Minutes of 4-24-2001 Meeting of the Sewage Advisory Committee

Review of Previous Minutes

Roger Thompson reviewed two e-mail messages that were received. Gail Center wrote with clarifying information related to the comment about international adoptions. There are several diseases of concern, not just polio. Gail also asked that the sources of the 7-log reduction in viruses be given. Gail also noted that based on the VDH collective memories, the two year travel time was not a doubling of an agreement that one year was ok, but was a compromise of various opinions which ranged from one to three years as a safe limit.

The reference to the 7-log removal is from a paper by Dan C. DeBord, William W. Woessner, Brauce Lauerman, and Patrick N. Ball entitled Virus Occurrence and Transport in a School Septic System and Unconfined Aquifer and is to a 1992 draft EPA Ground Water Disinfection Rule, EPA 811/P-92-001

Andy Flagg wrote suggesting a technical advisory committee be appointed to review and make recommendations on technologies to the Agency as a means of reassuring people that the Agency would consider new systems. There was general agreement with the concept. The most recent revision of S.27 includes an advisory committee, which will look at these issues for at least 30 months after the adoption of the rules. This committee could be extended as needed and might be a good source of information.

David Cotton asked that his name be removed from the fourth paragraph on page three, as he was not involved in the formation of the original two year time of travel policy.

David also objected to a statement in paragraph three on page four related to use of disinfection. He did not agree that most people felt that disinfection was a bad idea. Chris Recchia said that he thought the statement was probably too strong but that he would need a lot of convincing before being supportive of using disinfection for homeowner type systems. He recalled pointing out that even with large systems such as the Bethel treatment plant, things can go wrong and therefore a high level of confidence and management would be required in order to use such a system. The committee heard discussion of the 5 levels of management suggested in the EPA Voluntary Guidelines which indicated that disinfection would be pretty high up on that list. It was decided that a more accurate statement was that some people were not supportive of disinfection, with most people agreeing that any possible use of disinfection would present operation and oversight issues.

S.27

Chris gave an overview of the status of S.27. S.27 has passed the Senate with most of the critical pieces intact. Chris will be meeting with house leaders this week and with a joint session of the House F+W and NR committees and should start to get a picture of where the bill may be headed. He still hopes that a bill can be passed.

David discussed the newspaper image. The papers are saying the new technologies don't require the land to "perc." The committee agreed that this was not correct. Justin Willis noted that one paper said the bill would not be passed. There are articles that reflect concerns that the Agency will not really implement innovative systems. Chris noted that it was important that we be clear that no final decisions had been made on site limitations and that the 1997 report was only a starting point with everything still on the table. Richard Deso asked about articles saying the Governor will close the exemption in the rule making process. Chris replied that we can do this, and would do this, but have worked cooperatively with the legislature to do the comprehensive bill**,** and we are continuing with that effort. A copy of the bill as passed by the Senate will be included with the minutes.

Review of Agenda

It was agreed to skip item #5, discussion of viral treatment, because we weren't prepared to make much progress on this issue at this meeting. The topic will be pursued at the next meeting

Trip to Rhode Island Demonstration Facility

Bruce reported that several openings were available for the currently scheduled tour arranged by RI. It was agreed this would not work for us and we should try to schedule our own tour for late May. We need 25 people. Bruce will make some more calls to see what can be arranged.

Management Framework

David discussed the issue of needing a management concept in order to deal with use of septic systems in the future. He felt that while advanced treatment systems that depend on mechanical operation need management, more traditional systems also need management. He commented that "as we depend on performance, the need for monitoring is increased." He also said there was a need for a funding source for replacement of failed systems. Roger asked if the funding should include new systems to make them available for use in situations where standard systems were inadequate and municipal systems were not available. Bruce suggested that funding should cover

upgrades in addition to outright failed systems. There was general agreement that systems do need some operation and maintenance.

The issue of whether to actually adopt the NOWRA framework was discussed. People indicated that if not adopted, but used as a general guidance, it could be used pretty much as is. If it was to be adopted, several people said they would want to do some wordsmithing. Chris said the Department would work on a draft for possible adoption as a policy statement. Blair Enman asked that the legislative technique of strike through and underlining be used. The Department will send copies of a document outlining a possible performance standard with 7 treatment levels and a copy of the EPA voluntary guidelines for management.

Disposal of Water Treatment Backwash

Jeff Williams raised the issue of how to disposal of filter backwash. Allison Lowry explained that in many cases the waste is considered compatible with domestic sewage and it would be acceptable to discharge to the leachfield. She explained that a separate system would require an Underground Injection Control Permit. Gail mentioned the issue of radioactivity and how the disposal of the filter backwash is complicated when dealing with naturally radioactive groundwater. Roger mentioned that arsenic would also be an issue. Allison indicated that she hoped to create some general permits or permits by rule to deal with many of the systems for disposal of backwash water. Blair stated that he had concerns with combining the wastewater with the sewage because of a concern that the salts could cause a cementing of the soil and eventual failure of the leachfield. He expressed that he had a couple of examples of this occurring.

Site Limitations

The 1997 report of the technical subcommittee was used as the basis of discussion. Roger reviewed the history of the report and the basic assumptions that were used in reaching the conclusions in the report. The assumptions were:

1. that there would be no overland flow of sewage onto the surface of the ground or direct discharge into surface waters

2. that graywater was pathogenic and would be treated as sewage

3. that non-discharging systems would be reviewed and approved as appropriate, and

4. that existing systems would continue to be used.

Starting from there, the report identified depth to bedrock, depth to impervious soils, depth to the seasonal high water table, slope, and percolation rate as being primary site limitations.

