FIFTH ANNUAL REPORT TO THE LEGISLATURE OF THE TECHNICAL ADVISORY COMMITTEE

Established by Act 133 of the 2001 Adjourned Session

REGARDING OVERSIGHT AND IMPLEMENTATION OF THE

WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES

January 15, 2007

Submitted by:

John Forcier, P.E. – Chair
(Alt.: Brad Aldrich, P.E.)

For Members of the Technical Advisory Committee:

Gail Center, VT Health Department
Bernard Chenette, P.E.
David Cotton, P.E., Hydrogeologist
Philip Dechert, Town Planner
Kim Greenwood, Water Quality Specialist
Spencer Harris, Licensed Designer B
Craig Heindel, Hydrogeologist
Alan Huizenga, P.E.
Gerald Kittle, Licensed Designer B
Allison Lowry, DEC, WWMD
Lance Phelps, P.E.
Rodney Pingree, DEC, WSD
Stephen Revell, Hydrogeologist, LD B
Roger Thompson, DEC, WWMD
Jeff Williams, Well Driller
Barbara Willis, Licensed Designer B
Alt.: Justin Willis, Licensed Designer B

FIFTH ANNUAL REPORT TO THE LEGISLATURE OF THE TECHNICAL ADVISORY COMMITTEE
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Purpose: This report on implementation of the Wastewater and Potable Water Supply Rules is the fifth of five annual reports required by Act 133 of the 2001 Adjourned session. Section 1978 of 10 V.S.A., as established by the Act, focused on the need for the technical standards to be updated immediately to include new technologies and for revisions to the technical standards to be routinely accomplished in order that the standards remain current with known and proven technologies regarding potable water supplies and wastewater systems. The statute established a Technical Advisory Committee (TAC) to advise the Vermont Agency of Natural Resources (ANR) regarding the technical standards and implementation of Act 133.

The annual reports of the TAC are required to include information on the following topics:

- Implementation of the statute and the rules adopted under the statute,
- Number and type of alternative/innovative systems approved for general use, approved for use as a pilot project, and approved for experimental use,
- Functional status of alternative/innovative systems previously approved for use as a pilot project or for experimental use,
- Number of permit applications received during the previous year,
- Number of permits issued during the previous year,
- Number of permit applications denied during the previous year, including a summary of the basis for denial.

Annual reports from previous years are available at the website listed below under "Minutes".

TAC Members: In 2006, there were 17 regular members of the TAC and two alternates (see list on cover page, and details in Appendix D).

TAC Chairperson: The TAC agreed that it is advisory to both the ANR and the State Legislature. In that capacity, TAC members determined that the TAC should be chaired by someone who is not affiliated with ANR or the legislature. Accordingly, in 2006 John Forcier, P.E. continued his role as elected Chair of the TAC.

TAC Executive Committee and Sub-Committees: The TAC has an Executive Committee (5 members, 4 alternates), and nine sub-committees whose members focus on specific topics on an as-needed basis. Members of these committees are listed in Appendix D.

Meetings: Twelve (12) meetings were held by the TAC in 2006, with each meeting being approximately 3 hours in duration. Meetings were held on January 10, February 7, March 14, April 11, May 9, June 6, July 18, August 22, September 19, October 24, November 28, and December 19, 2006. Meeting attendance ranged from 7 to 14 members (generally about 10), and included guests at some of the meetings, such as Anne Whiteley (ANR attorney) at the September, November and December meetings; Scott Stewart (Water Supply Division) on August 22; and Bruce Douglas (P.E. and Hydrogeologist) at several meetings. Also usually attending was Frank O'Brien, Innovative Systems Engineer for the Wastewater Management Division.

Full minutes of each meeting are contained in Appendix A, and can also be viewed on-line at http://www.anr.state.vt.us/dec/ww/EngServ.htm#tech under the heading Technical Advisory Committee.

Implementation of the statute and the rules adopted under the statute:

TAC RECOMMENDATIONS to ANR in 2006, regarding statute and rules:
The TAC made the following recommendations during the course of their meetings in 2006. Each item is followed by the meeting dates when related discussions were held.

1. **Annual Report to Legislature** – The TAC submitted its Fourth Annual Report to the Legislature to the Legislature on January 15, 2006. TAC representatives testified at the Senate and House Natural Resources Committees on Jan. 18, 2006 regarding this report.

2. **Revisions to EPRs, Ch. 1, Wastewater System and Potable Water Supply Rules** – The TAC provided advice to DEC at most of its 2006 meetings regarding revisions to the current rules being considered. We are working our way through a list of approximately 30 topics for consideration regarding possible revisions or new inclusions. The TAC received an early draft of the currently proposed rule revisions shortly before our July 18 meeting, and provided detailed comments to DEC at every meeting beginning with that meeting. The TAC continued to urge DEC to move forward with the adoption of revised rules soon, even if this meant postponing until future dates some revisions that DEC felt were not yet ready to take through the adoption process. Recently addressed by the TAC are the topics of specifications for mound sand – the TAC recommends the general concept of allowing coarser sand than is currently included, but not finer sand (11/28); and the policy addressing field changes from approved designs – the TAC recommends the DEC develop an easy process to identify acceptable field changes that would not require a permit amendment (10/24).

3. **Information to Legislators:** The TAC offered advice to DEC regarding the Addison County Septic Study that was included in legislation (4/11, 9/19, 11/28).

4. **Water Supply Design Training for Licensed Designers** – The TAC provided comments and support to DEC on the details of training of Licensed Designers who are not engineers regarding the design of certain aspects of water supply systems.

5. **Surface Water Sources of Drinking Water** – The TAC spent considerable time in 2006 on this difficult issue (difficult because there are hundreds of residences and public buildings in the state which use surface water as their source of potable water, although surface water is not currently considered an acceptable water source for new permit applications, due to significant water quality concerns). The TAC has a sub-committee specifically charged with addressing this issue. It met in early 2006, and provided several options for the full TAC's consideration. The TAC recommends that DEC not allow surface water sources for potable water systems for new uses, or existing uses with increased design demands (3/14, 4/11), and that a procedure be developed regarding existing surface water sources (such as educational, time-of-sale notification, and so on; 3/14).

6. **New Technologies** – The TAC provided technical reviews and informal feedback to DEC regarding Innovative or Alternative Technologies under review by DEC. See page 5 and Appendix B for more details.

7. **Licensed Designer Training** – The TAC recommended that more training opportunities be provided for Licensed Designers (1/10).

8. **Training for Well Drillers** – The TAC recommended that DEC develop a checklist for well drillers to use as they site new wells, and to develop a focused training program (2/07). The TAC's sub-committee charged with these specific topics met several times (5/9, 8/22, 9/19), and is in the process of finalizing the checklist.

9. **Calculations and Procedures for Determining Seasonal High Water Table, and Induced Groundwater Mounds** – The TAC recommended that the current procedures for determining seasonal high water table be revised to more appropriately conform to performance-based designs (4/11). The TAC's hydrogeology sub-committee met in April and July to evaluate specific revisions, and presented options to the full TAC at the June meeting.

10. **Cumulative Impact of Multiple Wastewater Disposal Areas** – The TAC recommended that there is no need for additional regulations on this issue, because it is generally addressed in the existing application review process (10/24).

INNOVATIVE AND ALTERNATIVE TECHNOLOGIES, Including Functional Status: The Rules allow for three categories of new technologies (innovative /alternative treatment systems and products):

1. General Use;
2. Pilot Project; and
3. Experimental Use.

1. **General Use:** In addition to the two advanced treatment systems that have been allowed in the Rules since 1996 (intermittent sand filter, and recirculating sand filter), a total of eleven other advanced treatment systems and twelve other devices are now approved for general use or as acceptable substitutes in Vermont. Applications from the manufacturers of six additional treatment systems and three devices are currently under review. Appendix B includes a summary of innovative/alternative technologies that are approved or being considered for their use in Vermont, and their current status. Numerous advanced treatment systems and other devices have already been approved for general or pilot use in previous years (also listed in Appendix B).

   In 2006, the following five technologies, products or regulatory amendments were approved for the first time for general use in Vermont (listed alphabetically by manufacturer, with brief descriptions):

   - Aqua Aire – aerobic treatment system;
   - Aqua Safe – aerobic treatment system;
   - Bio-Microbics RetroFAST – fixed film aerated treatment system;
   - Infiltrator – increased application rate;
   - Ecoflo Biofilter – mixed media biofilter.

   Denials for General Use: No applications for general use approval were denied in 2006, or have been denied since the revised Wastewater Disposal Rules went into effect on August 16, 2002.

   Technologies currently under review for General Use:

   - **Advanced Wastewater Treatment Systems:** In 2006, manufacturers of advanced treatment systems filed five complete applications for approval for general use in Vermont. There have also been several requests for information on how to apply. Six advanced treatment systems have applications pending and currently under review, although three of those applications are awaiting additional information from the applicants, or are not currently approvable under the Rules. DEC is holding these applications open pending possible rule changes. Two of the systems have been issued draft approvals.
   - **Wastewater Disposal Devices:** In 2006, one manufacturer of a wastewater disposal device applied for approval for general use based on an increased wastewater application rate. There have also been several requests for information on how to apply. One product and two requests for increased wastewater application rates are pending and currently under review,

although one of the requests for an increased wastewater application rate is also awaiting additional information from the applicants.

