

TAC Meeting July 16, 2010

Members present: Donna Lawson, Adriana Dimprio, Todd Benson, Rick Blackwell (for Ray Freeland), David Fridley, Barrett Hardiman, John Harper, Pete Kesecker, Allen Knapp, Mike Lynn, Joel Pennix, Valerie Rourke, Robert Wadsworth.

Others present: Anish Jantrania, Bob Mayer, Jim Bell, John Schofield, Reed Johnson, Michael McCulley, Tom Ashton, Dave Tiller, Peter Basanti, Jim Bowles.

Facilitator: Dwayne Roadcap.

Dwayne opened the meeting by pointing out that there are several hand-outs. Dwayne asked for comments on the minutes from previous meetings and stated that committee members could send in comments separately. Dwayne will incorporate Valerie Rourke's comments on the July 9 meeting and e-mail to the committee.

Dwayne stated the goal for today's meeting is to discuss the remaining topics: failsafe and bypass protection, general approval protocol, performance requirements, sampling, bonding, continued use of TL2 and TL3, and reuse. He mentioned management levels as a potential topic. He stated that the committee is still working off of last meeting's agenda.

Topic: Management Levels

Dwayne stated that the primary focus on Wednesday was dispersal into wetlands and groundwater. He noted that Allen had mentioned management levels; generally we refer to the EPA five levels of management. Would we like to incorporate something like "with increased mgmt and oversight, we would allow different things." Would the committee like to discuss management levels?

John Harper mentioned that mgmt levels could be considered a more stringent standard and applied to previous discussion.

Rick Blackwell stated that he doesn't like idea of setting management levels, unless we start putting management levels on septic systems at the same time; just applying them to alternative systems is not justified.

Allen Knapp stated that VDH tried to work management levels into the "footprint regulations" as a multi-dimensional system of mgmt levels, which proved to be too complex. Allen suggested that for more sensitive receiving environments (wetlands, wet sites, and karst); some management level (probably level 3) could be useful. He stated that VDH might even look at requiring contracts for those systems.

David Fridley stated that most systems would fall into management level 2, based on current regulations. A distinct minority would require level 3.

Dwayne informed the committee that EPA level 3 management includes a management contract and a renewable operation permit.

Joel Pennix opined that management levels are already incorporated for systems 40,000 gpd and higher; the current regulations already require a licensed AOS operator with a wastewater treatment license, greater sampling and monitoring.

Mike Lynn stated that many localities have raised objections to what the localities see as overly lax O&M requirements. These are mostly densely developed localities. In those areas more frequent inspection due to potential impact on neighbors wouldn't be unreasonable because the systems may cause a nuisance as much as a public health problem. Local governments shy away from cluster systems because management level 4, with financial responsibility, is not required. The management entity could be either government or private entity. VDH or SCC needs to promulgate standards for management entities or we won't go to community systems.

Dwayne asked if the current regulations for systems >10,000 gpd are sufficient or do they need to be changed.

Marcia Degen pointed out that for systems designed for 1,000 to 10,000 gpd, sampling is required just once/year. She reviewed oversight and sampling requirements from the Emergency Regulations and pointed out that those mostly track with discharge systems for the very large systems, but less frequent visits are required in the Emergency Regulations than are required for smaller systems.

Dwayne asked if one visit per year is adequate for systems less than or equal to 1,000 gpd in sensitive receiving environments.

Mike L: Are you saying we couldn't have quarterly inspections if not incorporated?

There was discussion among the committee members about whether to tie required management levels to site conditions or to treatment levels. Some expressed the view that when treatment levels are more stringent, management level should be higher to match the performance expected of the system. Rick Black expressed the opinion that the technology used should determine the frequency of visits, not the performance level.

Allen stated that there is a push from local governments to address financial aspects. He doesn't know if VDH can address all that's requested—e.g., bonding for individual systems. He asked if a home owners association that serves >50 dwellings, is required to register with SCC.

Committee expressed the belief that HOAs that own systems are required to register with SCC, but only those with >50 connections are regulated. Anish Jantrania mentioned that he is researching whether there is an exemption for HOAs.

Allen suggested that the regulations should require an SCC regulated entity for systems with more than 50 connections; the requirement should equate to SCC's.

Joel suggested that the regulations should allow an HOA to own, but not operate, a system.

