

**ANNUAL REPORT OF THE
TECHNICAL ADVISORY COMMITTEE
FOR 2018**

Established by Act 133 of the 2001 Adjourned Session

REGARDING OVERSIGHT AND IMPLEMENTATION OF THE

**WASTEWATER SYSTEM AND POTABLE WATER SUPPLY
RULES**

January 15, 2019

Members of the Act 133 Technical Advisory Committee:

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John Beauchamp, MWS, CI, Master Water Specialist

Peter Boemig, P.E., Professional Engineer

Grahame Bradley, PhD., Hydrogeologist/Soil Geologist, Drinking Water and Groundwater Protection Division

Claude Chevalier, Licensed Well Driller

Ernie Christianson, Regional Office Manager, Drinking Water and Groundwater Protection Division

Mary Clark, Indirect Discharge and UIC Program Manager

Craig Heindel, Hydrogeologist

Sille Larsen, Senior Water Resources Engineer, Vermont Department of Health

Gunner McCain, Licensed Designer

Rodney Pingree, Section Chief, Drinking Water and Groundwater Protection Division

Stephen Revell, Licensed Designer, Hydrogeologist

Scott Stewart, Hydrogeologist, Drinking Water and Groundwater Protection Division

Denise Johnson-Terk, Licensed Designer, Town Official

Roger Thompson, Licensed Designer

Ken White, Licensed Well Driller

Justin Willis, Licensed Designer

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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 2018.

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 was 1 standing subcommittee during 2018. The list of Subcommittee members is included in Appendix A

Meetings:

Eight meetings were held by the TAC in 2018 on February 13, February 26, March 21, March 27, April 3, April 12, April 19, and December 5.

The meetings were held in conference rooms at the National Life Building and at the Department of Environmental Conservation (DEC) Annex Building in Montpelier. Meeting attendance ranged from 10 to 19 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 DEC continued to be active during 2018. The primary focus was on reviewing the proposed updates to the Wastewater System and Potable Water Supply Rules.
2. **Proposed Wastewater System and Potable Water Supply Rule (WW Rules) Revisions:** During 2018 the DEC continued its detailed legal review of the Rules and began the rule adoption process which is administered by the Secretary of State. The DEC completed the Interagency Committee on Administrative Rules (ICAR) process. The DEC then held several public meetings around the state to discuss the proposed changes to the WW Rules and to accept comments about things that were changed and things that were not changed. The DEC then filed a request with the Legislative Committee on Administrative Rules (LCAR) and expects to have a hearing with LCAR early in 2019.

While this process has been underway, the DEC and the TAC have continued to meet and discuss the draft WW Rules. Because the drafting process has been underway for a few years, many of the points of discussion during 2018 involved clarifications of language, responses to revisions based on the legal review, discussion of proposed changes from the Regional Office Staff, and comments from the public meetings. The TAC made recommendations on the topics discussed below:

- A. Some language was proposed to limit the primitive camp exemption by regulating construction of pit privies, composting toilets, and gray water disposal systems. The TAC noted that this seemed to violate the legislative intent to make “deer camps” and similar primitive camps exempt when the interior plumbing is limited to a single sink and the camp was only occupied for a few days per year. The TAC recommended that the additional language be removed.
- B. The TAC discussed hydrogeological site evaluations. The TAC worked with the DEC to improve the definitions of confined and unconfined soil layers and the proper application of vertical and horizontal K (conductivity) values.
- C. The TAC supported the DEC proposal to revise the exemption related to subdivision of improved lots. The revision would remove the requirement that the existing residence be at least 500’ from any newly created property line when

the existing residence is connected to both municipal water and wastewater systems.

