetative cover that is uniform and sufficiently mature to survive and inhibit erosion.

4. The minimum installation depth is equal to the sidewall of the dispersal system construction as defined in 12VAC5-930.F, 12VAC5-610-950.E.1, and 12VAC5-610-940 (gravelless). On sloping sites, the minimum installation depth is measured on the downhill side.

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5. When trenches are installed at less than 12 inches from the ground surface, timed dosing shall be used to disperse the effluent.

6. For slopes up to 15 percent slope, there are not any soil texture group limitations for shallow placed trenches receiving TL-2 or TL-3 effluent. For slopes over 15 percent, trench systems installed in Texture Group III and IV soils, are limited to a 12 inch or greater installation depth.

7. Designs supported by Division approved manufacturer's design manuals may deviate from 12VAC5-610-950.K4 and K5.

Commented [DM(1]: *DEQ – this suggested language is based on 9VAC25-840-40 of the Sediment and Erosion Control Regulations, which state that a "Virginia Erosion and Sediment Control Plan must be consistent with … 3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion."]*

9. Not withstanding the above, the minimum absorption area for a single family residential dwelling receiving TL-2 or better quality effluent shall be 400 square feet.

Table 5.5 Soil Absorption Area Loading Rates for Systems Receiving TL-2 or TL-3 Effluent

	TL-2 Effluent				TL-3 Effluent			
Percolation Rate (mpi)	Pressure Trench* Loading (gpd/ft^2)	Gravity Trench* Loading (gpd/ft^2)	Drip** Loading) (gpd/ft^2)	Pad/Mound Loading** (gpd/ft^2)	Pressure Trench* Loading (gpd/ft^2)	Gravity Trench* Loading (gpd/ft^2)	Drip** Loading (gpd/ft^2)	Pad/Mound Loading** (gpd/ft^2)
5	1.8	1.80	0.60	1.20	3.0	3.00	1.00	1.66
10	1.67	1.67	0.56	1.11	2.67	2.67	0.89	1.66
15	1.53	1.53	0.51	1.02	2.33	2.33	0.78	1.66
20	1.4	1.40	0.47	0.93	2.0	2.00	0.67	1.66
25	1.30	1.30	0.43	0.86	1.75	1.75	0.58	1.33
30	1.2	1.13	0.40	0.80	1.5	1.41	0.50	1.11
35	1.10	0.98	0.37	0.73	1.38	1.22	0.46	0.95
40	1.00	0.84	0.33	0.66	1.25	1.05	0.42	0.83
45	0.90	0.73	0.30	0.60	1.13	0.91	0.38	0.74
50	0.8	0.62	0.27	0.53	1.0	0.77	0.33	0.67
55	0.76	0.57	0.25	0.50	0.94	0.71	0.31	0.61
60	0.71	0.51	0.24	0.47	0.89	0.64	0.30	0.55
65	0.67	0.46	0.22	0.44	0.83	0.57	0.28	0.51
70	0.62	0.41	0.21	0.41	0.78	0.51	0.26	0.48
75	0.58	0.36	0.19	0.38	0.72	0.46	0.24	0.44
80	0.53	0.32	0.18	0.35	0.67	0.40	0.22	0.42
85	0.49	0.28	0.16	0.33	0.61	0.35	0.20	0.39
90	0.44	0.24	0.15	0.30	0.56	0.30	0.19	0.37
95	0.4	0.20	0.13	0.27	0.5	0.25	0.17	0.35
100	0.37	0.19	0.12	0.25	0.46	0.23	0.15	0.33
105	0.34	0.17	0.11	0.23	0.43	0.21	0.14	0.32
110	0.31	0.16	0.10	0.21	0.39	0.19	0.13	0.30
115	0.28	0.14	0.09	0.19	0.35	0.18	0.12	0.29

120	0.25	0.13	0.08	0.17	0.32	0.16	0.11	0.28

*Loading rates to trenches, whether gravity or pressure dosed, are based on the gallons per day of wastewater applied to the bottom of the trench.