There was discussion about systems with less than 50 connections. One member stated the belief that some localities turn down proposals for community systems because they can't require bonding; that should be addressed in the regulations. Silence leads to ambiguity. A statement was made that VDH should run the bonding, not localities. It was mentioned that letters of credit may be logistically easier than bonding. The committee questioned what time limit should be required—it may be 20 years before a major failure. It was mentioned that utility charges to users reflect the eventual need for repairs.

Allen pointed out that the Sewage Handling and Disposal Regulations (SHDR) require recordation of a document stating that system will be in place for the life of the dwellings. The requirement has been difficult to implement for private corporations, less so for HOAs.

Discussion by the committee included:

- VDH requires a single owner, but doesn't look to owner's fiscal ability.
- There's an authority issue.
- Must document financial assurance for public water supplies.
- Privately owned discharging systems of 1,000 to 40,000 gpd must have financial assurance to be maintained in perpetuity.

Consensus check: Is group in favor of VDH trying to develop financial assurance for community systems (>1K gpd)? All members agreed except for one abstention.

Allen suggested that VDH should probably try to mirror DEQ requirements.

Further discussion by the committee included:

- What about sensitive environment piece?
- “Sensitive receiving environment” needs to be defined.
- For mgmt levels in sensitive environments <1K gpd?
- A suggestion that a sensitive receiving environment is any environment where groundwater indicators are less than 12” below surface and would apply to all systems.
- The definition should apply to karst as well.

Consensus check: For systems < 1K gpd dispersing into sensitive receiving environment (<12” to limiting soil feature) should regulations have mgmt level 3 (renewal OP and contract)?

4 yes, 3 noncommittal, 6 no

Consensus check: For the same site and capacity conditions, are you in favor of an increased inspection frequency?

9 yes, 4 uncommitted, 1 no

Dwayne stated that the definition of a sensitive receiving environment seems to be as defined above (in consensus checks). He asked if it make sense to tie sensitive receiving environment to treatment level rather than receiving environment.

Rick stated the belief that VDH is trying to take the easy way out, rather than to do the right thing. Increased requirements should tie to technology rather than environment.

Joel pointed out that there is a difference between regulatory requirements and practical requirements. Some systems need additional inspections that are not necessarily regulatory. That ties O&M to the system; it needs to be differentiated from the actual site conditions where the technology is used.

Marcia said that in more sensitive environments, it is more critical that the system is operated properly.

Allen reminded the committee that many persons have talked a lot about the enforceability of O&M manuals. Suggested: Failure to follow manual is deemed a violation of this chapter when it leads to a violation of one or more performance requirements.

Rick expressed agreement if it's truly performance standards and does not include prescriptive standards.

Further discussion included the following:

- The owner would be responsible for ensuring that the O&M manual is followed.
- The regulations should spell out that owner is responsible; it's vague in current regulations.
- In reality, the responsibility is circumstantial and case-specific.
- There should be a way to find the operator in violation for poor performance.
- If the designer picks a system that is on TL2 list, but doesn't perform at that level, then VDH is on the hook.
- If we are looking at placing inspection frequency in O&M manual, VDH staff will have to get more involved in developing manual.

Some committee members expressed the opinion that adding a violation for not following the manual, when the system is already in violation of the regulations is just piling on. Others disagreed with that characterization: this says that you MUST follow the manual, draws people's attention to it. It doesn't hurt to have that type of language—it just says “these are the consequences of not doing this.” If you have been following the O&M, and there's a violation it's not as severe.

Mike asked “So what? Let's say Loudoun letter is right. On the first round of inspections over 50% had problem, so what? What was the harm? Who got sick?”

“Failure to follow the approved O&M manual is deemed a violation of this chapter when such failure results in the failure to achieve one or more performance requirements of this chapter.”

Dwayne proposed not doing a consensus check because “we’ve gotten good feedback on both sides”.

Topic: Reliability Classification

Dwayne asked if VDH should consider technology that protects the receiving environment with rating that is based on size and receiving environment—a reliability classification.

Marcia discussed reliability class. In SCATS regulations, reliability is rated as class one to three. Class 1 has a continuous operability requirement, back up power and back up components, based on peak demand. Class 2 requires ability to restore operability within 24 hours and is based on average demand. Class 3 is the least stringent. To include reliability class, VDH would need to define sensitive environments. DEQ is based on receiving environment, not flow.

