

SECOND 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, 2004

Submitted by: _____
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Alt. Brad Aldrich, P.E.

For:

Bernard Chenette, P.E.	Gail Center, Health Department
Lance Phelps, P.E.	Gerald Kittle, Site Technician
David Cotton, P.E., Hydrogeologist	Barbara Willis, Site Technician -
Gary Fern, P.E.	Alt. Justin Willis, Site Technician
Alan Huizenga, P.E.	Spencer Harris, Site Technician
Craig Heindel, Hydrogeologist	Jeff Williams, Well Driller
Stephen Revell, Hydrogeologist	Kimberly Kendall, Water Quality Specialist
Philip Dechert, Town Planner	Rodney Pingree, DEC, WSD
Kimberly Crosby, Town Administrative Asst.	Allison Lowry, DEC, WWMD
	Roger Thompson, DEC.WWMD

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Purpose: This report on implementation of the Wastewater and Potable Water Supply Rules is the second 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 reports will 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.

Meetings: Fifteen (15) meetings were held by the TAC during 2003, with each meeting approximately 3 hours in duration. Meetings were held on January 7, January 21, February 4, February 18, March 5, March 18, April 4, April 15, May 13, June 17, August 19, September 16, October 14, November 18, and December 9. Meeting attendance ranged from 5 to 13 members, with several guests at each meeting, including Commissioner Wennberg on August 19, and November 18.

Full minutes of each meeting are contained in the Appendix A and can be viewed on line at www.anr.state.vt.us/dec/ww/rules.htm. The website also contains the following:

- On-site Wastewater and Potable Water Supply Rules & Regulations,
- Application Fees & Forms,
- Site Technician Certification Program,
- Technical Advisory Committee and Education and Implementation Committee Information,
- Innovative Systems Approvals,
- Contact Information.

Implementation of the statute and the rules adopted under the statute: The TAC agreed that they were both advisory to the ANR and the State Legislature. As such, they believed that the TAC should be chaired by someone other than a member of either of these groups. During the February 4th meeting, John Forcier, P.E. was elected Chair of the TAC. The TAC made the following recommendations during the course of their meetings in 2003. Each item is followed by

the meeting dates during which related discussions were held.

1. **Hydrogeological Chart** – A Hydrogeological Chart based on the principles of Darcy’s Law was developed. The Chart is intended to be a cookbook approach for dealing with soil and slope related issues in calculating the linear loading rate of an on-site wastewater system. The Chart is to be used for mound-type systems less than 1,000 gallons per day (GPD) and other types of systems less than 2,000 GPD. The Chart cannot be used for soils rated “Firm” or greater. The TAC agreed that the Chart should be published as a practice and should not be incorporated into the rules, and that training sessions introducing the Chart should be conducted. Training sessions were held on January 31, February 7 and 10, and March 3. Approximately 180 people attended the training sessions. (01/21/03)

2. **Licensed Designer Language** – The term “Licensed Designer” will be used uniformly throughout the rules. As it relates to water and wastewater systems up to 1,350 GPD, the TAC agreed to the following requirements for Non-engineers (02/04/03, 03/05/03, 04/01/03, 06/17/03):
 - a. Pumping systems connecting to a gravity sewer can be designed.
 - b. An unlimited length of a building sewer connection to a municipal system can be designed.
 - c. A single pipe waterline connection to a municipal system serving only one building can be designed.
 - d. One well serving 2 or 3 single family residences can be designed.
 - e. Gravity water storage tanks can be designed, when no treatment is involved and it is not part of a public water system.
 - f. A connection to a municipal force main cannot be designed.
 - g. A collection sewer cannot be designed.
 - h. A water line connection to a municipal water system serving more than 1 building or including a fire hydrant cannot be designed.
 - i. Any type of water treatment system cannot be designed.

3. **Well Drillers** – The following items have been discussed at TAC meetings, but no formal recommendations have been made:
 - a. If soil identification were required of Well Drillers, then there would not be any licensed designer requirements for non-engineers (01/21/03).
 - b. Well Drillers are “installers” and can certify that a well was installed in the proper location (02/18/03).
 - c. Regarding the locating of a well and associated waterline for single family residences, the only issue is the maintaining of required isolation distances (02/18/03).
 - d. Well Drillers are required to take GPS readings of wells after completion (03/05/03).
 - e. A checklist was distributed to document questions related to permits and well site selection (03/18/03).
 - f. A goal should be to provide Well Drillers a basic understanding of soils to assist them in selecting a well site that does not compromise the future replacement of an

- on-site wastewater system (04/15/03).
- g. Water quality testing was deferred to a future meeting (05/13/03).
4. **Delegation of State Permitting Process to Municipalities:** The TAC discussed the potential conflicts of interest of a firm serving as a reviewer for a Town and then reviewing the design prepared by a member of the firm (03/18/03). The TAC did agree that Town reviewers do not have to have higher qualifications than state reviewers performing the same service (04/15/03).
 5. **Uniform Statewide Rules:** The TAC agreed that Towns should not be allowed to adopt more stringent rules than the Uniform Statewide Rules (04/15/03).
 6. **Proposed Rule Revisions:** The TAC agreed that isolation distances of 50 feet and 25 feet should be required for gravity water storage tanks from leachfields and sanitary sewers, respectively (04/15/03). Decisions were deferred on how to separate mound systems from at-grade systems (04/15/03), and pressure distribution requirements (04/15/03).
 7. **Permit Revocation Due to Lack of Installation Certification:** The TAC agreed with DEC Policy as stated in issued guidance document (see Appendix for document; 08/19/03).
 8. **Limited Site Conditions Due to Shallow Seasonal High Water Table and Low-Permeability Soils:** The TAC discussed special rules for difficult sites or regions of Vermont with these characteristics, and concluded that it is not appropriate to create special rules for specific regions of the state, but that the TAC should vigorously pursue additional changes in the regulations that would allow appropriate wastewater disposal in these limited site conditions. The Low-K Shallow-Slope Subcommittee was formed to evaluate possible rule revisions and/or suitable treatment and disposal technologies to address this topic. This subcommittee met twice, and presented its preliminary findings to the TAC. The topic is still under intense discussion and review by the TAC at the end of 2003. (11/18/03, 12/09/03).
 9. **Soils Evaluation Course:** The TAC supported the training sessions arranged by the American Council of Engineering Companies of Vermont (ACEC/VT) and agreed that a more comprehensive soils training course is needed. ACEC/VT sponsored five training sessions in 2003, that were attended by approximately 100 people. TAC agreed that additional soils evaluation courses should be offered in 2004, and discussed possible course presenters. (06/17/03, 12/09/03)
 10. **Other Topics Discussed:** The TAC addressed the following topics, but did not make formal recommendations:
 - a. Urged DEC to establish expedited permit issuance for projects with municipal water supply or wastewater connections (08/19/03).
 - b. Urged DEC to aggressively pursue rule revisions currently being considered and

provided extensive advice and discussion on numerous elements of rule revisions (08/19/03, 09/16/03, 10/14/03, 11/18/03).

- c. Encouraged scanning of new permits and approved plans, so they can be made available on-line (08/19/03). DEC has committed \$270,000 to scan all existing applications (10/14/03).
 - d. Replacement areas for subdivisions of improved lots (09/16/03, 10/14/03).
 - e. Best fix for failed systems (10/14/03).
 - f. Policies, guidances, procedures and other written documents, that are not currently included in the rules, will be made available to the public. The TAC recommended that these documents be incorporated into the rules. The DEC would like to review the appropriateness of including each of these documents in the rules. (11/18/03, 12/09/03)
11. **Other TAC Initiatives:** The TAC agreed to write a letter to Senate and House Natural Resources Committees that they supported the extension in H.309 provided that a licensed designer would be required and that systems were required to meet isolation distance to water supplies. John Forcier, P.E., Marilyn Davis and Roger Thompson testified before the House and Senate Natural Resources Committees to present and discuss the endorsement letter (04/01/03). (See appendix E)

Number and type of alternative/innovative systems approved for general use, approved for use as a pilot project, and approved for experimental use: Appendix B includes a summary of innovative/alternative technologies and their current status. The following technologies have been approved for general use in Vermont during 2003:

- Spec AIRR, alternating intermittent recirculating reactor treatment system,
- Bioclere, recirculating fixed film trickling filter treatment system, and
- Puraflo, peat fiber biofilter treatment system.

No applications for general use approval have been denied since the revised Wastewater Disposal Rules went into effect on August 16, 2002.

The following systems have applied for approval for use in Vermont during 2003 and are currently under review:

- Bio-Microbics FAST, a fixed film aerated treatment system,
- ROTORDISK, a rotating biological contactor treatment system, and
- Singulair, a suspended growth extended aeration treatment system.

The DEC has approved the following products which currently meet the minimum standards for use in accordance with the rules during 2002:

- Polylok Effluent Filter PL-122, and
- FRALO SEPTECH polyethylene septic tanks.

The DEC is currently evaluating a request from SeptiTech, Inc. to modify their General Use Approval to include the use of a proprietary seasonal driphose disposal system.

Discussions within the DEC and a subcommittee of the TAC, on a possible pilot approval, are on-going. In addition, they are reviewing the redesign of a Living Machine Technology for use at the northbound Sharon, Vermont Rest Area. This system had been previously approved for use at another location and was dismantled after connection to a municipal wastewater system. No general use approval application has been submitted for this technology.

Two technologies which are currently allowed in Vermont, the Presby Enviro-Septic leaching system and the Infiltrator chamber systems, both gravelless disposal systems, have requested approval for an increase in the allowable application rate used to size the disposal area. DEC is investigating the claims made by the manufacturers and the potential health hazards and negative impacts on the environment.

Functional status of alternative/innovative systems previously approved for use as a pilot project or for experimental use: No applications were received during 2003 for pilot use or experimental use.

Number of permit applications received during the previous year: The number of permit applications received in 2003 is 2,619. The number of permit applications is an 8% decline from those received in 2002.

Number of permits issued during the previous year: The number of permits issued during 2003 is 2,712. This number includes the issuing of permits for projects which have been pending for more than one year. The number of permits issued is a 5% decline from those issued in 2002.

Number of permit applications denied during the previous year, including a summary of the basis for denial: The number of permit applications denied during 2003 is 43. Ninety-eight percent of the denied permit applications were rejected due to a lack of sufficient information. The number of permit applications denied is a 13% increase from 2002.

<p>Note: Appendix C includes a table listing the number of permit applications and permits issued /denied for 2002 and 2003.</p>

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APPROVED MINUTES FOR TECHNICAL ADVISORY COMMITTEE MEETING JANUARY 7, 2003

Members present: Bernie Chenette, Alan Huizenga, Barbara Willis, Dave Cotton, Gail Center, Kimberly Kendall, Jeff Williams, Roger Thompson, Rodney Pingree, John Forcier, Kimberley Crosby

Members absent: Craig Heindel, Gary Fern, Spencer Harris, Gerry Kittle, Allison Lowry

Others attending: Frank O'Brien, Marilyn Davis

Next meetings:

Tuesday, January 21, 2003, from 1-4 PM @ Room 100 Stanley Hall

Tuesday, February 4, 2003, from 1-4 PM @ Room 100 Stanley Hall

Tuesday, February 18, 2003, from 1-4 PM @ Room 100 Stanley Hall

Wednesday, March 5, 2002, from 1-4 PM TBA

Tuesday, March 18, 2003 from 1-4 PM TBA

Tuesday, April 1, 2003 from 1-4 PM TBA

The minutes for the December 17 meeting were approved.

An item for updating the Committee on the results of the Education and Implementation Committee was added to the agenda.

The work on the hydro chart was deferred to next meeting because Allison had a family emergency and had not been able to work with the sub-committee on the chart.

Roger announced that consultant training on the chart and on the rules is proposed for January 31 and February 7. Public informational meetings on the UIC draft rules is set for January 28 and 30 and February 6.

Frank O'Brien reported on a new application for approval of an innovative system by Spec Industries called the AIRR system. The AIRR Wastewater Recovery System is a type of recirculating sand filter which does not comply with all of the standards for recirculating sand filters in the 2002 version of the Environmental Protection Rules. The Department will be sending a letter to Spec Industries within the next few days outlining what additional submittals we would require and explaining the type of approval we would be issuing once we are satisfied that they have met the requirements of the rules. It should be a fairly routine approval.

Aquapoint, Inc. has requested general use approval for the Bioclere system. The Bioclere system is a modified trickling filter with a clarifier and is intended to be installed as part of a sewage disposal system between the septic tank and leach field. This application was delivered on January 8, 2002 and review has not started.

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The Infiltrator company has asked that the department consider revised loading rates for their chamber systems. This will take research into the effects of long term loading rates with septic tank effluent.

