Fast Track Regulation Process to move GMP 147 into the SHDR

From SHADAC meeting 3/24 2021

from Kim to everyone: 11:08 AM

That working volume at 3/4 of daily design flow seems high. The woking volume for a 4 bedroom would be 450 gallons. I usually do 4 times my dose amount. So a 50 gallon dose has a working volume of 200 gallons.

from Lynn Breeden to everyone: 11:13 AM

Don't we need to be careful on the time dosing side where you need to take pump line length into account so you clear the pump line each dose?

from Mike Lynn to everyone: 11:21 AM

Does the operator have the authority to change the time dosing to something that is not called out in the design or the O&M manual? Are we concerned about regrowth on low flow systems if we dont get it out of the pump tank wuick enough?

from Mike Lynn to everyone: 11:22 AM

Why are we so concerend with the size of the pump tank when there are thousands of grinders installed every year with simplex pumps in an 80 gallon vessel?

from Lynn Breeden to everyone: 11:34 AM

I recal in the Soil data books the 80 inch depth for soil limitation..

from John Ewing to everyone: 11:34 AM

Venting pump systems may need addressing as well.

from Lynn Breeden to everyone: 11:41 AM

you are right. that is in the regulations..

from Lynn Breeden to everyone: 11:42 AM

6 inches under pipe, then 7 to cover pipe with 2 inches over pipe right?

from Mike Lynn to everyone: 11:44 AM

LPD has lower requirement under the pipe, i dont know why, Fairfax local reg requires more gravel under the pipe.

from Reed Johnson to everyone: 11:51 AM

when using high head pumps on long lines, the pipe fill is almost instantaneous. This is especially true when conveying highly treated effluent. the reason is your conveyance line can be 1" and your laterals can be one inch if properly designed with 3-5ft of distal head. in the case working volume really means nothing.

from Lynn Breeden to everyone: 11:54 AM

Curtis, so here they are saying you need TL-2 for a pad but Septic tank effluent is OK for the Wisconsin Mound. In certain situations it seems..

from John Ewing to everyone: 11:59 AM

Does the 6ft stand-off apply to two separate pads or just between a trench and a pad?

from Mike Lynn to everyone: 12:04 PM

pad separation is equal to the width of the pad, I assume that means install pad to reserve pad if required?

from Kim to everyone: 12:04 PM

I'm confused about item J. "The minimum installation depth for gravel pads is 12". Why can't gravel pads have an 8" install depth for example? A minimum 12" install depth for gravel pads in my area is going to wipe out a very high percentage of our Pads.

Pump panel should be 30 to 42 inches above grade

Reed - and pumps that move water to the drainfield too, Should be considered here. Consider that storage can be upfront and not necessarily on end of process. GMP 112 - 30 inch basin to DF

Tom - ? on dosing and minimum dose volume. RMF provide multiple small doses and may not meet the Regs.

Reed - other white paper Converse says small doses are better with highly treated effluent

Joel Pinnix - can/should there be a max depth for install of STE

John Schofield - could vent to get oxygen transfer to deeper depth

DEQ - concurs with adding this language to STE, TL2 and TL3; (950C)

- Concern over using this in wetlands
- Inconsistencies between SHDR and AOSS over absorption/infitrative/soil treatment area/dispersal field -add definition for absorption area that includes soil treatment/ dispersal field terms.

Clarify text regarding LGMI's that it should extend a distance of 10 feet on both, not either, side of the absorption area.

With regard to maintaining vertical separation to a limiting feature under the whole absorption area: or STE we do not have this requirement - why should we be more restrictive with treated effluent.

For pads: DEQ need to define on contour (following or along) , across contour (perpendicular to slope) maybe use elevation

Curtis - can only set upper or lower line on contour - suggests lowest elevation to be on contour

Mike - with puraflo pads - could always square it up. does it matter if its - may go through a natural change in slope

Email Comments:

Thu, Mar 25, 9:49 AM

LRH Soil Consultants, Inc <lrhsoil@gmail.com>
to me, Lance

Good morning Marcia,

I know you and I briefly touched on my concern with proposed reg 12VAC5-610-966. Pads. item J, yesterday in the meeting but I would like to further discuss it and item K.