- D. The TAC discussed the requirements to bring water and sewer lines up to current standards when there is a change in use of an existing building. The TAC recommended that DEC allow the continued use of the existing water and sewer lines when there is a change in use even if there is an increase in design flow. The limitation would be that the water and sewer lines would need to be upgraded if an increase in flow would exceed the pipe capacity.
- E. The TAC discussed the discharge of water treatment system backwash into soil-based disposal systems. There is research on this topic that indicates few adverse impacts on the disposal system. However, many manufacturers of advanced wastewater treatment systems prohibit this discharge. The change in the Underground Injection Control Rules that exempt disposal systems that only receive water treatment system backwash has also made it practical to construct a small system for the backwash. The TAC supports the use of separate disposal systems whenever possible.
- F. The TAC noted that the draft WW Rules removed a provision that allowed for a cost/benefit ratio when granting a variance from the WW Rules for a replacement system. One example where the existing variance might be used is when a system could only achieve a 32" separation to the seasonal high-water table with gravity flow but could meet the standard 36" separation by adding a pump station. When the isolation distance to water sources and surface water are met, the cost of installing a pump might not be justified. This provision can only be used when there is no increase in design flow. The TAC strongly supported retention of this provision and the DEC has agreed.
- G. The TAC discussed changing the minimum design capacity from two bedrooms down to one bedroom for new subdivision lots. The current census data for Vermont indicates that average occupancy for a single-family residence is slightly more than 3 persons. A lot created with a one-bedroom (two person) design capacity would prevent occupancy at the average level in Vermont. The TAC recommends retaining the two-bedroom minimum design requirement.
- H. The process of using flow monitoring to determine a design flow and/or wastewater strength for a project without a specified design flow or for a project that might have lower than usual wastewater flow was reviewed. Monitoring of wastewater strength is particularly complex and expensive because wastewater strength can vary greatly over time and is strongly affected by user behavior. Daily flow volumes can also vary over time. The DEC proposed that a minimum of one year of daily flow readings should be used in determining a design flow. The TAC feels that this is excessive, at least for some projects, and recommends that the language be revised to allow for a case specific decision. The TAC

recommends that when a project will depend on wastewater strength analysis, the project be designed by a Licensed Professional Engineer. The Engineer should be responsible for designing the process for collecting wastewater samples and for designing the disposal system to treat high-strength wastewater. The Engineer might use very low disposal system application rates, passive treatment such as increased septic tank size, or an advanced treatment system with an Innovative/Alternative System approval.

- I. The TAC recommended adding a category for small stores with limited food service. The design flow would be 15 GPD per seat.
- J. The DEC proposed that design flows for gas stations be based calculated on a per “fueling space” basis. The TAC supports this approach.
- K. The TAC discussed the isolation distance between drinking water sources and cemeteries. The discussion included various burial methods including use of a burial vault, embalming, burial without embalming, and various methods intended to allow the body to decompose and return to nature. The TAC recommended that DEC adopt a single isolation distance that is suitable for all types of burials.
- L. The isolation distances between wells and stormwater infiltration basins was reviewed. The proposed isolation distances of 100’ for wells completed in bedrock or a confined aquifer and 150’ for wells completed in an unconfined aquifer are quite large. There is concern about the potential for “over shadowing” on neighboring properties if the installation of an infiltration basin is located close to a property line. The TAC also noted that there was no differentiation between “rain gardens” and similar low risk infiltration basins and basins receiving runoff from roads and parking lots.
- M. The process for reducing the isolation distance around a drilled well was discussed. The reduction may be based on a variance when the well serves an existing use or a waiver when the well will serve a new or increased use. When a variance is required for a drilled well that will serve as a replacement well for a single-family residence on its own lot, the decision to use extra casing, grouting, or other methods of protection can be made by a Licensed Well Driller and the property owner. The decision to grant a variance or a waiver for all other situations will be based on a site specific hydrogeologic evaluation. The WW Rules should allow for a waiver or a variance when reviewing an application for a wastewater disposal system or for a water source. These provisions will be made clear in the proposed WW Rules.
- N. The TAC discussed the lists of contaminants in Tables 11-5 (primary standards) and 11-6 (secondary standards). When a new source is constructed, or the use of an existing source is increased, the source must be tested for these contaminants. Exceeding a primary standard requires that the property owner act unless an

exemption for a single-family residence applies. The TAC discussed whether there should be a requirement that testing must also be done for contaminants listed as secondary standards even when it is not mandatory that the property owner act. The TAC recommended keeping the requirement to test for secondary standards because some users are sensitive to these contaminants. The information is often required when designing an effective water treatment system.