2. **Pilot Projects:** One pilot project (an aerated subsurface-flow wetland treatment system) was approved in 2005. No manufacturers of advanced treatment systems applied for approval for pilot projects in 2006. One advanced treatment system with an application pending since 2003 (a bottomless sand filter) is not currently approvable under the Rules, but DEC is holding the application open pending a possible rule change. No applications for pilot use were received prior to 2003. See Appendix B for the list of treatment systems and products currently under review for Pilot Projects.

3. **Experimental Use:** As in previous years, no manufacturers of advanced treatment systems or other products have applied for Experimental Use in 2005.

APPLICATIONS for Wastewater System and Potable Water System Permits in 2006:

1. **Permit applications received in 2006:** The number of permit applications received in 2006 was 3284, which is an increase of 8.6% (260 applications) over the 3,042 applications received in 2005.

2. **Permits issued in 2006:** The number of permits issued during 2006 was 3283. This number includes permits issued for projects which have been pending for more than one year. The number of permits issued in 2006 is an increase of 10.2% (304 permits) from the 2,979 permits issued in 2005.

3. **Denials of permit applications in 2006:** The number of permit applications denied in 2006 was 17 which is a decrease of 26% (17 denials) from the 23 denials in 2005. 88% percent of the denied permit applications (all but 2 of 17) were rejected due to a lack of sufficient information.

Note: Appendix C includes a table listing the number of permit applications and permits issued /denied in 2003 through 2006.

Appendix A

APPROVED MINUTES FOR TECHNICAL ADVISORY COMMITTEE MEETINGS (2006):

Accepted Minutes of the Technical Advisory Committee Meeting
January 10, 2006

Members present:	Roger Thompson	Bernie Chenette
	Phil Deckert	Alan Huizenga
	John Forcier	Kim Greenwood
	Allison Lowry	David Cotton
	Rodney Pingree	Barb Willis
	Craig Heindel	Spencer Harris
	Lance Phelps	
Others present:	Frank O'Brien	Bruce Douglas

Scheduled meetings:

February 7, 2006	1-4 PM	Room 107 Stanley Hall
March 14, 2006	1-4 PM	Room 107 Stanley Hall

Review of agenda

The agenda was accepted as drafted with the addition of a topic on NOWRA.

Review of minutes

The draft minutes of the December 13, 2005 meeting were accepted as drafted.

Annual Report

Craig reviewed the annual report. The report is very similar to the one from last year with a couple of tweaks. John asked that the date of each of the committee's meetings be added to one paragraph where they had not been included. Increasing the loading rate should be added to the topic list. The report could include statistics on how many of each of the new systems have been used but it was decided to not try to collect this information as it might cause the report to be delayed beyond the January 15th deadline. These should be considered for next year's report. VNRC should be spelled out. A sentence should be added to the I/A section stating that none of the I/A systems will allow development of sites that do not meet the minimum standards. Maybe there should be a statement that "there are no black boxes."

Appendix A

Field visit report

Roger briefly noted that the reports, which were only collected from the Rutland Regional Office, were completed through the end of 2005 and transmitted to the legislators who were interested. It is not certain if they will continue but it does not appear that future ones would add much to the knowledge base.

Legislative rumors

John provided copies of a story from the Addison Independent which indicated that the Agency had not complied with the legislative direction from 2002 to update the rules that would include new innovative systems. This article was incorrect because the person interviewed for the article had been provided with incorrect information. That mis-information has been corrected. John suggested it would be important for the Agency to get the correct information out to the newspaper.

Various legislative rumors were discussed, most of which seem to center around the fact that the Options Paper did not provide the low cost solution desired by legislators and that options #2 and #3 would require legislative action to change statutory requirements related to surface discharges to state waters, which might not be easy to complete.

NOWRA

David made a short presentation about NOWRA (National Onsite Wastewater Recycling Association**)** and outlined the purpose of the organization and the possible benefits from becoming members. In some cases, the state regulators are members and NOWRA and the regulators work together to support changes in the state rules. Vermont could form its own chapter or join with other New England States in YOWA (Yankee . . .) David and Bruce will bring more information to the next meeting.

Training

The Agency will put together a more comprehensive schedule of the year's training plans. Enough is needed so Class A and B technicians can meet their requirements.

Lake water systems

The subcommittee will plan on bringing a proposal for discussion to the March meeting.

Mound sand specifications

There was a very brief discussion of this. Spencer noted that one pit that did supply mound sand has closed. It was noted that one pit was buying a large quantity of mound sand from another pit and transporting

back for later resale.

Ground water monitoring data

Roger distributed some information that was brought to his attention by Dan Wilcox. This is USGS data related to monitoring of groundwater elevations, including a few wells with shallow water tables in unconsolidated aquifers. This information does not appear to be very useful in the design of wastewater disposal systems. Craig noted that a good source of information would be from the Indirect Discharge Permit program as there are a large number of systems that require routine monthly monitoring of the depth to the water table. This has not been assembled but the data could be mined if someone wanted to take on the project.

Innovative systems

Frank will check on the status of the Rotordisk system.

Feedback

More training opportunities are needed.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

Appendix A

1. Drip disposal
2. Mound sand requirements
3. Encourage I/A
4. Changing the 20% slope restriction to 30%
5. Replacing perc test with soil identification approach
6. Defining when effluent is no longer wastewater
7. Disinfection
8. Colorado Rule – reduction in isolation distance to wells based on construction methods
9. Certification and audit approach to permitting
10. Lake water systems
11. Curtain drains
12. Terra-Lift System
13. Installation certification language
14. Field change policy
15. Revise existing desktop hydro chart
16. Conversion of use policy, including grandfathered flows
17. Revise design flows
18. Increased loading rate

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Appendix A

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
February 7, 2006

Members present:	Roger Thompson	Gail Center
	Bernie Chenette	Allison Lowry
	Rodney Pingree	Craig Heindel
	Gerry Kittle	
Others present:	Chris Thompson	Frank O'Brien
	Bruce Douglas	

Scheduled meetings:

March 14, 2006	1-4 PM	Room 107 Stanley Hall

Review of agenda

An item was added related to the well driller's concerns

Review of minutes

The draft minutes of the January 10, 2006 meeting were reviewed. Because they were not sent to committee members prior to the meeting, Roger will e-mail them with a request for comments.

Status of the Options Paper

Roger reported that about 750 notices of the Options Paper, with referral to the web site or an option for a hard copy were mailed. There were only about 5 responses. A responsiveness summary is being prepared which will be mailed to the legislative committees working on the issue.

Meeting with Senate and House NR Committees

There was a short meeting of the two committees on January 18, 2006. Commissioner Wennberg and Anne Whiteley did the opening overview of the charge to TAC. John Forcier was the next witness and covered the annual report and the Options Paper very briefly, as he had to leave for another appointment. Alan Huizenga took over for John and mainly had to answer the legislative question of whether TAC had any recommendation on how to proceed, which Alan answered in the negative. This question was also put the Agency with the same result. One legislator was very concerned about the availability of mound sand.

Appendix A

Follow-up to Addison Independent story

Craig reported that he had contacted Senator Ayres and Senator Giard about the story. They both returned his call and Craig reviewed the status of innovative systems, which is that TAC had looked at each of the reviews and draft approvals prepared by Frank O'Brien and that each of the systems with favorable comments from TAC had been approved for use in Vermont. Craig noted that none of the approved system can overcome the most severe site limitations such as those found on flat, clay soil, sites and that he was unaware of any unapproved systems that would overcome the site limitations. The current rules require that the effluent remains below ground surface on a year-round basis and none of the innovative systems change the ability of the soil to do this. Craig noted that cluster systems and spray disposal systems are approaches that can be used, though they are not effective for scattered development.

Status of rule update

Roger reported that an electronic copy including Anne Whiteley's most recent work had be obtained which he would update with the items identified since 2004. The first task is to overlay the changes proposed in the 2004 draft onto the rules as adopted January 1, 2005. This work will move forward over the next couple of months and hopefully Anne will be able to help. Alex Elliott, who works mostly with the Water Supply Division, is the backup for Anne on this.

Well driller's concerns

There have been recent inquires to Rodney and Roger about how the well drillers will be affected when the jurisdiction changes July 1, 2007. The Agency is still on track to provide for well drillers to have limited designer authority that would allow them to site replacement wells for single family homes that are on pre-existing and existing exempt homes. These are the only wells that are currently unregulated. The Agency and TAC will develop check lists and a limited training program so that the well drillers understand the basic concepts of the work.

Lake water systems

The subcommittee will plan on bringing a proposal for discussion to the March meeting.

Mound sand specifications

There was a very brief discussion of this. Craig indicated that he would be comfortable with a small increase at the coarse end of the range, but would be concerned about using sand with an increased fraction of fine material.

Well shields

Appendix A

It was decided to add the question of well shields extending onto neighboring properties to the list of items for review.

Innovative systems

Frank said that he now had a response to his questions about the Infiltrator leaching chambers which he would be reviewing in the next few weeks.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

19. Drip disposal
20. Mound sand requirements
21. Encourage I/A
22. Changing the 20% slope restriction to 30%
23. Replacing perc test with soil identification approach
24. Defining when effluent is no longer wastewater
25. Disinfection
26. Colorado Rule – reduction in isolation distance to wells based on construction methods
27. Certification and audit approach to permitting
28. Lake water systems
29. Curtain drains
30. Terra-Lift System

31. Installation certification language
32. Field change policy
33. Revise existing desktop hydro chart
34. Conversion of use policy, including grandfathered flows
35. Revise design flows
36. Increased loading rate
37. Wells shields across property lines

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Appendix A

Members present:	Roger Thompson	Bernie Chenette
	Alan Huizenga	Barb Willis
	Allison Lowry	Gail Center
	Steve Revell	Jeff Williams
	Spencer Harris	Kim Greenwood
	Phil Dechert	Rodney Pingree
Gerry Kittle	John Forcier	

Others present: Frank O'Brien

Scheduled meetings:

April 11, 2006	1-4 PM	Mad Tom Room, Osgood Building
May 9, 2006	1-4 PM	Room 100 Stanley Hall
June 6, 2006	1-4 PM	Room 100 Stanley Hall

Review of agenda

An item was added related to the well driller's concerns

Review of minutes

The draft minutes of the February 7, 2006 meeting were reviewed and accepted as drafted.