There may be some third party research that can help. David Cotton noted that the testing protocols for various third party testing may vary considerably. For example some testing allows a system to not comply with the effluent limits as much as 30% of the time. Some testing companies do not audit the field performance of systems, etc. The Committee suggested that we develop a checklist that would guide companies to submit the kind of data we need to make a decision.

There was a great deal of discussion about treatment systems for projects with a lot of down time such as vacation homes and schools. Physical filtering may go on for some, others have a biomat that ceases to function properly when flow is interrupted for a few days. Some members feel that there is no concern over treatment except for upsets that interrupt the biological activity. There was a suggestion that larger systems could be required to “seed” the system when interrupted flows resumed, so that treatment activity started very quickly. This is not reasonable for household systems.

Roger mentioned that the system was not the concern it was the groundwater. Many of the complicated treatment systems have poor quality effluent going out. Nitrogen and phosphorus removal are important, especially in other states. Some of those states are finding that there is not enough attention to the operation of these units and are considering not allowing them any more.

David mentioned that some manufacturers are requiring initial three year contracts. Most systems have not been through the warranty period, so we do not know whether the contracts will be renewed.

The Committee was briefed on the completion of the report by the Education and Implementation Committee to the legislature. It is nearly complete and will be sent out next week.

The Committee agreed that Marilyn Davis will draft a brief report as required by statute for the Committee to submit by January 15. Because implementation from passage of the bill to now is discussed in the E&I committee report on implementation The TAC Committee report will simply reference that report and have a brief history of the TAC Committee activities.

Appendix A
Approved Minutes of the Technical Advisory Committee Meeting
January 21, 2003
As Revised on February 4, 2003

Members present:	Bernie Chenette Spencer Harris Steve Revell Barbara Willis John Forcier Roger Thompson	Alan Huizenga Rodney Pingree Dave Cotton Jeff Williams Phil Dechert Allison Lowry
Others attending:	Marilyn Davis	Frank O'Brien

Review of Agenda –

John Forcier asked that an item called feedback be added to each agenda to ensure that the Committee members can share their impressions of what is happening outside of the committee activity.

Review of Minutes –

There were no comments or suggested revisions to the minutes of the January 7, 2003 meeting.

Hydro Chart Presentation –

Dave Cotton presented the work of the hydro subcommittee with the main points being:

- A. The chart is a composite dealing with all of the issues in deciding what the linear loading rate should be. Everything is based on conservative assumptions.
- B. The chart is intended to be a cookbook approach so that an in-depth understanding of hydrogeologic principles is not required to use it.
- C. The chart is based on the hydrogeologic principles expressed in Darcy's Law, but in use all of that is concealed behind the factors in the table. This was intentional because the chart is not intended to make the users into hydrogeologists, rather it is to allow non-hydrogeologists to make some basic design decisions without needing detailed knowledge of the principles involved.
- D. The ranges in the slope portion of the chart were discussed. Because in Darcy's Law an increase from 1% to 2% in slope would double the hydraulic capacity, the question was raised of whether this would result in inaccurate determinations. Dave and other members of the subcommittee said that at very low slopes other factors really control the capacity. For instance, on a site with 1% slope, even a small amount of mounding would increase the effective slope to 2% and therefore result in the system performing as

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designed. The chart is based on using a mid-range slope and the built in conservatism is sufficient. This approach is necessary to make the system cookbook in nature.

- E. This approach is usable for mound systems of less than 1000 GPD and other type systems of less than 2000 GPD.
- F. The chart can not be used on soils with a consistence of firm or greater.
- G. Soil textures will be based on USDA soil triangle based on sand, silt, and clay size particle fractions.

Discussion –

Roger asked about whether a definition of “firm” soil texture could be established? It was decided to refer back to the USDA method. This lead to a conversation about transition to the use of soil analysis in lieu of percolation tests. Roger indicated that this would be topic for the next rule making round and that with the required training (testing?) it would take a couple of years for implementation.

The issue of why the separation to the induced water table is different for septic tank effluent and filtrate effluent systems was raised. Septic tank effluent must maintain 36” to the seasonal water table and to the induced water table. Filtrate systems must maintain 24” to the seasonal water table but only 18” to the induced water table. This issue should be discussed in the future to decide if a standard approach should be used.

Bernie suggested that training should be required prior to use of the chart. Making the soils texture determination is new to some designers and use of the chart depends on an accurate determination. This was discussed and all agreed that training should be done, but because the soils determination will need to be agreed to by the regional office staff and they would also review the use of the chart for each case it was decided that the use of the chart could proceed. It was also noted that training in use of the chart was already scheduled for January 31 and February 7 and 10.

The committee reviewed the assumptions, numbers, and limitations in the chart and agreed they were appropriate. The committee agreed that the chart should be implemented as a practice as soon as possible once some minor wordsmithing is completed.

Revision to Minutes: There was discussion about incorporating the chart into the rules. The majority opinion of the committee was to publish the chart as a practice and not incorporate it into a future rule revision.

Draft Licensed Designer Rules –

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Roger presented a draft of the licensed designer rules. The draft was based on the agreements reached by the committee on the issues presented by the subcommittee, which incorporated the new authority included in the recent statutory changes.

Discussion –

- A. John asked if a strikeout and replacement format could be used to make it easier to follow, which will be done.
- B. John raised concerns about allowing non-engineers to design systems that included advanced treatment. The committee reviewed the discussion that had occurred at the December 2, 2002 meeting. At that time the committee had decided that the general use approval would be tailored to the specific technology. If the technology would meet all of the requirements for general use approval but was complex enough, the general use approval would limit use to designs prepared by engineers. The Agency will review the general use approval with the committee prior to issuing a decision. John remained concerned and asked to see samples of the general use approvals so he could see what type of analysis is required when specifying a particular system.
- C. It may be that continuing education requirements can only be required for designers who are not licensed engineers.
- D. There was a suggestion to revise the language to count the upcoming designers training towards the first proposed two year time period. After further discussion it was decided that it was unnecessary to add the extra training period.
- E. It was agreed that sections 1-313(e) (2) + (4) be removed as they request information that is not used in the licensing determination.
- F. It was agreed to remove the condition that applications be submitted at least three weeks prior to the exam date. This was established to ensure enough time to process the application and let the applicant know they should appear for the test. This will be revised with a provision that also allows the Secretary to accept any application that can be processed in time.
- G. The language will be revised to allow for possible use of an examination approved by the Secretary that is administered by others.
- H. The continuing education language will be modified to be clear that the Secretary may recognize training provided by others.

Roger will revise the language and present it in the strikeout and replace format at the next meeting.

Well Driller's Knowledge Checklist –

The subcommittee gave a short presentation on this topic. The subcommittee met prior to the committee meeting and identified some issues, with the most important being whether a well driller using this concept would need to be able to identify soils. If soil identification were required, there would not be much difference from the licensed designer requirements for

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non-engineers. Bernie asked if the Agency had made any determination on this. Roger said that Commissioner Recchia had met with the well driller's association and had expressed hope that a limited process could be found that would require little or no soils knowledge. This would be based on dealing with replacement wells for existing single family residences on previously unpermitted lots. New lots, all buildings other than SFR on their own lots, and lots with existing permits are already required to have the wells sited by licensed designers. Roger noted that there is time to resolve any issues and provide any training that might be needed because the portion of the rules that will require permits for the currently unregulated wells does not take effect until July 1, 2007.

Feedback –

- A. The committee asked that copies of the general use approvals be provided.
- B. A comment was received that a designer had been told by a regional office person that staff presence is required for all soil testing when a performance based design is used. Roger said this is not correct and will issue a notice to the regional offices.
- C. A comment was received that a replacement well site was required when using the improved lot subdivision portion of the rules. Roger noted that this was true only if the existing well site was not a complying location and will include this with the notice about site visits.
- D. Two consultants said that while there had been only a few projects completed since the office operations memo had been issued, that a couple of recent projects had been processed more rapidly than in the past.
- E. One consultant noted that there are several projects pending in the Rutland office, where the decisions have been made and in some cases the work has been completed, that need to have the permit issued to complete the process. Roger said that he had been working on this issue and believed there was progress on catching up. This topic will be followed up for the future.

Subcommittees

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

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

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

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

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to make this the next topic of discussion. It was agreed to accept the minutes with the addition of a note that the chart would be published as a practice and not included in the rules.

Role of the Committee-

There was extensive discussion of the role the committee should have versus how it was currently functioning. John said that this committee seemed to be quite different than the Implementation and Education Committee he chaired that had recently completed its work. John said that he believed this committee was charged with some oversight and direction functions related to implementing the statute and rules. Bernie said that he feels the committee is different and advisory in nature based on the statutory language. Craig agreed that the committee is advisory. Gary also agreed that the committee is advisory but thought that the Agency needs support of the committee. John noted that his discussions and attendance at the legislature caused him to believe that there was intent that the committee have some part in directing the implementation of the rules. Roger reviewed the past operations of advisory committees as being forums to discuss issues that are relevant to future rule changes. Past committees have discussed many issues and reached consensus or majority opinions on several important topics. The Agency believes that the most effective way to proceed is to discuss issues until there is a position that the Agency and at least a majority of the committee can support. Marilyn reviewed the statutory language for the two committees and noted that there are some significant differences. The statute creates an advisory committee related to the rules section of the statute. The statute separately directs the TAC to provide a report that would talk about what has happened in implementing the rules, how many systems of various types, and how those systems are performing and would presumably make any observations or recommendations for future action. While the majority of the committee members agreed that the advisory function is related to the rules, several members also felt that it was important that the committee report required by the statute be prepared and supported by committee members who are not Agency employees because it would carry more weight with legislators if it was seen as independent from the Agency. In order to implement this, it was decided there should be a chair for the committee, who would be elected each year, and John was elected to serve for the coming year. A subcommittee will be selected to do the first draft of the next annual report due January 15, 2004. Craig and Gary indicated they would like to participate in writing the report. The subcommittee will be established at the next meeting. Roger will continue to prepare an agenda, write the minutes, and facilitate the meetings.

Legislative Briefing-

John gave a short summary of his presentation of the I+E Committee report to the House and Senate Natural Resources Committees. John handed out a copy of the outline he used for the presentations. The four main topics in the I+E report were, A. the quick ending of the buildout period, B. the first in time effects of permits on neighboring lots, C. effects on a town's grand list, and D. towns choosing to not allow use of reduced site conditions by not updating their sewage rules. John noted that the Senate committee had several questions related to the implementation and status of innovative systems but that there had been no time for discussion of specifics. Roger discussed the possible options related to dealing with the quick closing of the buildout period, which include an unconditional extension, a conditional extension, or no change. Roger noted that John had provided one possible option for a conditional extension to the Senate committee based

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on using a “best fix” system such as could be approved under the variance provisions in the rules.

Tom asked about innovative systems, including incinerating toilets. Roger noted that incinerating toilets are ok under the rules, and probably not a problem with the Air Quality Division, but are very energy intensive. The Agency would be unlikely to approve any house based only on use of incinerating technology for the whole house without soils that would allow for complying systems based on conventional toilet facilities.

Spencer asked how many towns have updated their sewage ordinance. Roger indicated that only a few had completed the process but that a few more were working on it. Roger also noted that an updated model ordinance is in the works, which will need review by Anne Whiteley.

Review of Hydro Chart -

Allison reviewed the changes that had been made to the chart since the last meeting, which included some wording changes and some updated examples. Some of these changes were based on committee discussion at the previous meeting and some were made after using the chart in a presentation to licensed designers on January 31st. Craig had attended the designer’s meeting and said that people seemed to accept the chart as being useful. Roger noted that a couple of people had to be reminded that the chart did not make them hydrogeologists. John asked if the term “firm” needed to be defined. No one had a specific reference for this term though USDA must have some definition and description of how to make the determination.

Licensed Designer Rules -

Roger reviewed the updated draft which was prepared in the strikeout and underline format used in rulemaking. There were several editing comments related to section §1-313 (c)(2). The demonstration of ability section will be rewritten. The term, licensed designer, will be used uniformly. Gary asked about whether non-engineers could design connections to municipal systems. Roger said the drafted language would allow for this. Gary said that he did not agree with that position and the committee then recognized that this issue had not been specifically addressed. It was decided to send this back to the subcommittee for a review to be followed by discussion at the committee. John asked if the rules should define when installers can do the inspection certifications and it was agreed that it should be defined.

Review of General Use Permits -

At a previous committee meeting the existing general use permits were discussed and it was decided to review these so people would be familiar with the structure of the permits and how they deal with oversight and maintenance issues. Roger reviewed two general use permits and one pilot approval that had been issued for a slaughterhouse. John asked about whether a checklist had been prepared for use in submitting and reviewing applications seeking approval under the innovative system portion of the rules. Roger said it had not been done yet but was on Frank’s list of to do items.

