

**ANNUAL REPORT OF THE
TECHNICAL ADVISORY COMMITTEE
FOR 2015**

Established by Act 133 of the 2001 Adjourned Session

REGARDING OVERSIGHT AND IMPLEMENTATION OF THE

**WASTEWATER SYSTEM AND POTABLE WATER SUPPLY
RULES**

March 23, 2016

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January 15, 2016

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Annual Report of the Technical Advisory Committee

Purpose:

The Technical Advisory Committee was created by Act 133 of the 2001 Adjourned Session of the Legislature and incorporated into the Vermont Statutes as Chapter 64, Section 1978(e)(2) which appears as:

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 secretary of the agency of natural resources.

Section 1978(e)(3) required the preparation and submission to the legislature of an annual report on several 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; and the number of permit applications denied in the preceding calendar year, together with a summary of the denial. This report is a summary of the work by the Technical Advisory Committee and the recommendations made by the Committee during 2015.

Technical Advisory Committee Members:

Members of the Technical Advisory Committee are recommended by the Secretary of the Agency of Natural Resources and appointed by the Governor. The full list of Technical Advisory Committee Members, and their contact information, is attached as Appendix A.

Executive Committee and Subcommittees:

The TAC has an Executive Committee with three members and three alternates that are available to answer questions or provide testimony to the Agency or the Legislature. There were also 4 standing subcommittees during 2015. The list of Subcommittees and members is included in Appendix A. In addition, special subcommittees were appointed to address a specific topic such as review of a particular advanced treatment system. The members of these subcommittees are included in the monthly minutes of the Technical Advisory Committee which are available online at <http://wastewater.vt.gov/wastewaterdisposalac.htm> under the heading "Technical Advisory Committee."

Meetings:

Nine meetings were held by the TAC in 2015 on January 13, February 17, March 17, April 14, June 16, July 14, September 15, October 13, and November 17.

The meetings were held in conference rooms at the National Life Building and at the DEC Annex Building in Montpelier. Meeting attendance ranged from 9 to 20 with an average attendance of 15 people.

The full minutes of each meeting are attached as Appendix C and are available on-line at <http://wastewater.vt.gov/wastewaterdisposaltac.htm> under the heading “Technical Advisory Committee.”

Activities of the Technical Advisory Committee (TAC):

- 1. General Comments:** The Technical Advisory Committee and the Department of Environmental Conservation (DEC) continued to be very active during 2015. The two central issues were continuing work on updating the Wastewater System and Potable Water Supply Rules and the ongoing review and approval of additional Innovative and Alternative Systems. Other topics included installer licensing, well driller installation certifications, the loan program for replacing water and wastewater systems, the application form for Regional Office permits, a technical review checklist, and changes to the Regional Office Programs.
- 2. Wastewater System and Potable Water Supply Rules (Rules):** Proposed revisions to the Rules were discussed at all 9 meetings of the TAC during 2015. While a great deal of progress was made in 2014, the TAC continued working with the DEC during 2015 to clarify the wording and associated diagrams of many sections and to make the rules easier to use for applicants and designers. The TAC is looking forward to the adoption of the revised rules in 2016 which will be the first update since 2007. Many of the topics discussed by the TAC will be covered individually below.
- 3. Innovative/Alternative Systems:** The DEC was very active in the Innovative/Alternative (I/A) systems area during 2015. The DEC asked for TAC comments on the following systems:

Fuji Clean, USA – Aerobic Treatment System

Delta Environmental Products – Ecopod-N Aerobic Treatment System

Eljen Corporation – Mantis M5 Series Alternative Leachfield System

Hydro-Action Mfg. Inc. – Hydro-Action AP Series Aerobic Treatment System

Premier Tech - Ecoflo[®] Biofilter Treatment System, added poly tank and Coco Media only

Aqua Test, Inc. – The NIBBLER[®] High Strength Wastewater Pre-Treatment System (Note this approval is a Pilot Project Approval and does not receive credits for sizing or vertical separation to soil constraints)

All of these systems have been approved for use in Vermont at this time.

The DEC also discussed whether or not the current approach of requiring products to be reapproved every two years should be continued. It is rare that a product that has been approved for general use cannot be reapproved unless the design has been significantly modified. The approval can be structured to allow for revocation if the product is not meeting the requirements set forth in the approval. One purpose that the renewal process does serve is identifying the small changes that manufacturers make from time to time without any notice sent to the DEC. While in most cases, the changes do not adversely affect the performance of the system, the renewal does ensure that the approval refers to the current production models. Permittees have asked if their Wastewater System and Potable Water Supply Permit remains valid if the Innovative/Alternative approval has expired for the specific system approved in their permit. The DEC position is that the individual Wastewater and Potable Water Supply Permit remains valid and the permittee can still install and use the specified Innovative/Alternative System. The DEC is working on revised permitting language that will clarify this situation.

The DEC also expressed concerns about situations where the Innovative/Alternative System approved in an individual Permit is no longer available for the initial installation because the manufacturer/vendor has ceased operation. The approvals for Innovative/Alternative treatment systems usually require inspections at least once per year by people who have been trained and approved by the manufacturer/vendor of the system. When the manufacturer/vendor ceases operation there may be a lack of authorized inspection/maintenance service providers. The DEC is developing guidance to deal with both of these situations. There are now several alternative systems approved in Vermont that provide the advanced treatment required in some permits and permittees can amend their permits to substitute an alternative system.

The focus of TAC comments is on the functionality, durability, service access, energy costs, and maintenance requirements. The use of advanced treatment systems which allow for smaller leachfields and less separation to bedrock and the seasonal high water table is now well established in Vermont with several choices of equipment and many designers that are familiar with their use. The various advanced treatment systems and supporting devices are listed at:

<http://wastewater.vt.gov/wastewaterdisinnovativelist.htm>

A full listing of Innovative and Alternative Systems and Components reviewed by the DEC in 2015 is provided in Appendix B.

4. **Compliance Initiative:** The compliance initiative started in 2013 with one staff member splitting time between Regional Office Permits and Drinking Water Permits. In 2014 the position began working full time on Regional Office Permits which has continued in 2015. Two compliance updates were reported to the TAC in 2015.

A major goal of the Regional Office program is to update the electronic tracking system that currently does not have the ability to track compliance requirements and achievements. The existing databases were created using a now obsolete programming language which is no longer supported by the Information-Technology Section (IT). The existing system consists of 5 separate databases for each one of the Regional Offices. The creation of a new database is well underway with a beta version currently being tested. DEC expects to have an operational system in 2016. As part of the updates, the system will allow for searching a statewide data base and will include use of the School Parcel Account Number (SPAN #) which will allow the DEC to update the ownership records when parcels are transferred. This is important when trying to ensure that permit required compliance activities are completed and required documentation received. Activities may be one-time events such as installing a system by a required due date (Failed Systems) or submittal of an Installation Certification. Ongoing compliance activities triggered by the receipt of an Installation Certification or system start-up report would include the submittal of maintenance and inspection reports for Innovative/Alternative systems, Annual Licensed Designer Reports, pumping records, and other permit required submittals.

The DEC is also working with existing information to obtain better compliance with the inspection and maintenance requirements related to Innovative/Alternative systems. The DEC developed standardized reporting forms, now available in fillable PDF format, and by working with the vendors of the various systems is now receiving all of the annual reports from the vendors. This information is particularly useful because it establishes that a system has been constructed and placed into service which in turn starts the clock for routine annual maintenance and inspection reports. In addition to receiving all of the vendor's reports, about 25% more of the annual reports for individual systems were received in 2014 than in 2013. This is estimated to be about 40% compliance. When the new electronic tracking system is completed it will include a feature that will flag missing inspection reports and allow for creation of reminder notices. Over a period of time, as service providers who do the field inspections develop their businesses and with an electronic system that allows for identification of the current landowners for follow-up notifications, the compliance rate is expected to rise significantly. It is important for landowners to maintain compliance with the inspection requirements because noncompliance is a permit violation which in turn creates a defect in the property title that must be resolved prior to any property transfer.

The Regional Office reorganization (details below) that reduced the Regional Office staff by about 40% has resulted in a transfer of work to the compliance person. The annual I/A inspection reports are now sent to the Central Office for review, scanning, and entry into the tracking system and compliance follow-up. DEC is currently piloting an electronic

application and field inspection report, which will become mandatory electronically this spring. When this is accomplished, reports will no longer need to be scanned and the review can be completed electronically.

More than 1000 reports are expected to be filed in 2015 and as many as 1100 during 2016. Each report is reviewed to determine if any follow-up inspection or repair work is needed and tracked as needed. Administrative work transferred to the Central Office includes associating inspection reports with permit numbers when a permit number is not recorded or is incorrectly identified, scanning, and entering the information into the temporary electronic tracking system. Compliance work now includes the technical review of submitted reports, follow-up for systems that do not meet vendor requirements, educational outreach, and referral to enforcement when necessary. Vendors and Service Providers are also notified of associated WW permit numbers when reports are submitted without numbers so information can be included on future reports.

The DEC is continuing outreach and education efforts as time permits. The Environmental Assistance Office notified over 270 towns and cities with offers to provide brochures for local distribution. More than 950 *Do Your Part – Be Septic Smart* brochures have been requested based on this mailing. EPA's Septic Smart Week was promoted in 2015 through press releases and partnering with local communities to educate homeowners on Septic Systems. Governor Shumlin signed a formal proclamation to declare September 21-25 Septic Smart Week in Vermont.

The TAC discussed the information reported by the DEC and supports the efforts to update the information system. The TAC recommends making as much of the information as possible to the general public in a searchable format. Ideally all of the information would be associated with tracking number, such as the SPAN # that would follow the property even when the ownership changes. Including the Well Driller's identification number in the publically available information which is required to be attached to all drilled wells would be a great benefit to Licensed Designers, regulators, and landowners.

5. Legislative: There were several bills introduced in the 2015 session that were related to water and wastewater issues.

- H.217 proposed that a municipality that owned or controlled both water and wastewater systems be allowed to request authority to issue permits locally for projects that would use both systems. Similar language is included in the proposed revisions to the Wastewater System and Potable Water Supply Rules. The DEC supported this bill, as did the TAC, and it was passed and signed into law.
- H-25 allows for natural burials that do not require embalming prior to burial with the intent that the body decompose and return to nature. The TAC did not discuss this bill in detail and did not take any position. This bill was signed into law.