**Loading rates to drip systems, pads, and mounds are based on the infiltrative surface area provided and are on an aerial basis.

12VAC5-610-960. Elevated sand mound.

A. An elevated sand mound is a soil absorption system that incorporates ~~low~~ pressure distribution and sand filtration to produce treated sewage prior to absorption in the natural underlying soil. The elevated sand mound utilizes less gross soil area than most other soil absorption systems. Elevated sand mounds differ from pads in that the infiltrative surface follows the natural ground surface and contour of the site, are always an above ground system, may receive septic tank effluent and always require pressure distribution.

~~B. Mound systems are considered Type III systems (see 12VAC5-610-250 C).~~

C. Mound systems receiving septic tank effluent shall be designed and constructed in accordance with the Wisconsin Mound Soil Absorption System Siting, Design and Construction Manual prepared by the Small Scale Waste Management Project, School of Natural Resources, College of Agricultural and Life Sciences, University of Wisconsin-Madison dated January ~~1990~~2000 or its successor. Drip dispersal or low pressure distribution shall be used.

D. The manual referred to in subsection C of this section shall be used for the designated construction of elevated sand mounds. The following criteria are required for all elevated sand mound systems in addition to the requirements found in the manual.

~~1. The construction permit shall require permanent water saving devices; however, there shall be no corresponding reduction in the basal area. The construction permit shall be recorded and indexed in the grantor index under the holder's name in the land records of the clerk of the circuit court having jurisdiction over the site of the sewage disposal system pursuant to 12VAC5-610-250 J.~~

2. The proposed mound site shall be fenced, roped or otherwise secured, and marked, to prevent damage by vehicular traffic. Activities on the mound site shall be severely limited in order to protect it to the greatest extent possible.

~~3. Formal plans and specifications, prepared by a licensed professional engineer in accordance with 12VAC5-610-250 G, shall be required and must be approved by the health department prior to any site-disturbing activities.~~

4. ~~The local health department shall be notified at least 48 hours before any work begins on the site, including delivery of materials~~. The mound must be constructed during dry weather and soil conditions. ~~The contractor shall schedule a conference with the local health department to review the plans and specifications prior to beginning any phase of construction, including delivery of materials.~~

5. Wooded sites shall not be used unless it is shown by the applicant that the wooded site is the only site available, and if the applicant can demonstrate that the site can be properly prepared ~~(plowed)~~. If a wooded site is used, trees shall be removed by cutting them off at ground level, leaving the stumps in place. The cut trees shall be removed using methods that

do not require driving equipment over the mound site and that do not result in the removal of any soil from the site. Larger basal areas may be required on wooded sites.

6. When the depth to a restriction, shrink-swell soils or a water table is less than 24 inches, pretreatment sufficient to produce a ~~secondary~~ TL-2 or better quality effluent may be used to reduce these distances as shown in Table X~~4.4.~~

7. The minimum absorption area for single family residential dwellings shall be 400 square feet.

E. Elevated sand mounds receiving TL-2 or better quality effluent shall adhere to the following additional design criteria;

1. The basal area (interface of fill sand and original soil surface) loading rate shall not exceed the values found in Table 5.5 for pads/mounds.

2. The minimum sand depth under the dispersal system is 6 inches.

3. The minimum soil cover over the absorption area after settling is 6 inches. The finished sideslopes cannot exceed 1:4 (rise:run); ~~Soil cover material shall support vegetative growth.~~ The soil cover, with amendments as needed, shall be of a quality, character, and fertility suitable to establish a vegetative cover that is uniform and sufficiently mature to survive and inhibit erosion.

4. Vertical separation to limiting features as found in 12VAC5-613 shall be maintained under the entire infiltrative surface of the basal area.

5. Designs supported by Division approved manufacturer's design manuals may deviate from pressure dosing but require dosing to a gravity distribution system at a minimum.

Commented [DM(1]: *Changes made to be consistent with 950.K.*

DEQ – this suggested language is based on 9VAC25-840-40 of the Sediment and Erosion Control Regulations, which state that a "Virginia Erosion and Sediment Control Plan must be consistent with … 3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion."]

