

# Sewage Handling and Disposal Regulations Advisory Committee

## Meeting Minutes

April 1, 2011

Members in attendance: Vincent Day, Chairman, Colin Bishop, Greg Evanylo (via video conference in Roanoke), Andre Fontaine, Raymond Freeland, David Fridley, James Hall, Kelly Vanover, Peter Kesecker, Robert Lee, Joe Lerch, Mike Lynn, Curtis Moore, Joel Pinnix, Valerie Rourke, Robert Wadsworth. VDH staff Allen Knapp. Visitors included Mike Burch, Bio-Microbics; Ted McCormack, VACO; Chris Beatley, Premier Tech.

Allen Knapp ("AK") starts it off and discusses granting of 6-month extension for the Emergency Regulations. Everything is on track to get the regulations to the Board of Health ("Board"). October 6, 2011 would be the date of expiration.

Vince Day, Committee Chairman ("VD") calls the meeting to order at 10:05 AM. The minutes for March 18 are reviewed.

Bob Lee ("BL"): One change to the minutes on the second page, five lines down, "soil sampling" should be "soil column".

Motion to approve minutes and seconded. March 18 minutes approved.

Changes to the agenda -- BL wants to add a discussion on program management, goals and objectives to the agenda.

VD: Yields the floor to Dave Tiller ("DT").

DT: This is intended to be a collaborative process; there are a few discussion topics on the agenda. The OEHS staff will clarify the issues and then will engage in discussion, concerns, ideas and options. Consensus is not that important; we are trying to solicit recommendations for addressing the stakeholder public comments.

The first topic is Nitrogen ("N"); Marcia Degen ("MD") will make a presentation.

### **Topic One: Nitrogen – Small vs. Large alternative onsite sewage systems ("AOSS")**

- a. Two types of standards applied for N

The two reasons why Nitrogen is included in the proposed regulations:

1. Groundwater standard for nitrate for protection of drinking water supplies

- Statewide
- 5 mg/l TN
- Dilution allowed

2. Load limit based on protection of Chesapeake Bay

- Chesapeake Bay Watershed only
- 50% reduction for <1000 gpd
- No net loss of N offsite for large systems
- No dilution

**b.** The basis for the small system levels can be found in the Chesapeake Bay model documentation.

- The model was based on an assumption of 39 mg/l of N at the edge of the drainfield from a conventional system. So the starting point for small systems was an assumption that 40 mg/l was introduced by conventional systems and that 50% was a reasonable reduction based on available technology.

**c.** For Small AOSSs

- The proposed regulations (“regs”) call for a 50% reduction in N as compared to a conventional gravity system.
- From the model document – the starting point is 40 mg/l N at the edge of the drainfield from a conventional gravity system.
- In the reg, 50% is equivalent to:
  - 20 mg/l TN from a treatment unit
  - A best management practice (“BMP”) that reduces TN to 20 mg/l at the project boundary
  - Other designs that reduce total Nitrogen (“TN”) to 4.5 lb/person/year at the project boundary
  - $(20 \text{ mg/l} \times 75 \text{ gpd/person} \times 8.34 \times 365) / 1,000,000 = 4.5 \text{ lb/person/year}$

BL: is this based on capacity? MD says it has to be. Our BMP’s, subject to a vetting process, will have to account for this.

Motion to let MD finish presentation before questions; seconded.

**d.** For Large Systems

- Looked to Environmental Protection Agency (“EPA”) guidance (Guidance for Federal Land Management, May 2010.)
- Started from the assumption that new large AOSS should have no net load loss offsite. New discharging treatment plants are being held to a zero load either through treatment of offsets so AOSS should be held to same standard.
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- Minimum treatment levels were set to recognize that complete removal of N through the soil is not reasonable and that a reasonable treatment level should be provided.
- For > 1000 gpd: Essentially no net discharge of N as evidenced by compliance with < 3mg/L TN at project boundary - no dilution allowed.
- Sets minimum treatment requirements for N removal prior to soil application.

| Design flow, gpd   | Max TN applied to soil |
|--------------------|------------------------|
| >1000 to 40,000    | 20 mg/l                |
| >40,000 to 100,000 | 10 mg/l                |
| >100,000           | 5 mg/l                 |

**e.** Comments – small systems

- Consider applying a BMP requirement to the Chesapeake Bay Preservation area (“CBPA”).