Pads and trenches are not the same and shouldn't be treated the same. Trench design and loading rates are based on Trench bottom **and** side wall infiltration. Pads are based solely on bottom infiltration. This is shown as fact by item "B. The minimum effluent quality dispersed to a pad is TL-2
and pad **bottom** loading rates shall not exceed the values for pad noted in Table 5.5".
As long as the gravel Pad bottom is in natural soil the sidewalls being natural soil or top soil fill should be of no concern as long as the stone is sufficiently covered (minimum 6") all around the stone including sides.

I probably design around 40 Pads a year with at least 50% of them with install depths less than 12". In our flat, high water table, Coastal plains soils this is a necessity. Even with TL-3 level treatment I try to design with a 12" separation to water table. In our area shallower is better and that brings about shallow install depths.
I'm personally not a fan of gravelless technology in Pads. I have to wonder if any person invested in the use of gravelless technology on the Board helped come up with this new design criteria.

I'm completely in objection to items J. and K. using sidewalls in the design criteria and the minimum gravel install depth of 12". Pads, by design, are flat, bottom infiltration means of dispersal and only the pad Bottom infiltration surface should be relevant.

Thank you for your time and I hope to see this change in the next draft version of the Fast Track Regs. I can also be reached at the phone # listed below for further discussion.

SHDR Fast-Track Amendments – Adam Feris

4/15/21

Section 880:

C. Pumps Integral to Treatment Systems. This section is intended to include what were previously described as “transfer pumps,” correct?

Section 950:

Comment/question regarding installation below perched water table and direct dispersal:

Discussion: I don’t believe that installation below a perched water table would conflict with the definition of direct dispersal. I think part of the issue may be the term “ground water.” Recent

rainwater infiltration that is evident in well-drained soil is groundwater, but that's obviously not the intent of the direct dispersal definition. In my opinion, a perched water table could be treated the same way.

Michael Lynn Mon, Apr 26, 4:14 PM
to me

Yes definitely

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From: Degen, Marcia <marcia.degen@vdh.virginia.gov>
Sent: Monday, April 26, 2021 4:10:58 PM
To: Michael Lynn <mlynn@ses-company.com>
Subject: Re: Variances

Yes and let's keep this in mind as we rewrite regs. Should we put something in the fast track to have a separation between reserve and primary pads if the primary is not downslope of the reserve?

Marcia J. Degen, Ph.D., P.E.

Wed, Mar 24, 12:37 PM

Scott Currie <scott.currie@anuainternational.com>
to me

The main note I have is determining the amount of pipe in a pad. A lot of these designs have a d-box and then just some random amount of pipe spaced out randomly. There needs to be a standard that EHS can look to, to approve these designs. (i.e a three foot wide trench gets a piece of pipe so do we require a pipe for every three foot of pad width. How much pad bottom is accounted for for each run of pipe?)

I like the minimum depth stuff. Personally I think anything shallower than 13" for gravel (6" below, 4" pipe & 3" above pipe) and 8" for gravelless should be engineered. I have seen a lot of shallow trenches treated or untreated as soon as they get above grade and use fill things get out of hand.
Another item to address is the dosing in a pad (enhanced flow 60% of the volume pipe, Reed's micro dosing(LOL), or some other standard) This needs to be set in order to actually remove pad from the practice of engineering.

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15 April 2021

Marcia J Degen, Ph.D., P.E.
Environmental Technical Services Manager
Division of Water and Wastewater Services
c/o VDH – Environmental Health
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1502 Williamson Road, SE.
Roanoke, VA 24012

Dear Marcia,

I would like to respectfully offer comments to the proposed additions to 12VAC5-610 Onsite regulations:

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.

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.

3. When timed dosing is required by this chapter, the working volume shall be a minimum of 3/4 of the daily design flow volume.