Status of the Options Paper

Roger reported that Commissioner Wennberg had written to the Senate Natural Resources and Energy Committee, in response to their request for an Agency position on the Options Paper for discharging systems. He had indicated support for the technical requirements proposed for seasonal discharging systems related to design, construction, maintenance and oversight. He indicated concerns with the cost of these systems, $38k - $40k. He also indicated that a statutory change would be needed so that sheet flow that eventually reaches surface waters would not be considered to be a direct discharge subject to the NPDES requirements.

Steve said he had talked to a few legislators about the report. They had indicated that the systems were too expensive.

Roger noted that the Commissioner's letter indicated that the Agency is committed to pursuing other options.

Other Options

Rodney asked about use of incinerating toilets. Roger stated that they are acceptable now, along with composting toilets. Roger noted that TAC might evaluate systems that depend on reuse of treated wastewater with a smaller leachfield. These have been approved for the Sharon Rest Area. John noted that ski areas are

reusing treated water for toilet flushing. There are at least a few zero discharge systems that depend on evapo-transpiration. Steve suggested that TAC should not spend too much time on "chase your tail" approaches.

Phil suggested that TAC should do some work on small community systems (decentralized) that would help promote growth centers.

Spencer raised the concept of management zones, where the rules would require larger lots, with large leachfields with large setbacks to property lines. The systems would be large mounds designed prescriptively and that wet toes would be acceptable.

Steve discussed the "working" issues, with a suggestion that while many replacement systems constructed using the best fix approach seem to work, that in some cases this is because of under utilization. Frank suggested that some people with marginal systems are likely to be careful with water use.

Status of rule revisions

Roger has to take all of the changes that were drafted for revision that were not adopted in 2005 and add those changes to the 2005 version of the rules. In addition there is a checklist of issues that have been identified since 2005 that are being included as well. The goal is to have these out for internal review within two months.

Legislative Rumors

John noted that there is proposed legislation that would require continuing education for professional engineers.

Surface Water Systems

Rodney reviewed the options paper for surface water systems. The subcommittee met February 13, 2006 and reviewed issues that needed to be addressed. These issues are presented in the current draft of the paper. It appears that there are systems that are technically capable of treating the commonly known threats. They are expensive and require maintenance in order to ensure proper operation. One big issue with surface water is the rapid changes in water quality that occur from season to season, when the wind blows, and when large rainfalls occur which may also result in overflows from wastewater treatment facilities. There are also concerns about the approvals that would be needed from the Corps of Engineers for the intake structure because year-round systems would require a system installed below grade from the building out into water deep enough to not freeze at any time during the year. This type of construction needs permits and could be difficult with rocky or bedrock shorelines. Rodney noted that the subcommittee was inclined to not be supportive of surface water sources for new uses, including conversions from seasonal to year-round use.

Kim noted that the Agency Lakes and Ponds section might also require permits for any intake structures.

The committee reviewed the options paper and concluded that it would not support the use of new

surface water systems.

Alan indicated that the rules should deal with the continued use of existing systems because the existing rules would consider most of them to be failed systems. John echoed this, noting that this comes up in property transfers.

Sub-committees:

The subcommittee to look into ground water monitoring and calculated ground water mounding will include Craig, Steve, Allison, Bruce Douglas, Dave Cotton, and Roger.

The subcommittee to look into the use of the "window" approach will include Steve, Spencer, Justin Willis, Lance Phelps, and Roger

Rodney will try to arrange for the well driller's subcommittee to meet just before a regular TAC meeting.

San Francisco Conference

Frank reported on a conference he attended in San Francisco. The concept of decentralized systems was a major issue. There is some tension between SORA and NOWRA. California is working on concepts that would protect some areas using the concepts of pollution trading. This would include the TMDL concepts. Joyce Hudson, EPA, spoke about management issues and a new tracking system. Julie Beth Hinds indicated that under the current approach all the money is being directed towards stormwater management and that wastewater issues should get some of this to help protect surface waters.

Innovative systems

Frank said that two draft approvals have been issued, with copies to TAC members. He said that a draft approval for the Infiltrator system should be issued soon.

Possible rule changes

The issue of whether, in some cases, only 6" of sand should be required under a mound was identified and John asked that it be added to the list.

The mound sand requirements were discussed briefly, and Alan suggested contacting pits to see what is actually available.
Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**

7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

38. Drip disposal
39. Mound sand requirements
40. Encourage I/A
41. Changing the 20% slope restriction to 30%
42. Replacing perc test with soil identification approach
43. Defining when effluent is no longer wastewater
44. Disinfection
45. Colorado Rule – reduction in isolation distance to wells based on construction methods
46. Certification and audit approach to permitting
47. Lake water systems
48. Curtain drains
49. Terra-Lift System
50. Installation certification language
51. Field change policy
52. Revise existing desktop hydro chart
53. Conversion of use policy, including grandfathered flows
54. Revise design flows
55. Increased loading rate
56. Wells shields across property lines
57. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

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Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

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Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
April 11, 2006

Members present:	Allison Lowry	Steve Revell
	Jeff Williams	Kim Greenwood
	Phil Dechert	Dave Cotton
	Gail Center	Rodney Pingree
	Roger Thompson	John Forcier
	Craig Heindel	
Others present:	Frank O'Brien	Bruce Douglas

Scheduled meetings:

May 9, 2006	1-4 PM	Room 100 Stanley Hall
June 6, 2006	1-4 PM	Room 100 Stanley Hall

Review of agenda

An item was added related NOWRA

Review of minutes

The draft minutes of the March 14, 2006 meeting were reviewed and accepted as drafted.

Appendix A

Hydrogeology Subcommittee

The subcommittee met just prior to this meeting to discuss the issues related to groundwater monitoring and how to overlay the induced mounding associated with a leachfield onto the monitoring results. Bruce outlined the issues from the subcommittee meeting. The current approach is to add the calculated mound (from a desktop approach of some type) to the highest reading from the monitoring period. This is probably too conservative. The committee is going to run some trial calculations related to what happens when there is a short term spike in the SHWT hoping to form an estimate of whether or not the free water level that represents the combination of the SHWT and the effluent from the leachfield, will rise to less than 6" from the ground surface.

Steve noted that when looking at "critical levels" that are less than 24" from the surface of the naturally occurring ground, one or more of the steps that allow the SHWT to rise above the critical level for a few day must be dropped. The subcommittee agreed that the first step to drop is the one allowing the water table to be above the critical depth for 30 days. If only one step is dropped process would then be 0-6" above the critical depth for not more than 20 days, 6-12" above the critical depth for not more than 10 days, and with no days more than 12 inches above the critical depth.

Following further discussion of how this issue might be analyzed, Steve suggested that consultation with somebody like George Pinder might be useful

Options paper for surface water sources

After considering the report from the subcommittee, the Technical Advisory Committee decided to recommend against permitting private water supplies drawing from surface water sources for any new project or any increase in design flow for an existing project. This decision was based on concerns about the extreme variability of surface water quality. Seasonal water temperature changes, changes in wind direction, and unforeseen discharges could dramatically change the water quality. Any system that is fully prepared to deal with all possible contaminants is too expensive for an individual to construct or operate. These types of systems, with proper treatment systems, may be the best fix solution in some cases.

Jeff asked if there are concerns about getting mercury from surface water other than through consumption of fish. Gail indicated there was little chance of this happening.

Gail asked if surface water with a treatment system would be acceptable if it was expected that well water would be high in sulfur, hardness, or subject to similar problems. Roger stated that as long as there is reliable treatment for the contaminants in the well water it should be used.

Addison County septic study

Roger noted that the agency had been contacted about some draft language for a bill that would authorize a study of working systems in Addison County. Sen. Ayre has proposed doing a study to see if there is some process that could lead to better understanding of the clay soils and possibly some type of system that would work reliably. Roger had prepared an outline of the issues, particularly that solving the problem

involves more than just finding some systems that are working. In order to change the outcome, there needs to be some process that separates the sites that will work from those that do not. Steve Revell and Lance Phelps were also contacted by Sen. Ayre for advice. A conference call took place with Sen. Lyons, Sen. Ayre, Steve, Lance, Chris Thompson, and Roger with Steve advising that the first step should be an inventory process to identify a population of systems that should be evaluated. Cost was discussed and about $120k to $150k was estimated. Lance was contacted the next day for an estimate of the inventory and he estimated about $30k. David asked if there is a benefit in doing the inventory. Steve, Craig, and John thought it might be better to use the money for doing good land use planning and education.

Roger stated that he would like to do an evaluation of the spray disposal concept in light of the change in economics and the new treatment technologies. It was decided to discuss this at a future meeting.

Status of the rule update

Roger has the documents back at this point and is updating the 2005 version to show the changes proposed in 2004 that were not included plus changes suggested since the 2005 version was adopted. If Anne is not available, Alex Elliott will help.