David commented that imposing reliability requirements would potentially have a high economic impact. Dwayne commented that imposing the requirement only on larger systems would mitigate the economic impact and asked if the committee was in favor of attaching reliability classifications for large systems.

Rick stated that reliability is already in the O&M requirements; reliability is, basically, what back up system is available to prevent problem.

One member opined that, for large systems, current regulations are sufficient. Marcia stated that larger systems should not be exempt, reliability classes are more related to design than operation. Allen suggested that this kind of prescriptive rule would fit better in SHDR, and is applicable to ALL systems. Valerie stated that if included in these regulations, the requirement could be added to the SHDR later. Allen stated that the mandate for this regulation is limited; back up requirements might be considered a prescriptive construction standard that is outside of the mandate. David suggested that, if deferred until re-writing the SHDR, you’d also catch some other large systems--large septic tank/gravity systems.

John Schofield: If you had a design requirement for vulnerability analysis, you’d at least open up the discussion. With a peat over pad system, what’s an operator going to do? They are a nightmare. You have huge systems operating off a hydroflow valve. Analysis makes designer think about these things.

Consensus check: Should regulations consider vulnerability analysis and reliability requirements, presumably through a performance requirement, for >1K gpd systems?
6 yes, 6 not committed, 2 no

Topic: Failsafe and Bypass Protection

The discussion then moved to failsafe and bypass protection for small systems.

Joel asked how one could incorporate failsafe on a peat over pad system that's gravity fed; it would be difficult or impossible to include failsafe/bypass in some system designs.

Bob Mayer suggested that on large systems, the biggest item is tweaking the storage capacity of systems. If rule change allowed for greater storage that would be a starting point for failsafe.

David stated that in the ad hoc committee there was some discussion that systems should be designed to shut down if some component failed. Electric customers can sign up to allow electricity to be shut off at certain times. Mike suggested that's coupled with the storage.

Joel stated that we have alarms and the homeowner is supposed to notify operator if the alarm goes off. If the homeowner still has access to water, if you hooked up solenoid valve to conveyance line—now you have a back up into the house. You don't want to have toilets overflow just because you get a high water alarm or a blower goes out.

Some committee members stated a belief that such requirements should not be applied only to alternative systems. It was mentioned that a bright line rule shouldn't be used because alternative systems come in all different types.

Allen stated that these systems aren't nuclear reactors; they aren't going to melt down. Every requirement we add increases cost and complexity. For small systems, this looks like an exercise in high costs and technology that isn't really available. It makes more sense, if we are going to try this, that we require built in notification system.

Jim Bell stated that remote monitoring only works with a land line. Until cell phone companies come up with a reasonable plan, it's going to be a problem. This issue causes the most problems for communities that try to mandate remote monitoring.

Mike Kelly suggested that media filters are different--some systems allow sewage to continue to flow, even when no longer working; media filters don't quit completely, they still some minimal treatment even when functioning is impaired.

It was stated that remote monitoring could also use an internet connection if no land line is available; everyone has internet access. A partition router can be installed between the control panel and the computer to prevent dissemination of the password key.

Rick stated that treatment systems are a partnership between owner and it's the homeowner's responsibility to contact the maintenance provider. It's a good thing to

leave that responsibility with the homeowner, not the maintenance provider, and notification shouldn't be automated because it leaves the owner out of the loop.

Valerie suggested that automation is not yet reliable enough, and the regulations could just require either homeowner or operator to respond to an alarm. Bob Mayer expressed the opinion that timed dosing is the only thing that can sense a leaking toilet and when you have a pump station, you might as well put it on a timed-dosing panel.

Dwayne said he was not getting a sense that there's anything we can do.

David mentioned that Gloucester County required telemetry for small systems. Their experience is that it's a success. The cost is about 200 for hook up and a couple of bucks a month.

Allen noted that Gloucester is looking at this as if, if the requirement isn't included in the regulations, they will lose that part of their ordinance.

Consensus check: Should remote monitoring and telemetry be associated with small systems?

0 yes, 9 no, 4 uncommitted

Topic: Reorganization of the Regulations

The committee discussed possible reorganization of the regulations. Marcia suggested that some administrative provisions, like the Betterment Loan provision and the plan identification requirements, should be in Part 1. Joel stated that the Chesapeake Bay Protection ordinance provision should be in Part 1.