Underground Injection Control Rules –

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Allison did a brief review of the rule making process that is under way. She noted that two evening ~~hearing~~ information meetings had been held January 28th and 30th, with one more planned for February 6th. Allison provided the handout she has used at the hearings.

Feedback –

Gary discussed a project he had done recently in Bristol. When Gary started the subdivision process in late summer he believed that there was one improved lot and one vacant lot. The soils in the area are good so he did not arrange for state staff to witness the test pits. After completing the application later in the year he found that there were two improved lots and had to find an additional replacement area. He talked to the Rutland office about looking at soils for the second lot and was told that he needed to also dig two holes to verify the soils for the first lot. The pits were only done recently and the soils were frozen which added a lot of time and expense. Gary said he did not expect to have to dig pits for the first house in any case but went along when the staff told him they wanted them dug. Roger said that the office operations memo did not support asking for test pits to be redug unless there was clear evidence that they were incorrect and that he would check into this case and see what had happened.

Gary also noted that Roger's comment at the designer's training session that 95% of all of the work would be done by site techs had caused e-mails to start circulating from some engineers and was not helpful. Roger explained that his comment was based on the fact that most projects are less than 1350 GPD which is proposed for the new limit on what non-engineers might do and was not a thought that non-engineers would actually end up doing all of the work.

Subcommittees

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

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

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

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

Appendix A
Approved Minutes of the Technical Advisory Committee Meeting
February 18, 2003
Revised 3-9-2003

Members present: Roger Thompson Rodney Pingree
 Alan Huizenga Spencer Harris
 Gerry Kittle Steve Revell
 Phil Dechert John Forcier
 Jeff Williams

Others attending: Marilyn Davis Frank O'Brien

Scheduled Meetings:

March 5, 2003 1-4 PM Mad Tom Room, Osgood Building
• Note this is a **Wednesday** meeting.

March 18, 2003 11 AM
Well Driller's Subcommittee

March 18, 2003 1-4 PM 100 Stanley Hall

April 1, 2003 1-4 PM 100 Stanley Hall

April 15, 2003 1-4 PM Skylight Conference Room

April 29, 2003 1-4 PM Secretary's Conf. Rm., Osgood Building
• Note we are trying to relocate to a better room for this date.

Review of Agenda –

The agenda was reviewed and accepted.

Review of Minutes –

The revised minutes of the January 21, 2003 meeting were reviewed and accepted. The minutes of the February 4, 2003 meeting were reviewed and accepted with Marilyn's revision that the UIC meetings referenced were informational meetings not hearings.

Proposed Designer Language –

Roger reviewed the changes that were made to the 2-18-2003 draft of the proposed changes. These changes were wordsmithing with little effect on substance. The committee made several additional suggestions, with Frank suggested changing the language relative to meeting the soil requirements by engineers. He suggested making it clear that an engineer could complete the

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requirement anytime, including after July 1, 2003, as long as it was prior to submitting an application. Alan and Phil also suggested clarifying language.

The subcommittee had not met to discuss the issue of whether non-engineers would be able to design any form of connection to a municipal water or wastewater system. John said that he had been encouraging the subcommittee to work on this for the meeting but they had not had time to meet.

John asked about his recollection that there had been discussion that when designing systems for buildings other than single family dwellings, non-engineers would do the design only when the residential flow was at least 50% of the total flow. Alan and others reviewed the discussions and decisions made at earlier meetings where it was decided to not include this restriction. Roger noted that few non-residential uses would reach the 1350 GPD limit because the water system limitation of only non-public water systems would be the limiting factor. John asked whether the issue should be sent back to the subcommittee for review. Alan found and reviewed the decision in the previous minutes and the majority of the committee decided the issue did not need to be returned to the subcommittee.

Jeff asked about how much design was involved with siting wells for single family residences. Roger said that there were only two main issues, the siting of the well so that the isolation distances are met, and showing that the waterline between the well and the building maintained the required isolation distances. Things like pump sizing and materials are not reviewed.

Rodney asked if well drillers are considered designers. Roger said not yet, but that was part of what the subcommittee on this topic is supposed to work on. It was decided that the subcommittee would meet at 11 AM on March 18, 2003 prior to the TAC meeting on that date.

Plan Revisions vs Certification-

Roger started a discussion of how to deal with the inevitable changes that occur to many projects after the plans have been ~~improved~~ approved. Roger said that an engineer had raised the issue at one of the training sessions and was concerned that even minor changes would create a problem due to the exactness of the certification language. Roger noted that in some cases the designer could use less exact specifications that would still comply with the rules while allowing for some field variance. The language in §1-515 of the rules covers some of these issues and will be publicized for those who have not noticed it because it is located in subchapter 5 instead of in subchapter 3 where the installation certification language is noted. Steve asked what the amendment fee is for a project. Roger said it was based on amendments and so \$37 but Marilyn noted that it depended on whether there were municipal type water and wastewater connections. John said that it would be good to have separate methods for large and small amendments. Roger said he wanted to look into permit conditions that could allow for as-built drawings to be accepted without doing an official amendment in some cases. Rodney noted that it is important to keep track of location of water and wastewater systems so the neighboring development can maintain isolation distances. The well driller's role was discussed and Roger noted that well drillers are considered installers and they can certify that the well was installed in the proper location.

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Improved Lot Subdivisions

Roger said that he wanted to work on providing some guidance to staff and designers on what is required in determining that the replacement area requirement in §1-407 of the rules is met. Spencer asked about whether contours are required and whether the well locations needed to be GPS located. There will be further discussion when there is a draft document.

Innovative System Update-

Frank said that he had met with Carl Thompson from the Infiltrator company and heard Carl's presentation on research that supports an area reduction for leaching chambers in comparison to stone beds and trenches. Frank noted that he would be meeting with David Presby on the Enviroseptic System in a few days. Frank also noted that he had reviewed the information from PolyLoc on their new style of filter and that it conforms to the Vermont requirements and that the company would be notified that its use in Vermont was acceptable.

Feedback –

Spencer noted that the online application forms have been corrected so that the request for Jessanne's password no longer appeared.

Marilyn noted that there is still a mistake around line 16 that the Agency would be correcting soon.

Phil said that he had one comment from a person that any time a boundary line adjustment was made that a survey should be required. The committee discussed this issue relative to the concerns that licensed surveyors have. Some surveyors believe that any representation of a boundary line on a map or anything that could be filed in the records can only be prepared by a surveyor.

Phil said that a designer had also told him that preparing as-built plans requires a survey. Apparently that company sends a survey crew to document the final installation.

Spencer said that town clerks are not up to speed on what needs to be filed in the land records and by whom. Phil said that maybe the Secretary of State's Office should notify the towns. Roger said that VLCT newsletters often deal with this type of topic.

Jeff asked about licensed installer requirements. There is no requirement now as it was removed in the compromise at the end of the legislative session. Marilyn noted that Chris Recchia had suggested that the installers might want to develop a voluntary certification process and other committee members were interested in the concept.

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

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

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

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

Appendix A
Approved Minutes of the Technical Advisory Committee Meeting
March 5, 2003
Revised March 29, 2003 (Revisions are underlined)

Members present:	Roger Thompson	Bernie Chenette
	Rodney Pingree	Gary Fern
	Brad Aldrich	Gerry Kittle
	Allison Lowry	Gail Center
	Phil Dechert	Spencer Harris
	Craig Heindel	Barb Willis

Others attending:	Frank O'Brien	Marilyn Davis
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Scheduled meetings:

March 18, 2003	Well Driller's Subcommittee	11AM	Water Supply Conference Room
March 18, 2003	1-4 PM	100 Stanley Hall	
April 1, 2003	1-4 PM	100 Stanley Hall	
April 15, 2003	1-4 PM	Skylight Conference Room	
April 29, 2003	1-4 PM	Secretary' Conf. Rm.	Osgood Building

Review of Agenda -

The agenda was reviewed and accepted as proposed.

Review of Minutes -

The minutes of the February 18, 2003 meeting were reviewed. Gary asked about the comments on use of less exact specifications in the section on Plan Revisions vs Certification. Roger explained that this meant not using a number, such as an invert elevation at a manhole, to 3 decimal places unless that level of accuracy was absolutely necessary. Brad noted that the word improved at the end of the first sentence in that section should be approved and this will be corrected.

Legislative Update –

Roger outlined the current legislative proposals that have been filed as bills to date. One bill that proposes to extend the buildout period from November 1, 2002 to November 1, 2004 has passed the House Natural Resources Committee and is scheduled for floor work next week. There are two other bills, that between them, propose to extend the date, change the engineer's certification language, make town permits valid, and recreate the homestead exemption. Another bill has been introduced that would reopen the 10 acre exemption permanently. It seems likely that some extension of the buildout period could pass the House. It is not clear if any other changes will. The agency has not staked out a position on any of these, but will likely be neutral on the extension to

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November 1, 2004. Roger also mentioned a bill that would prohibit the Health Department from requiring toilets for restaurants open less than 6 months with outdoor seating of 16 or less seats. Gail mentioned that the Health Department was following a bill on requiring water testing for all rented units and one on water testing on all single family homes at the time of sale. If the testing occurs the Health Department would like the Water Supply Division to keep the test results with the well logs, which Rodney said the Water Supply Division would support. The Health Department position will be neutral on these bills. Roger said that if this passed it would make sense to require testing of all wells when they are drilled. Gail agreed but noted that they need to be in use in order to get a good test and that collecting a sample at the time of drilling would not be sufficient. In talking about the water testing the committee learned that fluoride occurs frequently enough that the Health Department recommends testing prior to using fluoride supplements. In one well the natural fluoride level exceeded the MCL.

Well Locations-

Spencer raised some issues about GPS locations for wells. He asked if it made sense to have the locations recorded after the well is drilled with the well drillers doing this work, instead of as part of the application process. Roger noted the issues related to getting compliance on this type of work done after the fact. Bernie and Craig noted that the proposed locations need to be protected and so it was important to get that information for the proposed well sites. Well drillers take a GPS reading upon completion of the well.

Rules for designers who are not professional engineers –

Gary reviewed the results of the subcommittee's discussion. The subcommittee decided that with a 300' length limitation and the 1350 GPD limit, that non-engineers could probably handle gravity connections to municipal systems. The subcommittee noted that most municipalities also were keeping track of this work and had required design specifications. The subcommittee noted that pump connections to force mains would need further discussion, and that there had been no comments about water system design based on fixture unit counts.

The committee reviewed the issue of whether non-engineers should design connections using pump stations. Spencer said he thought non-engineers could do this work, as it was very similar to designing the pump stations for mound systems. Roger and Gary noted that connections to force mains, as opposed to force main connections into a gravity sewer, are fairly complex. Craig asked why the 300' limit had been suggested. Gerry noted that in general collection sewers have manholes every 300'. Gary and Brad noted that forcemain connections into to a gravity sewer should be made at a manhole, a design requirement used by both engineers and non-engineers. Roger asked if non-engineers could do collection sewers, noting that the design flow would limit this to 3 houses.

At this point the committee started a point by point discussion and decision process.

1. Can a non-engineer design a pumping system that will connect to a gravity sewer? The consensus was yes. The system is similar to what non-engineers already do for mound systems.

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2. Can a non-engineer design a connection into a municipal force main? The consensus was no. There are potentially complex calculations when connecting multiple pumps to a single force main. There are relatively few small connections into a force main.
3. Should there be a limit to the length of a building sewer connection to a municipal system that can be designed by a non-engineer? The consensus was no. Manholes are not required, though cleanouts are. On-site systems are often more than 300' from the house and can already be designed by non-engineers.
4. Can a non-engineer design a collection sewer, with collection sewer defined as connecting more than one house or building into one pipe prior to connection to the municipal system? The consensus was no. Most municipalities already want each building to be separately connected and some collection sewers can have complex hydraulics.
5. Can a non-engineer design a single pipe water line connection to a municipal system that will serve only one building? The consensus was yes. Design flows are limited to 1350 GPD and the municipality usually oversees the tapping into the water line.
6. Can a non-engineer design a water line connection to a municipal system that will serve more than one building or that will include a fire hydrant? The consensus was no. Maintaining fire flows can involve significant calculations or testing and have major implications for the municipal system.
7. Can a non-engineer design a water system that will share one well between two or three houses? The consensus was yes. These are relatively simple systems when gravity storage tanks are not required.
8. Can a non-engineer design a gravity storage tank? The majority opinion was no. There are many considerations related to use of materials, tank coatings, controls, and safety features.