12VAC5-610-966. Pads. [NEW section]

A. A pad is an absorption area wider than 3 feet but not longer than 100 feet with a level infiltrative surface where the bottom of the pad meets the original soil. The minimum standoff to a limiting feature in accordance with 12VAC5-613 is to be met under the entire infiltrative surface.

B. The minimum effluent quality dispersed to a pad is TL2 and pad bottom loading rates shall not exceed the values for pads noted in Table 5.5.

C. ~~Pads are generally installed on contour with the longest dimension of the pad following the contour.~~ The longest dimension of the basal area of the pad, its length, shall be oriented parallel to the natural surface topographic contours. Minor deviations from surface contours are acceptable as long as the bottom of the pad is level (the entire bottom surface of the pad is at the same elevation, **plus or minus 2 inches**), and intersects a similar soil horizon across its surface.

D. Pads and trenches may be used together in a single system when the respective pad or trench subsystems ~~each zone~~ follow the respective design criteria found in this chapter and are separated by a minimum of 6 feet between the sidewall of the pad and the trench. When multiple pads are used on a site, the pads must be separated by the width of the pad as measured perpendicular to the natural surface topographic contour.~~the slope.along the contour~~. This separation applies to reserve pad areas as well. ~~Reserve pad areas must be upslope of an active pad area~~.

E. Pads shall be limited to sites with slopes 10% or less.

~~A.~~ F. Dosing. All pads must be dosed. Pad systems over 1,000 gallons per day must be pressure dosed. When pads are installed at less than 12 inches from the ground surface, timed dosing shall be used to disperse the effluent~~. Pads may be dosed a maximum of 6 times per day. Dose volume shall be less than or equal to 20% of the design wastewater flow [OR maximum of 6 doses per day.~~.

G. The minimum absorption area for single family residential dwellings shall be 400 square feet.

H. Pad Constructon.

a. Gravel pads shall have a minimum installation depth of 12 inches, unless in Texture Group I or II soils where the installation depth can be reduced to 8 inches. On sloping sites, the minimum installation depth is measured on the downhill side. The construction of the pad's gravity percolation line and gravel bedding shall follow 12VAC5-610-930E with the exception that the bottom of the pad is level and not sloping. Piping shall have a maximum center to center spacing of 9 feet.

b. Gravel pads utilizing low pressure distribution shall follow 12VAC5-940 for construction and dosing cycle (volume). Gravel pads using low pressure distribution shall have a minimum installation depth of 12 inches, unless in Texture Group I or II soils where the installation depth can be reduced to 8 inches. On sloping sites, the minimum installation depth is measured on the downhill side. Piping shall have a maximum center to center spacing of 9 feet.

c. Pads utilizing gravelless material as found in 12VAC5-610-930F shall follow 12VAC5-630F and the manufacturer's instructions on minimum depth of installation, but in no case shall a pad be installed at less than 8 inches from the original soil surface. Gravelless material shall have a

Commented [DM(1]: Phrase added to address comment of 'what is the tolerance for level' From GMP 147.

Commented [DM(2]: Comment received: What Is a zone?
Response: See modified language – Any clearer?

Commented [DM(3]: Comment received: How do you characterize the loading rate of trenches and pads?
The loading rates are defined in Table 5.5 for both pads and trenches.

Commented [DM(4]: Received a comment that dosing should be addressed for pads. Options:
(1) From2001 Mound Component Manual for private onsite WWTS – 20% of design flow or less
(2) Alternatively Alabama using a maximum of 6 doses per day.

From June SHADAC – Remove this criteria for max doses.

maximum center to center spacing of 9 feet. On sloping sites, the minimum installation depth is measured on the downhill side.

~~a.~~d. Designs supported by a Division approved manufacturer's design manual may deviate from the maximum slope, depth of installation and timed dosing when the dispersal area is constructed in accordance with the approved manual.