Joel stated that sections 80 and 90 are not really performance requirements, but O&M; because O&M applies to everyone, but those sections should be moved to the O&M requirements.

Rick said that mixing performance requirements and prescriptive requirements is confusing.

David said that all requirements that apply to 163.6 should be enumerated in the appropriate section and agreed that CBPA requirements should be moved to section 1, to exempt local ordinances from this regulation. Joel asked why there is a reference to CBPA in this document.

Rick expressed the opinion that there are prescriptive requirements in part 2 that don't belong. He stated that 163.6 was put in place because technology was changing rapidly, the authors wanted an opportunity for PEs to use that technology without pressure for the regulations to keep up. He stated that the check and balance is "standard engineering" and that adding prescriptive requirements puts pressure back on VDH to keep up with technology in regulations.

Joel and Rick listed requirements in section 70 that they believe are prescriptive and not performance requirements:

Number 7: trench bottom loading rates shall not exceed values in table 1.

Number 8: minimum soil depth, vertical limits. VDH has no authority to include these items because the statute doesn't address them.

Number 9 is OK.

Valarie stated that, with these regulations, there's always ranges within which technology works. When you set a criterion, you are giving the engineer a goal with the range. I don't see a problem with these prescriptive values; many engineers find them helpful. She reminded the committee that there's always a variance procedure.

Joel expressed the opinion that the variance procedure at VDH is a lottery. The idea was that if you want to do a prescriptive design, there's nothing that prohibits that. The issue is to give engineers flexibility to design a system that complies with public health and environmental requirements without following prescriptive designs. These regulations mix in prescriptive requirements and make it difficult to tease out what items are performance requirements. Lots of the elements in this regulation are in violation of the statute. If you continue down this path, you're going to open yourself up to legal challenges. There's a requirement called "standard engineering practice". That's whatever VDH wants it to be. The only recourse engineer has is to negotiate something more palatable to the reviewer or go the engineering review panel. He said he thinks it's working: the panel has sided with VDH 9 times, ruled against them 3 times. When the regulations start crossing the line into prescription, they are going beyond what the legislature authorized.

Mike shared the following thoughts: When you start talking about a completely performance based system on an individual homeowner's site, that's too much of an experiment on the individual homeowner. A variance provides some protection. I don't see that in these regulations. If you're using a different treatment unit, that's one thing; if you're trying to vaporize it with ozone, that's another. It needs to be balanced. The loading rates are there for a reason.

Allen drew an analogy of two performance requirements for driving: "drive safely" and "keep your speed under 60 miles an hour". This regulation uses the second model.

David stated the opinion that the regulations set a performance requirement for quantity and quality of effluent to be delivered to a site based on the site's limiting feature. This regulation doesn't have all the detailed prescriptive requirements of the SHDR. In my reading, the intent of the law is not freedom from the speed limit.

Rick rebutted that within this "performance" requirement, the regulation establishes the treatment levels that you have to obtain in the middle of the system, before it goes in the ground. As an engineer, he looks at the list and knows that those systems are not capable of achieving that level of treatment, so he designs a system as if the unit is less than a

TL2. This regulation doesn't allow me to design based on my knowledge and expertise. Don't tell engineers how to achieve the performance requirements, just provide the endpoint.

Marcia stated that the only way to resolve the issue of determining effluent quality after passing through the soil is to do groundwater monitoring. Todd stated that without some prescription, some systems would require constant groundwater monitoring and the cost would be prohibitive.

Joel shared the following thoughts: The permitting process under this regulation is exactly the same as it's always been. It doesn't mean we're doing designs and they aren't being reviewed. They are actually being reviewed with a high level of scrutiny. VDH has all the power. They can say no at any time. "Treatment works" is statutorily defined and includes from where effluent leaves house to the point it touches groundwater. As a design engineer, there's nothing that prohibits me from saying that the compliance point is the end of the pipe. Conversely, I can say my design includes some element of the dispersal system. The designer needs to specify where the compliance point is. That could require installation of a well and compliance sampling.

There was discussion among some committee members about the practicality of sampling effluent after the soil column and the cost of verifying performance with no prescriptive requirements. Marcia suggested that the engineering community should propose language for incorporation. Joel agreed to forward proposed language, which Dwayne will include in the minutes.

The committee adjourned until 12:40.