- H.53 would require that all of the required isolation distances be on the applicant's property or be authorized by the adjoining property owner. The bill would also allow the landowner to, in some circumstances, waive the required isolation distance while assuming all responsibility if their well became contaminated because of the reduced isolation distance. The bill did not see action during the 2015 session but may be discussed during the 2016 session. The TAC expressed concerns about the waiver approach because some of the illnesses related to contaminated drinking water are communicable and not necessarily limited to only the owner and family. The TAC does not support the bill as drafted.
- S.70 would require a time of sale report from the seller that provides information about the existing wastewater disposal system. The bill proposes that the seller provide a statement if there is an existing unpermitted onsite wastewater system. The TAC noted that the legislature did consider a time of sale inspection process in the past. During that discussion, the legislators identified several issues related to determining what components such as septic tanks, drywells, piping systems might exist and where they might be located. While methods exist to make all of these determinations, the cost related to downpipe cameras and site excavation might be quite large. The bill requires the seller to provide information about the system but there is no requirement to upgrade a system unless it is failed. The bill was not discussed during the 2015 session but may be in 2016. The TAC discussed this bill and does not support it as drafted. The TAC would want to comment if the bill is pursued in 2016.
- H.375 is related to Ecological Toilets and grey water disposal. The bill proposes that composting toilets and incinerating toilets be allowed for use in Vermont, both of which are currently allowed in the Wastewater System and Potable Water Supply Rules (Rules). The bill also proposes to allow for the use of lined pit latrines. These are also known as vault privies which are currently allowed in limited situations, the bill would increase their potential for use. The grey water section of the bill proposes that grey water be disposed of onto the ground surface or into the subject to various requirements. The TAC discussed this bill at some length, and offered some comments if the legislature takes up the bill during 2016. The TAC did suggest that the Residuals Management Section of DEC be consulted, because it would likely have jurisdiction, at least for grey water applied onto the ground surface. The TAC noted that it should be assumed that grey water contains the same pathogens as toilet wastewater, and therefore can present a significant public health risk. The pathogens found in grey water come from bathing and laundry, and there are large concentrations when reusable diapers are washed. The TAC also noted that the risk-reward ratio for grey water reuse might be different in Vermont than in arid climates, and that due consideration of the

potential for increased health risks should be included in the discussions. The TAC would want to comment if the legislature takes up the bill in 2016.

6. **Installer and Designer Licensing/Certification:** In 2014 and 2015 the DEC held meetings with installers to discuss the potential for a certification program for installers. There would be training and a test and those installers that successfully complete the process would be able to advertise their status as State Certified Installers. During these meetings many installers asked about moving beyond a certification program to a licensing program that would be mandatory. Many installers feel that requiring all installers to be licensed would ensure a better quality of work because the licensed installer would have their license on the line. The TAC discussed whether the licensed installers would be required to provide a written installation certification that would eliminate the need for an inspection by a licensed designer as required by the current Wastewater System and Potable Water Supply Rules. Both installers and licensed designers have concerns about this approach. It would create a new level of legal responsibility for installers. Designers might blame any problems on poor installation work that they did not inspect or certify. Many designers want to inspect the system to ensure that the system is properly installed because their reputations are on the line if there is a failure. The DEC has contacted other states with installer licensing programs. New Hampshire has a long-standing installer licensing program with many licensed installers and the DEC will meet with New Hampshire State officials and with representatives of the Granite State Installers Association. The Granite State Designers and Installers Association has a great deal of experience operating training sessions for installers that might be a good model for Vermont. The DEC announced at the November TAC meeting that the department will ask for legislation to create a Licensed Installer program.

The DEC also noted that they are considering transferring the Licensed Designer Program to the Office of Professional Regulation. The Office of Professional Regulation operates the licensing programs for 42 of the professional groups in Vermont including engineers, surveyors, and architects. If the Licensed Designers program is transferred the Office of Professional Regulation would assume responsibility for administering the program, ensuring that licenses are up-to-date, and reviewing any complaints about non-professional conduct. The DEC said that a transfer of the program would remove a significant administrative burden and allow staff to focus on review and issuance of permits under the Wastewater System and Potable Water Supply Rules. DEC staff will still be involved in approving classes for continuing education credits, sitting on the appointed board, administering the exams, conducting training, and posting information on the DEC website for Licensed Designers.

The DEC is also working with trainers from the University of Rhode Island. These trainers have a suite of wastewater system training programs and DEC hopes to bring the training to Vermont. The Vermont Technical College is also working on training course development. These programs would be very useful to Licensed Designers who must complete continuing education work every two years.

7. **Regional Office Reorganization:** The 2015 Vermont Legislative Session ended with a \$10.8 million budget shortfall. This shortfall was absorbed by State agencies, with the DEC allocated \$722K in general fund cuts. All cuts were taken from the Regional Office Program, due to the relatively high proportion of general funds used to support this program.

This resulted in 9 members of the 23 person Regional Office staff being moved to other duties. The Program will now have 2 technical and 1 administrative staff for the Barre Office (down from 3 technical and 2 administrative staff), Essex (down from 3 technical and 2 administrative staff), Rutland (down from 3 technical and 2 administrative staff), and Springfield Office (down from 4 technical and 1 administrative staff), and 1 technical and 1 administrative staff in St. Johnsbury (down from 2 technical and 1 administrative staff). In addition, Regional Office staff located in the Barre Regional Office moved to the central office in Montpelier.

Members of the TAC are strongly concerned that targeted staff reductions in the front-line Regional Offices will have a detrimental impact on Vermont's economy. TAC member's observed that with only one administrative person per office, any use of sick leave, annual leave, or military leave would have an adverse impact on customer service and thoroughness of permit review. In addition, the reduction in technical staff may result in similar impacts when the technical staff are absent for sick leave, annual leave, or military leave. Because Wastewater System and Potable Water Supply Permits are legal documents which affect the title to the property it is important that they be administratively and technically correct. Annual leave is most often used during the spring and summer months which are also peak load times for the Regional Offices.

8. **Soil Description Methods:** The TAC discussed the possible change from using percolation tests to using soil description methods for the sizing of leachfields during 2014. In 2015 the DEC added language to the proposed changes of the Wastewater System and Potable Water Supply Rules to implement this change. The soil descriptions will be made using the United States Department of Agriculture Field Book for Describing and Sampling Soil. The process for converting soil descriptions into leachfield sizes is based on work by Jerry Tyler which has been used successfully for many years in Wisconsin where it was developed. Many other states have already adopted the soil description approach and find that it more accurately determines a site capacity to accept wastewater. The change also reduces the amount of field time that a Licensed Designer must spend on completing a permit application which should benefit the applicant. The TAC supports the use of soil identification methods as a replacement for percolation tests.
9. **Loan Program Well and Septic System Replacements:** The DEC provided an update on the implementation of the loan program. The program is currently in operation but one problem has been identified. Under the current approach the landowner must pay the Licensed Designer for creation of the application documents with the cost of the design

included in the loan once it is approved. Many of the people who qualify for the loan program do not have several hundred to two thousand dollars to pay the designer upfront. Options include trying to develop a list of Licensed Designers who will do the application work and wait for payment until the loan is approved. One concern with this approach is that some projects never get loans which could leave the Licensed Designer without payment. Another alternative discussed was using the Planning Advance process which is used in other Vermont loan programs. The TAC supports using the Planning Advance approach.

10. **Roadside Wells:** The DEC raised the question of the proper isolation distance between a roadway and a well. A roadway is defined in the Wastewater System and Potable Water Supply Rules (by reference to the Water Supply Rules) as serving 3 or more residences. In the past, one major concern is contamination of wells by road salt. The Vermont Agency of Transportation reports fewer well contamination problems in recent years, probably because there are fewer shallow wells in use and because over the years a larger percentage of new wells have been subject to regulations that ensure better well locations. The DEC suggested continuing to use the existing 25' isolation distance with the distance measured from the edge of the right-of-way or from the edge of the traveled portion of the roadway if there is no legally defined right-of-way. The TAC supports this approach.
11. **Overflowing Wells:** The issue of overflowing wells has been discussed at the TAC for at least three years. During that time many issues related to the potential for aquifer depletion, erosion, damage to wells caused by pressure buildup if the overflow is closed in, and the costs associated with either using drilling techniques on all wells in case they need to be closed in or potentially even larger costs with closing in wells drilled with only standard methods were reviewed. After long discussions, the DEC proposed language to be included in the revision to the Wastewater System and Potable Water Supply Rules that makes the decision to control overflowing wells a case by case decision. Factors that would be considered in making the decision include the cost of any action, the safety of any action, and whether the overflowing poses an undue adverse impact on the environment including undue erosion of the confining layers of the aquifer or the overflowing source interferes with any public water system source. The TAC supports the general concept while remaining concerned about obtaining clear guidance for Licensed Designers and landowners.
12. **Well Driller Installation Certifications:** Permits issued under the Wastewater System and Potable Water Supply Rules require that the installation of all new and replacement water supplies be certified in writing. The only exception to this requirement is for the replacement of an existing water source with a replacement drilled well when the well serves only one single family residence and that is the only building on the lot with a water system. The installation of a drilled well that requires certification can be certified by a Licensed Well Driller or by a Licensed Designer.

The TAC discussed the information that should be included with a well installation certification. It was decided that well pump information should not be required unless

the approved plans specifically stated the pump specifications for that particular project. The group noted that the most important piece of information that should be included is the well identification number which the well driller is required to place on the well.

The TAC also discussed the form that well drillers are required to file with the Water Supply Section for all drilled wells, including those exempt from permitting requirements. The form will be updated and the TAC appointed a subcommittee to advise the DEC on changes that could be helpful in tracking the ownership of wells and in associating the well with a Wastewater System and Potable Water Supply Permit if one exists.

13. **Technical Review Checklist:** The DEC is working on a technical review checklist that would identify the specific details required for each application and particularly the information that must be shown on the plans. The goal is to standardize the reviews between regional offices so that licensed designers working with different regional offices can use a standard set of plans. The checklist would also help the Regional Office Staff by making it clear what they need to review prior to issuing a permit. The TAC reviewed the document and offered suggestions including that elevations be specified for leachfield components, pump stations, and force mains and that cross sections need not be drawn to scale provided that elevations are clearly labeled. The TAC supports the goal of uniform permit reviews but is concerned that because of the extremely wide range of site and design factors that the process not be so rigid that common sense variances are not allowed.
14. **Permit Application Requirements:** The TAC discussed the complexities of the application form. The form was developed about 5 years ago and at the time one goal was to have the electronic system calculate the application fee. This required the application form to include very detailed information but the system was so complicated it was not developed. In the future the form can be revised to be somewhat less complex.