F. The minimum soil cover over the absorption area after settling shall be~~is~~ 6 inches. If the cover is mounded above grade, the finished sideslope cannot exceed 1:4 (rise:run). ~~Soil cover material shall support vegetative growth~~. The soil cover, with amendments as needed, shall be of a quality, character, and fertility suitable to establish a vegetative cover that is uniform and sufficiently mature to survive and inhibit erosion.

Commented [DM(5]: *Changes consistent with soil cover in other sections.*

DEQ – this suggested language is based on 9VAC25-840-40 of the Sediment and Erosion Control Regulations, which state that a "Virginia Erosion and Sediment Control Plan must be consistent with … 3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion."]

Part III. Fees

12VAC5-620-70. Establishing fees.

A. The commissioner shall establish a schedule of fees to be charged by the department for services related to construction, maintenance, and repair or replacement of onsite sewage disposal systems, alternative discharge systems, and private wells and for appeals before the Review Board.

B. In establishing fees, the commissioner shall consider the actual or estimated average cost to the agency of delivering each service included in the schedule of fees.

The following fee schedule is hereby established:

SCHEDULE OF FEES	
Application or Service	Fee
Certification letter, no onsite soil evaluator/professional engineer (OSE/PE) documentation (no charge for well)	$350
Certification letter with OSE/PE documentation, ≤1,000 gpd	$320
Certification letter with OSE/PE documentation, >1,000 gpd	$1,400
Construction permit for treatment works only, no OSE/PE documentation	$425
Combined well and treatment works construction permit, no OSE/PE documentation	$725
Combined well and treatment works construction permit with OSE/PE documentation, ≤1,000 gpd	$525
Construction permit for treatment works only with OSE/PE documentation, ≤1,000 gpd	$225
Construction permit for treatment works only with OSE/PE documentation, >1,000 gpd	$1,400
Combined well and treatment works construction permit with OSE/PE documentation, >1,000 gpd	$1,700
Private well construction or abandonment permit, with or without OSE/PE documentation	$300
Closed-loop geothermal well system (one fee per well system)	$300
Alternative discharge system inspection fee	$75
Minor modification to an existing system	$100
Appeal before the Review Board	$135

Repair permit for a treatment works, < 1,000 gpd without OSE/PE documentation	$425
Repair permit for a treatment works, < 1,000 gpd with OSE/PE documentation	$225
Repair permit for a treatment works, > 1,000 gpd with OSE/PE documentation	$1,400
Voluntary Upgrade for a treatment works, < 1,000 gpd with OSE/PE documentation	$225
Voluntary Upgrade for a treatment works, > 1,000 gpd with OSE/PE documentation	$1,400
Safe, adequate, and proper evaluation without OSE/PE/Installer/Operator documentation	$150
Safe, adequate, and proper evaluation with OSE/PE/Installer/Operator documentation	$100

12VAC5-620-80. Waiver of fees.

A. An owner whose family income is at or below the 20211~~3~~ Poverty Income Guidelines for the 48 Contiguous States and the District of Columbia established by the Department of Health and Human Services, ~~78 FR 5182~~ 86 FR 7732 (January 13~~24~~, 20211~~3~~), or any successor guidelines, shall not be charged a fee pursuant to this chapter. An owner whose family income is at or below 200 percent of the 2021 Poverty Income Guidelines for the 48 Contiguous States and District of Columbia established by the Department of Health and Human Services shall not be charged a fee when the application is for a pit privy or for a repair of a failing onsite or alternative discharging sewage system.

B. Any person applying for a permit to construct a pit privy shall not be charged a fee for filing the application.

~~C. Any person applying for a permit to repair an onsite sewage disposal system or alternative discharging system shall not be charged a fee for filing the application.~~

C~~D~~. Any person applying for a construction permit for the replacement of a private well may be charged a fee for filing the application. Any application fee paid for a construction permit for a replacement well shall be refunded in full upon receipt by the department of a Uniform Water Well Completion Report, pursuant to 12VAC5-630-310, indicating that the well that was replaced has been permanently and properly abandoned or decommissioned.

E. Any person applying for a permit to properly and permanently abandon or decommission an existing well on property that is his principal place of residence shall not be charged a fee for filing the application.