- Consider applying a BMP requirement based on proximity to surface water (Maryland scenario).
  - Only use N reduction methods that can be measured – we must have field verification; no BMPs and no calculated reductions should be included.
  - Maintain N reductions as listed.
  - Address all systems, conventional systems too, and the Virginia Department of Health (“VDH”) should require upgrade of all existing systems within sensitive areas.
  - Why require N reduction on such a small % of the total onsite population?
  - Question on the basis of 4.5 lb/person/year.
  - Alkalinity variability and its effect on construction costs and treatment unit performance were underestimated in the proposed reg.
  - N is too strict for small systems.
- f.** Comments – large systems
- Decrease allowable maximum installation depth to 12 inches for soils systems designed to remove N.
  - Remove Table 3 as it does not allow for design of soil based N removal systems.
  - Add a reference to the WERF design tool.
  - Allow for dilution.
  - N limit is too strict for smaller large systems (up to 10,000 or 20,000 gpd). The strict standard will encourage more single family home systems.
  - Allow use of designs using science based tools that have been published in peer reviewed technical literature.
- g.** Onsite Impact on Chesapeake Bay
- EPA estimates 536,222 systems in the watershed
  - Assumes all systems are conventional, assumes 25% of the population served by onsite, it assumed a 25% pass through; it assumes that there is no pass through of phosphorous (“P”). The model recognizes three BMPs for onsite:

| BMP        | % N Reduction Rating | Description   | Status   |
|------------|----------------------|---|----------|
| VA 1       | 25                   | Septic tank effluent to a gravity fed drainfield where drainlines are kept as shallow as possible (18 to 24 inches)       | Proposed |
| VA 2       | 50                   | Secondary treated effluent to a shallow placed (12 inches or less), pressure dosed drainfield                             | Proposed |
| VA 3       | 75                   | An NSF 245 rated treatment unit (50% Nremoval rating) plus a shallow placed (12 inches or less) pressure dosed drainfield | Proposed |
| EPA BMP 13 | 5                    | Septic tank pumpout   | Approved |
| EPA BMP 14 | 50                   | NSF 245 rated treatment unit  | Approved |
| EPA BMP 15 | 100                  | Connection to central/public sewer  | Approved |

**h. Questions from the Committee**

How will those who run the EPA model accept the data? In the Agricultural world, no one uses BMPs unless cost-share is available. How do we get the existing and proposed BMPs into the EPA model?

MD: we don't have cost-share currently. We will work through the Department of Conservation and Recreation ("DCR") and provide them data and the model will be modified that way. For instance, when we have repairs and existing systems that fall under the BMPs, then we can begin rectifying the database.

Joe Lerch ("JL"): One comment had to with N reduction with CBPA areas. Would this apply to RPAs or RMAs? This is important because some localities have designated their

whole jurisdiction as RMA. Also, on pump outs being recognized as a BMP, is there a required frequency? MD: They are reported annually; DCR reports this.

BL: Do we expect funding for onsite systems for the Total Maximum Daily Load ("TMDL")? The Committee does not think so, but MD mentions that the Department of Environmental Quality ("DEQ") has contacted VDH with a needs assessment survey and this may be a source. BL says that this has been there, used for Virginia revolving loan fund.

AK: VDH is in the process of hiring a TMDL coordinator who will assist in reporting and BMPs. The listing is open for one more week.

Kelly Vanover ("KV"): Would the BMPs and fine-tuning the data actually be enough to meet the targets? MD says there are other aspects. DCR is implementing phase 2, meeting with localities who are ultimately responsible for meeting the TMDL requirements. AK says that KV is right as addressing new systems will slow the growth rate but won't lower the overall number. We would have to look at significant retrofitting of existing systems in order to bring the number down and that is not a popular solution.