Another point of discussion is the time and expense of sending notice to neighboring property owners when isolation distances extend onto their properties. Whenever an application is amended, even if the change reduces the amount of isolation distance onto the neighboring property, another round of notices must be sent. There is significant cost and delay associated with the process. The TAC asked about having a minimal impact provision that would not require notice but the DEC said the language is part of the Vermont Statutes and a legislative change is probably required. The TAC suggested a meeting with some legislators to outline concerns and possible revisions that would meet legislative intent but be less costly to implement.

The TAC also discussed the process currently used for property held in trusts where extra forms are required to verify that the person signing the application has the authority to sign the application. The letter stating that they have the authority is signed by the same person who signed the application form. This approach does not seem to add much

assurance to the process and the TAC recommends that the DEC look into a simpler process.

15. **Underground Injection Control Program:** The DEC provided an update on implementation of the revisions to the Underground Injection Control (UIC) Rules that became effective on October 29, 2014. The revisions created categories of low, moderate, and high risk activities. Low risk activities are no longer subject to regulation, high risk activities are prohibited, and moderate risk activities are regulated under permits or with conditional exemptions. Exemptions include most water treatment backwash systems, geothermal heating systems, certain mining wastes, and discharges regulated under other permits issued by the DEC. Conditional exemptions allow some activities to occur without a permit provided they are done following prescribed methods. Under the previous rules there were about 65 active UIC Permits while under the revised Rules about 7 will continue to be subject to a permit.

One major area of activity is regulation of floor drains. When the UIC Rules were first adopted by Vermont in 1980, and delegation of the UIC Program was made from the United States Environmental Protection Agency to the State of Vermont, a very large number of pre-existing floor drains became subject to the Vermont UIC Rules. In most cases these discharges were of low risk. The DEC began the process of regulating many thousands of floor drains, which include ones of concern such as those in automotive repair shops and those of low concern such as those in the basement of many single family residences, by requiring the owners to register the floor drain with the DEC. The plan was to update the UIC Rules so that only floor drains that present moderate or high risk would be regulated. When the UIC Rule update was completed in 2014 there were about 1,650 floor drains registered with the DEC. Many of these are listed as being closed (sealed with concrete). Many others are listed as discharging to a municipal sewer system or discharging onto the ground surface and therefore not classed as underground injections. As of June, about 460 pre-existing floor drains with discharges that are now prohibited under the updated Rules were identified. These must be closed or the discharge must be directed to a municipal sewer system (if the municipality approves of the discharge) or to a holding tank. The contents of the holding tank must be transferred to an approved wastewater treatment facility. The DEC will be working with the landowners to bring these floor drains into compliance.

The TAC is pleased to see that the implementation of the new UIC Rules has reduced the number of projects requiring a permit. The ability to install a disposal system for the discharge from most water treatment systems is particularly important because it reduces the burden for homeowners trying to reduce their health risks by installing a water treatment system.

APPENDIX A

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Executive Committee

Steve Revell, Ernest Christianson, Roger Thompson

Alternates – Chris Thompson, Claude Chevalier, Craig Heindel

Subcommittees:

Hydrogeology

Craig Heindel, Bill Zabiloski, Mark Bannon, Scott Stewart, Steve Revell, Mary Clark,
Roger Thompson, Peter Boemig, Ernie Christianson,

Bottomless Sand Filters

Peter Boemig, Mark Bannon, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie
Christianson

Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Mary Clark

Well Driller's Reporting Form

Rodney Pingree, Craig Heindel, Claude Chevalier, Peter Boemig, Mary Clark, Ernie
Christianson

Appendix B

Innovative/Alternative Systems and Components Reviewed in 2015					
Manufacturer/Vendor	Model Name	Date Received	Status	Type of Approval	Date Approved
Fuji Clean, USA	Residential Models CE5 CE7 CE10		Approved New Model	General Use	3/10/2015
Delta Environmental Products	E-50-N E-60-N E-75-N		Approved New Model	General Use	3/31/2015
Eljen Corporation	Mantis 5.1 Mantis 5.2		Approved New Model	General Use	11/30/2015
Hydro-Action Mfg. Inc.	Residential Models AP500 AP600 AP750 AP1000 AP1500		Approved New Models	General Use	2/23/2015
Premier Tech Environmental	STB-500B STB-500BR(H1) STB-650 STB- 650BR(H1,H3) STB-570P STB-570PR STB-650P STB-650PR STB-730P STB-730PR ECX-450 ECX-500 ECX-600 ECX-750 ECX-860 ECX-970		Approved Renewal and New Models	General Use	9/10/2015
Aqua Test, Inc.	NIBBLER® SBP NIBBLER® CBP		Approved New Model	General Use	7/22/2014

Performance Standards for Regional Office Permits

Performance Standards for Permits Issued During 2007-2015

	# of Permits Issued	# of Permits Meeting PEP Standards	% of Permits Meeting PEP Standards	Average DEC Days	Average Total Days	# of Permits That Exceeded Standards
2007	3746	3691	98.5%	16.8	48.2	55
2008	3435	3418	99.5%	12.3	62.1	17
2009	2691	2672	99.3%	11.8	41.6	19
2010	2621	2600	99.2%	11.9	35.2	21
2011	2289	2279	99.6%	13.2	29.8	10
2012	2472	2444	98.9%	12.7	29.6	28
2013	2449	2400	98.0%	14.0	28	49
2014	2503	2417	98.4%	12.6	29.6	45
2015	2367	2299	97.1%	11.8	32.3	68

Note: The performance standard for DEC days is 30 days for one-lot subdivisions and projects with a design flow of 500 GPD or less. The performance standard for other projects is 45 days.

Permit Information for 2015

Regional Office	Permits Issued to Repair Failed Wastewater Systems	Applications Denied
Barre	82	1
Essex	96	4
Rutland	99	2
St. Johnsbury	53	0
Springfield	115	0
Total	445	7

Reasons for denials:

Denials were issued for applications that were incomplete and failed to demonstrate compliance with the Wastewater System and Potable Water Supply Rules when submitted.

Innovative/Alternative (I/A) Wastewater System Summary 2007 to 2014

Year	Overall Number of I/A Systems Permitted
2007	137
2008	796
2009	538
2010	457
2011	424
2012	513
2013	521
2014	612
Total	3998

Innovative/Alternative (I/A) Wastewater System Summary for 2015

Year	Number of I/A General Use Systems Permitted	Number of I/A Pilot Use Systems Permitted	Number of Experimental Use Systems Permitted
2015	594	0	1

Innovative/Alternative (I/A) System Inspection Reports Received

Year	I/A Reports Received
2012	52
2013	693
2014	891
2015	745* 2015 values are not final

Licensed Designer Program Education Opportunities

	DEC Sponsored Classes	Licensed Designers Trained
2010	5	120
2011	4	110
2012	7	215*
2013	12	273*
2014	12	173*
2015	13	222

* DEC co-sponsored with the Vermont Technical College and the University of Rhode Island courses in:

- “Innovative/Alternative Technologies” and “Bottomless Sand Filters” in 2012;
- “Pumps and Pump Controls” and Identifying and Managing High Strength Wastewater” in 2013, and
- “Managing High Strength Wastewater” and “Microbiology” in 2015

Low Income Loan Program

During calendar year 2015 the On-site Lean Program made seven loan awards for a total of \$129,735 in new loan commitments. Six of the loans were for replacement of failed wastewater systems and one was for replacement of a failed water supply. The program has partnered with the Opportunities Credit Union to underwrite and service the loans made under this program.

Appendix C

Approved Minutes of the Technical Advisory Committee Meeting

January 13, 2015

Attendees:	Roger Thompson	Ken White
	Jeffrey Williams	Gail Center
	John Beauchamp	Scott Stewart
	Steve Revell	Craig Heindel
	Ernie Christianson	Mary Clark
	Denise Johnson-Terk	Mark Bannon
	Peter Boemig	Chris Russo
	Jessanne Wyman	Rodney Pingree
	Bill Zabiloski	Kim Greenwood

Scheduled meetings:

February 17, 2015	1-4 PM	Catamount Con. Rm., National Life – Montpelier
March 17, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier
April 14, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier

Agenda:

The agenda was accepted.

Minutes:

The minutes of the December 16, 2014 meeting were accepted as drafted.

Annual Report:

Roger said that he was working on the report and hoped to have a draft that could be circulated to the TAC by the end of the week.

Meeting Dates:

The next meetings were scheduled for February 17, 2015 in the Catamount Conference Room, and March 17th and April 14th in the Winooski Conference Room.

I/A Discussion:

Mary said that she was working on drafting a pilot approval for the Norweco Hydrokinetic System and also doing research about the Eljen Mantis and AK Industries Hydro-Action Systems.

Mary said that an application had been submitted for approval of the Fuji Clean System. This system was developed and is widely used in Japan. It has been tested and approved under NSF 40 Standards. One question being reviewed is the size of the pretreatment/trash tank which is 277 gallons for a system designed for a daily flow of 500 gallons. This is small compared to other systems. The TAC said that under the I/A approach a small tank should be acceptable if under testing the system functions as required. Peter asked if there is any information about wastewater strength in Japan. Mary did not know but said that the NSF testing uses the same influent for all systems so the test results would be relevant for her review. The system has been approved in Maine. Very few systems have been installed in the United States so a Vermont approval might be a pilot approval to start.

Additional information about the Delta ECOPOD system has been submitted including the requested details about tank construction and capacity.

Roadside Wells:

Ernie raised the issue of roadside wells and particularly the proper isolation distance between wells and roadways. The primary concern is salt contamination leading to replacement of the well with the associated inconvenience and cost issues. Ernie reported that the Vermont AOT reported fewer well problems in recent years, probably related to fewer shallow wells and better locations for more recently constructed wells. The State will pay for a replacement well in most cases when a well is contaminated with salt. Ernie suggested retaining the existing 25 foot isolation distance which led to a question of from where you measure. Just using the center line of the roadway can be an issue because the roadway in some situations can be relocated within a wide right of way. Ernie and Craig suggested the measurement should be from the edge of the right of way however it can take some research to determine the right of way. Jeff said a simple, easy to use, number would be best. Ken said that New Hampshire asks for 75 feet from the edge of the road and if you drill closer to the road it is at your own risk. After some discussion the TAC supported a distance of 25' from the edge of the right of way or from the edge of the traveled surface when there is no defined right of way.