NOWRA – YOWA

Dave wanted to review the benefits of joining one of these groups. He thinks that YOWA (Yankee On-Site Wastewater Association) might be a good choice and wants to form a Vermont Chapter. He has started a list of people who might like to be members, including designers and regulators, and who might like to be on a steering committee. This could serve as a good source of training in Vermont. He has a contractor who would like to see installers licensed.

Craig asked about the YOWA leaders. John Higgins, former Mass. regulator and Tom Groves from NEIWPCC (New England Interstate Water Pollution Control Commission) along with regulators from N.H., Maine, and Mass. George Loomis from Rhode Island is involved as well.

Gail asked about the difference between NOWRA (National On-site Wastewater Recycling Association) and YOWA. Bruce said that you become a member of NOWRA if you join YOWA but joining YOWA gives a more bottom up approach. Steve said this should help with training. Dave and Bruce said training is the main focus of NOWRA. These organizations want state and local regulators to participate.

Frank noted that at a convention he recently attended in San Francisco there was tension between NOWRA and SORA (State On-Site Regulators Association) because NOWRA is proposing a one page performance based code, SORA is looking for more control and response to an individual state's concerns.

Innovative systems

Frank has issued final approvals for Aqua Safe and Aqua Aire.

Seasonal approvals

The question of whether there should be different site standards for systems operated only seasonally

was discussed. Dave noted that some states do allow this. It was decided to make this a medium priority on the list of topics to be discussed.

Feedback

John noted that he had submitted an application to the Rutland for a connection to a municipal sewer for a failed system and got a two week turn around.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

58. Drip disposal
59. Mound sand requirements
60. Encourage I/A
61. Changing the 20% slope restriction to 30%
62. Replacing perc test with soil identification approach
63. Defining when effluent is no longer wastewater
64. Disinfection
65. Colorado Rule – reduction in isolation distance to wells based on construction methods
66. Certification and audit approach to permitting
67. Lake water systems
68. Curtain drains
69. Terra-Lift System
70. Installation certification language

71. Field change policy
72. Revise existing desktop hydro chart
73. Conversion of use policy, including grandfathered flows
74. Revise design flows
75. Increased loading rate
76. Wells shields across property lines
77. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
May 9, 2006

Members present:	Roger Thompson	Barb Willis
	Allison Lowry	Gerry Kittle

	Alan Huizenga	Spencer Harris
	Craig Heindel	Rodney Pingree
	Bernie Chenette	John Forcier
Others present:	Frank O'Brien	Bruce Douglas

Scheduled meetings:

June 6, 2006	1-4 PM	Room 100 Stanley Hall

Review of agenda

Added topics for the well driller's checklist and for the seasonal use conversion procedure

Review of minutes

The draft minutes of the April 11, 2006 meeting were reviewed and accepted as drafted.

Legislative septic study

It appears that there will be money in the budget for at least the initial portion of a study to evaluate existing systems in Addison County. The plan is to find systems on sites that do not comply with the Rules and find ways to identify these systems, with a goal of being able to permit systems on lots, that work by keeping the wastewater below ground surface, that do not meet the current Rules.

Rule rewrite update

Anne has started working on the updates. Anne is aiming for July to begin the public process which starts with scheduling a meeting with ICAR (Inter-Agency Committee on Administrative Rules). TAC will get draft copies for comment before the public process begins as there are many issues that have been reviewed by TAC that will be included in the proposed new rules.

Roger will ask Anne if towns can regulate bedroom additions that are exempt under the Rules.

Spray/drip disposal systems with storage lagoons

Roger reviewed some preliminary thoughts about this process which would involve treating and disinfecting the effluent and then storage of the effluent during high seasonal water table periods. There are several issues related to the amount of storage required. If spray disposal is used, the spraying can only occur during periods when the ground is not frozen, and in non-forested areas, the ground is frozen for significant periods in at least some years. Drip disposal might overcome the frozen ground limitation, but most manufacturers and regulators indicate a need to keep the emitters above the water table to avoid clogging of, or backflow through, the emitters.

Roger said that some basic calculations show that for a 420 GPD design flow, the storage for 60 days would be 25,200 gallons or 3369 cubic feet. A storage pond 40' by 40' and 2.1' deep would be large enough, though extra storage for precipitation would be required plus whatever freeboard was desired. In actual

practice, as long as there was room for expansion to full size, a system could be constructed based on less than half the 420 GPD design flow so the described pond could hold 120 days of flow. Such a pond might require about 300 cubic yards of material that John estimates at about $12/cubic yard if the material is onsite plus about $1/square foot for the liner. Larger systems are less expensive on a per gallon of storage basis so a system that could serve several house would be more practical.

Craig noted that high level chlorination would be a problem. The effluent would need to be dechlorinated especially during the period when the discharge goes directly to the disposal system instead of into the storage pond where the dechlorination would occur naturally.

Spencer asked how much different this is than the store and dose approach already in the rules. Roger noted that there is not a lot of difference in the concepts but that storage ponds are probably cheaper than storage tanks once the capacity gets above a few thousand gallons.

Well drillers checklist

Rodney reviewed the subcommittee's meeting he had with Jeff Williams and Bernie Chenette. There will be a draft checklist, training outline, and variance form for use when isolation distances cannot be met. Rodney will try to have a draft ready for the next TAC meeting.

Seasonal use conversions

Roger reviewed the policy for these conversions. Spencer was concerned that this was not practical because there will be no way to know when people convert and enforcement will be non-existent. This is likely to be controversial because some people have homes that are constructed so they are ready for year-round use but which have not yet been occupied on a year-round basis. Roger noted that while some of these are covered by state and local permits, or section 1-403(a)(3) of the Rules and will be accepted for year-round use, people in towns that have never regulated septic systems will be surprised. The Agency is going to do some mailings and education to let as many people as possible know what is happening.

Innovative systems

Frank gave a short up-date on the draft approval he had issued for the Infiltrator, noting that the draft approval does not require distribution piping within the chambers when gravity distribution would be approved for a pipe and stone system. Frank reported that he and Steve Revell made a presentation of the history of innovative systems in Vermont to the Vermont Chapter of the Construction Specifications Institute, comprised of architects and designers, on April 27th.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**

7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

78. Drip disposal
79. Mound sand requirements
80. Encourage I/A
81. Changing the 20% slope restriction to 30%
82. Replacing perc test with soil identification approach
83. Defining when effluent is no longer wastewater
84. Disinfection
85. Colorado Rule – reduction in isolation distance to wells based on construction methods
86. Certification and audit approach to permitting
87. Lake water systems
88. Curtain drains
89. Terra-Lift System
90. Installation certification language
91. Field change policy
92. Revise existing desktop hydro chart
93. Conversion of use policy, including grandfathered flows
94. Revise design flows
95. Increased loading rate
96. Wells shields across property lines
97. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Appendix A

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
June 6, 2006

Members present:	Roger Thompson	Phil Dechert
	Steve Revell	Gerry Kittle
	Rodney Pingree	Craig Heindel
	John Forcier	
Others present:	Frank O'Brien	

Scheduled meetings:

July 18, 2006	1-4 PM	Secretary's Conference Room (Human Services)
August 22, 2006	1-4 PM	Room 100 Stanley Hall
September 19, 2006	1-4 PM	Room 107 Stanley Hall

Review of agenda

The agenda was amended to add items related to the legislative study update and discussion of seasonal to year-round conversions.

Review of minutes

The draft minutes of the May 9, 2006 meeting were reviewed. Craig noted that his remarks about dealing with chlorination issues related to spray disposal were not based on a belief that the chlorine level

itself was high; rather that chlorine released into the environment is an issue that must be addressed in some way.

Legislative septic study

Roger reviewed the status of the proposed Addison County Septic Study. The Agency will prepare an RFP asking for proposals on how best to spend the $90 K. John noted that Peg Elmer (Agency of Commerce and Community Development) had contacted him to remind him of the Addison County Demonstration Project that had been done about 5-8 years ago. Phil said that Regional Planning Commissions might have resources to make the septic study more efficient.

Seasonal Conversion

Craig reviewed some of his questions about the procedure that the Department had issued. One question was whether the 180 days of occupancy in a year could be 180 days between July 1, 2006 and July 1, 2007. Roger stated that this would probably be allowed as the goal is to be permissive in allowing people to grandfather into the system. The water system requirements were also discussed. If the conversion occurred after July 1, 2007, the property must have access to one fully complying water system. This could be the system in use if fully complying, or a proposed water system that when constructed would be fully complying.

Rule rewrite update

The rules update is progressing fairly well. A preliminary draft will be circulated to staff and TAC for review. This draft will not include all of the changes that will be proposed but the goal will be to get feedback on whatever has been completed while the Agency works on the rest.

Meeting schedule

It was decided that the next three meetings would be July 18th, August 22nd, and September 19th.

Well Driller's Checklist

There was a short discussion of the well driller's check list. Roger had some concerns about the sections related to soil identification as this might limit the number of well driller's who would be able or willing to be the designer for replacement wells for single family residences. Roger will review the checklist and have comments for the next meeting.

Innovative systems

Frank gave a short update on NEIWPCC.

