

Meyers, Leasue

From: David P. Cavender <dpcavender@hornersshifrin.com>
Sent: Friday, April 24, 2015 9:06 AM
To: Meyers, Leasue
Subject: Input on 20-8.200

Leasue,

I have taken a thoughtful look at the draft changes to the lagoons and land application changes. Please consider my suggestions below. I have worked on the department design guides as far back as 1980, worked as a reviewer for the department as an employee and later as a contract reviewer. I also am a Certified Professional Soil Scientist and was co-author of the first two version of biosolids Land Application guidance by the department. I believe I can offer some valuable input. You have undertaken a huge task and an important task, I wish you the best in this endeavor.

First I suggest in regard to land application, this technology needs to be encouraged through department policies and rules. Elimination of the discharge of pollutants is a goal of the Clean Water Act, land application is a practical means to the desirable end. Land application has not seen widespread adoption over the years as many hoped it would. The reason is simple, it is often not the most cost-effective means to treat wastewater. This is largely due to the land intensive nature of lagoons and application sites. Please keep in mind department rules directly impact cost-effectiveness. Writing of all rules needs to be done with this fact in mind so we don't unintentionally price land application out of the wastewater treatment market.

My next two suggestions on the proposal have over-arching effect on the rule. First, we need to define slow rate land application in the definitions section. The relation of this term to the term "wastewater reuse" needs to be made clear. Second, rules need to be modified to account for use of subsurface drip irrigation. Many of the setback requirements, storage requirements and concerns for aerosol generation do not apply to drip systems. Likewise, large storage lagoons are not required to utilize drip systems. Structural and organizational modifications to the proposed rule are needed to integrate drip technology.

Next I'll provide more item specific suggestions. I'll number these for ease of your review.

1. Suggest adding "manufacturer's recommendations" to the list of reference materials in the PURPOSE section. I have a very practical example of why this is needed. While a contract reviewer, I had an engineer design a very shallow service line to a proposed home to avoid a grinder pump. He insisted on the line being PVC even though there was not adequate cover over the pipe and resisted my comments to make the line ductile iron. A reference to manufacturer's recommendation in the design guide would have provide clear authority for handling this case.
2. (3) General. Add a statement on use of lagoons for wet weather flow treatment in parallel with mechanical plants. The recent blending decision allows this and the department needs to formally do so too. There is also a need for this because of US EPA's stance that the treatment of wet weather flows in lagoons is not biological treatment; that policy is wrong from an engineering and scientific viewpoint.
3. (4)(A) Lagoon Field Survey Data.
 - A. Suggest here and throughout the document the location information distance be reduced to ¼ mile like in land application.
 - B. In item 3, there is the first of many outdated references to the Soil Conservation Service; That agency is now named the Natural Resources Conservation Service.
 - C. What is the reason for requesting item 6? I have never encountered lagoon odor problems due to sulfate content of wastewater; it has been an issue in a few trickling filters, but never lagoons or aerated lagoons to my knowledge.

- D. Item 7.C. is too loose. Suggest either define more closely where this is needed or remove it.
4. (4) (B) Land Application System
 - A. Item 7. Specify 24-hour *composite* samples. Add boron to the list of items for testing because it can inhibit seed germination at high concentrations. Make SAR test a “shall” rather than a “should”.
 5. (B) Lagoon Bottom, Item 2. Change “possible” to “practical”.
 6. (C) Lagoon Seal and Liner.
 - A. Item 1. C. Strongly disagree with current rule. Support discouraging lagoons in these settings, but allow if a suitable engineered system is designed to mitigate the hazards. An example is installation of a composite liner of two feet of compacted clay plus a plastic liner and ground water monitoring wells. Our modern landfills provide ample evidence such composite liners provide an adequate level of protection for karst.
 - B. 4. Synthetic Liners. Add a provision requiring venting to allow air to escape when ground water rises. There are a few documented cases of liner rupture in Missouri due to this occurring.
 7. (7) Lagoon Retrofit. Add a cautionary note that lagoon covers are susceptible to wind damage so Owners should carry appropriate insurance coverage or have a self-insurance fund.
 8. (8) Slow rate surface Land Application of Wastewater
 - A. Probably should remove word “Surface” from title, Slow rate surface Land Application of Wastewater. This depends on how you reorganize the guide in light of previous comment about drip irrigation.
 - B. Items (8)(B) 1-5. This is a prime example of items that should not apply to drip irrigation systems.
 - C. Items 3 and 4 should cut the setback distance from 300 feet to 150 feet in light of successful and safe operation of numerous Missouri systems.
 - D. (E) Land Application Rates. Item 2 should only apply to surface application.
 - E. (E)6 Application rate. Remove ground frost from restrictions altogether as warmer than air wastewater will thaw frost. Also remove all these restrictions for drip irrigation.
 - F. (E)6.B. Reword last sentence to state “The application rate shall *generally* not exceed one inch per day...”
 - G. (E)6. B. and C. The slope and application restrictions of this section are too prescriptive. Rework whole section to be guidance and especially expand slope range allowed. Forest and grass application by spray irrigation can infiltrate on surprising slopes when well managed.
 - H. (E)7 Nitrogen Loading. The department’s current requirement for nutrient balances on 90% of domestic wastewater irrigation systems is unnecessary, the nutrient load applied is so low as to be inconsequential. It does not even need to be checked until application rates approach 40 inches per year. Rewrite and modify the permit conditions .
 9. (F) 1. This applies to surface application only.
 10. (9) Subsurface Irrigation.
 - A. Section probably needs to be completely rewritten and reorganized per previous comments.
 - B. (B)1. Remove the requirement for 2 feet of sand fill. This is a septic system type requirement that is unnecessary when there is two feet of suitable soil under the drip lines when rates are low. When application rates exceed 40 inches per year, increase the required suitable soil depth to four feet. Maybe need some jurisdictional language for the Department of Health for small systems they regulate. I anticipate DOH will not support this suggested change, so just handle it jurisdictionally to let them apply their standard where they have authority.

I appreciate the opportunity to have input. I will continue to participate.

Dave

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