The working volume in some treatment systems that dose to drip is in the treatment unit itself. That is where the ¾ of the design flow requirement is met. So there should be no restriction on the size of the pump basin, as long as it can meet the required minimum dose size and scouring velocity.

Here are some comments on other sections of the regulations:

12VAC5-610-880. Pumping.

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.

The requirement for a ¼ day storage above the high level alarm set point in a pumping station wet well doesn't take into consideration treatment technologies that achieve storage upstream from the wet well, e.g. recirculating packed bed systems. The regulations should accommodate the abilty of these systems to meet the ¼ day storage within the treatment train and in the up-stream septic tank for systems that do not have forward flow in the event of a power outage or pump failure.

12VAC5-610-955. Drip Dispersal.

E. A minimum of six hours of emergency storage above the high water alarm in the pump chamber shall be provided. The equalization volume shall be equal to 18 hours of storage. The equalization volume shall be measured from the pump off level to the high water alarm level. An audio/visual alarm meeting the requirements of 12VAC5-610-880 B 8 shall be provided for the pump chamber.

The 18 hours of storage is not necessary for all treatment systems. Some systems meter the amount of effluent that can reach the discharge tank by controlling how often and how much effluent is sent to the discharge tank, in contrast to systems that cannot prevent forward flow. Treatment systems that are designed to prevent forward flow do not need the 18 hours of storage, since any power outages or pump failures will prevent any forward flow into the discharge chamber.

F. Each drip dispersal zone shall be time-dosed over a 24-hour period. The dose volume and interval shall be set to provide unsaturated flow conditions. Demand dosing is prohibited. Minimum dose volume per zone shall be 3.5 times the liquid capacity of the drip laterals in the zone plus the liquid capacity of the supply and return manifold lines (which drain between doses) accounting for instantaneous loading and drain back.

What is the intent of the minimum dose volume? Vertical turbine pumps can pressurize a drip field in seconds, so there is no risk that the field will be loaded unevenly.

In addition, there should be some clarification on the definition of timed dose vs demand dosing. Some treatment train technologies meter the effluent that can move into the discharge chamber. This limits the dose size moving forward to the dispersal system. On-demand discharge from the pump chamber to the dispersal (drip) is metered, and thus functionally timed dosed, because the rate of discharge is controlled by a timer.

Additional Comments:

When time dosing is required, it should be clear in the regulations that the timer settings should be based on actual flow, not design or peak flow. Setting timers for peak-flow conditions, when there is less actual flow from the home, can result in unnecessarily large doses, resulting in ineffective time dosing over a 24-hour period.

Enhanced flow distribution should not be allowed. If the conditions on the site aren't suitable for standard gravity flow, and a pump is required, then a pressure dose system with orifices should be required.

Treatment systems rely on mechanical/electrical devices such as air blowers, motors, pumps, disinfection units, etc., to treat sewage to levels that meet performance standards established in regulations. Unless the treatment system features appropriate sensors and mechanisms to halt the flow of wastewater through the system in the event of a power failure or critical system malfunction, untreated or partially-treated sewage will flow through the system and be discharged to the subsurface disposal area. Untreated or partially-treated sewage released to the soil disposal area presents an environmental and/or public health risk, and may lead to failure of the disposal area.

Thank you.

Best regards,

Joseph Soulia
Sr. Government Relations Rep
(541) 537-0772

Commonwealth of Virginia

Degen, Marcia <marcia.degen@vdh.virginia.gov>

Absorption Area Design fast Track Revisions (SHADAC Minutes 3/24/21)

1 message

Jeff Walker <walker@swva.net> Sat, May 15, 2021 at 8:59 AM
To: "Gregory, Lance" <lance.gregory@vdh.virginia.gov>
Cc: Mike Lynn <mike@ses-company.com>, "Degen, Marcia (VDH)" <Marcia.Degen@vdh.virginia.gov>, Joel Pinnix <joelpinnix@obsidianengineering.com>, norm.oliver@vdh.virginia.gov

Mr. Gregory, in review of drafted regulations I wish to raise concerns best summarized as a question over cost and benefit. Is the Governor aware the Fast Track regulations and policy under development will further burden rural residents, while failing to enhance environmental quality? These proposals have not been analyzed to weigh increased expense, or outright prohibitions on rural development against undocumented benefits.