Roger will take this information and update the draft revisions to the designer's rules for further consideration by the committee.

Model Sewage Ordinance-

Roger reviewed the draft ordinance briefly. Anne Whiteley is reviewing the draft. Roger asked for comments after the committee members have a chance to review the document with a goal of completing work next week. Bernie asked if the ordinance could say it regulates water systems as well. Roger will check this out. Spencer wanted to know if towns could just change dates in their ordinance. A town would need to go through the ordinance adoption process in order to make that kind of change. Brad asked if the ordinance could require using the 2002 rules as the basis of the

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ordinance and then modify the requirements. The statute specifies that towns can choose either the 1996 rules or the 2002 rules.

Innovative/Alternative Systems-

Frank gave a short update. Frank met with Dave Pressby about the Enviroseptic Pipe. Dave is asking for a reduction in area based on achieving a 30/30 BOD/TSS treatment level and will be submitting information he believes supports his case. Dave is also asking for use of serial distribution and a waiver from the requirement for pressure distribution in mound and at-grade systems. The Enviroseptic Pipe is bedded in sand and the current approval for Vermont has each pipe in a three foot wide trench backfilled with sand. Roger noted that there are several thousand of these systems installed in New Hampshire and the regulators feel they are working well. Rodney noted that there are a lot of sands and gravels in New Hampshire and lots more tills in Vermont and this issue should be considered as part of any decision. Craig agreed with this. Gerry said that there had been one of these systems installed in Colchester that had failed after a couple of years, but the reasons for the failure were not determined. Frank also attended his first NEIWPC meeting.

Feedback-

Rodney noted that a couple of mobile home parks have run out of water this year either because the tenants had left the water running to prevent freezing or because the pipes had frozen. Once the storage tank runs dry, the pipes can freeze and refilling the tank does not cure the problems. Rodney suggested that storage systems for mobile home parks might need to be made larger to account for the extra use. This was discussed with observations that it might make more sense to properly insulate the system and to install water meters at each unit to identify units where the water is left running. Putting in a large tank is expensive and there is a potential impact on the wastewater system.

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Approved Minutes of the Technical Advisory Committee March 18, 2003

Members present: Roger Thompson John Forcier
 Allison Lowry Rodney Pingree
 Dave Cotton Steve Revell
 Jeff Williams Kim Crosby
 Phil Dechert Alan Huizenga
 Gerry Kittle

Others attending: Frank O'Brien Marilyn Davis

Scheduled meetings:

April 1, 2003	1-4 PM	100 Stanley Hall
April 15, 2003	1-4 PM	Skylight Conference Room
April 29, 2003	1-4 PM	Secretary's Conf. Rm. Osgood Building

Review of Agenda –

The agenda was reviewed and it was decided to add a discussion of the proposed language from the Lamoille County RPC and a discussion of the Department web page.

Review of Minutes –

The minutes of the March 5, 2003 meeting were reviewed. Rodney asked that the minutes be clear that the Water Supply Division requires GPS readings for the installed location of the well. It was also requested that the section on well locations make it clear that readings taken after the well is drilled is not unacceptable, only that they also need to be located as part of the approval process prior to construction. Roger will revise the minutes.

Legislative update –

Roger reviewed the status of H.319. It has passed the House and is now at the Senate Natural Resources Committee. The bill would extend the buildout date from 11-1-2002 to 11-1-2004, slightly modify the designer's certification language and require the Commissioner of Taxes to provide notices about the statutory changes that occurred in 2002 to all town clerks who would be required to include the notice in all tax bills. Dave asked if the Agency was going to request authority to license installers. Roger and Marilyn said that this had been discussed with Chris Recchia after the legislative decision in May 2002 to remove it from the proposed legislation. Chris had said the Department would live with the decision for a while but could propose it again if there are problems with the current arrangement. There was quite a bit of support from the committee to push this issue forward. Marilyn mentioned the public process issues related to the permit reform legislation. She noted that some of the proposals would add a public process to all

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state permits including the regional office permits for subdivision of land and for public buildings.

Zoning for Wells –

Phil gave a review of some language related to water supplies the planners association had drafted that could be incorporated into a town's regulations. The language started with a goal of having the required isolation from wastewater systems on the lot containing the well site. If this could not be arranged, the language would require the well to be located so that the neighbors could develop a wastewater system to the extent possible. This led to a discussion of the effects on neighboring owners and Steve asked about impacts on neighbors and how they would respond if they started receiving public notice of proposed wells. Rodney noted that this was already required for public wells and while there is sometimes opposition, the rules do not include this as a factor in the decision.

Designers who are not engineers –

John said that Brad Aldrich had reviewed the draft and did not have any comments. Alan asked if the language related to what non-engineers could design for sewer lines created a conflict with the definition of collection sewer. Frank said he had checked this and the current language no longer has the provision that building sewers over 300' were collection sewers as had been true in the 1996 rules. John asked that the section related to pressure sewers be slightly reworded to make it clear what is allowed. Dave asked that the rules be clear about what is, and what is not, a site modification so class A and class B designers will know exactly what work they can perform. The rules should also clarify which systems installers can inspect and certify. Allison and Dave said that class A have been allowed to design pump stations but not pressure distribution systems. Roger will bring revised language to the next meeting.

Well driller's subcommittee –

Rodney and Jeff reviewed the results of the subcommittee meeting that occurred earlier in the day. Roger had a handout of talking points that might lead to a draft proposal for well drillers to select replacement well sites for existing, unpermitted single family homes. Rodney also gave out copies of his draft of a form to be used by a well driller and a landowner to make sure the questions related to permits and well site selection were answered and documented. Jeff noted that the elements of the discussion included the knowledge level needed by the well driller including an understanding of the well shield concept, use of a sketch with measured distances unless an existing plan to scale was already available. Steve said there should be training and workshops to help well drillers learn the process. Steve noted that an understanding of what is happening in the top 2' of the soil would be important and that an amnesty type checklist would also be useful. Roger said that the goal would be to have a simplified application process for these cases, whether a well driller or a designer did the work. Dave noted that the GPS well locations are not very precise and that it is better to drill on the staked location than to try and locate with a GPS unit. Steve agreed that it is much better to rely on the stake. Jeff noted that just setting the GPS unit correctly is an issue. The units work in several formats and they give different answers. John said that the designer should specify the reference system they are operating in and they should include the information from the screen about the expected accuracy for the particular reading. Roger noted that it is likely that

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the rules will be changed to allow other methods of determining the location. Rodney said there should be guidance that specifies that the information be provided in a particular format, such as min/sec and true north or magnetic north.

Water system storage designs by non-engineers

Jeff asked about the requirements when a gravity storage tank is needed so a single family home can treat for sulfur? Roger said that the issue was discussed at the previous meeting and strong majority of those present at that meeting had agreed that only engineers could design gravity storage tanks. Jeff asked about ground water heat pump situations. Allison noted that if the water is pumped out of the ground and then put back in the ground an Underground Injection Control Permit is required, though there is a general permit for flows up to 25, 000 GPD. Steve said that non-engineers should be able to design gravity storage systems for SFR. John agreed for most cases as long as treatment is not required. Dave said that the rules presumed that in most cases the storage would be provided with extra depth in the well itself. Jeff agreed but said that there are some rock formations where drilling deeper would encounter formations that would make the water quality worse. Jeff said that some well drilling companies routinely design and install storage systems and treatment systems. Several people who were at the previous meeting were not in attendance and several people in attendance were not at the previous meeting so it was decided that this topic would be discussed at the next meeting when hopefully everyone concerned about the topic could be heard.

Town delegation –

Roger reviewed the draft language that Marilyn had prepared. Marilyn also had a list of unresolved issues and copies of Karen Horn's comments to the previous draft. There are issues about whether a town must run an electronic tracking system. The agency might provide copies of their software but there would be no support for the system. Phil said that he had tracked permits in other formats that worked well. The possibility of doing a web based system was raised. There was discussion about a firm serving as the reviewer for a town and then reviewing work prepared by other members of the firm. This needs to be addressed in the language and the concept should be added to the designer language as well.

Draft municipal ordinance –

Roger said that he had not gotten any comments on the draft.

Procedures for referral of Professional Engineers to their board –

Roger briefly mentioned the handout and that the process had been developed so there would be 3 levels of review within the agency before anyone would be referred to the board. This was done intentionally to make sure that an engineer would not be singled out for some minor issues.

Feedback –

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Dave said the web page is a good way to get information to designers and other people involved in development. Marilyn said that the IT people recently talked about a new web site organization that would have buttons leading to various functions of the agency. Steve noted that he had been getting some approvals for projects that had been pending for a long time and that new submissions had been approved very quickly. Steve also noted that he had just gone back to a site he had worked on in 1997 that could not meet the rules at the time and he was now able to get a permit under the new rules.

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Approved Minutes of the Technical Advisory Committee April 1, 2003

Members present: Roger Thompson Spencer Harris
 Gail Center Jeff Williams
 Barb Willis Allison Lowry
 Kim Crosby Steve Revell
 Dave Cotton Craig Heindel
 Phil Dechert Rodney Pingree
 John Forcier Bernie Chenette

Others attending: Frank O'Brien

Scheduled Meetings

April 15, 2003	1-4 PM	Skylight Conference Room
April 29, 2003	1-4 PM	Chapel Conference Room
May 13, 2003	1-4 PM	Chapel Conference Room

Review of Agenda –

The agenda was reviewed and several topics added. Dave asked for time to talk about the training sessions he had recently completed for designers. John asked for time to talk about training sessions arranged by ACEC. Dave asked for time to discuss some rule changes that he wants to propose based on feedback from his training sessions.

Review of Minutes –

Gail noted that minutes of March 18, 2003 incorrectly stated that Roger had reviewed H.319. The minutes will be corrected to state H.309. Phil noted that the draft language related to first in time well issues was prepared by the Lamoille RPC not the Vermont Planners Association. Frank pointed out a writing error in the review of the previous minutes that will be corrected.

Legislative Update –

Roger reported that H.309 is sitting in the Senate NR Committee and it was not clear if action would be taken. Dave asked if the committee should take a position on H.309 and recommended that the committee do so. John noted that the Implementation and Education committee had decided they did not have enough time to develop a position on this topic, though he had said in his presentation of the I+E Committee Report to both House and Senate NR committees that his personal feeling was that an extension should be made to the end of 2004. John noted that he had told the NR Committees that this would provide a blank check to landowners and that they might want to consider some requirements such as using the best fix concept. Roger noted that while the

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best fix seems like a logical concept it did not seem to address the two issues that NR Committee members had mentioned. Some NR Committee members thought that some people had lots that met the rules but were being required to build much more expensive systems under the new rules than what they could have built if the lots were exempt and the best fix approach requires building the expensive system. Other NR Committee members were concerned that some very bad lots would be developed and the best fix approach is based on an assumption that virtually every existing building would be allowed to construct a replacement system even if it was very high risk. John noted that the NR Committee members were inclined to do some sort of extension. Phil noted that this was more of a political decision than a technical decision. There was considerable discussion about whether the TAC should take a position on this topic. Roger noted that Agency staff would not be able to participate, as their input should be through the Administration. The Committee decided that the committee's charge did include reporting to the legislature on implementation issues and the extension proposal is a major implementation issue. Craig said that the legislature could use some technical advice on how to shape the extension because a wide-open gap is not a good choice. Bernie suggested making a recommendation that a licensed designer be required. Steve thought this was a good concept and should be included in the recommendation. Rodney thought that most people would recognize that a poor system would be a bad choice because it would just have to be replaced in the future which would be expensive. Roger noted his concerns that without any standards, people who wanted good systems would already build one without adding the requirement for a designer, but that the person who only wanted to build, no matter what, would be able to find the "miracle worker" designer who would design something anywhere. Roger noted that without standards even water supply isolation distances would not be a requirement. Bernie suggested that if a licensed designer were required the statute could require that well isolation distances be met.

After much discussion the committee members other than ANR staff were polled on:

1. Should the committee support a clean extension and by consensus the answer was no.
2. Should the committee support an extension if a licensed designer is required without any technical standards and the committee decided yes with about 2/3 in favor.
3. Should the committee support an extension requiring a licensed designer with designs meeting well isolation distances and the committee decided yes with about 2/3 in favor.

Jeff said he felt the committee should not take a position on this topic. After additional discussion the committee decided to issue a statement and by a 2/3 majority decided to have John write to the Senate and House Natural Resources Committees that the Technical Advisory Committee supports the extension in H.309 only if a requirement for a licensed designer is required and would prefer that in addition the statute required systems to meet the isolation distances to water supplies.

Allison suggested that only engineers should be allowed to do the work because of enforcement and liability issues. Other committee members felt that site technicians working within their class

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license should be acceptable and it was decided to not limit the proposal to only engineers.