Items prioritized for discussion with high, low, and medium ranking

Appendix A

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

98. Drip disposal
99. Mound sand requirements
100. Encourage I/A
101. Changing the 20% slope restriction to 30%
102. Replacing perc test with soil identification approach
103. Defining when effluent is no longer wastewater
104. Disinfection
105. Colorado Rule – reduction in isolation distance to wells based on construction methods
106. Certification and audit approach to permitting
107. Lake water systems
108. Curtain drains
109. Terra-Lift System
110. Installation certification language
111. Field change policy
112. Revise existing desktop hydro chart
113. Conversion of use policy, including grandfathered flows
114. Revise design flows
115. Increased loading rate
116. Wells shields across property lines
117. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Appendix A

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
July 18, 2006

Members present:	Roger Thompson	Phil Dechert
	Lance Phelps	Bernie Chenette
	Bruce Douglas	Steve Revell
	Spencer Harris	Rodney Pingree
	Jeffrey Williams	Gail Center
	Barb Willis	Craig Heindel
	Allison Lowry	John Forcier
Others present:	Chris Thompson	Frank O'Brien

Scheduled meetings:

August 22, 2006	1-4 PM	Room 100 Stanley Hall
September 19, 2006	1-4 PM	Room 107 Stanley Hall

Review of agenda

The agenda was amended to add items related to the options paper for lake water systems and the well driller's licensing for replacement wells.

Review of minutes

The draft minutes of the June 6, 2006 meeting were reviewed.

Mounding subcommittee

The subcommittee dealing with groundwater monitoring and related mounding caused by effluent application met just prior to the meeting. Allison, Steve, Bruce, Roger, and Dave Cotton (by speaker phone) met to discuss the issue.

Bruce provided a review of the situation and the basis of the subcommittee discussion. The main issue is whether the calculated mounding related to the application of effluent should be added to the single highest reading from a springtime ground water monitoring program when deciding if there will always be at least 6" of unsaturated, naturally occurring soil at the down gradient toe of the system. Bruce had run a computer model of groundwater mounding using several choices for the length of time and the thickness of the saturated aquifer and the subcommittee reviewed this information in an attempt to understand the influence of short term rises in the naturally occurring seasonal water table. It is clear that the total saturated thickness is key, with sites having relatively large saturated thicknesses having a smaller rise in the mounded water table when effluent is applied to the site. It is also clear that the mounded water table rises over a period of time from when the application starts until it reaches a stable state which may take months to achieve. No decision has been made yet about how this information might be applied to a change in the existing approach of adding the calculated mounding to the highest water table measurement.

Lake water supplies

Lance asked about the outcome of the options paper. Roger reviewed the minutes of the April 11, 2006 meeting where the issue was discussed. Lance noted that some work is required to make sure that the existing lake water systems do not all become failed systems under the rules as of July 1, 2007.

Addison County septic study

Chris explained that the $90K of funding for this was in the "water fall" portion of the budget and that a final determination of whether there would be enough money to fund this study would not be known for another month or two.

Well driller's knowledge checklist

Jeff said that he was anxious to get this checklist firmed up so he could start planning the training events which need to be done during the winter when the well drillers generally have more time to attend meetings. Spencer asked about whether well drillers would be able to design water supplies and Roger noted that what is proposed is only for well drillers to select a site for a replacement well serving a single family residence on a pre-existing or existing exempt lot. It was decided that the well driller's subcommittee would meet at 11:30 AM before the next TAC meeting. They will meet at the Sewing Building.

Appendix A

Discussion of draft rules

Roger provided copies of the current draft of possible revisions to the rules and led a discussion about some of the changes. It was decided to not go page by page as members of the committee thought it would be better to talk about issues that the members had identified as important. There was some review of definitions with some such as "kitchen" and "living unit" raising concerns for understanding and usability. Phil noted that as a town official he had been working with these issues for a long time and is OK with having these concepts in the rules. There was discussion about clarifying that when it came to whether or not a building was accepted for year-round use, the only local permit that would be a basis for making this decision would be a permit related to septic systems, not a zoning permit for the construction of the building. Craig noted that language specifying what well drillers will be able to do must be added. Steve noted that design flows should be updated, particularly the flows for dentist offices.

Feedback

John said it will be important to change the mental outlook, and the methods of operation of the regional office staff in preparation for the increased workload starting July 1, 2007.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

118. Drip disposal
119. Mound sand requirements
120. Encourage I/A
121. Changing the 20% slope restriction to 30%
122. Replacing perc test with soil identification approach

123. Defining when effluent is no longer wastewater
124. Disinfection
125. Colorado Rule – reduction in isolation distance to wells based on construction methods
126. Certification and audit approach to permitting
127. Lake water systems
128. Curtain drains
129. Terra-Lift System
130. Installation certification language
131. Field change policy
132. Revise existing desktop hydro chart
133. Conversion of use policy, including grandfathered flows
134. Revise design flows
135. Increased loading rate
136. Wells shields across property lines
137. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Appendix A
Approved Minutes of the Technical Advisory Committee Meeting
August 22, 2006

Members present:	Roger Thompson	Gerry Kittle
	Steve Revell	Spencer Harris
	Jeffrey Williams	Bernie Chenette
	Phil Dechert	Rodney Pingree
	John Forcier	
Others present:	Frank O'Brien	Scott Stewart

Scheduled meetings:

September 19, 2006 1-4 PM Room 107 Stanley Hall

Review of agenda

The agenda was accepted as drafted.

Review of minutes

The draft minutes of the July 18, 2006 meeting were accepted.

Well drillers subcommittee

Roger reviewed the subcommittee meeting that occurred just prior to this meeting. The goal is to have a process accessible to any well driller who wants to participate. Test pits and soil identification at the level of a designer would not be required. Some probing with hand tools might be needed. The draft checklist of well driller's knowledge will be revised to reflect this. Jeff noted that this seems to be heading in the right direction in that any well driller can choose to do it. What is now important is to get the training process established so training can occur prior to springtime. There are 30-50 drillers that may participate in the training.

The subcommittee will meet at 11:30 prior the next meeting.

Randolph training

There were a lot of comments that this was more like a trade show than continuing education, though most people attending thought it was worthwhile.

Steve noted that some sort of decision tree is needed in order to decide when and how to use an advanced treatment system.

Spencer noted that using the Presby system in a mound held the cost to around $13K versus $18k for a pre-treatment system plus a mound.

Bernie said that he has found people using Vermont mound sand instead of the system sand specified in the Presby manual.

John suggested training on practical applications. Use an example site with problems with slow permeability, high seasonal water table, and/or limited area and discuss the options.

Steve noted that different systems work better on different sites. When the Advantex system is installed over a septic tank there can be grade issues. The whole confined space question needs to be considered by designers.

There was a short discussion on getting people to do the annual inspections. There needs to be a penalty for missed inspections. If there is no penalty, there is less incentive to keep up-to-date on the inspections.

John suggested there be a standard checklist for installation inspections.

Kaizen

Roger gave a short review of the Kiazen process and a list of those attending. Steve participated and reviewed his two days in the process and gave a positive assessment. The Agency plans to move ahead with implementation of changes that should help deal with the workload increase on July 1, 2007.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

138. Drip disposal
139. Mound sand requirements
140. Encourage I/A

141. Changing the 20% slope restriction to 30%
142. Replacing perc test with soil identification approach
143. Defining when effluent is no longer wastewater
144. Disinfection
145. Colorado Rule – reduction in isolation distance to wells based on construction methods
146. Certification and audit approach to permitting
147. Lake water systems
148. Curtain drains
149. Terra-Lift System
150. Installation certification language
151. Field change policy
152. Revise existing desktop hydro chart
153. Conversion of use policy, including grandfathered flows
154. Revise design flows
155. Increased loading rate
156. Wells shields across property lines
157. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Appendix A

Approved Minutes of the Technical Advisory Committee Meeting
September 19, 2006

Members present:	Roger Thompson	Bernie Chenette
	Jeff Williams	Gail Center
	Craig Heindel	Rodney Pingree
	Barb Willis	Gerry Kittle
	Kim Greenwood	Allison Lowry
	Steve Revell	
Others present:	Frank O'Brien	Anne Whiteley

Scheduled meetings:

October 24, 2006	1 – 4 PM	Human Services Secretary's Conference Room
November 28, 2006	1 – 4 PM	Appalachian Gap Room
December 19, 2006	1 – 4 PM	Mad Tom Room

Review of agenda

A spot in the agenda was added for Anne Whiteley

Review of minutes

The draft minutes of the August 22, 2006 meeting were accepted.

Anne Whiteley

Anne reviewed the Kaizen process which is used to improve a production process. A group of staff, private engineers and site technicians, town officials, VLCT, title insurance and private practice attorneys, Act 250, and others reviewed the regional office application process. The first step was to identify all of the steps, handoffs, decision points, and value added points in the existing process. The process was then redesigned to eliminate as many non-value added steps as possible. The Agency is proposing to use checklists for application completeness and technical review. Applications not meeting the checklists will be returned for lack of completeness or denied if not technically acceptable. Applications that are denied will have to pay a new fee when reapplying.

Anne also covered the certification and targeted review process that is proposed. An administratively complete application would usually be issued based on the certification of the designer. A percentage of the applications will be reviewed and a process will be developed to focus the majority of the review on the

higher risk projects. These reviews could be pre-application, pre-issuance of the permit, at the time of the cover-up inspection, or after the project is complete. Only significant health or environmental issues would result in any denials, enforcement, or require corrective actions.

Anne is also working on a major restructuring of the rules to move the information about whether or not a permit is required to the front of the rules instead of being on page 42. If the proposed "clean slate" approach is accepted as a concept, the exemption sections can be revised with most exemptions being deleted and the rest included in a separate section. The "clean slate" concept is that whatever existed at a certain point in time would be grandfathered. This would give everyone a clean slate for past violations. This would greatly improve the process of dealing with older projects as is it would no longer require detailed histories of everything that was or could have been done to every building since 1969. Anne's redrafting would not affect the technical portion of the rules, though the work of the TAC that has already been included in a previous draft and any other TAC work that is completed, will be included in Anne's work.