Anish: How did the flow based mg/L requirement in the proposed reg come about? MD: we have met with Maryland and they admitted that the basis for their numbers was based on monetary, not scientific concerns. We added staggered treatment levels because it's easier to add pre-treatment with larger systems.

Joel Pinnix ("JP"): If you put an ATU on every septic system, you cut the N concentration in half, although it may be cost prohibitive. The reg is strictly in pounds per year, when you couple that with stringent effluent standards for large systems, you are encouraging stacked drainfields instead of community systems. If you have a 3 bedroom septic system, you will meet the EPA standard by a factor of two. Assuming EPA's attenuation figure, it is 12.5 lb per year. In VDH's model, we are limiting to 27.5 pounds per year. MD says that the starting point is 50% once it leaves your property, we can only control what is on this property.

JP: There are compliance point issues; the term treatment works includes the soil. Nothing in the definition talks about an end of pipe standard for effluent quality. If you want these stringent N standards, especially when we get down to 3 mg/L, the compliance point cannot be end-of-pipe.

DT: We are looking at 50% reduction once it leaves the system. Are you saying it needs to be throughout the system? JP says it needs to look at the whole treatment works, including the soil and it needs to assume what the EPA model assumes, which is 75% attenuation.

Mike Lynn ("ML"): Does a 2 pound reduction closer to the Bay get more credit than one somewhere more far away? MD thinks so; one factor for credits is proximity to a water body. Also, the farther you are up the watershed, the less your delivery factor. ML says it would make sense to spend money closer to the Bay. Mike agrees with JP on the community system issue; he thinks that the public perception is that VDH does not encourage community systems. We need a proactive campaign from VDH with communication to the planners; otherwise, it will be hard to sell community systems.

Raymond Freeland ("RF"): When you are builder and developer trying to address operation and maintenance ("O&M") and other public health issues with community systems, you will not have the ear of politicians. This push needs to come from VDH.

David Fridley ("DF"): VDH has an old policy that actually says that mass drainfields should be discouraged. Individual onsite systems have always had to satisfy less stringent standards. VDH needs to eliminate the preference and level the playing field.

AK: The elephant in the room is conventional systems. The legislature has not given us the authority to regulate conventional systems in the same manner as AOSS.

BL: Time is money. Anything done to slow down the process will cost the developer and he will not pursue that avenue unless forced to. Maryland had proposed required community systems for more than 5 bedrooms. Legislation needs to fix this. This is beyond VDH.

Valerie Rourke ("VR"): For discharging systems, they have to demonstrate sufficient funding to the State Corporation Commission ("SCC"). Does VDH have a similar requirement for community systems? BL says they have to be a utility; it does not apply if it's an individual. MD clarifies that there is a financial assurance requirement for systems within a certain size range (over 1000 gallons). It requires bonding which would provide for operation of the system for two years in case the utility went belly-up.

Anish: I strongly suggest VDH look to bonding. Implementation is another matter. The numbers need to be realistic and achievable; VDH should not deviate from the model and should not push for unattainable technology. The standards should be tied to the amount of land used. The engineer can design based on a pounds per acre per year number.

AK: The TMDL has not given us land area to decrease loading. The land area model will give us a steadily increasing number. How do we reconcile this with the TMDL?

JP: Unless you address conventional, the number will increase. Agrees with the land area model proposed by Anish and the selling N credits.

AK: There is going to be a study this year on nutrient credit exchange headed up by DEQ. Someone will have to purchase credits from other sectors to offset new systems, right? Our loads are continuously increasing; that's the only way we can decrease.

JL: We do not have to accept the model as is. We can pushback and tell EPA that this is not feasible. We can make changes to the Phase 2 watershed implementation plan ("WIP"). I am intrigued by the land-based model and we should relay this to EPA.

BL: N and Chesapeake Bay should be left out of this regulation and should be put into the Sewage Handling and Disposal Regulations ("SHDR"). Agrees that the numbers in the proposed reg discourages community systems. Localities will have to manage this TMDL down the road. It is too early to address all of this right now. It could lead to unintended consequences.

Curtis Moore ("CM"): We are putting lipstick on a pig. Not knowing what will happen with Phase 2, it would be a mistake to try and address N in this regulation. Are there internal political pressures forcing VDH to address N? If so, we understand.