John will draft the letters and mail them immediately.

Training

Dave said that he had presented six seminars to designers. He said that he had provided an update on the TAC. He also said that for the most part the new rules were considered as an improvement, that some regional offices had already shown some changes in their method of operation with faster permit turn around times, and that people were using and liked the ANR web site. There were also several issues that the attendees would like to see changed in the current rules and David had a handout with some proposed changes.

John said that he had finalized sessions by Sid Pilgrim on soils training for May 13, May 25, and May 27. These are one day, stand-alone sessions, with half-day classroom and half-day fieldwork, ending with a quiz that would be collected and graded. The courses will be held at the Vermont Technical College in Randolph. Reference materials will be provided. The course will be limited to 20 per session and more sessions can be scheduled if people like the presentation. Cost will be \$100 to \$150. John asked if the course could be substituted for the site tech field exam. Roger said that it would have to be evaluated to see how similar it was to what Mr. Pilgrim did in New Hampshire for the same purpose. Members indicated that the New Hampshire presentation was about 6 days.

Designers who are not engineers –

The draft language was reviewed again. Roger noted that slight wording changes had been made in response to previous comments. The committee then took up the topic of water storage and treatment systems again. Jeff gave a short overview and explained that well drillers have been doing this work for a long time when a state permit was not required. The work generally consisted of a simple polyethylene tank without a chlorination system. Gail asked several questions about how to deal with issues of coatings and controls. After thorough discussion the committee decided:

1. That non-engineers could design gravity storage tanks when there is no treatment involved and it is not a public water system. This was a consensus decision.
2. Non-engineers would not be approved to design any type of treatment system. This was also a consensus decision.

Jeff asked how this would affect well drillers. The committee decided to support allowing well drillers to continue installing gravity storage tanks without treatment systems on unregulated lots.

Dave asked that the rule revisions be explicit about what a site modification is and what the two classes of site technicians are limited to designing.

Town Delegation-

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There was little time for discussion on this topic. John said we should send the draft we already had to RPCs and try to get comments for the next meeting and the committee agreed with this concept.

Well Drillers Subcommittee

The subcommittee will meet at 11 AM before the next meeting on April 15, 2003 in the Water Supply Conference Room.

Subcommittees

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

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

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

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

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Approved Minutes of April 15, 2003 Technical Advisory Meeting

Members Present	Roger Thompson Rodney Pingree Allison Lowry Gail Center	Jeff Williams John Forcier Phil Dechert Dave Cotton
Others Attending	Marilyn Davis	Frank O'Brien

Scheduled Meetings

May 13, 2003	1-4 PM	Chapel Conference Room
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Review of Agenda –

The proposed agenda was reviewed and modified. An item was added for John's update of the soils course. An item was added for Jeff and Rodney's update on the well driller's subcommittee. An item was added related to possible rules changes other than delegation and designers. It was decided that the trip by Frank and Allison to the Regulator's Conference had been sufficiently reviewed at the previous meeting.

Review of Minutes -

There was a typo on page four of the minutes of the April 1, 2003 meeting. The "B" after the heading for the Well Driller's Subcommittee should be removed.

Legislative Update –

John reviewed his presentations on H.309 to the Senate Natural Resources Committee on 4-11-03. John noted that he had met with House Natural Resources on 4-3-2003. John said that he had given the same presentation, based on the TAC letter he prepared for the committees and that he had been asked if he personally supported the proposed changes in H.309 and that he had testified that he did support the changes.

Roger reviewed the testimony of Karen Horn who was requesting that towns be able to have more stringent rules than the state. The Agency position was that H.309 should be a clean amendment without any changes in the criteria except for extending the November 1, 2002 date to November 1, 2004. Senator Gossens said he would be willing to introduce a separate bill for Karen so her issues could be reviewed. Senator Scott made a comment that he was hoping for more progress on adopting new systems.

Roger asked for committee comment on how they thought the new system review process was going. Dave said he was pretty satisfied.

Roger also reviewed the Addison County Legislative Breakfast meeting of April 14th. Roger and Commissioner Wennberg attended to answer questions about the on-site program and new rules.

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Much of the time was spent discussing issues presented by Elizabeth Ready related to her position as State Auditor, but the Commissioner made an overall presentation of the changes in the rules and implementation of the program so far. Steve LaRosa gave a strong statement of support for the Agency changes that have occurred to date noting that there had been some measurable decrease in the length of time to obtain a permit.

Roger also noted that there were some practices that were being prepared for review by the Commissioner that would then be reviewed by the committee.

Uniform Rules –

Based on the potential for a bill that would allow for towns to have more stringent rules, the committee was polled on the issue of whether there should be uniform statewide rules or if towns should be able to adopt more stringent versions. There was unanimous agreement that the rules should be uniform statewide.

Soils Training Course –

John gave an update on the course and handed out a copy of the official notice. Mike Quaid, a new member of the Professional Engineering Board has indicated that he thinks the P.E. Board may decide that the course satisfies the requirement that engineers demonstrate soils knowledge based on course work. Allison will also be running the soils test again in June so any engineer wishing to use the test to meet the requirements will have another chance before the July 1 deadline.

Designers who are not Professional Engineers –

Roger presented the latest draft of the language for the rule revision. Gail asked about review by the Agency of water storage designs that would be allowed for non-engineers. Roger said that this topic would be covered as part of the continuing education that is required and that questions could be added to the exam. Labor and Industry also has training courses on control systems for storage tanks. The committee approved sending the draft rule forward in the adoption process.

Delegation –

Marilyn reviewed the draft and noted that there had been few comments. The draft will be revised to deal with the comments from Gerry Kittle. The language will be clarified to make it clear that the town reviewer does not have to meet stricter performance standards than state reviewers doing the same work. The committee approved sending the draft rule, with the revisions, forward in the adoption process.

Possible Rule Changes –

Roger presented a list of potential changes to the rules. Several of the changes are typos or clarity issues. It was agreed to add an isolation distance to the rules for gravity water storage tanks of 50' to leachfields and 25' to septic tanks and sewer lines for non-public water systems. The public

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water system rules already have an isolation distance specified. It was decided to defer a decision on how to separate mound systems from at-grade systems to future rule revisions. It was decided to continue requiring leakage testing of all force mains, including those that serve non-municipal connections such as those for a mound disposal system. It was decided that additional topics could be reviewed and minor changes incorporated as part of the public comment process that would occur after ICAR but before LCAR.

Possible Revisions to Pressure Distribution Requirements –

Dave had prepared some language to revise the pressure distribution requirements in response to many comments from consultants at the training sessions that he had given. Roger noted that this topic had just been through the rule making process and should not just be revised in response to people who don't like it. A revision should be based on a determination that the requirement is wrong, or a determination that there is more than one equivalent method, or a determination that the issue should not be regulated. It was decided to defer this issue until the committee could study it in more detail and then it could be incorporated if appropriate.

GPS Reading –

Jeff and John talked about use of GPS equipment and in particular the need to keep careful records. The machines can operate in more than one mode and each give different answers. The rules should clearly state what is acceptable as part of an application.

Well Driller's Subcommittee –

Rodney reviewed the subcommittee meeting that occurred earlier in the day. The subcommittee wants to establish better criteria for determining best fit and exempt systems. The committee discussed some basic soils knowledge that could be given to well drillers interested in being approved to site replacement wells, maybe something that would break the soils into categories of clay, loam, and sand. The goal is to provide a basic understanding to help well drillers pick a well site that does not compromise the future replacement of the septic system.

Subcommittees

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

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

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

Interested in the delegation rules-- Spencer Harris, Gerry Kittle, Kimberley Crosby, Phil Dechert,

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Approved Minutes of the Technical Advisory Meeting May 13, 2003

Members present: Roger Thompson Gail Center
Steve Revell Gerry Kittle
Barb Willis Jeff Williams
Rodney Pingree Kim Crosby
Jeff Wennberg Phil Deckert

Others attending: Frank O'Brien

Scheduled meetings

June 17, 2003	11 AM	Well Driller's Subcommittee – Water Supply Conference Room
June 17, 2003	1-4 PM	TAC Appalachian Gap Room
July 15, 2003	1-4 PM	TAC Mad Tom Room
August 19, 2003	1-4 PM	TAC Mad Tom Room

Review of Agenda –

The agenda was reviewed with items added related to scheduling the next few meetings and discussion of the well driller's subcommittee activities.

Review of Minutes –

Barb asked for clarification of Karen Horn's effect on legislation that was discussed at the April 15, 2003 meeting. This led to a discussion about the prohibition on towns adopting rules that are more stringent or less stringent than the state standards except for the current choice of basing town rules on the current state rules or the 1996 rules. The committee discussed the concerns about well shields crossing property lines and the use of triangulation in well protection for replacement wells. Gerry noted that Colchester has more stringent rules on setbacks to surface water and is considering moving to the current state standards. Gerry asked if the Agency had determined the high water elevation for Lake Champlain to be used as point to measure the setback from. The Agency has not set an elevation, though 100' seems to be reached most years. The comment that more progress was hoped for was actually by Sen. Scott, not Sen. Gossens and the minutes will be corrected. Gail noted that the Labor and Industry training included control systems in general and is not limited just to water storage tanks.

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Commissioner Wennberg –

Commissioner Wennberg gave a short statement of his understanding of the committee and his role in dealing with issues. He indicated that while he did not think he could, or needed to, attend every meeting, he is interested in the outcomes and supports the process.

Well Driller's Subcommittee –

The subcommittee will meet June 17, 2003 at 11 AM. One agenda item will be to discuss a process for granting reductions in isolation distances for replacement wells.

Legislative Update –

Roger reported that H.309 had passed and would be effective immediately. H.309 extends the buildout time from November 1, 2002 until November 1, 2004 and provides a minor change in the certification language. It also requires the Agency to prepare a notice and provide copies to the towns for enclosure in the next property tax bill or other town wide mailing. H-319 has passed the House and was included in some form in the budget bill and so will likely appear in some form at the end of the session. The Commissioner noted that this only affects Act 250 jurisdiction and will not change our ability to regulate the public health issues. He also noted that Secretary McLain had been carrying a huge load throughout the session as she was dealing with all of the legislative work, while he, being new on the job, was working on getting the Department budget and operations under control.

Innovative Systems –

Frank gave an update on his work.

1. The Spec AIRR system has a draft approval in the works, which Frank will review with the TAC before issuing a final decision.
2. Bioclere has an application in for review. This is a trickling filter over a clarifier type system.
3. Infiltrator has requested a reduction in size for their leaching chamber product. The request is based on some testing they have had done. We are looking into what other states have done. Infiltrator is very aggressive and has attempted to bypass the regulators and go directly to legislators in some states and has sued or threatened to sue in many others. Steve noted that one of the test procedures is based on sand as the receiving soil and it may be that with finer grained soils the results might be very different.
4. The Puraflow peat based system seems to be similar to the already approved Ecoflow Biofilter and should be a good candidate for approval. It will be reviewed in the next few weeks to see if there is enough information to issue a draft approval letter for review and

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comment.

5. The Department has been asked about use of crushed concrete. Someone told another state that three states, including Vermont had approved its use. None of the states, including Vermont has done so. The committee mentioned several potential issues related to breakdown in the septic environment. Everyone has seen the kind of erosion that occurs in septic tank baffles, for instance.

Implementation of the New Rules –

Roger asked for feedback on how the new rules are working. Steve said that for sites with some slope and textures coarser than silt-loam the desk top approach was working well. Flat sites and fine-grained soils are still problem sites. Gerry said that he believed about 20 performance based systems had been approved. Gerry also noted that Camp PreCast has developed a new outlet filter arrangement that seemed to work well. Jeff Williams noted that it is still not clear when water quality testing is needed. He talked to the Essex office about a specific project and could not get a final answer.

Model Groundwater Protection Ordinance –

At least Karen Horn, Rodney, Kim, and Gerry want to be involved in the process. Roger will get the EPA model that Marilyn Davis found and e-mail to them.

Committee Participation in Rule Adoption –

Roger asked about the role that the committee members wished to take in the rule adoption process. An earlier process had involved one or two committee members attending the public informational meetings and providing support for those items supported by the committee. Steve noted that it does reassure the public when a local person known to the audience helps explain the proposal.

Well Driller's Subcommittee Issues –

Jeff raised the issue of reduction in distances to wells based on extra depth of casing and grouting. There are many issues involved in deciding when the specific situation will be safe including the soil type, bedrock type and fracture patterns, slope, depth of soil to bedrock, water table, ground slope. Jeff asked about doing a large scale water quality testing program with each well driller taking on a piece to see what actually happens. Water quality testing might not answer the question because virus testing is difficult and expensive and everything else provides only indicators. This topic should be a TAC issue for future review as there are many sites than cannot meet the required isolation distance.