The report's recommendations were premised on making changes supported by good science without regard for how they might change land development patterns. Starting with this premise, it was decided to consider the minimum site conditions needed to allow a disposal system to operate without surfacing of effluent downslope from the system. To reach the maximum limits, the assumptions were based on the flow of clean water, using an assumption that various treatment systems would be able to clean the effluent to a sufficient level that the treated effluent would behave in the soils as if it were clean water. Using this approach, data from various sources, including site specific test results from projects done by members of the committee, was assembled by Craig Heindel. This data was used to construct a set of prescriptive design requirements. These design requirements would allow for development of some land not acceptable under the existing rules. The main changes would be that sites with 18" to the SHWT, and sites with 12" to the SHWT which could be drained to 18" could be considered, and if other factors were satisfied a prescriptive design could be approved. This was presented as a starting point with the intention of looking for ways to extend and expand the scope of what could be covered with a prescriptive approach.

David asked if we could look at using soil analysis to allow for higher linear loading rates on sites with soils that are more permeable than the silt-loam and clay soils used in the original model without having to do a site specific hydrogeologic analysis. Roger said that he thought there was room to extend the original model to cover more sites. Bruce mentioned that Nova Scotia had a nomograph they used to make a similar determination, and that Jerry Tyler had developed an approach, which differentiated between the capacity of different soil layers to allow for an aggregate determination of site capacity. Justin suggested that we move to a soil based determination for sizing all leachfields. David supported that, but indicated that the states that have done so have relatively conservative loading rates. Roger asked that a subcommittee be formed, including David, Bruce, Craig, and anyone else interested, to prepare a first draft of an approach. David and Bruce agreed but asked for administrative support, which Chris agreed to provide.

There was extensive discussion of how systems constructed on the 1997 model would work. Blackboard diagrams were constructed and reviewed demonstrating the natural site conditions and the effect the effluent has on the groundwater elevation. We reviewed the concept of 6" of freeboard, defined as 6" of unsaturated soil between the top of the effluent plume moving away from the leachfield and the ground surface. Richard Deso asked what other states required. David and Roger indicated the Vermont was pushing the limits compared to most other states. The proposal in the 1997 report to work with sites with only 18" to SHWT, and allowing sites with as little as 12" to be drained to at least 18", leaves only Maine with a lesser requirement. Maine has a limited number of soil types and areas where some sites with only 12" to the SHWT can be used. David pointed out that with fine-grained soils and 6" of freeboard the soils would be saturated to the surface from the capillary actions and there would be a sense of damp, soft soil downslope from the system. It was suggested that a layer of sand might be useful in this case in that it would provide some separation from the saturated soils and sense of firmness to the site.

It was agreed that in addition to the 1997 outline for prescriptive design factors, and any changes developed based on soil identification that could allow higher loading rates, that it would always be possible to do a site specific hydrogeologic analysis. The analysis would determine if the specific site had the ability to meet the performance standards even though it did not have the minimum site conditions set forth in the prescriptive standards.

Roger asked if anyone thought that there was new information that would allow the minimum prescriptive requirements set forth in the 1997 report**,** particularly the 6" of freeboard concept, to be decreased. Except for the issues Bruce and David will investigate, the answer was no.

The discussion turned to the issue of increasing the maximum slope allowable for various types of systems. The 1997 report suggested increasing inground and mound systems from 20% to 30% and at-grade systems from 12%-20%. The group felt that the standard for at-grade systems which were first approved in Vermont in 1996 and which in 1997 were still a new concept, had been proven sufficiently that they should also be allowed on up to 30% slopes. The 1997 proposal to change the prescriptive standards to 30% and to allow site specific applications for steeper slopes was also accepted. There was considerable discussion of whether there should be any slope limitation because the systems would likely function regardless of the steepness. The issue is safety and constructability. The group decided there was some responsibility to establish some threshold so designers, installers, and landowners would have to think about what would be required for an installation on very steep slopes.

The talk then turned to depth of soil over bedrock. It was pointed out that there are two issues. One is the amount of native soil you need before even starting a project and the other is the amount of soil between bedrock and the bottom of the final disposal field. The second issue is related to questions of the level of treatment and possible reductions in separation. There is one step in this direction in the current rules, which allow sand filter effluent to be applied 2' above the SHWT and bedrock, while septic tank effluent requires 3' to SHWT and 4' to bedrock.

The issue of depth of natural soil was discussed to a considerable extent. The variability of the bedrock surface and the related uncertainty was mentioned as one factor why Vermont requires 4' from the bottom of the system and only 3' to SHWT. The factor also applies when considering a reduction in the current requirement that 2' of native soil exist over bedrock. Blair raised the question of whether non-native fill could be used to create the receiving layer. Roger said that the 1997 recommendation to retain the 2' of soil was based on keeping the effluent in the native soil, and that adding soil means that at the end of the filled area the effluent would surface. Chris wanted to know what other New England states were requiring for minimum soil over bedrock and Roger will find out**.** Roger pointed out that in addition to using fill for a receiving layer, there are existing filled areas that have been placed on receiving layers of native soil. Roger said that this issue should be addressed because it seemed that some of the currently

prohibited fill sites would be suitable for development. The meeting was adjourned without a final recommendation on this topic.

Additional Meetings

Roger suggested that the group extend the schedule beyond the last meeting currently set for May 8, 2001, in the Mad Tom Notch Room where the first meeting was held. The group agreed that every other Tuesday would be good. Bonnie learned that rooms we had used would not be available, but will search for other meeting places in Waterbury.

People attending

Allison Lowry	Gail Center	Richard Deso
Richard Czaplinski	Jeff Williams	Bruce Douglas
Chris Recchia	Blair Enman	Justin Willis
Alan Huizenga	Bonnie Loomer-Hostetler	Pat Camp
David Cotton	Roger Thompson	