Topic: General Approval

When the committee reconvened after the lunch break, Dwayne read definition of "general approval" from the Emergency Regulations. The regulations do not include the approval protocol, which is in GMP 147. That GMP lays out the framework for manufacturers to get a listing, with the specific variances, for TL2 and TL3. VDH receives data from system manufacturer, does statistical analysis, and, if number is <10 for BOD and TSS, the unit gets listed as producing TL3.

Joel presented his take on the general approval process:

VDH took three big data sets and did some statistical manipulation of the data. A broad range of data for BOD, TSS and fecal bacteria was compressed down to where the health department felt they could say reliably that these systems could produce 10-10 effluent 99% of the time, but half the data points are over 10 so how can it meet standards 99 percent of the time? Joel took the data and the VDH algorithm for approval to Dr. Edwards at VCU for Dr. Edwards' opinion. Dr. Edwards said, in a nutshell, "Some is right, some is wrong for establishing a pass/fail standard". If you draw a single sample, the results aren't appropriate.

Referencing a graphic he had created, Joel continued: Imagine you have a 5 gallon bucket of data and throw it on the wall. You can draw a ring that encompasses 99% of the splatter. Based on statistical calculations, you can say that 99% of next splatter will be in that outer ring. It's repeatable. You're 99% confident that the splatter will be in that ring.

VDH said we are going to look at SEM, represented by small blue circle. Saying that 99% certain that the mean is going to be within that smaller circle. Health Dept, in policy said that because we have a mean of 10, we're going to make that our standard. You can't take one sample and compare it to the mean. This type of analysis is only appropriate for comparing multiple data sets. Setting the pass-fail criteria at the SEM is statistically inappropriate. Dr. Edwards went further and said that if your goal is to establish an upper confidence limit, there are other ways to do that. He referenced the Pond and Meeker textbook from 1991. For instance, for Puraflo BOD, to set a limit of 10, you're confident that you're going to get 19 about 70% of the time. When you sample the units it's going to hit or miss whether your results are 10.

You can actually look at the numbers. What the health dept did was take SEM and manipulate it in a valid way, but the number they ended up with were 5, 6.7, and 5.5. When you look at the data as a whole, you have to look at standard deviation of the mean.

If you take natural log, it compresses the data to better fit a normal curve. The 99% is way high. In my mind, if you're going to use the program as a measure of approvability, then what the health department has done is fine. If you are using as pass-fail criteria for an individual sample, that's a problem. The statistics show that.

Dwayne stated that Joel's discussion goes back to Bob Lee's question about what to do with an individual sample that is high. The GMP compares data sets; the professor didn't seem to have a problem with that. The problem is holding the owner responsible for a single high sample.

Rick stated that the goal of GMP 147 is to achieve 30/30 treatment. Allen replied that GMP 147 was set up to compare data sets. Joel said the GMP establishes pass/fail criteria without referring to the standard error of the mean. Allen suggested that there may be disagreement about the standard itself.

Dwayne asked if we need to be concerned about individual units not meeting TL2 or TL3 or if only the aggregate of treatment units is relevant.

Rick stated that the data sets are creating a standard indirectly, and Joel said that while the policy looks at the standard error of means for data sets, that isn't articulated in the policy.

Other points mentioned by committee members were:

- GMP 147 is looking the data as a whole, and is not meant to predict the performance of an individual unit.
- The definitions in the emergency regulations say that TL2 or TL3 are 30/30 or 10/10 on a 30 day average. The problem is what to do when an individual sample is higher. In and of itself a 45/45 is not a problem for a single sample.
- In practical use, an outlier will cause a flag to go up and some regulators are going to say that something has to be done now. You definitely need guidance about what steps to take.

Marcia pointed out that the primary use of the sample data for generally approved systems is to monitor the compliance of the manufacturer. With enough bad samples, the manufacturer could lose general approval status.

Mike stated that this lends validity to Del Marshall's claim that the data is being collected at the cost of the homeowner. Mike expressed the opinion that sampling should be eliminated from the regulations if the results aren't enforceable. He said that operators would and perhaps should, say that systems are out of compliance if the samples don't meet the treatment level.

One person stated that this is essentially a research project and doesn't belong in the regulations. Another stated that only NSF and ETV keep a 30 day average as part of their testing protocol and that there is a disconnect among your definitions.