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, Barbara Willis and Marilyn Davis.

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

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

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Approved Minutes of the Technical Advisory Committee Meeting June 17, 2003

Members present: Roger Thompson Jeff Williams
 Spencer Harris Steve Revell
 John Forcier Craig Heindel
 Bernie Chenette Barb Willis
 Rodney Pingree Gail Center
 Alan Huizenga Gerry Kittle

Others attending: Frank O'Brien Anne Whiteley

Scheduled meetings:

August 19, 2003 1-4 PM TAC Mad Tom Room

Review of Agenda –

The agenda was reviewed and the issue of the soils course was added for this meeting. Also added as topics for future meetings were easements, replacement area requirements for existing lots, and the elevation of Lake Champlain relative to setbacks from surface water. Also added was when water quality testing is required as part of the permitting process and for which elements.

Minutes-

The minutes were reviewed and there were no changes proposed. As part of the discussion of the minutes, John asked if it made sense to have some administrative person take the minutes instead of using Roger's time. Roger noted that this had been tried and it seemed that it saved little of his time, while using another person's time. John also raised the question of whether the minutes are biased because Roger is writing them. Steve asked if John was thinking the meetings should be recorded and transcribed. John said no. At this point the discussion was terminated on a suggestion from Alan that the committee take up the discussion related to Anne's redraft of the designer language because Anne needed to leave early.

Revisions to designer language

Anne presented the revisions to the language. She explained that she had reorganized the presentation to better align with the rest of the document and believed there was little if any substantive change. Anne indicated that we needed guidance from the PE Board on what needed to be submitted by engineers subject to section 1-313 (c). John asked if the water supply design should be limited to 600 GPD by non-engineers. It was decided that as long as the water supply was not classified as a public water supply the limit should be 1350 GPD which would match the limits on wastewater systems.

Roger asked about how sprinkler systems should be handled. They really don't have design flows

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the way a bedroom or employee does, yet there can be high GPM flows that can affect the main system, which should only be designed by engineers. It was agreed that Rodney and Roger would look into this and suggest an approach.

There was a question of whether a reviewer should be limited to only those projects that they could design. After some discussion it was decided that reviewing is different from designing and a large majority decided to remove the restriction Anne had written. Any engineer who disagrees with a technical decision made by a non-engineer has access in the current state rules to a second opinion by a state professional engineer.

The committee also discussed the inspection certifications and decided that inspections should be done by those approved to create the design. The thinking was that knowledge of the design principles is needed in order to determine if the as-built systems is within acceptable tolerances or to make recommendations to accept alterations from the approved plans.

There was discussion about the class nomenclature with class 1, class A, and class B categories. The rules require each group to be in a class and this approach seemed to not create any particular implications for engineers versus non-engineers and so the committee decided to use the proposed approach at least for now.

Soils Course –

John reviewed the course Sid Pilgrim is presenting at VTC. Three sessions have been completed and two more are scheduled. John expressed some concerns about Allison and Ray Dean's attitude when they attended the first session, saying that it appeared to him that they were seeking to gather data rather than listening to the professor. John said he was concerned that when Sid noted that the soil is often saturated above the highest mottling, maybe as much as 9", that the State staff would start saying the water table is 9" above the mottling. Spencer had on case where Ray appeared to be doing this but there has been no others that anyone is aware of. John was also concerned that when Sid asked Allison about how the information he had presented relative to the water table would be incorporated, Allison replied that the only thing that counts is where the mottling is. Roger replied that nothing the staff heard at the meeting should result in a more conservative approach from the state side. He noted that Allison's reply was based on explicit language in the rules and the only basis for discounting mottles is the ground water monitoring process given in the rules, except in rare cases where a clear case can be made for "relic" mottles.

The committee members who had attended Sid's course thought it was worthwhile. There appears to be a demand for a more comprehensive training course as well.

John also mentioned that he had attended a meeting of the ACEC Board the previous evening. Mike Quaid, former state representative, is a new member of the PE Board and is keeping track of issues related to the soils knowledge requirements.

The next P.E. Board meeting will be July 17, 2003 where they hope to deal with the issues related

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to having engineers certified as meeting the soils knowledge requirements.

Legislative Update –

Roger outlined the language in H.319 related to agricultural fairs and equine exhibitions and in the Capital bill on outdoor seating at seasonal restaurants. The new alternative toilet guidance includes a section on agricultural fairs and equine exhibitions based on the legislation.

Notice with Property Tax Bills –

The Department wrote the language and the Tax Department will print and distribute the notices to all towns. There was a minor legislative change that made it voluntary for towns to include the notice but the Agency is hopeful that most will do it. If most towns do, the message will spread so that almost everyone will hear of it.

Innovative Systems Update –

Frank has sent a draft general use permit out on the Spec AIRR system, which he distributed to the committee.

Frank also talked about the request by the manufacturer of the Infiltrator leaching chambers for a reduction in size based on the so-called “shadowing effect” of systems using crushed stone. Frank noted that the company had submitted a couple of reports supporting the claim. He said he had also found a couple of reports that did not support the claim. The committee members were somewhat split on the “shadowing” effect. A report published in the Small Flows Quarterly titled In-ground Dispersal of Wastewater Effluent: The Science of Getting Water into the Ground was discussed. Craig suggested that it would be good to get a soil physicist such as Fred Magdoff or maybe Sid Pilgrim who could help review these issues.

Feedback –

Craig said he had worked with the regional office staff on a couple of difficult sites recently and the process seemed to go smoothly.

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Approved Minutes of the Technical Advisory Committee Meeting August 19, 2003

Members Present: Roger Thompson Bernie Chenette
 Allison Lowry Gail Center
 Kim Crosby John Forcier Rodney
 Pingree Steve Revell
 Alan Huizenga Spencer Harris
 Barb Willis Dave Cotton
 Gerry Kittle

Others Present: Frank O'Brien Jeff Wennberg

Scheduled Meetings:

September 16, 2003	1-4 PM	Mad Tom Room
October 14, 2003	1-4 PM	Mad Tom Room

Review of Agenda –

The agenda was reviewed and revised. The recent decision related to a permit revocation hearing and a topic for innovative systems were added. It was also noted that the minutes to be reviewed were for the June 17, 2003 meeting, not the May 13, 2003 meeting.

Minutes –

Although recorded here in the usual progression, the minutes for the June 17, 2003 meeting were actually reviewed later in the meeting. Roger discovered that he had not e-mailed the minutes as he thought and did not have hard copies available. When the minutes were reviewed after the break it was decided to accept them as drafted.

Installation Certifications –

Roger distributed a handout reviewing a decision issued by the Commissioner related to a request for revocation of a permit. Anne Whiteley, hearing officer for the Commissioner, heard a request for a permit revocation. In the course of reviewing the information it was determined that there was no inspection certification for the project which had been substantially completed prior to issuance of the permit. Anne's analysis was that the statute and rules require any permit issued on or after June 14, 2002, when the statute became effective, must have an installation certification once the potable water and wastewater systems are substantially completed. Because the certification must reference a set of plans, there must be a certified set of plans, which can only be prepared by a licensed designer. Anne's analysis is that despite the ability in the rules to waive some or all of the normally required information, the need for the inspection certification has

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primacy.

The handout includes direction for the regional office staff on how to apply this decision with the least disruption possible. Using the waiver provisions in the rules, the amount of information required on the plans may be minimized. Dave was concerned that this could be a “slippery slope” that would tend towards incomplete plans and/or understanding of the site. Jeff explained that he had been reluctant to make this decision but agreed with Anne that the plain reading of the rules required it. Jeff also said that the Department was committed to making the problem as easy to deal with as possible, did not want this to lead to digging up old pipes, and would work to get it fixed in the next rule revision. John thought that when the guidance to the regional offices is updated it should be made clear that a permit is still going to be issued.

Status of the Rules –

Roger gave a short update on what is happening. Dave and John expressed concern about the delays in getting the process moving. Steve added his concerns that it had been a long time since the advisory committee started and, somehow, something needed to be done. Jeff said that he agreed with the need, and the urgency, and that he was trying to push this as fast as possible while dealing with a shortage of attorney time.

Feedback –

John said that he was frustrated at having to wait several weeks for a permit based on municipal water and sewer connections, even though he knew all applications are handled in chronological order. He suggested that there be two piles, with “simple” projects in one and more complex ones in the other. The goal would be to have simple projects reviewed in two weeks. Jeff indicated he would look into this and see if it could be implemented. John also noted that there might be too much supervision going on in the regional offices and suggested that the staff could have more authority to make decisions on their own.

Roger noted that there has been substantial change in the Rutland office performance with old projects either already closed or at least on a schedule for closure in the next few months. He also noted that the Rutland office had 100% compliance with the performance standards for the last several months for projects first received in 2003.

Jeff mentioned the scanning project as another attempt to provide customer service. The plan is to create electronic copies of all files, which will ultimately be available on line.

Addison County Meeting –

Roger and Jeff attended a meeting arranged by legislators in Vergennes on August 13, 2003 at the Eagles Club. There were about 50 people including several legislators, landowners, and consultants. The meeting was set up to allow people to raise issues about how the rules were working and what should be changed.

Steve said that he thought the meeting helped with some misunderstandings about the rules. He said he was struggling with the fact that even some very large lots did not have any places that

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could be approved even with the performance-based designs. Roger said that the rules were reviewed at the meeting and it was explained that ANR believed that the rules had been written to the minimums supported by science that would meet the directive to keep the effluent below the surface of the naturally occurring ground. Craig was at the meeting and affirmed that the topic had been discussed at the TAC and there was concurrence among committee members. This leads to the question of whether systems that surface, at least part of the time, should be approved or if there should be special rules for Addison County. Steve said that there couldn't be special rules, which everyone agreed with. Allowing surfacing systems would require a change in the fundamental principles of ANR that there should be no direct discharges to surface waters or surfacing of effluent. Dave said that technology exists which treats the effluent to a high level and then disinfects it with UV light that can produce effluent clean enough that some surfacing might be acceptable. Dave noted that drip disposal would be a method to minimize surfacing through low application rates. Dave also noted that systems could have 24 hour auto dialer notification of failures of the treatment system. Spencer said that part of the problem is caused by high design flows. Having to design for 420 GPD for a 3 BR house means systems have to be extremely large on poor soils. There was some discussion about using drip disposal with very low loading rates, which would avoid surfacing. Doing this with mound systems would be very expensive. It might be economical if the requirement to maintain 2' (filtrate) or 3' (septic tank effluent) of dry soil between the bottom of the system and the SHWT were reduced or eliminated. This might be done by replacing the requirement for the vertical separation with a requirement for an owned or controlled zone that would provide a two year time of travel separation between the wastewater system and any drinking water source. Jeff said that he had not had a detailed discussion with the administration but that he expected it was unlikely that there would be support for surfacing systems. He also noted that Wibs would support a small request for a demo project. Steve said there is interest in looking at existing wastewater systems in poor soils that appear to be functioning to see what can be learned. Rodney suggested that testing for nitrate and fecal coliform might be useful indicators. John asked if ANR had looked at what other states are doing, and went on to say there is no magic system so maybe treatment and disinfection should be accepted. Dave said he hoped that the next testimony before the legislature would be that ANR had approved several treatment systems and noted that a real change to deal with poor soils requires legislative change.

Innovative Systems –

Frank said that, other than what he received from the manufacturers, there were only a few comments on the draft approvals for the PuraFlo and Bioclere systems. Frank said that most states were moving in the direction of allowing reduced sizes for Infiltrator chambers.

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separation between the bottom of filtrate effluent systems and the seasonal high water table. This was discussed at earlier meetings and it was decided to limit the current proposal to changes for site technicians and delegation. There was a short discussion of “housekeeping” changes and Roger handed out his list of issues that needed attention.

Leaching Chambers

Frank gave an overview of the issues. The Infiltrator vendors have asked for a reduction in size based on information that they believe shows a “shadowing” effect of crushed stone. Because their system does not use stone they think there is more effective infiltration area and therefore a smaller system would be equivalent.

There was a lot of discussion about the need for distribution pipe in chamber systems that receive effluent by gravity flow. Dave noted that once the bottom is covered in either a chamber system or a pipe and stone system, there is little flow through the biomat into the soil and therefore most of the flow is through the sidewalls. Several people noted that flow is not well distributed in systems using 4” diameter pipe with 5/8” holes but at the end of the discussion the view by a significant majority was that distribution pipe provides some benefit and because of the relatively low cost should be required.