Well drillers subcommittee

There was a short follow-up on the previous work. There are about 50 well drillers who may want the training. Roger and Rodney will work with Jeff to get this established for January – February.

Septic study RFP

Roger reviewed the status of this process. The deadline in statute that the report must be complete by December 1, 2006 is the main obstacle to getting a good study done. Because it is a statutory requirement, the Agency will put the RFP out for bid and see what proposals are received.

Mound sand

The issue of mound sand was discussed once again. The consensus of those present was to keep the same specifications for the fine grained particles but allow for increased coarse particles. Roger will attempt to draft a specification chart.

Field change policy

Many projects are not constructed exactly as designed and permitted. The TAC discussed the significance of these changes which range from negligible to very significant. Everyone agrees there should be some easy process to document the changes that have little or no impact but which may be significant when a future amendment or construction on neighboring lots is proposed.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**

5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Terralift system **low**
9. Field change policy **high**
10. Revisions to desktop hydro chart **medium**
11. Minimum amount of sand under a mound **high**
12. Grandfathered design flow and conversion of use policy **high**
13. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

158. Drip disposal
159. Mound sand requirements
160. Encourage I/A
161. Changing the 20% slope restriction to 30%
162. Replacing perc test with soil identification approach
163. Defining when effluent is no longer wastewater
164. Disinfection
165. Colorado Rule – reduction in isolation distance to wells based on construction methods
166. Certification and audit approach to permitting
167. Lake water systems
168. Curtain drains
169. Terra-Lift System
170. Installation certification language
171. Field change policy
172. Revise existing desktop hydro chart
173. Conversion of use policy, including grandfathered flows
174. Revise design flows
175. Increased loading rate
176. Wells shields across property lines
177. Whether less than 12” of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton and Steve Revell.

Appendix A

Training subcommittee - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, and Barbara Willis.

Licensed designers - Spencer Harris, Alan Huizenga, and Gerry Kittle.

Well driller's knowledge checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center and Steve Revell.

Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
October 24, 2006

Members present:	Spencer Harris	Phil Dechert
	Rodney Pingree	Steve Revell
	Allison Lowry	Barb Willis
	Gerry Kittle	John Forcier
	Craig Heindel	Kim Greenwood
	Roger Thompson	
Others present:	Frank O'Brien	

Scheduled meetings:

November 28, 2006	1 – 4 PM	Appalachian Gap Room
December 19, 2006	1 – 4 PM	Mad Tom Room

Review of agenda

A spot in the agenda was added for certification versus permit review, composting toilets, cumulative impact, and well shields

Review of minutes

The draft minutes of the September 19, 2006 meeting were accepted.

Annual Report

Craig agreed to once again draft the annual report to the legislature.

Addison County RFP

The RFP for the Addison County based evaluation of septic systems was advertised with a completion date of December 1, 2006. At the close of bidding, one proposal was structured around meeting the date. There were 3 or 4 proposals that were outlined if the deadline was extended. The Agency will review the proposals and decide if the goals of the RFP would be met by the one bid indicating compliance with the December 1st deadline. If not, the RFP will be modified and re-advertised.

Certification versus permit review

Spencer asked about how the process differs if certification and targeted review is used versus a regular permit review. Roger stated that the requirements for what is built and on the plans are the same. The main differences are, that based on certification, there would be less pre-application site review and, for the first time, a limited number of pre-cover-up inspections. There will be a list of issues that are so critical that finding out after issuing the permit will require correction, including reconstruction of the systems or, in the worst case, discontinuance of the occupancy of the building. There would be another list of items that are important to ensure proper design and installation of systems which might result in review letters, or review by the designer's licensing authority but which would not require alterations to the existing construction.

Composting toilets

Composting or incinerating toilets can be used in any building or structure. New buildings or those with an increase in design flow must have room for a full sized system using conventional toilets. The benefit is a smaller system actually being constructed but it does not make any unapprovable lot buildable. There is existing guidance on this which will be circulated.

Cumulative impact

Roger had circulated an e-mail to some of the hydrogeologists from a citizen who is concerned that installation of many systems in a small area, especially if the systems are then used year-round, will cause a general surfacing of effluent. Craig asked if anyone is aware of problems occurring because of this type of development and the answer was no. Any regulated project is reviewed for this type of interference when a large number of systems, or large capacity systems, are installed in a limited area. After July 1, 2007 everything is subject to state regulation. Based on no known problems, the recommendation is to not propose a new regulation, such as a density standard based on gallons per acre.

Limitations in town permits after July 1, 2007

Roger noted that existing town permits can be enforced, even after July 1, 2007 and even if the town does not take delegation of the state program. The question was raised about what happens if the town permit limits the number of bedrooms but the project qualifies for an exemption under 1-403(a)(6) or (7) - the so called bedroom exemptions. The probable answer is that they would need to get a state permit, because

towns can regulate activities exempted under state rules.

1-403(a)(7)

A question was asked about whether a person could get a certified design now and use it for construction done after July 1, 2007. It appears the answer under the existing rules is yes.

Zoning permit limitations

A question was raised about whether a limitation imposed in a zoning permit, issued prior to July 1, 2007 would be enforceable even if it was more restrictive than the state standard. Roger will ask Anne but thinks the answer would be yes it could be enforced.

TNC permits

Permits for transient, non-community water supplies will be issued by the State for projects in towns that take delegation. WSD does not believe the authority for public water systems can be delegated by the State to a town.

Anne's presentation to ACEC

John said that the two main topics of interest to the engineers was the proposed matrix for determining which projects get a targeted review and the standardized plan format. In both cases, support or opposition will depend on the actual details of how the process will be applied. The matrix is of special concern and must not result in particular designers being singled out based on bais of the review person.

Prioritized reviews

It was decided to remove Terra-Lift from the list.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Field change policy **high**
9. Revisions to desktop hydro chart **medium**
10. Minimum amount of sand under a mound **high**
11. Grandfathered design flow and conversion of use policy **high**

12. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

178. Drip disposal
179. Mound sand requirements
180. Encourage I/A
181. Changing the 20% slope restriction to 30%
182. Replacing perc test with soil identification approach
183. Defining when effluent is no longer wastewater
184. Disinfection
185. Colorado Rule – reduction in isolation distance to wells based on construction methods
186. Certification and audit approach to permitting
187. Lake water systems
188. Curtain drains
189. Installation certification language
190. Field change policy
191. Revise existing desktop hydro chart
192. Conversion of use policy, including grandfathered flows
193. Revise design flows
194. Increased loading rate
195. Wells shields across property lines
196. Whether less than 12" of sand should be allowed under mound systems

Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

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Interested in the delegation rules - Spencer Harris, Gerry Kittle, Phil Dechert, and Alan Huizenga

Appendix A

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga

Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Approved Minutes of the Technical Advisory Committee Meeting
November 28, 2006

Members present:	Roger Thompson	Gail Center
	Craig Heindel	Gerry Kittle
	Steve Revell	Spencer Harris
	John Forcier	Rodney Pingree
	Kim Greenwood	
Others present:	Frank O'Brien	Anne Whiteley

Scheduled meetings:

December 19, 2006	1 – 4 PM	Mad Tom Room

Review of agenda

Added item for the annual report. A discussion of the need for replacement areas for mound systems will be added to the list of topics for discussion. Added a water supply rule rewrite item. Steve asked that something be added to the rules related to the use of drip disposal. Also added an item related to Craig's participation as a panelist at the Vermont Housing and Finance meeting.

Review of minutes

The draft minutes of the October 24, 2006 meeting were reviewed and accepted with an addition that Craig will draft this year's annual report.

Annual report

Craig asked that Frank and Roger prepare the usual updates on the numbers of projects, etc.

Housing conference

Craig and Cindy Cook made presentations at a meeting arranged by Vermont Housing and Finance. Cindy has been a mediator for communities deciding on whether or not to expand their municipal sewer

capacity and how it will affect future growth. Craig provided an update on new technologies and told them "we have more tools in our tool box now."

Delegation

Spencer said that Charlotte was considering taking delegation because they want to maintain control over the process. They are specifically concerned that the state may not be thorough enough. Craig suggested there should be a group formed to help advise towns.

Anne

Anne gave an update on her meetings with engineers, realtors, attorneys, and others. She noted that despite things such as clean slate being in the discussion, seasonal conversions and well shields were the two topics with the most intense interest at the moment.

Groundwater as public trust

Craig asked Rodney for an update on this issue. Rodney indicated that there has not been a lot of progress since the legislative action that created an interim process related to large potable water withdrawals.

Well shields

The question of whether or not the applicant should be required to own or control the well shield area was discussed. Roger mentioned that this was one issue identified in 2002 by the legislative implementation oversight committee, chaired by John, which was brought to the Natural Resource Committee's attention. The committees listened but did not take further action.

Craig asked if TAC supports the existing process that does not require ownership or control.

Also asked was whether the rules should include a requirement to have the well shield on the property if possible. One question that would need to be answered is what if this requirement could be satisfied with a particular number of new lots but not with more lots. Would this limit the number of lots?

Septic restrictions in zoning

Spencer asked about what can be controlled in a zoning ordinance. Roger noted that Anne had determined that as long as the zoning regulation did not single out septic issues, for instance a prohibition against all development within 100' of a stream, there could be some use of zoning. What is not allowed is to impose technical restrictions on septic systems.