As written, southwest Virginian will be harmed, our citizens prevented from constructing home on sites with rolling hills, and suitable soils which currently meet the regulations for construction of onsite sewage systems. If the Agency were to enforce existing regulation and precedent these property rights would not be threatened, yet as we have become aware staff seem unable, or unwilling to consistently oversee development under the current regulations. It is negligent to implement further changes in regulations absent ability of your staff to enforce, or apply scientific rationale toward consideration of achievable goals for Environmental Health programs. This is especially so in light of changes in technology and applied understanding of natural systems. It is unfortunate to read at this late stage language which is so controversial, and drafted absent publicly accessible documented input from professionals, representatives of rural landowners or concerned citizens outside of the bureaucratic echo chamber.

I remain concerned VDH exceeds authority in drafting these regulations. During a period wherein use of onsite septic has fallen from 40,000 permits/year (FY2008) to about 4,000 (FY2020) we should be concerned over regulations which further limit licensed professionals discretion in solving onsite treatment and dispersal availability and cost. As examples I would like reconsideration of proposed regulations which will prohibit construction on property across much of Southwest Virginia.

Dispersal of treated effluent where minimum depth of install is permitted @ 12” and depth of cover was at licensed designer’s discretion. GMP 147 waived additional

cover on sites > 30%. Evidence of surface breakout on sites properly characterized is absent even with very shallow cover over dispersal media (e.g. 2-4" measured at downhill trench margin. Construction of trenches on sites exceeding 4:1 (25%) slope would be prohibited under the proposed language, and yet existing SHDR permits use of land up to 50% without terracing. Citing proposed language released yesterday from the SHADAC minutes:

12VAC5-610-950. Absorption area design.:

K. Trenches receiving TL-2 or better quality effluent are exempt form 12VAC5-610-950.E.1 and 12VAC5-610-950.F. 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. 3. The minimum cover over the absorption area 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. 4. The minimum installation depth is not required to be increased for slope.

The general public might understand the impact of this language on their interests. And yet I request you provide calculations or established precedent to establish the minimum cover of 6". Please explain whether there a demonstrable threat to health or safety which has been documented?

I also wish to see calculations toward sidewall regulations; it seems absurd to regulate a 12" sidewall when all indications show a flooded trench is already subject increased threat of malfunction and failure. Since we understand the best soils are nearest the surface, and regulation forcing increased depth of install should be questioned. Sidewall absorption is not the design objective, rather suitable loading of the trench-bottom, and compliance with maintaining the underlying standoff to rock, seasonal water table or restrictions should be the focus of all reliable construction. Therefore I will oppose any regulation forcing designers to increase depth of installation, when all experience demonstrates that shallow systems are the most reliable.

At minimum I urge reconsideration, or simply strike all new & burdensome prescriptive language from the proposal. I encourage VDH open the discussion of revisions to the licensed community and public through normal drafting process.

As the cost of construction increases citizens will be locked out of new rural housing. VDH's focus developing unsupported restrictions on use, raises costs of site

evaluation and design. The stakeholders at SHADAC benefit from these increases, and yet file none of the required disclosures expected by other boards and committees. The public is not well served by self-dealing process, hidden from view.

Individuals continue to observe the Department of Health's policies toward nutrient reduction is arbitrary & capricious, absent substantial environmental benefit. The Commonwealth has taken a misdirected path claiming a 50% nitrogen restriction, while forcing compliance on fewer than 10% of new systems, hiding evidence of impact from conventional and legacy systems which are unregulated. Clearly Virginia is not meeting Chesapeake Bay, or regional watershed protection objectives. Instead VDH allied with certain localities which seem to insist on using regulation, policy, and VDH staff to block new development alluding to a poorly considered application of the health code, rather than authorities given to them by the General Assembly.

I look forward to engaging this process further at your invitation,

Jeff T. Walker, BSc. AOSE, AOSSI, LPSS

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