F. Any person who applies to renew a construction permit for an onsite sewage disposal system, alternative discharge system, or private well shall not be charged a fee for filing the application, provided that:

1. The site and soil conditions upon which the permit was issued have not changed;

2. The legal ownership of the property has not changed;

3. A building permit for the facility to be served by the sewage system or well has been obtained or construction of the facility has commenced;

4. No previous renewal of the permit has been granted;

5. The expiration date of the renewed permit shall be the date 18 months following the expiration date of the original permit; and

6. Where the construction permit is for an alternative discharging system, the permit must comply with 9VAC25-110, Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Domestic Sewage Discharges of Less Than or Equal to 1,000 Gallons per Day, issued by the State Water Control Board.

G. Any person whose application for a certification letter or for a permit to construct an onsite sewage disposal system, alternative discharging system, or private well is denied may file one subsequent application for the same site-specific construction permit for which the application fee shall be waived, provided that:

1. The subsequent application is filed within 90 days of receiving the notice of denial for the first application;

2. The denial is not currently under appeal; and

3. The application fee for the first application has not been refunded.

12VAC5-620-90. Refunds of application fee.

A. An applicant for a construction permit, repair permit, voluntary upgrade, ~~or~~ certification letter, or safe, adequate, and proper evaluation whose application is denied may apply for a refund of the application fee. The application fee shall be refunded to the owner or agent, if applicable, if the department denies an application for the land upon which the owner intends to build his principal place of residence. When the application was made for both a sewage disposal system and a private well, both fees may be refunded at the owner's request. Any such request shall be considered a withdrawal of the application.

B. An applicant for a construction permit, repair permit, voluntary upgrade, ~~or a~~ certification letter, or safe, adequate, and proper evaluation may request a refund of the application fee if the applicant voluntarily withdraws his application before the department issues the requested permit. The application fee will be refunded if the application is withdrawn before the department makes a site visit for the purpose of evaluating the application.

C. An applicant who has paid an application fee for a replacement well shall be refunded the application fee in full upon receipt by the department of a Uniform Water Well Completion Report, pursuant to 12VAC5-630-310, showing that the well that was replaced has been properly and permanently abandoned or decommissioned.

D. All applications for refunds must be made to the department no later than 12 months following the date upon which the applicant receives notification that his application for a construction permit or certification letter has been denied, within 12 months following the date

upon which his application was withdrawn, or within 12 months following the date upon which any appeals of the denial of the application have been concluded.

E. All applications for refunds shall be made in writing in a form approved by the department.

F. Applications that have been withdrawn are not subject to appeal.

SHDR Revision Subgroups	
Subgroup Name	**Responsibility**
Programmatic Changes	Private Sector designs, climate change, environmental justice, etc.
Administrative / APA	all of SHDR Parts I and II
Sites and Soils	all sections relating to approvable sites and soils for OSS
Installation / Inspection	emphasis on inspection of OSS installations since the transition of services
LGMI Placement and Design	worksmithing LGMI sections; require treatment; direct dispersal?
Separation Distances / Setbacks	researching science and other regs to make sure our setbacks are adequate
Design Flow	Table 5.1; researching science and other regs to make sure our design flows are adequate
Septic Tank Safety / Child-Proofing	adding a requirement for child-proofing septic tank lids and risers; research other states; work with Family Health
Minimum Installation Depth	wordsmithing min. installation depth section
Minimum Drainfield Size	researching science and other regs to make sure our square footage requirements for perc rates are adequate
Pump and Haul	wordsmithing pump and haul sections
OSS Component Specifications	review requirements for OSS component specifications (material, fall, bedding, etc.)
GMP Inclusion	review GMPs and include in Regs

VDH Members	SHADAC Members	Other Stakeholders
Karri		
LHD	Laura Farley (Realtor Assoc.)	
Steve T.		
Todd		
Rich		
Katy		
Scott		
LHD		
Doug		
Lance		
Family Health Services?		
Steve Elgin		
Brian Stanley		