DT: How does the group feel about taking N out of these regulations? 9 agree.

DF: We would be punting on the issue if we leave it to the SHDR. Unless we get a really good land-based model, wouldn't we still be talking about getting nitrogen reduction for AOSS?

ML: The key is that the model is changing. Five months ago, I thought we were stuck.

RF agrees; VDH should not pigeonhole itself if the model may be adjusted.

CM: Would VDH be handcuffing itself, particularly if you will inevitably have to address this with all systems in the SHDR?

VR: We should not take N out because of some speculative assumptions. VDH does not want to retrofit so it will be putting a lot of stock in nutrient credit exchange. We do not know whether the exchange will work. We also do not know when the SHDR will be re-written. There are too many unknowns not to do something to address this now.

MD: We did not get comments about eliminating N; we did get comments on changing the standard.

BL: The standard of 5 still must be met. AK clarifies that 5, as nitrate, is the standard for large AOSS.

DT: Great conversation and these comments are really good, but this does not address the stakeholder concerns as reflected in public comments

Colin Bishop (“CB”): Maybe we can say that if you do it, then you get credits. We have looked at vertical considerations, but we need to look at horizontal too.

JP: Go back to statutory language. The N number needs to be as protective as systems otherwise permitted pursuant to the regulations.

AK: What about putting this in regulation, and then setting an implementation date sometime in the future. It gives notice and an opportunity to see how legislative and other actions play out. Thinks the Board has the authority to do this.

DT: Meeting adjourned for a 15 minute break.

### **i. Questions for the Committee**

#### **Small systems questions:**

- Should N reduction be applied to all small systems in Bay or limited by proximity to surface water?
- Is the 50% N reduction too strict for <1000 gpd?

BL: what you said is not what you are regulating. I can still put in a small conventional and it will not have to meet these standards. BL also thinks that 50% can be reached.

JP: If you have a 50% reduction, then the proximity to surface water inquiry is irrelevant.

CM: The proximity issue is too site-specific and difficult to implement. It over-complicates things. DT asks whether Maryland did this. CM says yes, but as MD said, it was arbitrary.

AK: If we do this, it should be based on segment sheds and delivery factors, and this math exists in the model. But, as JP said, you are going to hit 50% anyway, so how do you really make it less stringent based on proximity?

ML: If EPA does not require field verification, then we should not do it.

BL: You will get variation on reduction depending on the homeowners

#### **Large System Questions**

- Should relief be given on N removal target for large systems up to some level such as 10,000 gpd?
- Is the depth limitation on N reduction in soils too restrictive?
- Should Table 3 be modified or deleted? If modified, how?

- Should a target load be used instead of 3 mg/l?

AK wonders how the policy encourages community systems, and how we can make the numbers more attractive to the use of community systems.

JP: Is there any evidence that mass drainfields are impacting the N numbers on the sites? BL says we have seen it through monitoring wells, but may not be enough of a trend to project it. JP says that if we do not have sufficient evidence, then there is no reason to push people away from use of these systems.

BL: The 50% reduction levels the playing field, while complying with the groundwater standard makes these systems exceed 50% reduction. People are finding that the possibility of nutrient credit exchange encourages community systems and it assists communities with planning and zoning issues. If DEQ allows a large plant to go in, VDH should do the same thing that DEQ is doing. Time is money. Review time is money. VDH should look at types of systems that fit clusters better and may allow pump and haul and lots of things to encourage community systems.

VR supports the approach to develop nutrient credits for Large AOSS because they are doing monitoring to verify N removals. This would encourage community systems.

RF: The current standard is 5 mg/L TN at project boundary including dilution. He has a problem with not being able to include dilution in reduction. He does not see what is wrong with the current standard.

AK: Does BL think the current standard is the way to go? BL says you can use a project boundary or other boundaries as specified.

CM: If you are going to monitor groundwater anyway, can't we give the option of allowing additional treatment if the standard is exceeded as encouragement for community systems?