Discussion turned back to the size issue, with John and Dave suggesting looking at what other states have done. Frank said he had checked some states and found that some gave the requested 50% reductions while others gave a fairly small reduction. The studies submitted by Infiltrator were discussed and there was a lot of skepticism as to whether the studies were appropriately done. There are questions as to whether overloading systems to try and duplicate long-term use really gives equivalent results. Frank said that one contact said that if shadowing occurred there should be clean soil under the pieces of aggregate but that inspection of failed systems did not find this result. TAC members agreed that they had not seen any evidence of the shadow effect in their fieldwork.

Roger noted that one way to approach this would be to pilot it. A significant number of systems could be installed, with room for a full sized system reserved in case there are any problems.

Barb said that she had approved some chambers several years ago and would try to check the records in that town to see if there was any information about how they were working.

There was no decision as to whether the TAC would support a reduction in area for leaching chambers.

Replacement areas for improved lot subdivision-

Roger circulated a draft document outlining a possible approach. There was some discussion about how defined the replacement area should be, with most feeling that it should be more

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defined than just a box on the plans that included all of the available replacement area. Even though there would be some more cost in a some cases, most thought leaving it so vague could penalize adjacent property owners who would be required to protect a larger area than needed for the replacement system. Spencer was concerned that the rules require people to identify extremely large systems, maybe 800' long, that are totally impractical.

Roger will revise the memo for the next meeting.

Next meetings-

It was decided to meet from 1-4 PM on November 18 and December 9 in addition to the meeting already scheduled for October 14.

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Approved Minutes of the Technical Advisory Committee Meeting October 14, 2003

Members Present: Roger Thompson Allison Lowry
Rodney Pingree Dave Cotton
Gerry Kittle

Others Present: Frank O'Brien Karen Horn

Scheduled Meetings:

November 18, 2003	1-4 PM	Skylight Conference Room
December 9, 2003	1-4 PM	St. Leo's Hall

Review of Agenda:

Dave asked that an item be added about meeting format.

Review of Minutes:

Roger noted that he had incorrectly listed the December 9, 2003 meeting as being at the Methodist Church. The meeting will be held at St. Leo's Hall.

Meeting Format:

David outlined some concerns about the current meeting format and concerns that there had been limited progress for the last several months. He also outlined some suggestions for change. He suggested that the agenda be more detailed and then actually followed during the meeting. One possibility would be to have the first hour devoted to general updates, the second hour devoted to discussions of specific topics, and the third hour focused on making decisions. He envisioned a process where the topic would be noticed in the agenda for an upcoming meeting, it would get discussed at that meeting, and there would be a decision period scheduled for the next meeting. This might help get people to the meeting and might reduce the reopening of decisions that were made at an earlier date. He noted that this would require getting the agenda and the meeting notes distributed early so that people would have time to prepare. This would also provide time for members to exchange e-mail or phone calls prior to the meeting, particularly if they would be unable to attend.

Roger said he would commit to getting minutes and the agenda out early and would support a more organized approach if the committee decided to do this.

This should be discussed at the next meeting.

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Rules Status

Roger reported that the meeting that had been scheduled with Anne and Karen Horn had been cancelled because Anne had been out of the office most of the time since the last meeting. Anne is back in the office today and has committed to rescheduling the meeting ASAP.

Karen noted that she is concerned that it has been a long time since the rule revision process started to allow for town delegation and people are anxious to see this completed. Roger noted that the Department had committed \$270,000 to scan all of the existing applications so they can be available for the town delegation process.

Replacement Areas for Improved Lot Subdivisions

The regional office staff and some consultants have asked for guidance on how to apply the improved lot section of the rules, in particular, how to decide when “any fully complying area off the lot is so remote or inaccessible that it would be clearly unreasonable to require its use”.

Draft #2, dated 9-16-2003, which was also reviewed at the previous meeting, was further discussed. The question of what is required for a best fix system, and in particular whether construction of a smaller system based on current use of the residence should be allowed was considered. The plus would be that the current owner could build a less expensive system if the current use is significantly less than the grandfathered capacity for the building. The negative is that compliance is a bigger issue and when the ownership changes the new purchaser would have to replace or expand the system even if it is only a year or two old if the new use is more than the current use. There was no consensus on this. Gerry said he thought it was better to build the full size system than to try to enforce the requirements later.

No one had strong feelings about the 1500’ horizontal limit or 150’ vertical limit that would serve as the outermost limits of the search area for a replacement system, as long as a functioning system could be designed.

Opportunities for Drip Disposal

Roger said that the Department wanted to prepare a draft proposal that would use drip disposal on sites with little depth to SHWT that require very low loading rates to maintain the 6” of unsaturated naturally occurring soil. The approach would include the concept Rodney had floated of replacing the vertical separation required between the bottom of the disposal field and the SHWT with a time of travel that would protect water supplies. The time of travel would have to be at least 2 years, the zone that provided this protection would have to be owned or controlled by the permittee so that neighbors did not have their property encumbered without their agreement. We also discussed the fact that the amount of soil that would provide a two year time of travel might not have storage capacity for two year’s of flow.

Dave asked if treatment should be required. If the proposal would allow the bottom of the disposal field to be at or in the SHWT there would be little treatment of the effluent. Rodney noted that people would be protected by keeping the effluent at least 6” below grade and by protecting the

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water source with the time of travel. Dave also noted that drip disposal would not be the only method that might be compatible with the concept of trading vertical separation for time of travel.

Information needed:

- A. What are the limits on soil types? Must it be silt or clay? How thick must the layer be above bedrock or an unconsolidated aquifer?
- B. How deep do the emitters need to be for Vermont's climate?
- C. Can the base of the system be at or in the SHWT?
- D. A hydro chart similar to the one for linear loading rate should be developed, if possible, that would relate slopes and soil type to the horizontal distance required for two-year time of travel. Will need to account for the most permeable soil layer so travel might be further than expected.
- E. Should pretreatment be required? Would there be any trade off on number of emitters or maintenance issues?
- F. What are other states doing when using septic tank effluent with drip disposal and what do they use for vertical separation to the SHWT?

Innovative Systems –

Frank said that a general use approval was ready to be signed for the Bord Na Mona peat based system and for the Bioclere system.

Frank reviewed his visit to Dave Presby's factory. He is still reviewing the information submitted by Mr. Presby related to two testing programs of the EnviroSeptic Pipe.

The Infiltrator application remains under review.

Gerry noted that one contractor reported problems with both leaching chambers and EnviroSeptic but there were no details about the cause of failure.

Gerry also asked about the Fast System. Frank indicated that the system is under review. Gerry said that in situ testing of one system in Colchester was giving readings of up to 80 mg/l for BOD, exceeding the standard of 30 mg/l.

Frank noted that the Living Machine system that had been originally permitted for the now closed Guilford rest area was being relocated to the Sharon northbound rest area and an application is under review. It will be used when the new rest area is opened in a year or so. The system will continue to recycle treated wastewater for toilet flushing, with the excess water disposed of in a

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new disposal field located some distance away in the median.

A proposal for use of a bottomless sand filter as a filtrate disposal system is also under review. A pilot study has been proposed based on replacing an existing failed system.

Appendix A

Approved Minutes of the Technical Advisory Committee Meeting November 18, 2003

Members Present: Roger Thompson
Kim Crosby
Gerry Kittle
Steve Revell
Phil Dechert
Rodney Pingree

Barbara Willis
John Forcier
Bernie Chenette
Craig Heindel
Jeff Wennberg

Scheduled Meetings:

December 9, 2003	1-4 PM	St. Leo's Hall
January 6, 2004	1-4 PM	Mad Tom Room
February 3, 2004	1-4 PM	Stanley Hall, Rm. 107
March 9, 2004	1-4 PM	Mad Tom Room

Review of Agenda:

John asked that discussion of the annual report be added.

Review of Minutes:

Roger noted that John had pointed out that the draft minutes from 10-14-2003 had listed today's meeting as being at the Mad Tom Room instead of the Skylight Conference Room. The minutes were accepted with this revision.

Annual Report

Craig said that as co-chair of the committee for the report he would begin working on it. Gary Fern is the other co-chair and there was discussion as to whether Gary was continuing to participate in the TAC. Craig will contact him and see if he wants to help with the report. Roger will do the bean counts required by the statute on types of systems approved and installed. There should be a list of things that have been done and things that have not been completed. Roger will assemble a list of procedures and practices issued. John said we should note the training sessions arranged by ACEC.

Rules Update

Karen Horn marked up the 3-28-2003 draft of the delegation procedure that the TAC had reviewed and sent her comments to the Commissioner along with a request that the Agency move forward to get this adopted. Anne Whiteley intends to redraft the language into a better format. Roger will be meeting with the Commissioner to discuss the issues Karen raised. As soon as Anne is back the language will be updated and included in the working draft. Roger noted that the Commissioner

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might want to include a section related to use of a two-year time of travel in lieu of vertical separation to the SHWT in the rules. The Commissioner arrived at this point and joined the discussion. Steve said he hoped that adding this section would not create a long delay. The Commissioner said that the TAC should proceed with a parallel process for the two pieces with a hope they could be joined, but that if there would be a delay the pieces would go through the rule adoption process separately. Roger said that he had been working on updating the working draft of the rule changes and hoped to have it ready for preliminary circulation to the TAC within a week or two.

Commissioner's Update

Jeff thanked the committee for their work and their patience. He said that he had met with some legislators and a couple of engineers from Addison County. There were some complaints and some suggestions that he will explore with the staff and then with the TAC. Any change might or might not require revisions to the rules or statute. Jeff said he was staying with the premise that there should be no surfacing of effluent.

John asked about the suggestion he made at an earlier meeting for a "two pile" system with simple municipal connections in one pile and others in a separate pile so that simple projects could be approved more quickly. Jeff said he would discuss this with the staff and see if it would solve more problems than it would create.

Jeff asked if members wanted the regional office staff present when test pits were dug. Steve said he thought it helped move the project along but with a 4-6 week wait for the appointment he sometimes does pits without waiting for a joint visit. Steve said if he needed to move quickly he calls the regional office and states when he is going to do the pits and invites the staff to show up if they can. Steve said the Rutland Office has been reasonable to work with on this. Jeff asked if there was a regular wait of 4-6 weeks and Steve said the usual wait is 2-4 weeks. Bernie said Barre was 2-3 weeks.

Phil asked if there were any problems with second-guessing when a site is examined after the test pits are closed. Steve said no. Craig said that he is asked about 6 times a year to be a third opinion when there is disagreement between the designer and the regional office staff. Craig said he had heard of 4-5 week waits but that is rare. Roger noted that as you add more parties to the group it often gets harder to find a time available when everyone can meet.

Jeff said he wanted to talk to the regional office staff about what problems might occur if there was some time limitation for arranging joint site visits to look at test pits, after which the staff would accept the designer's results without review. He will also ask how often there is any soil examination using hand tools or other methods when after-the-fact site visits are done. Roger noted that the Rutland office said they seldom did a visit unless it was when the test pits were open.

Fast System Update

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Gerry said that the project using a Fast System was still working to get the effluent quality up to standards. Recent changes to the system seem to be working.

Infiltrator Update

Barb said that she had not been able to check back on the Infiltrator systems that were installed several years ago.

Meeting Format

Roger reviewed the minutes related to Dave Cotton's suggestions on a more formal meeting format. John suggested that the decision portion should be earlier in the meeting in case people need to leave. Phil said the general discussion could come at the end of the meeting. Craig said he liked not having too much structure as that could get in the way of the flow of the meeting. After discussion there was general agreement to not use a formal structure, but to try and get minutes out early along with the agenda. John suggested organizing the agenda by topics. Barb said the early agenda was important for her in deciding to come to a particular meeting. Rodney suggested an estimated time could be assigned without making it mandatory. Steve suggested that follow-ups from previous meetings should be the priority.

What should be included in the rules?

The first topic was whether the desktop hydro chart should be included in the rules. John and Craig are inclined to include it. Roger noted that the downside is that once the specific numbers are in the rules, they are binding until the rules change, much as the mound sand specifications preclude accepting sand that is "close" to meeting the specs. Phil suggested that the rulebook should refer to the web site so that policies and practices could be readily located. Roger will produce a list of policies and practices outlining the ones he proposes to write into the rules. Roger said his approach is to include all of the practices and policies created since the last rule revision, except for those that were likely to be subject to ongoing revision. Craig suggested using a two-year approach whereby policies in effect for more than two years without revision would be included in the next rule revision.

John asked for a description of policies and practices so people would see how the Department makes the decisions.

Two Year Time of Travel versus Vertical Separation Concept

(Craig, Rodney, Steve, and Roger met prior to this meeting to discuss the two-year time of travel concept with Dave Cotton calling in.)