Overflowing Wells:

Ernie said that DEC had decided that all overflowing wells must be regulated and except for an exemption for those wells overflowing at less than 10 gallons per minute the wells must be closed in. Steve asked if this question is open for discussion or if this is a final decision that will be included in the draft rules. Ken said that there is no simple way to grout a well after it has been drilled. Scott asked if the issue might be divided into two situations with the difference being whether after closing in the well the

water would or would not flow up the outside of the casing. Scott also suggested that the Rules require closing in the well when practical.

Ken said that he reviewed some of the well drilling records and found that out of about 3,572 wells only 157 (4%) overflowed and only a few of those caused any problems. Jeff noted that not all overflowing wells are completed into bedrock. There are a few situations where gravel layers are confined by more restrictive soil layers above that result in overflowing wells. Trying to control the overflow by closing in the well could result in problems with flow up the outside of the casing as any grouting process would be grouting against unconsolidated material rather than against bedrock.

Jeff said that a policy that would require all overflowing wells to be controlled would add \$1,000 or \$2,000 to every well. Ken said that this would be the cost just to be prepared to control a well and in situations where overflow occurred additional work might add \$5,000 to \$10,000 to the cost of a particular well. Servicing wells that have been closed in also have extra costs as the materials, such as seals and packers, that are installed to control the well must be removed in order to work on the pump. Ken also noted that Vermont does not require well pump installers to be licensed and that not all pump installers are aware of the proper procedures for installing well pumps in these situations.

Ernie asked, if a well is drilled and high pressures are encountered, how is the flow controlled. Jeff and Ken replied that there are not problems unless you close it in. If you close in the well there can be unintended consequences such as water moving up the outside of the casing or following fractures and causing problems in neighboring wells or basements.

Scott said that the two situations of flow up the outside of the casing and pressure inside the well casing might be treated differently. When there is pressure in the casing it should be controlled if it can be done safely.

Scott asked how much pressure would be too much to control for a well overflowing at less than 10 gallons per minute. Ken said that up to 5 psi is usually not a problem, but 10-20 psi is a lot of pressure to hold in forever, depends on the quality of the bedrock. Jeff said that because of the extremely variable bedrock in Vermont that any combination of pressure and flow can be encountered and that wells close together can still have very different flow and pressure characteristics. Craig asked about the process for measuring pressure and Jeff replied that it is easy if all of the flow is contained in the casing but difficult if some of the flow is up the outside of the casing. Jeff said that he has some wells that have been closed in when overflows would be a problem but the decision is based on the pressure in the well and the cost of the alternatives. Ernie asked about the process for closing in a well with flow up the outside of the casing. Jeff said that this would be done with high density cement grout and might require abandoning the well entirely or drilling a second well to relieve the pressure in the first one.

Peter asked about whether there could be a few small areas designated as likely having high pressures where routine precautions would be applied to all wells. Jeff said that while there are areas that are more likely than others to have high pressures, there are spots all over Vermont where wells can overflow. Mary suggested that the Vermont Geological Survey might help with seeing if there are areas that might be identified as having potential for artesian overflows. Ken suggested adding a page to the well driller's

completion report to address overflowing wells. Ken said there is an example in one of the documents provided for discussion prepared by the Vermont Ground Water Association.

Ernie asked Kim if overflowing wells are a public trust issue. She replied that it might be, although it is unclear what “public trust” means relative to this topic.

Soil Description Methods:

Ernie briefly reviewed his proposed language that would allow for soil analysis to be used for sizing of leachfields in addition to the percolation test. Ernie said that the process is based on the USDA Field Book for Describing and Sampling Soil. Ernie said that the first draft required a Licensed Designer to describe the texture and structure and the grade of the structure. The current draft drops the requirement to identify the grade of the structure. This section was sent to the TAC just before the meeting and some members want to spend more time reviewing before commenting on the draft.

Ernie said that Table 9-2 is based on work by Jerry Tyler. The work by Tyler stated that soils with platy structure are unsuitable for soil-based systems however there are soils in Vermont with platy structure that are suitable for soil-based systems.

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Alternates – Chris Thompson, Spencer Harris, Claude Chevalier, Craig Heindel

Subcommittees:

Hydrogeology

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Bottomless Sand Filters

Peter Boemig, Mark Bannon, Cindy Parks, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie Christianson

Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

February 17, 2015

Attendees:	Roger Thompson	Peter Boemig
	Mark Bannon	Ken White
	Jessanne Wyman	Justin Willis
	Denise Johnson-Terk	Craig Heindel
	John Beauchamp	Steve Rebillard
	Travis Blodgett	Scott Samuelson
	Mary Clark	Ernie Christianson
	Rodney Pingree	Darlene Autery
	Chris Russo	Scott Stewart

Scheduled meetings:

March 17, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier
April 14, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier

Agenda:

The agenda was accepted.

Minutes:

The draft minutes of the January 13, 2015 meeting were amended. Craig asked if all roadways have ROW and therefore the minutes should reflect that. After some discussion it was decided to leave the language as drafted. Craig said that in the discussion of overflowing wells the term pump installer should be used rather than well installer. Ken said that the information provided for discussion about overflowing wells was prepared by the Vermont Groundwater Association rather than the National Groundwater Association.

Legislative Update:

Ernie reviewed the bills currently filed. H.217 allows for partial delegation of the Wastewater System and Potable Water Supply System permitting program to municipalities that control both the water system and the sewer collection system. Ernie noted that the draft rules already include a section that will allow for this delegation. H.25 is a bill that allows for natural burials. The concept is to use a process without embalming so that the body can decompose and return to the environment. The burials would be subject to the health regulations of the state and towns. H.53 is related to the isolation distances for water and wastewater systems and would require that the isolation distance be owned or controlled by the permittee.

The bill also allows the permittee to waive the isolation distance requirements related to a single family residence. The waiver language would be added to the land records and the owner or subsequent owners would have no recourse against a neighbor who installs a water or wastewater system within the normal isolation distances. The bill does not require the landowner to be the occupant of the single family residence. S.70 requires a statement of the status of the wastewater system as part of any property transfer. If the system is an unpermitted wastewater system the seller is to provide a description of the system and the location of the system. If the information is incorrect the buyer would have up to two years to file a claim against the seller. The TAC noted that in many cases the seller does not have any definitive information about the construction or location of the system and finding out the information with certainty can be expensive.

Stream Bank Surveys:

Ernie said that as part of the Department's initiative to protect surface water quality the Department may be going out to do stream bank surveys. This involves walking along the streams looking for straight pipes, leaking septic systems, or other sources of contamination that can reach the streams. The Department did a lot of stream bank survey work in the 1970's after the statewide ban on straight pipe discharges was imposed in 1969.

Fuji Clean Wastewater Treatment Systems:

Scott Samuelson, the representative for Fuji Clean, USA – a U.S. based subsidiary of the Fuji Clean, Company, Ltd. of Japan, gave a presentation on how their advanced treatment unit works. Scott noted that while the system is new in the United States the company has 500 employees in Japan and produces 50,000 units per year. Approximately 2,500 units have been installed in Australia. Scott also reported that there are no leachfields in Japan and that houses without municipal sewer connections use advanced treatment units with disinfection that discharge to surface ditches.

Scott described the units as physically small and light in weight making transport and installation easy. The system functions with an aerobic/anaerobic process. Effluent first reaches a sedimentation tank and then flows into a second chamber where anaerobic treatment occurs and then into a third chamber where aerobic treatment occurs. Air lift pumps move the effluent from the third chamber to discharge and also recirculate effluent from the third chamber back to the first chamber. The recirculation ratio is about 4 times the amount discharged from the system at the end of the treatment process. The company does not believe that a separate septic tank installed prior to the treatment unit is needed but would allow the installation if local regulations require it. The basic system uses about \$6.50 of electricity per month based on Vermont rates. The system meets the standards for NSF-40 and NSF-245 testing. Scott said the price of the basic unit is about \$3,500.

Roger asked about possible failures of the air injection system. Scott said that the blower used in the system has been trouble free but if problems occur the alarm system would be triggered. Remote monitoring telemetry can be installed as well. Craig asked if certified service providers are required. Scott said yes and that he would work to see that there are several authorized providers. Peter noted that

the influent used to test the system had a BOD of 150 mg/l and asked if this was lower than normal for NSF testing. Scott said that while one of the challenges for the NSF testing program is to get consistent quality of the influent, the influent was within the normal range for NSF testing. Ernie asked if the system could handle wastewater rated as either low strength or medium strength under the Wastewater System and Potable Water Supply Rules (Rules). Scott said that the system can be designed to accommodate both low and medium strength wastewater. Ernie asked about approvals for use in the United States and Scott replied that Maine and West Virginia have approved the system and 5 other states are reviewing the system.

Craig asked how the Department makes a decision on whether a system should be approved for pilot or general use. Mary reviewed the section in the Rules that defines the two categories. Ernie asked about tank integrity and Scott said that testing has been done on the tank structure and will be submitted. Craig said that the system should be considered for general use approval. Roger said that testing results from other countries should be considered if the test procedures are consistent with those in the United States. Chris asked if there are considerations for oil and grease concentrations. Roger asked if the company specifies influent limitations. Scott said there are limitations but that companies design for a specific case taking into consideration the BOD, TSS, and oil and grease levels. Roger asked if the aeration head is reliable. Scott said it is a simple construction using PVC pipe with 1/8" holes. The system is tested at the time of installation and at each inspection. If there is any clogging a hose and brush system is used to clean the system. Replacement is seldom needed. Scott said the company is recommending two inspections per year though the system is very reliable and once per year may be sufficient. Chris asked how seasonal use affects the system. Scott said that it takes a week or so for the treatment level to return to full effectiveness because it is a biological process.