It was suggested that one possibility is to require a revolving reapplication from manufacturers for listing, accompanied by samples, so that sampling is done at the expense of manufacturers. Another possibility is that the homeowner continues to sample and we use results to evaluate manufacturers. Allen stated that VDH doesn't have the resources to deal with renewable listing applications.

Committee members asked about systems that don't have general approval. What are you going to do about all of those legacy systems that don't meet the standard? If you delist the system, what are you going to do?

Allen pointed out that DEQ has a very detailed enforcement manual. VDH hasn't started writing one. The idea that samples have no use other than general guidance is misinformed. They are also useful as an indication of the effectiveness of this program. If a sample is >50, that is outside of the big circle. We have to make sure that the samples are not misused in individual cases. We could say that individual samples shouldn't fall outside of a minimum range.

John Schofield offered that samples aren't needed to determine how the program is going. Grabbing a sample from a treatment unit isn't a gauge; there is a need to sample the groundwater; there is no need for data in addition to the EPA data. VDH is trying to think end-of-pipe like DEQ.

Reed Johnson stated that, from a manufacturer's standpoint, he approves of sampling because a system that's been designed, installed, serviced correctly will function properly. However, VDH is going to hold the manufacturer responsible, manufacturers need control over the design, installation and servicing of systems.

Dwayne stated that the 95th percentile is saying that 95% of the data points would fall below that number. What we're finding is that at 95th percentile, we're getting 40 to 70 BOD. There's a range of values, and the raw data didn't produce a normal curve.

Joel said that if TL2 is 30/30 and is the upper limit, 30 is probably an achievable, reliable limit. If that's what you need for disinfection, what's the cost benefit of going to 10? He said that there is no cost benefit of setting a standard for less than 30.

Rick expressed his opinion that whatever standard is set has to be practical and simple; the primary purpose of sampling is to know how to operate a treatment sample, for example is the nitrification right? Am I right on my nitrification? The manufacturers have done an excellent job of scaling this down where you don't have to as much of that. It's a maintenance issue. If the system is maintained properly, it boils down to a simple question of "Is it operating as designed?" The testing does nothing but verify that it's operating a certain point.

John opined that if the public asks if the systems are working, VDH will need sample data.

Joel stated that an operator can almost just look at clarity of a sample; increased visits, lead to increased sampling and testing. There has to be a good reason to put a sampling burden on the homeowner.

Dwayne listed "reasons for sampling":

- Check operation
- Compliance monitoring
- Population monitoring
- Problem diagnostic

Rick stated that when he checks a system, he can tell within seconds of opening the lid whether it's working right. He has a problem with these extra expenses.

Should VDH have a GMP147 protocol for listing (renewable) TL3 for small AOSSs?

Reed Johnson stated that the regulations could put a carrot in front of manufacturers by giving them a benefit.

Allen proposed that the committee has whittled this down to two basic concepts: either the manufacturer samples, or individual homeowner samples every system; the ad hoc committee had a strong recommendation that VDH establish a verification program.

Marcia pointed out that the emergency regulations give a sampling break to those who general approval. Otherwise we sample individuals for compliance.

Joel stated that the listing process meets the goal of verifying performance. Setting some reasonable standard for getting on the list meets that goal and systems stay on the list until there's cause for revocation. You'll find problems through maintenance reports. If you see problems, you have to do some investigation.

Mike offered that there is no reason to apply the same testing procedure to systems that have no history and those that have 30 years of history. He said that NSF is a national standard that, if adopted would be the verification of system performance. He questioned putting any resident at risk with a system that doesn't meet NSF.

Consensus check: Health Dept protocol for verifying treatment efficacy should require that the system must have NSF or ETV approval for listing?

1 yes, 6 not committed, 3 no

Consensus check: Health department should have some type of population monitoring of small systems for efficacy verification.

3 yes, 4 not committed, 4 no

Consensus check: The regulations should include compliance monitoring of individual small systems at some time interval?