MD: When we discuss TMDL and no net increase, we need sufficient monitoring and need to find out background in order to comply with the anti-degradation policy. If this is in place, what CM suggests may be feasible.

ML: Do we engage in groundwater monitoring at the shallow portion of the aquifer?

VR: According to DEQ, groundwater includes shallow watertable. VD says that the shallow portion of your aquifer is part of groundwater. He can see background and monitoring right when you start the project by putting the wells in.

ML: Based on the sites that we have monitored, we have found that, by not applying fertilizer, the mg/L goes from 8 to 6.

VD: When we factor in dilution, are we talking about rainfall? Isn't there a model that counts 50% rainfall as included in dilution? VD has a problem with this; it is site specific and detectable through KSATs. In Albermarle, about 7 inches of rainfall a year feeds into aquifers; it is not even close to 50%. Some sites may meet this standard, but it is site specific.

Greg Evanylo ("GE") spoke to a Virginia Tech nutrient trading specialist. He verified that there are currently no procedures by DEQ that permit nutrient trading for onsite across areas. They are being considered, but nothing has been implemented. Even if it is possible, the nutrient trading that would be permitted would be, if farmland had additional BMPs beyond what is required or wastewater treatment plants that retrofitted are below the limit, then onsite can purchase credits from these entities. Any septic system is considered a permanent increase in nutrients. You cannot purchase reductions from other sources at this juncture.

BL: In TMDL, the onsite segment has always been an unknown commodity. Onsite stakeholders need to step up and inform EPA about what is possible.

Anish: Farmland and agricultural models should be looked into by VDH and possibly incorporated by reference. The starting point for design is no net increase for the treatment works. The number is expressed in pounds per year per acre. VDH can use the farmland model to develop an equation which can determine nutrient credits.

GE: If the farmland was converted to residential, the load could actually increase. To assume that farmland is always higher than residential is erroneous.

## **TOPIC 2: DIRECT DISPERSAL OF EFFLUENT TO GROUNDWATER**

DT: reads the definition of "direct dispersal" that is in the proposed regulations.

Dwayne Roadcap ("DR"): Out of the comments received about the current standards, they fall into the categories

1. Don't regulate it, you don't have the authority, you cant do it, we don't want you to do it...
2. The requirements are too strict.

BL: There are also program management issues with it. These systems can be put in, but localities are concerned about O&M requirements. Discharges to streams are looked at four times a year, whereas these are only looked at once of year. The operators usually find that the chlorination is not working. Studies in other states demonstrate that

disinfection issues are the primary reason these systems do not meet the standard. It's not much of a problem with larger systems, but management of individual systems is the problem.

DR: Are you suggesting that these systems should be looked at more? How many times a year would make you happy?

BL: Maybe if we find that they are not meeting the standard, we require more visits. He supports it as long as it can be maintained. Disinfection is routinely an issue.

MD: Are you suggesting that larger systems that are visited more frequently and have automation are less of a problem because of the checks that are in place. BL says yes.

RF: Yes, there are requirements of 4 times a year for discharge systems, but they are not actually being checked this often and it is not being enforced.

JP: The other component of direct dispersal definition is vertical separation. The definition need to be changed to 0 inches to groundwater as opposed to 6 inches. Southwest Virginia has the Alternative Discharge Regulations ("ADR") as a solution due to dry ditches; the eastern part of the state does not have those solutions because of high water sites and shellfish issues. We need a reasonable solution in the Eastern part of the state, which includes above-ground sand mounds and trenches installed deep into the groundwater with monitoring. Anish has installed these and they have worked. Prohibition is not the solution; neither is overly stringent standards. Additional horizontal setbacks are not an issue, but cost-prohibitive standards are. Treatment works is end of pipe with direct discharges. If it's a jurisdictional issue, then we should roll it under the ADR program and have joint permitting with DEQ.

AK: There is not a jurisdictional issue here.

CM: Analogizes this to pharmaceuticals, we may not know what we think we know.

VR: DEQ feels that these standards are appropriate. Groundwater moves much more quickly, and contamination moves quicker through saturated soil. DEQ feels that any standard less strict than 2.2 would not be appropriate to protect groundwater.