- O. The TAC discussed whether specifications for water treatment equipment should be added to the WW Rules. The installation of most water treatment systems is exempt (based on statutory language). Systems that are not exempt are very site specific and must be designed by a Licensed Professional Engineer. Based on this, the only requirement that the TAC supported was that any system using Ultraviolet Light (UV) for disinfection should include a solenoid system that stops the flow of water if the light intensity falls below design specifications.
- P. The amount of chlorine that should be used to disinfect a well prior to placing the well in service, or back into service if maintenance or repair work has been performed, was discussed. The levels of chlorine required by the WW Rules (50 mg/l) and recommended by the Vermont Department of Health (100 mg/l) make the water unsuitable for consumption until the chlorine level has dissipated, usually by pumping the well. In cases with very low yield wells that have large well bore storage capacity, it may take several days to bring the chlorine level down to drinkable levels. The TAC decided that the need to achieve adequate disinfection is very important and a reduction in the required chlorine level is not justified.
- Q. The proposed language related to the design of bottomless sand filters was discussed. The draft language will allow for the use of bottomless sand filters for new or increased uses. The proposal will allow for the use of systems with a design flow of up to 6,499 GPD. The TAC discussed concerns that this is a very large change from the current status where bottomless sand filters are only used for replacement systems under the variance process. The group noted that, unlike mound systems, a replacement area must be designated for any bottomless sand filter used for a new or increased use. If the primary system failed due to lack of site capacity, the replacement could be built and both systems could be operated at the same time. This would reduce the effective loading rate by 50%. In addition, a bottomless sand filter with a design flow of more than 1,350 GPD must be designed by a Licensed Professional Engineer. The TAC supports the proposed language for bottomless sand filters.
- R. The TAC supports the proposed increase in septic tank size for larger systems. The 1000 gallon tank remains the standard for design flows up to 560 GPD while systems with larger design flows will require a tank that has a capacity of twice the design flow. Changes such as adding a flush up toilet in the basement or a laundry tray (small interior pump system) would not require upgrading of the

septic tank. A Licensed Designer would decide if a system where the effluent is pumped into the septic tank should use a larger tank. The TAC did not support a proposal to require a leakage test of every septic tank after it is installed.

- S. The TAC objected to the proposal to require an outlet filter in grease traps. The language will be removed from the draft.
- T. The TAC also objected to the proposals to increase the strength of piping proposed in sections 1-910(b) and 1-914(d)(2)(A). There is no evidence that the existing standard are inadequate, and the current language will be retained.
- U. The TAC asked that the word “crushed” be removed from the language used to describe the stone that is used in a leachfield. Material that is clean and has been screened to the proper size should be allowed for leachfield construction.
- V. The TAC discussed the requirements for continuing education that Licensed Designers who are not Licensed Professional Engineers must meet. The requirements are that during a two-year period the designer must complete at least 12 hours of training with at least 4 hours being soil based training. The DEC said that at least 8 sessions of soil-based training are provided in each two-year period and that a list of approved training opportunities is posted to the DEC website. TAC members said that it is appropriate for Licensed Designers to pay modest fees for their training. The TAC supports this position.
- W. The TAC discussed a proposal to change the design flow for a single-family residence that is connected water and wastewater system with a design flow of 50,000 GPD or more. The current design flow is 210 GPD per unit, regardless of the number of bedrooms. The proposal was to reduce this to 150 GPD based on flow metering records maintained at wastewater treatment facilities. The DEC does not support this change. Some projects propose that multiple units will be connected to a collection sewer line that will then connect to the municipal system. The sewer collection line might be overloaded if the collection sewer serving a cluster of new homes was sized for 150 GPD and a large percentage of those house ended up with a large number of bedrooms and a high rate of occupancy. The TAC agrees that the current design flow of 210 GPD provides a safety factor that should be maintained.
- X. A public comment received on the draft WW Rules proposed that cleanouts be required in septic tank effluent lines. The TAC does not support this requirement.
- Y. The proposed requirement that the location of each water source and leachfield be measured with GPS equipment was discussed. The reliability of the information submitted under this requirement would be low. Licensed Designers would not rely on the information when determining compliance with the WW Rules. The TAC believes that a reading for the center of each proposed lot would be enough

to track where in the state development is occurring and to flag issues such as wetlands, contaminated sites, and public water sources. The DEC agrees and will use the language in the current (2007) WW Rules.