Rule Revisions:

Ernie discussed the revisions he made to the section on overflowing wells which had been circulated to the TAC. Ernie said that some of the changes reflected the TAC discussion and comment that aquifer depletion is not a concern for the majority of overflowing wells. Scott asked about the inclusion of the word "confined" in section 1-1021(c). Ernie and Roger replied that the concern is about wells that pierce a confining layer and release pressure. If the upward flow is not controlled, erosion of the confining layer around the well casing may occur. Craig suggested adding an (a)(4) with language that prevents any overflow from damaging neighboring properties. Craig also noted that sections (b)(2) and (b)(3) cover the universe and therefore should be combined into one section. Ernie will determine if the Department intends to apply these standards to non-potable wells.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
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Subcommittees:

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Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

March 17, 2015

Attendees:	Roger Thompson	Peter Boemig
	Mary Clark	Ken White
	Claude Chevalier	Travis Blodgett
	Chris Russo	Justin Willis
	Gail Center	Ernie Christianson
	Mark Bannon	John Beauchamp
	Darlene Autery	Gunner McCain
	Craig Heindel	Michael Marquise
	Jessanne Wyman	Steve Revell
	Shawn Donovan	Marc Roy

Scheduled meetings:

April 14, 2015 1-4 PM Winooski Con. Rm., National Life – Montpelier

Agenda:

The agenda was accepted.

Minutes:

The draft minutes of the February 17, 2015 meeting were accepted

Legislative Update:

Ernie reviewed the bills currently under discussion. H.25, related to natural burial grounds was discussed in committee. Chris Thompson testified. The Vermont Department of Health has guidelines that would be followed under the bill. The Department of Environmental Conservation (DEC) has not been asked to testify on H.53 which requires ownership or legal control of all isolation distances to water and wastewater systems. Ernie, Chris Thompson, and Matt Chapman testified in favor of H.217 which allows for partial delegation of the Wastewater and Potable Water Supply Program to municipalities that own or control both the water and wastewater systems. The proposed rules already include this language. The DEC has not been asked to testify on S.70 which would require a time of sale inspection of the wastewater disposal system. The bill would require the seller to disclose if the system is permitted, and if permitted in compliance with the rules, and if not permitted the location and nature of the system must be disclosed in writing. A time of sale bill was considered a few years ago and was not passed in part due to the difficulty and cost of determining the location and construction of an existing system. The DEC will be called to testify about H.375 which would promote ecological toilets and grey water systems.

Innovative/Alternative Systems:

Mary said that the DEC had issued a general use approval for the Hydro-Action Wastewater Treatment System. As part of the review, Mary did contact regulators in Indiana, where the system is manufactured, and there were no negative comments.

The DEC has also issued a general use approval for the Fuji-Clean Wastewater Treatment System to treat residential wastewater.

Updated drawings of the tank designs for the Delta ECOPOD system have been submitted to DEC and are under review.

The DEC sent a letter to the Eljen Corporation about their request for approval of the Mantis Wastewater Treatment System. The letter said that the system could be approved for inground systems using gravity flow or pumping to a distribution box. The system could be approved using the proposed pipe-in-pipe pressure distribution for mound systems.

Roger asked if the pipe-in-pipe approval could be used with other treatment systems, particularly when adding a treatment unit to an existing non-pressurized system. Mary said that the decision is based on the proposal made by the Eljen Corporation and any other use would need to be reviewed on its own merits.

Mary said that DEC is caught up on all of the Innovative/Alternative reviews with all applications either approved or waiting for information from the applicant.

Mary also mentioned a new book entitled Know Soil – Know Life that she recommends. Craig asked that the reference information be circulated to the TAC.

Underground Injection Control:

Darlene Autery provided an update on the Underground Injection Control Program (UIC). The UIC program is a Federal Program which can be delegated to a State. Vermont has this delegation and operates the program under rules adopted by Vermont in accord with the Federal requirements. Darlene joined the UIC Program in August of 2014 and is implementing the revised UIC Rules that became effective on October 29, 2014. The UIC Rules were revised so that low risk activities are not reviewed or permitted. High risk activities are banned. Moderate risk activities are regulated. Conditional exemptions are available for some discharges, which allows for the activity to occur without requiring a permit provided the activity follows prescribed methods. Some exemptions include water treatment backwash systems, geothermal heating systems, certain mining wastes, and where discharges are regulated by another permitting program. There were about 65 active UIC permits prior to the UIC Rule amendment; approximately 7 of those permits will continue under the amended UIC Rules. Landowners who were subject to permits under the previous rules but who are exempt or not subject to jurisdiction under the new rules have been contacted and are allowed to request voluntary revocation of their permits. Most of those eligible for voluntary revocation have made that request.

There are about 1,650 floor drain registrations in the DEC files. Many of these are identified as being “closed” (sealed with concrete), connected to municipal sewer, or daylight and are therefore not UICs. Still, many of these are for pre-existing floor drains with subsurface discharges that were subject to the previous UIC Rules but were simply allowed to file a registration form. Under the new rule, about 460 of these floor drains (based on SIC Codes for automotive related industries) need to stop any subsurface discharge because they are considered under the new rules to be high risk activities that are prohibited. The options are to close the drain entirely, connect to a municipal wastewater collection system if allowed, or to install a tank that is pumped and taken to an appropriate treatment facility. Some, approximately 65 of the registrations, are identified (based on SIC Codes) as requiring a permit under the amended UIC Rules.

Darlene said that the DEC had completed a report required by the Legislature about the environmental impacts of the hydrofracturing process as related to oil and gas production. The State of Vermont has enacted laws and rules prohibiting hydraulic fracturing for oil and gas in Vermont due to the evidence of risks to human health and the environment. The DEC report recommends continuing to ban the process. The report is available on the Legislative website at:

<http://legislature.vermont.gov/assets/Legislative-Reports/ANR-REPORT-REGULATION-OF-HF-FOR-OIL-OR-NATURAL-GAS-RECOVERY-2015.02.12.FINAL.pdf>

Ken asked about the exemption for backwash disposal from water treatment systems. There is a conditional exemption for the list of specified constituents which covers most of the contaminants naturally occurring in Vermont groundwater. John commented that the major constituents discharged from water treatment systems are the salt and oxidizing compounds used in the treatment system, along

with any accumulated constituents removed from the water by the treatment system, assuming the contaminants are removable from the media. There are a few softening systems where the water hardness is very high (50- 200 grains) that use a lot of salt because of the large amount of ion exchange occurring. John also noted that many systems use much more salt than required to treat the water because they are set inefficiently and/or the initiation of regeneration is not based on use. This wastes money and discharges the unneeded salt into the groundwater. John has observed increasing levels of salt in the groundwater (presumably from human influence) over the 28 years he has been doing water treatment, most of which he feels comes from the use of road salt in the winter, and some of which undoubtedly also occurs from water softening. Mary said that she reviewed two papers studying the use of water treatment system residue to remove high levels of phosphorus in wastewater. Craig asked if any contacts have been made to the engineering departments at the University of Vermont or at Norwich University about studying the problems with increasing salt contamination. John said that he has a few trial systems using non-salt methods to treat hardness. This is not an electrical or magnetic method as seen on TV but instead uses a media to convert the calcium and magnesium to small (invisible) crystals of calcium or magnesium carbonate, and thus reducing the tendency of the water to form scale on piping and heating surfaces.

Salvage Yards:

While Ernie was working on the isolation distances portion of the revised Rule he learned that there are statutorily set well isolation distances related to salvage yards. Shawn Donovan and Marc Roy, who work with the salvage yard regulations, attended the meeting to discuss how the isolation distance is applied under the salvage yard regulations and how it can be coordinated with the Wastewater System and Potable Water Supply Rules. The statute sets a 300' isolation zone around area where recycling work occurs. After some discussion it became clear that the entire property needs to meet the isolation distance unless the operation is clearly limited by the permit to only a portion of the property. The isolation distance can be reduced by the Secretary when the site conditions such as soil type and groundwater flow direction clearly protect wells that are less than 300' from the working area. Ernie asked about applying the two-year time-of-travel rule. Craig said that two-year time-of-travel works for pathogenic contamination but not for contaminants related to salvage yards. In a salvage yard situation a demonstration that the contamination does not flow towards a well or that the discharge meets all groundwater standards is required.

The salvage yard rules prohibit the construction of a salvage yard within 300 feet of a well but do not regulate the construction of a well not on the salvage yard property. The Wastewater System and Potable Water Supply Rules need to include an isolation distance for salvage yards which could be reduced in consultation with the salvage yard program.

Rule Revisions:

Ernie reviewed his latest draft of language about the discharge from overflowing wells. The TAC recommended just one standard for the discharge point using the requirements for at least 6" of drop to an area where the surface water will flow away from the discharge point.

The term basal area was discussed. The current draft describes the area under and downslope of the leachfield in a mound as being the basal area. The rules also describe a minimum basal area based on percolation rates and isolation distances are set from the minimum required basal area. The TAC recommends redefining basal area as that required based on the percolation rate.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
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Subcommittees:

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Bottomless Sand Filters

Peter Boemig, Mark Bannon, Cindy Parks, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie Christianson

Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

April 14, 2015

Attendees:	Roger Thompson	Peter Boemig
	Carl Fuller	Kim Greenwood
	Mary Clark	Gunner McCain
	Chris Russo	Steve Rebillard
	Terry Shearer	Travis Blodgett
	Jessanne Wyman	Mark Bannon
	Darlene Autery	Ernie Christianson
	Craig Heindel	Gail Center
	John Beauchamp	Ernie Kelley

Scheduled meetings:

May 19, 2015	1-4 PM	Catamount Con. Rm., National Life – Montpelier
June 16, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier
July 14, 2015	1-4 PM	Winooski Con. Rm., National Life – Montpelier

Agenda:

The agenda was accepted.

Minutes:

The draft minutes of the March 17, 2015 meeting were accepted

Compliance Update:

Chris Russo reviewed the progress on the submission of installation reports, annual inspection reports for individual systems, and vendor reports and entering all of the information into the permit tracking system. The annual inspection reports for 2014 have been entered into the tracking system. About 25% more inspection reports were submitted in 2014 than in 2013 and the compliance rate is estimated to be about 40%. The compliance rate will climb as the DEC does outreach on the permits with missing inspection reports. The annual reports from the vendors have all been submitted with only a few late submissions and these were only late by a few days. Chris is still working with the vendors to ensure that all of the required information is submitted in the future. Chris has provided a template that specifies all of the required information to the vendors that were approved in 2014/2015. The vendors appreciate having the template and have indicated they will use it for their submissions in 2016.

The replacement tracking system is still under construction with steady progress. Vendors and staff are working to index annual inspection reports to the permit numbers. The new system will move towards use of the SPAN numbering system which will allow easier tracking when the property is transferred from one owner to another. Craig and Peter supported having clickable links in all of the documents to allow rapid movement to a particular document of interest. Chris said that the documents are being sorted into specific subfolders within the tracking system so that some items, such as inspection reports, can be viewed without working through all of the information in a permit file.