DF: It is certainly possible to treat wastewater until it's drinkable. However, for individual systems, at what point, through quality control and O&M, can we reach that level of comfort in terms of protecting public health? The amount of unknown commodities in terms of interconnectedness of water bodies can undermine our confidence with respect to the impact of these direct discharges. High standards are needed, strict O&M is needed and close studying of these systems is needed.

JP: We cannot study them unless we put them into the ground. These standards right now is unattainable. Matthews County is 70% non-tidal wetlands. A lot of these sites have 0 watertable; if you make it cost-prohibitive to put in systems then you are essentially condemning the land. What is the public health and environmental benefits in this? I've been doing it for three years; if you want to sample these systems, you can. But we should not make these decisions without any real data as the socioeconomic impacts are too high.

CB: Other states have attempted direct discharges and the results have not been pretty. If VDH allows this, program management better be in place. 8-12 visits per year may be necessary. In Ohio, they are wrestling with systems that are out of compliance with BOD, TSS and disinfection and it is costing homeowners 800-1000 dollars per year for O&M. It can be used as a last resort option. Studies on dechlorinators indicate that they are not maintained. People in Texas go this route although conventional is possible because this route is more cost-effective.

ML: The reality is that the highly treated water is not drinkable.

RF agrees with CB's last resort statement. It is counter-intuitive that you can disperse directly into a stream with certain limits but you cannot do the same with a wetland.

AK: The land that JP avers is being "condemned" has been out of commission for at least 50 years. Maybe the rules are inhibiting new development opportunities, but that is not VDH's purview. The Board, under Va. Code sec 32.1-163.6, cannot prohibit these installations. We can just establish requirements. We also have DEQ's anti-degradation rules in the books. It comes to two independent things: standards and O&M. The standards are already established by DEQ; it would not be sensible to deviate from that which is already established. Thus, we need to focus on operation and maintenance.

VR: VDH cannot authorize the discharge of effluent or fill or excavation into a wetland. This is the exclusive purview of DEQ, and it is administered through a federal delegation of authority. In contrast, there is no such federal delegation with respect to groundwater discharges. Discharges of effluent are permissible through the Virginia Pollution Discharge Elimination Program ("VPDES"). Excavation, fill or drainage of a wetland is permissible through the Virginia Pollution Abatement program ("VPA"). This regulation does not halt construction in wetlands; it is just under the purview of DEQ.

JP: VDH says this is off limits by saying that "no portion of the soil treatment area may be located in a wetland." JP goes on to mention that N and P standards are unattainable.

DR: Says he is hearing two things -- the proposed regulations meet the groundwater standards, while JP says it's too strict. Is there a way to reconcile this?

JP: As you go east, the age of the water is millions of years old so the concept that we can affect the water is not correct. In Matthews County, 67% of repairs were direct dispersal. Those permits were written after HB1166. It is now standard operating procedure, so it is disingenuous to suggest that new standards are necessary for engineers, but an AOSE can put this in through a repair. There needs to be a more reasonable approach, particularly as it pertains to the eastern portion of Virginia.

DF: We are talking about an idea and a concept that can be taking advantage of anywhere. JP's anecdotal history of success is nice, but it may be the exception and should not form the basis for the rule.

VR: If you discharge to surface water, you do not call it an AOSS anymore and it is permitted under DEQ and VPDES.

AK: because the way the ADR is written, there are no construction criteria for wetlands. So, as it stands now, you can get an individual VPDES to discharge into a wetland as it does not fall under wetlands into the general permit.

VR: You could have two permits – one for the discharge and one from the disturbance. Both would come from DEQ. Usually any kind of disturbance in a wetland would require a VWP.

AK: We are going to incorporate these discharges into the general permit in the ADR rewrite, so it will harmonize the process with what is done in Southwest VA. This covers wetlands, but the focus of this discussion is non-wetlands. High water table is not being addressed in the ADR; it is being addressed in this reg.

CM: Going back to the possibility of this "last resort" becoming "first resort" due to cost effectiveness. Mike agrees, saying that owners salivate to obtain that denial so they can get that \$7000 discharge as opposed to the 30k drip system.