- Z. The TAC discussed the proposed requirement that future applications include soil descriptions based on the USDA Soil Description Methods and on the Munsell Color Chart. TAC members asked that a grace period be allowed so that soil information that has been collected in recent years could still be submitted. The proposed WW Rules determine the loading rate for the disposal system using the required soil descriptions. The required soil descriptions include the identification of the soil structure and some soil structures allow for a higher loading rate. Older soil descriptions may not specify the soil structure in which case the loading rate would be based on the most restrictive interpretation based on the information that is submitted. The DEC proposes that information collected since January 1, 2007 can be used in future applications.
- AA. The TAC discussed a proposal that only composting toilets with an NSF 41 Certification be approved for use. The TAC did not support this requirement. The DEC may impose any operational or maintenance requirements justified for a particular make and model of toilet, and imposing a certification requirement is not necessary.
- BB. The TAC members strongly supported placing all the graphics related to the WW Rules in the document itself rather than referring to a website find the information.
- CC. The TAC does not support adding a requirement that there be a minimum effluent travel time between a leachfield and surface water. The existing minimum 50' separation for systems constructed in accord with the current and proposed WW Rules is appropriate.
- DD. The TAC supports allowing construction of a second well on a property, including when using the Well Driller's Exemption, when a second well is required to meet the minimum demand of the existing building or when none of the required isolation distance around the new well extends onto neighboring property.

3. Innovative/Alternative Systems: During 2018, the DEC approved on new Innovative/Alternative System called ClearPod, an aeration and fixed film technology for treating wastewater to filtrate standards, by Island Water Technologies. Renewals were issued in 2018 for the flowing Innovative/Alternative systems.

Company	Technology	Expiration Date
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Bio-Microbics, Inc.	Microfast®, RetroFAST®, HighStrength®	01/20/2020
Hydro-Action Manufacturing	Hydro-Action® Class 1 Wastewater Treatment System AP Series	2/22/2021
FujiClean USA	FujiClean CE Series	03/29/2021
Hydro-Action	Hydro-Action AP Series	02/22/2021
Jet Inc.	Jet BAT Media Series	06/30/2020
Norweco	Singulair Series Hydro-Kinetic	01/25/2020
Presby Environmental	Simple Septic Enviro-Septic Advanced Enviro- Septic	02/23/2021

APPENDIX A

Technical Advisory Committee Members as of December 1, 2017

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Executive Committee

Steve Revell, Ernest Christianson, Roger Thompson

Alternates –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

Surface Water Sources

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson

Appendix B

Compliance with Performance Standards for Regional Office Permits

Issued During Calendar Years from 2007-2018

	# of Permits Issued	# of Permits Meeting PEP Standards	% of Permits Meeting PEP Standards	Average DEC Days
2007	3746	3691	98.5%	16.8
2008	3435	3418	99.5%	12.3
2009	2691	2672	99.3%	11.8
2010	2621	2600	99.2%	11.9
2011	2289	2279	99.6%	13.2
2012	2472	2444	98.9%	12.7
2013	2449	2400	98.0%	14.0
2014	2503	2417	98.4%	12.6
2015	2367	2299	97.1%	11.8
2016	2647	2491	94.1%	16.2
2017	2253	2128	94.4%	16.7
2018	2527	2318	91.7%	15

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 2018

Permits Issued to Repair Failed Wastewater Systems	Applications Denied
510	21*

* Reasons for denials:

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

Low Income Loan Program

During calendar year 2018 the On-Site Loan Program made thirteen loan awards for a total of \$258,127 in new loan commitments. Three of the loans of the twelve loans were for replacement of failed water systems; the other ten loans were for replacement of failed wastewater systems. The program has partnered with the Opportunities Credit Union to underwrite and service the loans made under this program.

Failed Wastewater Systems Compliance Initiative

Historically, it has been difficult for Regional Office staff to monitor compliance with a failed wastewater system permit condition requiring that a replacement system be installed by the permit specified date. The new Water and Waste Tracking System (WWTS) has a compliance module that allows the Department to create a compliance schedule and track the receipt of installation certifications. The permit specified project completion date is entered in a Compliance Schedule and landowners are contacted if an installation certification is not received.

In March of 2017 the first compliance outreach initiative to track compliance with project completion and submittal of an installation certification began. In March of each year compliance schedules for the previous calendar year's failed wastewater systems will be reviewed. If a system was to be installed the previous year and an installation certification date has not been entered in the compliance schedule, Regional Office staff will verify that the certification has not been received. If Certifications are not on file, letters are mailed to the landowners requesting the certification by a specified date. If there is no response to the letter, a certified Notice of Alleged Violation (NOAV) is mailed approximately 4 months after the original letter.