Legislative Update:

Ernie provided an update on current legislative action and said that H.217 (partial delegation of the Wastewater System and Potable Water Supply program) is the only bill moving so far. There is some concern among members of the House Fish, Wildlife, and Water Resources Committee (FWWR) that so much time is being spent on clean water issues in front of the Senate Natural Resources Committee that the bill may not be brought up this session.

H.375 (ecological toilets) is still active, though maybe not on track for passage until next year. The Fish and Wildlife Committee will take testimony on April 17th. Ernie is not available and Mary will appear

and carry the TAC message. The TAC discussed the bill at some length and decided that before making a lot of recommendations the intent of the bill should be better known. The bill indicates that public health, water conservation, and beneficial reuse are among the considerations. The TAC commented that most of the proposed changes would not diminish the risk to public health and might increase the risk of exposure to pathogens in comparison to the current Wastewater System and Potable Water Supply Rules (Rules). The TAC also noted that most of Vermont is water rich and therefore a lack of water and a need to reuse it that might justify an increase in the health risk is not present in Vermont. Some beneficial use of nutrients from wastewater is occurring in Vermont, including urine separation and land application by the Rich Earth Institute in Southern Vermont. The cost/benefit ratio of beneficial reuse should be evaluated as part of any discussion of the topic. Gail said that one approach to a reduction in water use, waterless urinals, had been approved by the Vermont Plumbing Board. Some of the installations of waterless urinals have not been successful as they are hard to clean. The units are currently allowed in Vermont but are not used frequently.

Ernie Kelley, in charge of the Residuals Management Section, outlined the requirements for management of treated wastewater. Any pathogenic material that enters a treatment process is regulated and proposals based on composting are approvable. If the waste is treated to thermophilic temperatures (135-145 degrees Fahrenheit) it is no longer considered to be waste material and can be used as compost material. Some public wastewater treatment facilities treat and dispose of their sludge using this process. However, composting toilets are a challenge because a single compartment toilet must be taken out of use for a period of time for the composting process to work. Multi-chambers systems can be used but they require careful operation as the solid material and the liquid material must be balanced so that the required temperature is reached. Processing the material so that all portions of the material reach the required temperatures involves constant attention by trained operators. Ernie Christianson asked if grey water was regulated. Ernie Kelley responded that most grey water has pathogens and would be regulated if processed in any sort of treatment system. A urine diversion system with a separate collection path and no treatment process would probably not be regulated.

Craig suggested telling the FWWR Committee that the TAC is willing to work on the issue but other groups including the Residuals Management Section must be involved.

Mary suggested the following TAC comments for discussion with the FWWR Committee:

- A. Composting toilets are already allowed with ultimate disposal of the waste either in certified landfills or using shallow burial onsite when the soils are appropriate.
- B. Meet with Rep. Zagar (bill sponsor) and discuss goals of the proposed legislation.
- C. Recommend a study group including the TAC and the Residuals Management Section and including any other groups affected by the bill.
- D. Discuss concerns about pathogens and whether the W.H.O. recommendations are appropriate for Vermont.

- E. Most grey water will include pathogens. Bathing and clothes washing, particularly when reusable diapers are considered, will include pathogens and surface application of untreated grey water may not be appropriate in Vermont.

The TAC supported a framework for the discussion with a focus on pathogens and public health. Peter said that the discussion of reuse should be included as over time new information and technology may support reuse in more situations.

Rule Discussion:

Ernie reviewed the most recent draft of the process for drawing the isolation zones around leachfields. Earlier drafts resulted in more downslope area being included than required. The TAC reviewed the current draft and agreed that it correctly describes the process. The TAC strongly recommended that one or two example drawings be included, either in the Rules or as guidance documents. Peter noted that it is important that the examples demonstrate how to deal with situations where the contour lines include convex shapes or concave shapes, as well as uniform slopes, all of which may be involved for a single leachfield.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – Chris Thompson, Spencer Harris, Claude Chevalier, Craig Heindel

Subcommittees:

Hydrogeology

Craig Heindel, Bill Zabiloski, Mark Bannon, Scott Stewart, Steve Revell, Mary Clark, Roger Thompson, Peter Boemig, Ernie Christianson, Spencer Harris

Bottomless Sand Filters

Peter Boemig, Mark Bannon, Cindy Parks, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie Christianson

Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

June 16, 2015

Attendees: Roger Thompson Denise Johnson-Terk

Claude Chevalier

Ken White

Darlene Autery

Justin Willis

Mary Clark

Peter Boemig

Craig Heindel

Ernie Christianson

Gunner McCain

Chris Russo

Scheduled meetings:

July 14, 2015 1-4 PM Winooski Con. Rm., National Life – Montpelier

Agenda:

The agenda was accepted.

Minutes:

The draft minutes of the April 14, 2015 meeting were accepted.

Legislative Update:

Ernie reviewed the new fees for regional office permits. The fees for various types of applications were raised while attempting to simplify the categories. Ernie noted that while he had suggested specific numbers, in the end the application fee for simple projects with flows of 560 GPD or less ended up being \$306.25.

H.375 did not pass this year but the bill which deals with ecological toilets and grey water systems is expected to be discussed in the second half of the session. The legislature may ask for input from the TAC on this bill.

Ken asked if there was any action related to “overshadowing” issues. A bill that would require ownership or legal control of all of the isolation distance was introduced but there was no action on it.

Ernie said that the bill directing the Agency to allow partial delegation to municipalities for projects that will use both water and wastewater systems owned by the municipality did pass. The language has already been included in the draft rules and would have been proposed for adoption even if the bill had not passed.

I/A Systems Update:

Mary said that an approval request has been made by Premier Tech that allows for the use of only coco husk media in their Ecoflo® Biofilter treatment system. Previously the media was a combination of coco husk and peat. The new approach allows for higher hydraulic loading of the treatment media. Gunner asked if the poly tank has been approved for use with the Ecoflo® Biofilter treatment system. Mary said

that concrete tanks, or poly tanks with siting limitations, are approved and these options are a replacement for the fiberglass tanks previously approved.

Eljen Corporation has replied to a comment letter related to their Mantis System. The Agency has agreed to allow for non-pressure distribution when the system is not used in mound type systems and the Company is requesting approval to use the Mantis System in mounds when the effluent pumped to a d-box using a timed dosing approach. Gunner asked if this approach, which applies small doses frequently to the system, would provide as even distribution as an approach using a few larger doses. Roger asked if there is information about how the moisture spreads in the sand within a mound system if the effluent is applied to only in a few areas in the mound. Craig thought there would be fairly good distribution if there is unsaturated flow under the distribution points. Mary will circulate the information that was submitted by the Eljen Corporation.

Regional Office Changes:

Ernie said that the Department is facing a budget cut of about \$722,000 of general funds and has decided to make the full reduction with cuts from the Regional Office Programs. There will be a reduction of 9 positions and the Barre Regional Office will be moved to the central office. All people have been offered other positions within the Department filling existing vacancies and staffing within the Watershed Management Division and Waste Management Division. One Regional Office staff member located in Rutland is being offered a position in Montpelier which is probably prohibitive for commuting.

Draft Rules:

Ernie asked for comments about specific sections of the draft rules rather than attempting a page by page review.

Roger asked if the language related to public trust could be improved. It might say that some uses are automatically considered to be in the public interest and therefore approvable and that other uses might be approved when an individual review determined the use would be in the public interest.

Peter noted that clean stone is not defined and therefore designers find it hard to show installers why the stone they want to use is unacceptable. Peter said that New Hampshire uses a sieve test with a maximum allowance of fine material.

Ernie wants to exempt flow increases for single family residences when they are connected to both municipal water and wastewater systems. Peter asked about adding an exemption for new public buildings and additions to public buildings that do not require water or wastewater systems. Exemption number 8 in the existing rules allows for this exemption and unless a determination by the Secretary is required the landowner need not file with the Agency.

Ernie also said he is proposing dropping the requirement for wastewater strength determinations for projects that have a set design flow in the rules. While there are concerns about wastewater strength there could be a lot of work involved as each project is case specific and with the reductions in Regional Office staff it is not appropriate to add new requirements. Ernie noted that there are a few types of projects

where high strength wastewater is a concern and the Program will continue to require a design to compensate for the strength but these are well known and relatively few in number. In addition the Agency tracking system shows only a small number of failed systems each year for restaurants and other facilities that are listed in Table 3 of Section 1-808 that would be regulated as having high strength where the failure might be related to wastewater strength. The draft rules will follow the TAC Subcommittee's recommendations and suggest to designers that facilities with a flow number in Tables 8-1, 8-2, and 8-3 take into consideration the strength of wastewater during the design phase of a project. Designs for facilities that do not have a flow number in the Tables or those using water meter data need to consider wastewater strength as part of the design.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – Chris Thompson, Spencer Harris, Claude Chevalier, Craig Heindel

Subcommittees:

Hydrogeology

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Bottomless Sand Filters

Peter Boemig, Mark Bannon, Cindy Parks, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie Christianson

Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

July 14, 2015

Attendees:	Roger Thompson	Peter Boemig
	Gunner McCain	Mary Clark
	Chris Russo	Darlene Autery
	Brian Parker (Eljen)	Ernest Christianson
	Ken White	Craig Heindel

Scheduled meetings:

September 15, 2015	1-4 PM	Annex Building, 190 Junction Road – Montpelier
October 13, 2015	1-4 PM	Annex Building, 190 Junction Road – Montpelier
November 17, 2015	1-4 PM	Annex Building, 190 Junction Road – Montpelier

Agenda:

The agenda was accepted.

Minutes:

The draft minutes of the June 16, 2015 meeting were accepted.