Fees

Craig asked if the fee schedule could be simplified. His staff often calls the Essex Office for advice and even they are not always sure. Anne noted there will be new fees after the coming session and suggested that some written guidance might be part of the solution.

Technical review checklist and matrix

Anne reviewed her discussions with ACEC and others. These will be developed with public input, including the designers, and are important when moving towards certification and targeted review. The matrix will be transparent and will be objective. It will be based on actual performance of the designer, not a subjective opinion by the reviewer.

Anne noted that we need to begin to take enforcement action to hold designers accountable, once there is an objective set of data to work from. John noted that for the first time the Agency will participate in cover-up inspections.

Mound sand

Steve asked if we could reach a decision on this topic. Craig stated that as long as the finer particle sizes were limited, allowing more coarse material would be acceptable. There was general agreement to propose removing the coarse sieve requirement from the #1 and #3 specifications.

Time of sale inspections

Anne made a general presentation of the goal of this inspection. The Agency is looking to see if changes are needed in statute and rule in order to allow this process to work, and has decided that changes are needed in the definition of failed system related to potable water and threat to health areas.

Gail said that the Health Department can provide all of the needed water quality tests for A-11-7 and -5 for $149 with the results in 2-3 weeks. High alpha results would require a test for radium.

Craig suggested checking with YOWA to see what they suggest for a voluntary installer certification program.

Addison County RFP

Roger noted that this RFP would be closing in the next couple of days. Steve said that he had decided not to make a proposal.

Appendix A

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Field change policy **high**
9. Revisions to desktop hydro chart **medium**
10. Minimum amount of sand under a mound **high**
11. Grandfathered design flow and conversion of use policy **high**
12. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

197. Drip disposal
198. Mound sand requirements
199. Encourage I/A
200. Changing the 20% slope restriction to 30%
201. Replacing perc test with soil identification approach
202. Defining when effluent is no longer wastewater
203. Disinfection
204. Colorado Rule – reduction in isolation distance to wells based on construction methods
205. Certification and audit approach to permitting
206. Lake water systems
207. Curtain drains
208. Installation certification language
209. Field change policy
210. Revise existing desktop hydro chart
211. Conversion of use policy, including grandfathered flows
212. Revise design flows
213. Increased loading rate
214. Wells shields across property lines
215. Whether less than 12” of sand should be allowed under mound systems

Executive Committee

Appendix A

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams

Subcommittees

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Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Minutes of the Technical Advisory Committee Meeting
December 19, 2006

Members present:	Roger Thompson	Allison Lowry
	Gail Center	Gerry Kittle
	John Forcier	Rodney Pingree
Others present:	Frank O'Brien	Anne Whiteley

Scheduled meetings:

To be scheduled

Review of agenda

Added a topic related to the ad hoc title attorney's group

Review of minutes

The draft minutes of the November 28, 2006 meeting were reviewed and accepted, with the

clarification that Rodney's comment about groundwater changes was that not much progress has been made since the legislative committee took testimony.

Certification and targeted review

Anne reported on the current status of this process using the technical plan review checklist and the matrix for selection of projects to be reviewed. Anne noted that both of these documents are in draft stage and will be revised as needed. Initially, projects will be selected on a random basis for targeted review, but eventually the matrix, including a factor for past work by the designer, will be used to focus the review on projects with the highest risk. John asked that copies of the two documents be sent to TAC members before general public comment and that similar items also be sent to TAC.

Anne noted that the copyright issue is still a sticking point. She believes that most of the issues can be resolved with the correct wording on the application form. This will make it clear that misuse of the plans does not create liability for the designer and that the designer allows electronic copies of the plans to be posted on the Agency website so that these public documents can be readily accessible. Some designers believe that the use of the plans cannot be transferred to anyone other than the original client, unless the designer approves the transfer. The use of the new application form will be waived for three weeks until the language can be worked out.

Ad hoc title attorney's group

The group concerned about title issues when property is transfers is continuing to meet. Anne noted that one goal is to reduce that number of confirmation letters that attorneys request just to demonstrate due diligence. Among the pieces being considered is "clean slate" which creates a new baseline for all property. Whatever exists on the clean slate date is grandfathered. Failed systems and any changes after the date require permits. This might be justified because there will be universal jurisdiction starting July 1, 2007. It is important to have property transfers where there is a minimum chance that the new owner will incur liability for actions by the past owner, so there is a proposal for a time of sale report. This would include a designer's evaluation for lots with onsite water or wastewater. The group is working on a checklist approach for this. The definitions of failed supply and failed system need to be revised so that people are not trying to prove a negative which the existing definitions seem to require. There will be a questionnaire for the seller to complete as well.

Gerry asked about the membership of the committee in terms of the groups represented. Anne said attorneys for the title insurance companies, attorneys doing title research, bankers, realtors, and engineers.

Anne noted that she and Roger will meet with the Commissioner tomorrow to discuss proposed revisions to the failed system/supply definitions. Anne is also working on a disclaimer for the designers that would cover hidden conditions and other factors for which the designers would not be responsible.

Anne said that the time of sale report is needed because of the rules related to failed systems, and it is not primarily aimed at ensuring the systems are "good" systems. Roger said that issue is that a failed system is a permit trigger and the attorneys need to know that the systems are not failed in order to issue title

insurance. John wondered why the Agency had to spend so much time writing letters to the attorneys. Anne explained that the Agency tried to stop writing letters at one time and the attorneys threatened to stop transferring property. The clean slate and time of sale work is aimed at decreasing the number of times an attorney will feel the need to get a state response.

Mound sand

There was brief discussion of the mound sand specifications. Those present suggested reducing the specification for the maximum amount of material passing the #200 sieve to no more than 5% of the total.

Innovative/alternative systems

Frank reviewed the current issues. There is a short term extension of the Presby Enviro-Septic approval, with some conditions clarifying what we originally approved. The short term approval is because they have proposed some more significant changes that will take a while to review.

Addison County RFP

Roger noted that there were several submissions for the rebid of the RFP. The Agency hopes to decide by the end of December and then process the contract for the work in January.

Items prioritized for discussion with high, low, and medium ranking

1. Mound sand specifications **high**
2. Encourage I/A **low**
3. Soil identification vs. perc test **medium**
4. Colorado rule **low**
5. Permit by certification **low**
6. Lake water potable water supplies **high**
7. Curtain drain with presumption of effectiveness **high**
8. Field change policy **high**
9. Revisions to desktop hydro chart **medium**
10. Minimum amount of sand under a mound **high**
11. Grandfathered design flow and conversion of use policy **high**
12. Updating of design flow chart **high**

Topics list - items not ready for drafting for inclusion in rule revisions

216. Drip disposal
217. Mound sand requirements
218. Encourage I/A
219. Changing the 20% slope restriction to 30%
220. Replacing perc test with soil identification approach
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222. Disinfection
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Executive Committee

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, and Roger Thompson
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Legislative field trip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson

Appendix A

Lake water – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps

Surfacing systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Gail Center, and Brian Kooiker.

Appendix B

SUMMARY TABLES OF ALTERNATIVE AND INNOVATIVE SYSTEMS AND PRODUCTS

Approval letters and contact information for each technology are available at the Agency web site:
http://www.anr.state.vt.us/dec/ww/innovative.htm

SUMMARY TABLE: INNOVATIVE/ALTERNATIVE SYSTEMS AND PRODUCTS
STATUS AS OF DECEMBER 31, 2006

Product	Description	Status
Advanced Treatment Systems		
Intermittent sand filter	attached growth aerobic process	Allowed in the Rules
Recirculating sand filter	attached growth aerobic process	Allowed in the Rules
Advantex	textile treatment system	Approved for General Use
Ecoflo Biofilter	peat treatment system	Approved for General Use
SeptiTech	recirculating fixed film treatment system	Approved for General Use
Bioclere	fixed film trickling treatment system	Approved for General Use
Puraflo	peat fiber biofilter treatment system	Approved for General Use
SpecAIRR	reactor treatment system	Approved for General Use
Bio-Microbics FAST	fixed film aerated treatment system	Approved for General Use
Singulair	suspended growth extended aeration	Approved for General Use
Advanced Wetland Treatment System	aerated subsurface-flow wetland	Approved for Pilot Use
Enviro-Guard	combined process wastewater treatment	Approved for General Use
Other Devices		
Flout	floating outlet distribution box	Approved as substitute
Orenco Hydro-splitter	mechanical distribution	Approved as substitute
Juggler	septic tank pumping truck	Determined not subject to Rules
Miller septic tank liner	septic tank liner	Determined not subject to Rules
Enviro-Septic (Presby)	request for increase in application rate	Approved for General Use
FRALO SEPTECH polyethylene tanks	polyethylene septic tanks	Approved for General Use
Polylok Effluent Filter PL-122	effluent filter	Approved for General Use
Polylok Effluent Filter PL-68	effluent filter	Approved for General Use
Orenco Fiberglass Septic Tanks	fiberglass septic tanks	Approved for General Use
Polylok Effluent Filter PL-525	effluent filter	Approved for General Use
Zoeller Filters	effluent filters	Approved for General Use
Bio-Microbics SaniTEE	effluent wastewater screen	Approved for General Use