GE: One possibility will be to have a prescriptive measure, but you can alternatively demonstrate performance. This is the case in the biosolids regulations. Is this feasible?

VR: The reg as it stands now does not allow dilution, so there is no mixing. JP clarifies that that only applies to N model. The anti-degradation policy gives you standards. If you exceed that standard, you cannot add more of that pollutant. Section 20 allows for mixing on a case-by-case basis. The anti-degradation standard is in the reg right now, but you may also want to include the section that includes the mixing zone. But you want to ensure that it does not jeopardize the prohibition on dilution for N.

AK: Can we reference the whole chapter?

VR: That's possible, but you want to look through it to ensure that there is no conflict.

DT: What we have so far -- VDH has authority to regulate direct dispersal. Anti-degradation policy must be met. JP's concerns are that the standards are cost-prohibitive. BL is concerned about O&M for small systems. Any suggestions on O&M?

BL suggests a compliance plan with more frequent visits.

JP thinks there is merit to it until you reach a certain point, like monthly visits. If someone is doing something they shouldn't do, they will change their behavior if you send them monthly inspection bills.

MD: Small systems need quarterly sampling and continuous remote monitoring under the proposed reg at subsection 100.G. Monitoring relays alarm conditions to the operator.

CM: Continuous monitoring can be construed to mean something else. Need to be more specific that we are talking about remote monitoring.

JP: You want telemetry. Just write it in there. Add in "shall incorporate telemetry of treatment units" and eliminate the word "critical".

CM: You better know what you are requiring. Telemetry may not be the same as remote monitoring.

JP: Two treatment levels for fecal coliform. DEQ says 2.2 is the standard after the soil treatment area. It also basically says 2.2 at end of the pipe. There is no issue with soil treatment, but end of pipe is an issue.

MD: It has to be end of pipe because there is no soil treatment area with direct discharge. JP says that there could be if you use a sand mound.

CB: Risk assessment needed with O&M standards. It varies with sites. This was discussed during the Emergency Regulations ad hoc committee. Two acres and two people does not pose the same threat as six people on a quarter acre.

DT: What about creating vertical separation with fill?

JP: I think that's a good thing, but you don't get credit for it the way the vertical separation definition is written. Under this definition, an elevated sand mound would still be direct dispersal to groundwater.

AK: That is the intent.

JP thinks separation should be the point of effluent application to a limiting feature. Spray would be the surface of the ground. This would be consistent with the SHDR.

AK: If you have a site with a seasonal water table at the surface and you put in fill, then it is a direct dispersal to groundwater. Joel suggests that, after you put a certain amount of fill, it is no longer direct dispersal. How much fill does there need to be?

JP: If drip tubing is 8 inches above the ground surface, you have more than 6 and it's no longer direct dispersal.

RF: Does it need to be 6 inches from original soil? JP says it's silent in the direct dispersal definition, but that is implied through the vertical separation definition. RF says that you need to lose the original soil part.

AK: If that change is made, direct dispersal will only exist if the designer chooses to go into the ground. So the only time the anti-degradation policy applies is if you choose to go into the ground.

DT: Is 6 inches of naturally occurring soil more protective than 6 inches of engineering fill? VR asks what the percolation rate is of engineering fill?

CB says this is common in other states. In Ohio, they use fill to meet vertical separation requirements. Wisconsin allows up to 2 feet of fill. That option will drive you away from direct discharge. That is exactly what you want.

JP: There is a check with engineering fill. You are required to specify the material and it is reviewed as part of the permitting process. Bottom of the trench or other excavation language would make sand mound designs qualify as direct dispersal.

CB: So you are digging through a layer to a saturated sand layer.

JP: It promotes drainage.

CB: On lot or off lot?

JP: If I treat and disinfect and apply to the mound than I am.

AK: VDH's concern is that you can excavate a trench to a confined aquifer and then dispose of effluent at something that doesn't meet the groundwater standard. That would be possible with the amendments that JP is suggesting.

JP says that there is still a design, review, permitting process where these concerns can be voiced.

AK: We are not prohibiting it. We are just saying you have to meet the groundwater standard.