Review of the Eljen Mantis System:

Brian Parker attended the meeting representing the Eljen Corporation. The issue under review by the TAC is whether the Mantis System operates in a manner that eliminates the need for pressure distribution when the Mantis System is used in a mound system. Mr. Parker said that the requirement to use a pressure distribution approach is very costly in comparison to the dosing system approach allowed with the Enviro-Septic® and the ADS GEO-Flow® Systems. In previous discussion the TAC expressed concerns that the Mantis System with many small modules may not function in the same manner as the other systems that consist of lengths of pipe which rapidly develop a ponded level over the length of the pipe. Mr. Parker submitted additional information (Eljen letter dated 6/2/2015) related to sand moisture levels collected near the proximal and distal ends of a 26’ section Mantis M5 containing 5 modules by the Massachusetts Alternative Septic System Test Center (Test Center). The system was loaded at 1.0 gpd/sq.ft., one-half the maximum allowed under the Vermont Wastewater System and Potable Water Supply Rules (Rules). The reported moisture levels were relatively close from one location to another which Mr. Parker believes demonstrates equal distribution of wastewater into the many small modules. Roger asked if there is any information that the soil moisture level would vary proportionately with the amount of water flowing through the soil. No one is aware of such information. Gunner and Craig asked about the installation at the Test Center. Mr. Parker said that the system was installed in sand that met Eljen specs for Mantis installations and that it was compacted with vibration. The system was dosed with the standard domestic-strength wastewater used by the Test Center.

Mary asked if the Test Center Director, George Heufelder, agreed with the test approach used for measuring soil moisture and Mr. Parker said that it had been reviewed and accepted. Mary asked if Mr. Heufelder had reviewed the data and commented on its meaning. Mr. Heufelder has not reviewed the data.

Peter asked about the configurations that might be allowed under the Rules noting that while the test data is for a 26’ system the Rules would allow for a 90’ long system with a design flow of 560 GPD at the maximum loading rate of 2 gallons/day/square foot. Ernie said that a design manual for use in Vermont

would need to be reviewed as part of the approval process. Craig felt the test results showed that each module was quickly forming a mat that facilitates equal distribution of effluent over the 26 feet of the test system similar to pipes wrapped in fabric. Gunner asked about requiring the use of timed dosing versus demand dosing and Mr. Parker said that the design manual would push the designers towards time dosing. Also there was a discussion regarding careful design of the dose volume and flow rates in order to not overwhelm the d-box or modules. Gunner and Peter strongly recommended a central distribution box location as a means of promoting even distribution and minimizing the length of the individual sections. Brian agreed to a maximum 100' length if fed from the center with a distribution box. The system could be fed from the end when 50' or less in length. These limitations are for mound designs. The TAC also discussed situations with more than 500 linear feet of distribution piping which in the Rules requires dosing of the system. One other suggestion was to limit the approval of pump to D-box designs to a maximum of 2000 GPD of residential use. Commercial uses would require pressure distribution. It was also suggested that more detailed installation instructions be provided regarding compaction of the fill to prevent settling under the modules. Mr. Parker said he could work with these limitations.

Draft Rules:

Ernie gave a status update with a timeline to complete the internal review of draft rules. The TAC will have a chance to review the Department's final draft after Chris Thompson completes her review. Ernie also noted that he was planning to return to review of the draft WS Rule at our September meeting.

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Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

September 15, 2015

Attendees: Dolly Parizo

Mary Clark

Jessanne Wyman	Rich Wilson
Chris Russo	Carl Fuller
Craig Heindel	Peter Boemig
Steve Revell	Terry Shearer
Justin Willis	Gail Center
Denise Johnson-Terk	Gunner McCain
Roger Thompson	Ernest Christianson

Scheduled meetings:

October 13, 2015	1-4 PM	Annex Building, 190 Junction Road – Montpelier
November 17, 2015	1-4 PM	Annex Building, 190 Junction Road – Montpelier

Agenda:

The agenda was accepted.

Minutes:

Craig offered several comments to clarify the discussion of the Eljen Mantis system that were accepted. The concept of limiting the pump to gravity option for mound systems to 1000 GPD will be discussed at the next TAC meeting.

Innovative/Alternative Systems:

Mary reviewed the current requests for approval.

Aqua Test Inc. Company of Washington State is requesting approval for use of their NIBBLER system. This is a moving bed bioreactor type of system that is used between a septic tank and an advanced treatment system when the septic tank effluent is high strength wastewater. The goal is to reduce the wastewater strength down to a level so that the advanced treatment system meets its required level of treatment. This technology is being considered for pilot approval without any reduction in leachfield size or separation to the seasonal high water table related to its use. One system is in use in Vermont where food handling results in high strength wastewater. Roger asked if the submittal included information about the influent strength. Mary said it does and will circulate the information to the TAC.

Mary mentioned a draft proposal to use a filtration product developed by Aquaculture Systems Technologies for the aquaculture industry for use on a commercial building with high strength wastewater. The proposal was to use this product for reducing waste strength prior to entering an I/A

General Use unit. Initial review comments included questions on the appropriateness of this product, testing, approval history, and etc.

The request for use of coco media in the Ecoflo Biofilter has been approved. This will be used in lieu of the previously approved peat media.

Mary discussed whether the Innovative/Alternative approvals should include expiration dates. The current approvals are for 2 year periods and expire unless renewed. Mary has asked the Agency attorneys to review the issue. Landowners with permits for construction of wastewater systems have asked about situations where the Innovative/Alternative approval has expired and if they can still construct the system as approved. The answer is yes because the permit to construct a wastewater system is valid until revoked. Ernie said there are concerns about vendors that go out of business or who choose not to renew their Vermont approval. There are also concerns about getting the annual maintenance inspections done as the Innovative/Alternative approvals require the vendor to approve the people doing the maintenance inspections. A process for ensuring that system owners can still have their systems inspected even if the vendor ceases operation should be established. Steve noted that many inspections are done by approved service providers who are not licensed designers. Chromaglass systems were discussed. The company is no longer in business though Steve said that there may be a successor in the works. Chris said that she is still getting annual inspection reports for some of these systems.

Mary circulated an updated list of service providers for the various systems. Peter asked where the names came from and Mary said they were provided by the vendors. Peter asked if there should be a licensing category for service providers.

Installer Licensing or Certification:

Mary said that a series of meetings were held around the state in the past and that there was a lot of interest in a certification program. This would allow installers to advertise that they have been certified to do wastewater system installations. The Department is also discussing a licensing program for installers which would require a statute change. One question related to this is whether the installers would be required to do the installation certification. Steve said that many of the installers he works with want the designer to do the installation certification. There is also concern that some legislation requiring that systems be guaranteed might be proposed. Gunner and Justin agreed with Steve. Dolly Parizo of Island Excavating Corporation said that she supports a certification process for installers. Dolly commented that her company has been finding a lot of leaking tanks this year. She also wondered how this would fit with their liability insurance. Gunner asked if a certification program would be at the individual or the company level. Justin said he is not in favor of having non-designers do the installation certifications.

Mary has reviewed the New Hampshire program for licensing installers. This program has operated for many years and Craig notes that there is a large statewide organization of licensed installers that provides training for installers. Mary is considering two levels of inspection that would cover simple and complex systems. The National Association for Wastewater Technicians (NAWT) is one group that can train and test installers.

Ernie said there is also consideration of transferring all of the licensing programs to the Office of Professional Regulation (OPR) in the Office of the Secretary of State. This would reduce an administrative burden on the Department. Craig asked Gail about her experience working with the Plumbers Licensing Board and Gail said it is a lot of work to run the licensing program.

Chris asked about the fees that OPR would charge. Mary reported that their estimate is about \$100 per year. Roger asked if a small program of a hundred or so would be as cost effective to run as say the Professional Engineers program with more than 2,000 members. Mary said the cost of the program is spread across all of the various licenses so that the fees are pretty flat from program to program. Ernie asked Dolly if \$100 per year would be a problem and she said it would not. Ernie asked Dolly if she thinks that there is an incentive for installers to be able to do the installation certifications. She does not and would not want to take on this task.

Steve said he hears request for installer training and said that many years ago there was routine training sessions for designers and installers. Gunner supports this type of training. Roger suggested that the Vermont Technical College would probably like to run a training course that would lead to an ANR certification. Justin asked Dolly about the training her company uses for its several installation teams. She said that there are many long term employees who provide on the job training and that the company owners visit every site every day.

Loan Program:

Ernie reviewed the loan program for failed wastewater systems. One problem is that under the current process the landowner needs to pay the designer upfront even though the cost of doing the design can be rolled into the loan. Many of the people who qualify for this program do not have the several hundred to two thousand dollars needed for the design work. Don Robisky, who first operated the loan program, suggested finding a group of designers who would be willing to do the work and wait to collect their money until the loan has been issued. Other state loan programs have a planning advance process where the state issues the money to pay for the design which is recovered by adding it to the construction loan. The TAC supports the planning advance approach.

Wastewater Tracking System Update:

Ernie reports that the system is still on-track to be running on October 1st. The system is under beta testing now. The entry of technical information is being revised to flow in a logical fashion starting with the well or the leachfield and working back to the building.

Wastewater System Rules Update:

Ernie said that Christine Thompson is in the process of reviewing the current draft. Once this is done the final draft that will be sent to the Interagency Committee on Administrative Rules (ICAR) will be circulated to the TAC.

Water Quality Database:

Gail reported that the Vermont Department of Health has received a \$500,000 grant from the Center for Disease Control to put all of the water quality data they have into data base. They are currently interviewing people to do the work. Craig asked if the work will be done in-house or under contract. The grant runs for five years.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
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Subcommittees:

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Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

October 13, 2015

Attendees:	Roger Thompson	Mary Clark
	Gail Center	Craig Heindel
	Chris Russo	Mark Bannon
	Peter Boemig	Ernest Christianson
	Ken White	

Scheduled meetings:

November 17, 2015 1-4 PM Annex Building, 190 Junction Road – Montpelier

Agenda:

The agenda was reviewed and Mark asked for time to discuss the current application form and how it might be improved which was agreed to.

Minutes:

The minutes were accepted as drafted.

Application Form:

Mark said that he finds the current WW Permit application form and the administration process to be overly complex. One example is the difficulty when the land is owned in a trust. He has been requested to provide additional documentation stating the person signing the application is authorized by the trust to sign the application form. Mark wonders if the form cannot be arranged so that a signature in one place on the form covers all of the issues. Ernie noted that the application form is long and complex because when it was developed about 5 years ago the intention was that the applications would be filed electronically and that the contents of the application would flow electronically into a database which would also calculate the application fee. Developing this feature turns out to be very complex and was never finished. Mark also raised concerns that an entire application is sometimes returned when only one piece of information is missing. Ernie said that returning applications depends on the amount and type of missing information with the administrative staff using their judgment on when to call for information and when to return the application. Ernie said that he is currently working on standardizing the amount and the form in which information is submitted from one regional office to another. Ernie also noted that the update of the electronic tracking system has been delayed while working with the original developer of the software and therefore the work on updating the program is now being done by Agency staff. Craig asked for a time line and Ernie said he is hoping to have it done in the next few months.