10 yes, 1 not committed

Additional discussion by the committee included these comments:

- Individual data could be used for compliance if necessary.
- Population monitoring is just a way of determining whether a particular system should be listed as generally approved.
- Population sampling could be some type of random sampling.
- Compliance monitoring would include all systems.
- Population monitoring is too nebulous.
- VDH has to figure out what guidance to give staff when numbers start coming in.
- Why not take individual results, pool together, and compare with 90th percentile of samples for the entire year. Over time, you would know whether an issue is due to manufacturing or maintenance.
- How would a system listed for 30/30 be classified on an O&M report if a sample indicates a BOD of 45?
- Samples taken in the winter will give different results than those taken in the summer.
- The standard needs to be written to account for variability.
- We have septic tanks and we know what they do; why complicate matters beyond that?

Marcia reviewed sampling requirements from current regulations for small systems: if the system is generally approved must sample at 180 days after operation begins, then

once every five years. If not generally approved, the requirement is four samples over two years with no two samples closer together than quarterly.

Consensus check: Should the sampling interval requirements stay the same?

6 yes, 3 no commitment, 2 no

Joel stated that one shouldn't have to sample forever for non-generally approved systems; the GMP protocol doesn't work if you don't have 20 systems and suggested doing first two years as required, then it should go into 5 year program with everyone else.

Consensus check: For "one off" or small quantity systems, the protocol should be to take 4 samples for 1st two years, then, if samples OK, change to every five years.

6 agree, 3 no commitment, 2 disagree

Consensus Check: All small AOSSs should be sampled once per year.

6 disagree, 4 agree

Dwayne informed the committee that there were 40 minutes remaining and 3 topics to discuss. The committee decided to discuss treatment levels.

Topic: Treatment Levels

Allen presented the possibility of leaving TL2 where it is, maybe with some statistical tailoring to meet field performance of NSF 40 units and developing a "real" TL3 standard, that comes close to industry standard, for sensitive sites which might require post-filtration.

Joel voiced support for TL2 or TL2 with disinfection, and for tertiary treatment, if it can be incorporated with the dispersal system. He stated the opinion that an ATU plus a sandfilter is engineered system; two different manufacturers make it an engineered system. He questioned the benefit of cleaning it up beyond what is needed for disinfection?

John Schofield suggested expanding TL2 at 30/30. TL3 should be 30/30 plus disinfection. He said that TL4 should be tertiary or membrane treatment. He stated that in a couple of years every company will have membrane treatment. John says this follows standard engineering as taught in colleges. His opinion is that TL4 would be used where proposal is residential system in water table and that tertiary would be well below 10/10—maybe 5/5 which can be achieved with ATU and filtration. The worry with 30/30 and disinfection is that solids will interfere with disinfection.

Allen pointed out that the current set up allows a higher loading rate for TL3--a higher hydraulic loading rate for reducing organic loading rate and that in John's proposal, the system would have to go all the way to TL4 to achieve that loading rate.

John responded that people are bumping their drainfield sizes up to meet organic loading rate. The 10/10 standard is a fake standard and can't be met 100% of the time, but is being used as if it's real.

Joel stated that there is a limit for organic loading rates and that designers have to check to make sure that limit is met; the EPA manual shows a septic tank organic loading rate 4 times higher than that for secondary effluent.

Allen suggested that a standard could be: TL2 is 30/30, TL2.1 to 2.9 is less than 30/30, TL3 is tertiary.

Rick offered that the regulations call things as they really are so that statistical analysis is unnecessary.

Mike suggested that the reason for different levels is separation to water table and loading rates. BOD doesn't hurt anyone, it indicates the amount of treatment; the concern is the proximity to a shallow well; disinfection doesn't kill everything.

Joel suggested that if the concern is a shallow 3C well grouted to 10 feet, the regulations should just increase setbacks—most wells are deeper and grouted 20 feet or more.

Topic: Re-use

Valerie proposed that there will be a demand for re-use during dryer periods. It is more economically feasible for larger systems. Imagine a Level 1 treatment system, and they want to dispose of it in a manner that VDH has authority over. She envisions a joint effort where re-use is governed by DEQ while VDH governs disposal.

Marcia replied that there is interest in VDH in addressing the issue, but details such as enforcement would need to be addressed.

Valerie outlined the treatment levels for reuse: level 1 is suitable for re-use with potential for public contact; level 2 doesn't have potential for public contact. Level 1 would be an unreasonable expense on homeowners and the monitoring would be cost-prohibitive for small systems. There is a re-use exclusion for non-potable water covered by VPDES if used for irrigation, but that exclusion doesn't apply to less than 1000 gpd treatment works covered by VPDES general permits. Valerie says that exclusion should be changed.