Craig asked for clarification of what the goal was. Is it that we are saying 3' of vertical separation is equivalent to two years of travel through the soil. The answer is no, the two year time of travel is in lieu of the 3' vertical separation plus the horizontal separation distance in the rules, but the

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two year time of travel is the gold standard for protection. Systems would have to the larger of the time of travel or the prescriptive horizontal isolation distances.

Craig outlined the basic equation:

$$V = \frac{(K)(i)}{n}$$

V = velocity, K = hydraulic conductivity, i = slope, and n = porosity

Assume n = 40% for silts and clays 35% for sands or coarser

Example #1 K = 3' per day i = 3% n = 0.40 v = 0.225 ft/day X 730 days = 164 feet for the two year time of travel

Example #2 K = 1' per day i = 1% n = 0.40 v = 18.25 feet for the two year time of travel.

The subcommittee will meet again on December 5th from 9- noon and December 9th before the next TAC meeting from 11 AM until 1 PM to work on developing an outline of the minimum site conditions for this approach and on the use of drip dispersal for the application method. Allison will be asked to attend and the meeting is open to anyone wanting to work on this issue.

Appendix A

Approved Minutes of the Technical Advisory Committee Meeting December 9, 2003

Members Present: **Roger Thompson** **Gail Center**
 John Forcier Phil Dechert
 Alan Huizenga Lance Phelps
 Jeffrey Williams Rodney Pingree
 Spencer Harris Steve Revell
 Gary Fern Craig Heindel
 Bernie Chenette Barbara Willis
 Allison Lowry Gerry Kittle

Others Present: Frank O'Brien

Scheduled Meetings:

January 6, 2004	1-4 PM	Mad Tom Room
February 3, 2004	1-4 PM	107 Stanley Hall
March 9, 2004	1-4 PM	Mad Tom Room

Review of Agenda:

The agenda was reviewed and accepted.

Review of Minutes:

The minutes of the November meeting were reviewed and approved.

Annual Report:

Gary and Craig distributed copies of Gary's revisions to Craig's first draft. John suggested that people consider the form in which the information is presented and the topics covered as part of their review. Gary walked the committee through the report. He started with looking at last year's report, then reviewed the minutes of the meetings held since the last report, and summarized the work done during the past year. Roger suggested adding the website information and Craig said the discussion about the guidance documents should be included. John said the agreement that practices and procedures will be included in the rules with each update to the extent practical should be added to the report. The committee thought the report looked pretty good and would be complete with these additions and the numbers for projects/denials/innovative approvals/etc., that Roger will provide. Everyone should get their comments to Gary and Craig by December 19th.

Two Year Time of Travel Work

The hydro subcommittee met prior to this meeting and Craig reviewed the subcommittee

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discussion. Craig noted that the subcommittee had reached a point where they felt that the two year time of travel zone could probably be defined using relatively simple methods, and that, even in the most difficult soils, would probably not be such a large size as to be unreasonable. He also noted that there was a feeling of discouragement with this concept. While the zone could be identified, the linear loading rates required to keep the effluent at least six inches below the surface of the naturally occurring ground would still require very large areas for the disposal system. Although these application methods may be less expensive than what is currently accepted, they may not be practical.

Summary of agreement:

The two year time of travel management zone concept would be limited to sites with a low slope and to soils with a low K value. Silts and clays are acceptable textures as long as they are not tills.

There would be 50' setbacks from the disposal field to the edge of the management zone to the sides and upslope. The downslope distance would be calculated based on the two year time of travel. The site would need 20' of silt/clay material between the bottom of the disposal field and bedrock. The two year time of travel might require breaking the calculations into two sections. One when the SHWT is low and the travel is through the "C" horizon and one when the SHWT is high and the travel is through the "A" and "B" layers where the rate of travel is much faster. One sample calculation based on a 3% slope, using K of 15ft/day for the upper layers, and 30 days of SHWT per year indicated the two year time of travel zone would extend about 218' downslope from the system.

Lance noted that we don't require 20' of soil under the system with the existing rules. Craig said this increase offsets the elimination of the 2' or 3' of dry soil under the system required by the rules. Roger noted this is part of the multiple barriers concept with the existing system using some dry soil and some horizontal travel while the proposed system is based on physical attenuation by adsorption and die off based on the two year time of travel.

Lance asked if the 20' is a bottom-line number. Craig said it was not, only a prescriptive approach and that a more detailed hydro-study could be used to reduce the amount of soil required beneath the system.

Craig also outlined the drip disposal concepts. The method is used with both septic tank effluent and in combination with advanced treatment though most designers on the committee are inclined to only use drip systems with advanced treatment. Freezing remains an issue and the committee still needs to decide if the system can be installed at or below the SHWT. The two year time of travel concepts are likely to be used on sites with little depth to the SHWT. Current information suggests common burial depths of 6 to 12 inches. Unless the system can be in the water table, additional cover material, or even mounded construction, will be required and that would raise the cost of installation.

Roger noted that the subcommittee had also talked about seasonal application. This would involve storing the effluent during the SHWT period. At 500 GPD it would require a 15,000 gallon tank for 30 days of storage. The committee discussed possible costs of a storage system, which would

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limit the use of this approach. Roger noted that it might be reasonable to allow the storage tank portion of the system to be constructed based on a smaller design flow that would be closer to the average use because more storage could be added later and periodic pumping could deal with unexpected high flows.

Craig asked if a concept of requiring all water to be supplied by a municipal system should be explored so that the 20' of soil over bedrock would not be required to protect water supplies. Roger noted this would require legislative action to allow a municipality to prohibit other sources and require connection.

Lance said that he is not ready to try drip disposal for shallow systems in Vermont's cold climate and would like other options.

Roger asked whether doing trench tests changed the site capacity in comparison to the desktop analysis. Craig and Steve said that the full desktop analysis, including structure and K values, based on site-specific soils analysis gave similar results to the trench tests.

Additional Discussion on Annual Report

John asked that the report include names, addresses, phone, and e-mail information about the committee members so people could make direct contacts. John also asked that subcommittee members be listed.

Status of Rules

Roger gave a short update on rules. There has been some exchange of information with Karen Horn and the Department. Roger will be meeting with the Commissioner on this and Anne will have this as a priority when she is back at work. John noted that the Commissioner told him he is anxious to get something out for review.

Innovative Systems

Frank outlined a concept the Department might use to decide whether to grant reductions in leachfield size for products that replace the conventional pipe and stone disposal fields. He is currently looking at the Enviroseptic pipe and the Infiltrator leaching chambers. The proposal is based on not more than a 50% reduction and would require test data showing the effluent quality a foot or two below the bottom of the system is equal to or better than the conventional system. There were several suggestions from the committee on a proposed test protocol.

Procedures and Practices

Roger will be reviewing these with the Commissioner to see if they will continue to be used and which should be included in the rules. Roger will get copies to the committee for their review.

Appendix A

Feedback

Phil noted that the Springfield regional office had been very responsive on some difficult projects in Norwich recently. While they have usually been very good, these recent projects might have fallen through except for the quick response.

Appendix B

SUMMARY TABLE OF INNOVATIVE TECHNOLOGIES: Prior to 2002, 2002, 2003

Prior to 2002		
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
Other Devices: 5 applications, 3 approved, 2 determined not subject to rules		
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

2002		
Advanced Treatment Systems: 4 applications; 2 approved, 2 under review		
Product	Description	Status
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	Under review
SpecAIRR	reactor treatment system	Under review
Applications for Pilot Use: none		
Applications for Experimental Use: none		

2003		
Advanced Treatment Systems: 7 applications; 3 approved, 4 under review		
Product	Description	Status
Bioclere	fixed film trickling treatment system	Approved for General Use
Bio-Microbics FAST	fixed film aerated treatment system	Under review
Puraflo	peat fiber biofilter treatment system	Approved for General Use
ROTORDISK	rotating biological contactor system	Under review
SeptiTech	revision to G.U. for seasonal drip disposal	Under review
Singulair	suspended growth extended aeration	Under review
SpecAIRR	reactor treatment system	Approved for General Use
Other Devices: 4 applications, 2 approvals, 2 under review		
Enviro-Septic (Presby)	request for increase in application rate	Under review
FRALO SEPTTECH polyethylene tanks	polyethylene septic tanks	Approved for General Use
Infiltrator	request for increase in application rate	Under review
Polylok Effluent Filter PL-122	effluent filter	Approved for General Use
Applications for Pilot Use:		
Bottomless sand filter	filtrate disposal system	Under review
Applications for Experimental Use: none		

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SUMMARY TABLE OF INNOVATIVE TECHNOLOGIES:

As of December 31, 2003		
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
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
FRALO SEPTECH polyethylene tanks	polyethylene septic tanks	Approved for General Use
Polylok Effluent Filter PL-122	effluent filter	Approved for General Use

Appendix C

SUMMARY TABLE of PERMITS: 2002, 2003 (DEC Water Supply / Wastewater Permits only)

DEC Office	Applications Received		Permits Issued		Permits Denied							
					Denials Issued		Reasons for Denials				Enforcement Cases	
	2002	2003	2002	2003			Insufficient Information		Non-compliance with Standards			
Barre	813	725	827	713	8	2	4	1		1	2	
Essex	712	640	706	633	3	4	2	4	1			
Rutland	522	493	485	576	2	17	1	17	1			
Springfield	568	439	584	583	24	20	24	19		1		
St. Johnsbury	242	258	243	236	1	0						
Totals:	2857	2628	2845	2741	38	43	31	41	2	2	2	0

Note: In 2002 deferrals of permits were not issued after August 16, 2002 and lots larger than 10 acres required permits after June 14, 2002.

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 resulting in additional denials in 2003 in comparison to 2002.

Appendix D

Technical Advisory Committee for On-site Program Members and Statutory Charge

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Water Quality Specialist

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Agency technical staff:

Roger Thompson, Wastewater Mgmt 241-3027
Allison Lowry, Wastewater Mgmt 241-4455
Rodney Pingree, Water Supply 241-3418
emails: firstname.lastname@anr.state.vt.us

Note: Frank O'Brien, Wastewater Mgmt, is the Innovative Systems Engineer and provides support to the committee. Frank.Obrien@anr.state.vt.us 241-3686

Health Department technical staff

Gail Center
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Subcommittees

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

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

Licensed designers - Spencer Harris, Gary Fern, Alan Huizenga for Lance Phelps, and Gerry Kittle.

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

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

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

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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.

Appendix E

April 2, 2003

Honorable Chair Johnson
House Committee on Natural Resources and Energy
State House- Room 44
Montpelier, VT 05601

Re: Position Paper on H.309 from the Technical Advisory Committee
As Required by Act 133 of the 2001 Adjourned Session

Dear Honorable Chair Johnson:

The Technical Advisory Committee (TAC) was appointed by the Governor as required by the On-site Septic Reform Bill (S.27/Act 133).

As Chair of the TAC, I have been authorized to present this position paper on H.309 -Extending the time for improving a lot under preexisting wastewater regulations. I had testified to the Senate Committee on Natural Resources and Energy on January 28, 2003, concerning the first Annual Report on the Wastewater System and Potable Water Supply Rules for the period from the effective date of the rules, August 16, 2002 to December 31, 2002. During my testimony, I had stated that the legislature should consider extending the time for improving a lot under pre-existing wastewater regulations as long as there was also a requirement for a best management practice for the system as a way of protecting the environment. The position of the TAC on H.309 is as follows:

The Technical Advisory Committee supports H.309 and the extension to November 1, 2004, as long as the systems are designed at a minimum by licensed designers and also preferably with adherence to the well isolation distances.

This Committee is submitting this position paper to the Chairs of both the House and Senate Committees on Natural Resources and Energy. It is our understanding that H.309 has passed the House and is now in the Senate Committee on Natural Resources and Energy. Please let me know at (802)879-7733 if you would like me or someone else from the TAC to testify to either committee.

Submitted by : _____
John D. Forcier, P.E., Chair

For Members:

Bernard Chenette, P.E.

Gary Fern, P.E.

Gerald Kittle, site technician

Spencer Harris, site technician

Craig Heindel, hydrogeologist

Stephen Revell, hydrogeologist

Lance Phelps, P.E. (alt. Alan Huizenga)

John Forcier, P.E. (alt. Brad Aldrich, P.E.)

Barbara Willis, site technician (alt. Justin Willis)

Jeff Williams, well driller

David Cotton, P.E., hydrogeologist

Kimberley Crosby, town planner

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Philip Dechert, town planner
Gail Center, Health Department
Rodney Pingree, Water Supply

Kimberly Kendall, water quality specialist
Roger Thompson, Environmental Conservation
Allison Lowry, Environmental Conservation