JP: We are not complying with the groundwater standard with other systems. Engineered systems come closer to meeting this now than anything else VDH permits.

AK: are you suggesting that we draw the line at 1000 gpd? Should there be a single family exemption to the groundwater standard, or at least the N portion? It would default to a 50% reduction. Community systems are currently subject to 5 mg/L as it stands now.

JP likes the idea.

MD: Under the proposed regs, if a trench is offset 10 feet, it is not considered direct dispersal. JP says, if you do that, you lose a lot of the efficacy of that trench in terms of drainage. The shorter the length it travels, the more effective the drainage will be.

DF: How about when you have high groundwater site and the topsoil is saturated all around with continuous replenishment? How does JP reconcile his suggestion with the rate of the topsoil?

JP: There may be periods of time when groundwater is coincident with the ground surface. I model to account for this.

BL: With constructed wetlands, narrow long trenches lead to surfacing effluent, where as wide, short trenches do not lead to this problem.

DF: In SHDR, vertical separation is measured between the system and the limiting feature, not the point of application. The suggested alteration would be significant. We have to think it through. Is applying the top of the peat the point of application? Where does separation start with Piedmont system?

CB: It's a treatment unit, so it's at the bottom of the unit. That is modeled out, or at least I can be.

JP disagrees and thinks SHDR defines vertical separation as the point of effluent application. All plans for AOSS must be properly sealed by engineer or it is reviewed pursuant to the SHDR. Anything in these regs is designed by engineers whereas anything else is SHDR.

DT: We do not make the call on who does what.

JP: If you get a set of plans that is stamped under 32.1-163.6, then you don't look at who stamped it? It's in the regulations.

AK: Emergency Regulations are supplemental to the SHDR. If it is stamped under 163.6, only the Emergency Regulations apply. If it is not stamped that way, it gets looked at under SHDR and the Emergency Regulations.

AK: If you cut through confining layer and inject wastewater into the next layer, what are the considerations? Doesn't think VDH can prohibit it.

VR: There will be some redundancies for these situations. An MOU between VDH and DEQ has been suggested to eliminate the redundancy. This is made available to the public. This is the logical place to address this.

ML: EPA has the authority under the underground injection control program.

VR: EPA has the underground control program. It's a registration program. It's weak and DEQ piggy backs on that and would look at the project to see if another permit is needed. EPA does have the authority to issue an actual permit.

BL: There is a requirement, by rule, that they submit information to EPA under the Class V well requirements.

MD: Regent 3 did not want to get involved in municipal drainfields with state regulatory oversight.

VD: ready to adjourn, last thoughts from AK on our schedule going forward.

AK: Same schedule even with the extension. The Board meets June 9<sup>th</sup> or 10<sup>th</sup>.

BL: We've addressed issues. We can talk, but if your mind is made up then there is no sense in meeting.

AK: VDH will leave it open. We will try to get a draft and get comments but are not creating a new comment period. We have worked on sampling language and will e-mail that out to the group. VDH may work up some other language and send it out later. Feedback has been and will be appreciated.

Motion to adjourn by VD. Motion seconded. Meeting adjourned at 2:08 PM.

## APPENDIX A:

### AGENDA

April 1<sup>st</sup>, 2011

10:00 AM – 2:00 PM

Sewage Handling and Disposal Advisory Committee Meeting

#### ADMINISTRATIVE

Review minutes from March 18<sup>th</sup> meeting  
Changes to the agenda?

#### GOAL

To solicit recommendations for addressing stakeholder comments concerning the replacement Alternative Onsite Sewage System Regulations

#### DISCUSSION TOPICS

1. Nitrogen – Small vs. Large AOSS
2. Direct Dispersal of effluent to ground water.
  - Environmental concerns
  - Zero separation distances
  - Is it appropriate for designers to create vertical separation from a limiting factor with fill?
  - Are performance requirements too strict?
  - Large AOSS – Additional treatment requirements for groundwater recharge
3. Is it appropriate to inject wastewater into a confined aquifer?
4. Infiltration testing
  - How to test?
  - Where to test?