Appendix B

SUMMARY TABLE: INNOVATIVE/ALTERNATIVE SYSTEMS AND PRODUCTS CHRONOLOGY OF REVIEWS AND APPROVALS		
Prior to 2002		
Advanced Treatment Systems		
Product	**Description**	**Status**
Intermittent sand filter	attached growth aerobic process	Allowed in the Rules
Recirculating sand filter	attached growth aerobic process	Allowed in the Rules
Advantex	textile treatment system	Approved for General Use
Other Devices		
EnviroSeptic (Presby)	gravelless distribution pipe	Approved as substitute
Flout	floating outlet distribution box	Approved as substitute
Orenco Hydro-splitter	mechanical distribution	Approved as substitute
Juggler	septic tank pumping truck	Determined not subject to Rules
Miller septic tank liner	septic tank liner	Determined not subject to Rules

New in 2002		
Advanced Treatment Systems		
Product	**Description**	**Status**
Ecoflo Biofilter	peat treatment system	Approved for General Use
SeptiTech	recirculating fixed film treatment system	Approved for General Use

New in 2003		
Advanced Treatment Systems		
Product	**Description**	**Status**
Bioclere	fixed film trickling treatment system	Approved for General Use
Puraflo	peat fiber biofilter treatment system	Approved for General Use
SpecAIRR	reactor treatment system	Approved for General Use
Other Devices		
FRALO SEPTECH polyethylene tanks	polyethylene septic tanks	Approved for General Use
Polylok Effluent Filter PL-122	effluent filter	Approved for General Use

SUMMARY TABLE: INNOVATIVE/ALTERNATIVE SYSTEMS AND PRODUCTS CHRONOLOGY OF REVIEWS AND APPROVALS

New in 2004

Advanced Treatment Systems

Product	Description	Status
Bio-Microbics FAST	fixed film aerated treatment system	Approved for General Use
Other Devices		
Enviro-Septic (Presby)	request for increase in application rate	Approved for General Use
Polylok Effluent Filter PL-68	effluent filter	Approved for General Use
Orenco Fiberglass Septic Tanks	fiberglass septic tanks	Approved for General Use

New in 2005

Advanced Treatment Systems

Product	Description	Status
Singulair	suspended growth extended aeration	Approved for General Use
Advanced Wetland Treatment System	aerated subsurface-flow wetland	Approved for Pilot Use
Enviro-Guard	combined process wastewater treatment	Approved for General Use
Other Devices		
Enviro-Septic (Presby)	request for increase in application rate	Approved for General Use
Polylok Effluent Filter PL-525	effluent filter	Approved for General Use
Orenco Fiberglass Septic Tanks	fiberglass septic tanks	Approved for General Use

New in 2006

Advanced Treatment Systems

Product	Description	Status
Aqua Aire	aerobic treatment system	Approved for General Use
Aqua Safe	aerobic treatment system	Approved for General Use
Bio-Microbics RetroFAST	fixed film aerated treatment system	Approved With Renewal
Ecoflo Biofilter	mixed media biofilter	Approved With Renewal
Other Devices		
Infiltrator	request for increase in application rate	Approved for General Use

Appendix B

SUMMARY TABLE: INNOVATIVE/ALTERNATIVE SYSTEMS AND PRODUCTS CHRONOLOGY OF REVIEWS AND APPROVALS		
Under Review as of December 31, 2006		
Advanced Treatment Systems		
Product	**Description**	**Status**
SeptiTech	revision to G.U. for seasonal drip disposal	Under review[2] (10/17/03)
Rocky Mountain Pure XL5	modular wastewater treatment plant	Under review[3,3] (01/12/04)
Open Bottom Ecoflo Biofilter	peat filter with horizontal discharge	Under review[2] (no formal appl.)
Clean Solution	fixed film aerated treatment system	Draft Approval
Cromaglass	sequencing batch reactor	Draft Approval
Eco-Pure	Peat filter	Under review (11/21/06)
Other Devices		
Eljen In-drain	request for increase in application rate	Under review[1] (06/18/04)
EnvironEdge fiberglass septic tanks	fiberglass septic tanks	Under review (01/05/04)
EZflow Systems	request for increase in application rate	Under review (11/21/06)
Applications for Pilot Use		
Bottomless sand filter	filtrate disposal system	Under review[2] (09/16/03)
Applications for Experimental Use		
None		

1. Awaiting additional information from applicant
2. Not currently approvable under the Rules, but held open pending possible rule changes
3. No data provided by the applicant for systems under 6500 gallons per day

SUMMARY TABLE of PERMITS: 2003, 2004, 2005,2006
(DEC Water Supply / Wastewater Permits only)

DEC Office	Applications Received				Permits Issued			
	2003	2004	2005	2006	2003	2004	2005	2006
Barre	725	850	864	961	713	807	851	968
Essex	640	674	692	684	633	698	693	716
Rutland	493	471	534	560	576	457	525	545
Springfield	512	553	590	680	583	517	569	651
St. Johnsbury	258	294	344	399	236	307	341	403
Totals:	2628	2842	3024	3284	2741	2786	2979	3283

Note: Many older projects were closed out in 2003 which results in more projects completed than received in 2003.

Note: Closing of old projects is often done with a denial of the application. These usually appear as denied for insufficient information.

Note: Information for 2004, 2005, and for 2006 is from January 1 to December 31 of each year.

DEC Office	Permits Denied											
	Denials Issued				Reasons for Denial							
					Insufficient Information				Non-compliance with standards			
	2003	2004	2005	2006	2003	2004	2005	2006	2003	2004	2005	2006
Barre	2	2	18	4	1	1	17	3	1	1	1	1
Essex	4	26	1	5	4	26	1	5	0	0	0	0
Rutland	17	3	0	4	17	3	0	4	0	0	0	0
Springfield	20	4	4	4	19	4	3	3	1	0	1	1
St. Johnsbury	0	0	0	0	0	0	0	0	0	0	0	0
Totals	43	35	23	17	41	34	21	15	2	1	2	2

Appendix C

DEC Office	Enforcement Cases			
	2003	2004	2005	2006
Barre	0	0	1	6
Essex	0	1	0	0
Rutland	0	0	0	3
Springfield	0	0	1	1
St. Johnsbury	0	0	0	0
Totals	0	1	2	10

Appendix D

Technical Advisory Committee:
Members as of December 2006, Executive Committee, Sub-Committees
and
Statutory Charge

Technical Advisory Committee to the Secretary of the Agency of Natural Resources regarding Environmental Protection Rules (Wastewater System and Potable Water Supply Rules)

Members and statutory charge (Updated January 6, 2006)

Licensed Designers (Professional Engineers):

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Appendix D

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Rodney Pingree, Water Supply 802-241-3418	rodney.pingree@state.vt.us

Health Department technical staff

Gail Center
gcenter@vdh.state.vt.us

TAC Executive Committee
And Sub-Committees as of December 2006:

Executive Committee:

John Forcier, Steve Revell, Lance Phelps, Phil Dechert, Roger Thompson.
Alternates – Chris Thompson, Bernie Chenette, Spencer Harris, Jeff Williams.

Sub-Committees:

Hydrogeology - Allison Lowry, Craig Heindel, Dave Cotton, Steve Revell.

Training - John Forcier, Roger Thompson, Allison Lowry, Dave Cotton, Barbara Willis.

Licensed Designers - Spencer Harris, Alan Huizenga, Gerry Kittle.

Well driller's Knowledge Checklist - Jeff Williams, Rodney Pingree, Roger Thompson, Bernie Chenette, Gail Center, Steve Revell.

Interested in the Delegation Rules - Spencer Harris, Gerry Kittle, Phil Dechert, Alan Huizenga.

Drip Disposal – Frank O'Brien, Roger Thompson, Dave Cotton, Steve Revell, Alan Huizenga.

Legislative Fieldtrip – Phil Dechert, Gerry Kittle, Dave Cotton, Roger Thompson.

Surface Water Potable Water Sources – Alan Huizenga, Gail Center, Rodney Pingree, Lance Phelps.

Seasonally Discharging Systems – Craig Heindel, Steve Revell, Frank O'Brien, Roger Thompson, Bruce Douglas, Kim Greenwood, Gail Center, Brian Kooiker.

Appendix D

Statutory composition of the Technical Advisory Committee and the charge to the committee:

Section 1978 of 10 V.S.A., as established by Act 133 of the 2001 Adjourned Session, established a Technical Advisory Committee (TAC) to advise the Vermont Agency of Natural Resources regarding the technical standards and implementation of Act 133. The TAC's charge is:

The secretary shall periodically review and, if necessary revise the rules adopted under this chapter to ensure that the technical standards remain current with the known and proven technologies regarding potable water supplies and wastewater systems.

The secretary shall seek advice from a technical advisory committee in carrying out the mandate of this subdivision. The governor shall appoint the members of the committee and ensure that there is at least one representative of the following entities on the committee: professional engineers, site technicians, well drillers, hydrogeologists, town officials with jurisdiction over potable water supplies and wastewater systems, water quality specialists, technical staff of the agency of natural resources, and technical staff of the department of health. Administrative support for the advisory committee shall be provided by the agency of natural resources.

The technical advisory committee shall provide annual reports, starting January 15, 2003, to the chairs of the house and senate committees on natural resources and energy. The reports shall include information on the following topics: the implementation of this chapter and the rules adopted under this chapter; the number and type of alternative or innovative systems approved for general use, approved for use as a pilot project, and approved for experimental use; the functional status of alternative or innovative systems approved for use as a pilot project or approved for experimental use; the number of permit applications received during the preceding calendar year; the number of permits issued during the previous calendar year; and the number of permit applications denied during the preceding calendar year, together with a summary of the basis for denial.

The annual reporting shall end as of January 15, 2007.