Peter said that one issue he constantly deals is need to re-notify the neighbors when there is overshadowing from water or wastewater systems and the plans are revised. This adds quite a bit to the cost of a project along with additional delays. Can there be some determination that some revisions are so minor that re-notification can be waived. Ernie said he would ask the Agency attorneys but the requirement is in the Vermont Statutes and does not seem to allow for exceptions. Gunner said that many of his projects require as built plans because when he is preparing the application the size and location of the proposed building is uncertain.

The TAC discussed how they might propose some changes to the statute to allow for a more workable process. It was suggested that legislators be invited to a TAC meeting where the issues that landowners encounter could be discussed. It was agreed that the TAC should have concrete examples of problems and some possible solutions in preparation for such a meeting. Ernie will first discuss the TAC concerns with DEC management to see if there is interest in putting forward a proposal by the DEC.

The TAC decided to form a subcommittee to work on this issue. The subcommittee will be led by Mark with Mary, Gunner, Ken and Ernie. Mary will organize a meeting time and location.

Innovative/Alternative Systems:

Mary reported that the Eljen Corporation has submitted an updated draft manual for installation of the Mantis System. They included the requested changes but also included a new low profile module with only 2 inches of module depth vs. 6 inches tested and meeting NSF Standard 40 requirements. The inclusion of this low profile module has not been previously discussed and the submittal did not include any testing data for the low profile module or any assessment that the system will provide equivalent wastewater treatment to the standard modules. The TAC agreed that approval should continue for the standard modules but that the low profile version should not be approved without prior testing. The draft manual does indicate that mound systems larger than 1000 GPD will use pipe-in-pipe pressure distribution as recommended by the TAC.

The information submitted for pilot approval of the Nibbler wastewater treatments system has been circulated to the TAC. The information includes results for when the system was used on high strength wastewater.

An application has been received for approval of the Norweco Hydro-Kinetic System and has been circulated to the TAC. The TAC had reviewed and recommended approval under the Pilot projects section originally but the approval has not been executed. Norweco is now requesting consideration under the General Use approval because they are now approved in many states, have significant testing results, and are a manufacturer of a similar product used in Vermont for many years. The Hydro-kinetic system was developed for nitrogen removal in addition to the reduction in wastewater strength. Mary mentioned that originally we thought it might fit best as a Pilot system approval because of the small number of installations but otherwise it is based on a proven design by a well-known manufacturer. The TAC voiced support for approval under the general use category if possible.

Mark raised the question of when something originally approved under innovative/alternative conditions becomes a standard technology. This question has been discussed at previous meetings and there is agreement that some label other than Innovative/Alternative should be developed.

Compliance Program Update:

Chris said that because of the recent major reduction in Regional Office staff all of the maintenance inspection reports for advanced treatment system are now being forwarded to her. She is working on entering the information into the tracking system but it is a large task. There are approximately 700 reports this year and the numbers are expected to rise, possibly to 900 next year. Chris is introducing a fillable PDF form that will be used to submit information in the future which should streamline the work. Chris is reviewing each of the reports to see if the inspector has made recommendations for maintenance or repairs and following up if additional work is needed. This is work that was done by the Regional Engineers prior to the reduction in staff. Chris is also doing administrative reviews trying to update owner contact information, associating WW Permit numbers and SPAN numbers with each report. It takes an average of about 15 minutes per application for this update of the tracking system. The goal is to move towards a system of electronic submissions so that only systems with problems require attention.

Chris is continuing to work on education and outreach when there is time. The Agency did issue a press release and 270 towns and organizations were sent a letter offering brochures for local distribution. About 600 brochures have been requested.

Licensing and Training Programs:

Mary, Ernie, and Chris Thompson met to discuss the training and licensing issues. They agreed to work on developing a training program. This might include working with University of Rhode Island trainers who already have a suite of training programs they offer in Rhode Island and other New England States. Mary thinks this will develop into several day long training programs presented in cooperation with the Vermont Technical College. Peter and Craig suggested consulting with the Granite State Designers and the Installers groups that have been in operation for many years and serve a large number of designers and installers. Mary said that she would be making this contact as well as looking at other national programs. She hopes to find a small amount of funding to support the URI trainers in developing an exam. Craig said that Kyra Jacobs at EPA is a strong supporter of groundwater protection programs and might know of available grants.

Rules:

Ernie said that he is moving forward with detailed editing of typos and formatting issues and doing as much as he can until Chris Thompson completes her review and gives her approval. Ernie has circulated the most recent draft of the rules and asked for comments about specific sections of the Rules. Steve Revell has submitted some comments indicating support for the draft.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
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Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Approved Minutes of the Technical Advisory Committee Meeting

November 17, 2015

Attendees:	Roger Thompson	Justin Willis
	Darlene Autery	Rodney Pingree
	Craig Heindel	Peter Boemig
	Ernest Christianson	Scott Stewart
	Mark Bannon	Mary Clark
	Gunner McLain	Claude Chevalier

Scheduled meetings:

January 22, 2016	2-5 PM	Essex Junction
February 16, 2016	1-4 PM	Annex Building, 190 Junction Road – Montpelier
March 15, 2016	1-4 PM	Annex Building, 190 Junction Road – Montpelier

Agenda:

The agenda was reviewed and accepted.

Minutes:

The minutes were discussed. Ernie asked if the TAC had agreed that a well detail should be required on the plans at the previous meeting. The group said no agreement was made and the minutes were accepted as drafted.

Meeting Schedule:

Additional meetings were scheduled as noted above.

Well Detail:

Ernie discussed the well detail drawing that he had circulated to the TAC and asked if this should be a standard detail included on every set of plans when a well will be constructed. The detail is for a drilled well and will be included in the revised Wastewater System and Potable Water Supply Rules (Rules). Mark noted that in most cases the designer will not change the detail and that most of the construction shown on the plan could only be certified by the well installer. He suggested that perhaps the application could refer to the well detail in the Rules with a note indicating that the well installer should complete the work according to the detail in the Rules. Rodney and others agreed with this approach.

The TAC discussed the responsibility for ensuring that drilled wells are installed in the approved location and in accord with the standard design requirements plus any additional site specific requirements included in the permit. Craig asked Claude how often he sees the approved plans before drilling a well. Claude said that in many cases he does not see the plans but relies on the landowner to indicate the approved location. Claude also noted that many replacement wells serving single family residences on their own lots qualify for a permit exemption. The exemption requires the well driller to prepare and sign a certification form that is required to be signed by the landowner and filed on the town land records. Claude said that he relies on information from the landowner to determine if the permit exemption applies. Claude said that this seems to be the industry practice for determining well locations and whether or not an exemption applies. The TAC discussed approaches to ensure that whenever the well does not qualify for a permit exemption the well driller has access to the approved plans. Ernie suggested that the well driller licensing regulations require well drillers to ensure that wells are either exempt or drilled in the approved location. Drilling in an unapproved location at the direction of the landowner might create liability for a well driller even if the landowner directed otherwise because only a revised permit or a new well location certified by a licensed designer under the record drawings provision of the Rules is acceptable.

Well Driller Installation Certifications:

Licensed well drillers are authorized to write installation certifications for drilled wells unless a particular permit specifically requires a licensed designer to certify the installation. Mary distributed copies of the well installation form that licensed wells drillers must submit for each new well. Gunner asked if well pump information should be included but the TAC decided that well pumps are often installed after the well driller's report is filed and because well pumps can be replaced the information is not something a designer should rely on in the future. Roger suggested that adding a spot for the SPAN # (School Parcel Account Number) would allow a person to identify the current owner of a well. Craig said that requiring the well tag number to be on the report would be the biggest help. Rodney said that the well driller's form will be updated and circulated for TAC review. The TAC decided to have a subcommittee to work with Rodney and appointed Rodney, Craig, Claude, Peter, Mary, and Ernie.

Technical Review Checklist:

Ernie reviewed the checklist that he had circulated for comment. The goal of the checklist is to standardize the review process within the five Regional Offices so that reviewers and designers are clear on what should appear on the plans or be included in the supporting documents. Scott suggested adding a place to indicate if the project will be located in a class IV groundwater protection area. Construction of new sources in these areas is prohibited. There are only a handful of areas currently defined as class IV but the number may expand to approximately 600 because of other rule changes. The information will be available on the Department website along with that for hazardous waste site. Roger suggested that fewer construction details be required for applications for single family residences. Peter and Justin replied that they have a standard set of details they use for all applications and would continue with this approach.

Mark asked if there should be a standard requirement that invert elevations of critical items be included. Peter supported the concept while Gunner raised concerns that specifying elevations might cause an

installer to blindly follow the specified elevations when the micro-topography, not revealed with 2' contours or even 1' contours, would suggest a small adjustment up or down to better fit the site. Justin said he specified invert elevations, especially for replacement systems because the sites are already developed and there is often little room for variations. The group noted that if elevations were required for all of the components of the system, many projects would require as-built plans or permit revisions particularly for previously undeveloped lots because the building location will frequently be revised by a new lot owner. The group recommended requiring invert elevations for the leachfield and, if proposed, the pump station and force main.

Peter said that when a cross section is required for a leachfield there is no reason why it must be drawn to scale as long as all vertical dimensions are clearly labeled. The group agreed with this suggestion.

Installer Licensing:

Ernie said that the Department had considered the question of licensing installers and will propose statutory language to establish a licensing program. Ernie and Mary have been reviewing information from other states about installer licensing programs and will be meeting with people from New Hampshire involved in their licensing program.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – Chris Thompson, Spencer Harris, Claude Chevalier, Craig Heindel

Subcommittees:

Hydrogeology

Craig Heindel, Bill Zabiloski, Mark Bannon, Scott Stewart, Steve Revell, Mary Clark, Roger Thompson, Peter Boemig, Ernie Christianson, Spencer Harris

Bottomless Sand Filters

Peter Boemig, Mark Bannon, Cindy Parks, Mary Clark, Denise Johnson-Terk, Craig Heindel, Ernie Christianson

Seasonal High Water Table Monitoring

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Bill Zabiloski, Dan Wilcox, Mary Clark

Well Driller's Reporting Form

Rodney Pingree, Craig Heindel, Claude Chevalier, Peter Boemig, Mary Clark, Ernie Christianson