The number of failed systems compliance schedules tracked will increase significantly in future years since the 2016 data set included only the failed systems that were logged into the new tracking system. There are **322** systems that were required to be installed in 2017, compared to the 128 systems that were tracked in 2016. As of February 6, 2018, the Department has received 63% of the installation certifications that were required to be submitted in 2017.

Innovative/Alternative (I/A) Wastewater System Summary 2007 to 2018

Year	Overall Number of I/A
-------------	------------------------------

	Systems Permitted
2007	137
2008	796
2009	538
2010	457
2011	424
2012	513
2013	521
2014	612
2015	594
2016	526
2017	545
2018	561
Total	5663

Innovative/Alternative Permits in 2018

I/A Manufacturer	Number of General Use I/A Products Permitted (excluding dispersal products)	Number of General Use I/A Dispersal Products
Advanced Aeration Group	0	
Advanced OnSite Solutions	9	
American Manufacturing	1	
Anua	0	
Aqua Test	1	
Aquapoint 3	2	
Bio-Microbics	9	
Cromaglass	0	
Delta Environmental Products	2	
Ecological Tanks	0	
Eljen Corp		5
FujiClean	1	
Hydro-Action	1	
Infiltrator Systems		89
Jet	33	
Norweco	18	

Orenco	22	
Premier Tech	21	
Presby Environmental		341
SeptiTech	6	
Pilot Use Systems	0	0
Experimental Use Systems	0	0
Total	126	435

**Innovative/Alternative (I/A) System Inspection Reports Received
An Approved System Requires an Inspection Each Year**

Year	I/A Reports Received
2012	52
2013	693
2014	891
2015	914
2016	960
2017	1040
2018	1037

Licensed Designer Program Education Opportunities

	DEC Sponsored Training		DEC Endorsed Soil Classes	DEC Endorsed Non-Soil Classes
	Classes	Attendees		
2010	5	120		
2011	4	110		
2012	7	215*		
2013	12	273*		
2014	12	173*		
2015	13	222		
2016	5	200*	20	36
2017	4	159*	16	20
2018	5	110	12	17

* estimated

Appendix C

Approved Minutes of the Technical Advisory Committee Meeting

February 13, 2018

Attendees: Roger Thompson
Steve Revell
Graham Bradley
Jessanne Wyman
Chris Russo
Mary Clark
Sille Larsen
Diane Sherman
Rich Wilson
Ken White
John Beauchamp
Mark Bannon
Ernie Christianson
Denise Johnson-Terk
Terry Shearer
Gunner McCain
Peter Boemig
Craig Heindel
Carl Fuller

Scheduled meetings:

February 26, 2018	9-12 AM	Annex Building
March 13, 2018	1-4 PM	Montpelier Rm at the National Life Building

Minutes: The minutes for the prior meeting of May 9, 2017, were circulated and approved by email so they could be included in the draft Annual Report.

Annual Report: The draft TAC report for 2017 was circulated by email for comment. Some comments have been received but there is still time to submit additional comments. The members will check their personal information and send any updates to Roger.

Rule Review: Ernie asked the group to start at the beginning and work from there. Most of the meeting was spent discussing the definitions. The definition section has been updated since prior reviews by the TAC and so the group offered many suggestions to enhance the clarity of the definition.

There were substantive questions related to primitive camps. Roger noted that there is a legislative statement on primitive camps and additional restrictions should not be added which was supported by other members. Ernie and Diane said that the proposed language did not so much add restrictions as explain how the DEC interprets the statutory language. Ernie will review and update as needed.

The group discussed the definition for crushed stone which adds a requirement that there be less than 1.5% fines. Steve, Craig, Graham, Peter and others offered comments about this. There are concerns about the proposed level of fines. If the level is set too low, it will add cost to the washing process and might require frequent testing of the stone to ensure compliance. There was support for having some standard for fines because without a standard it can be difficult to deny inspection approval for a system with dirty crushed stone. This will be discussed by the DEC to see if there is a standard that will be practical in usage. The reference to Moh's scale of hardness provides an objective standard as well, though mention of scratching with a penny probably should be removed. Gunner wanted the language to be clear that washed and screened gravel is also allowed.

Several people said that the definitions for confined and unconfined aquifers could be improved along with including the mention of bedrock aquifers. The TAC agreed to refer these definitions and the proposed definition for native soil to the Hydrogeology Subcommittee.

The TAC also agreed to have a subcommittee look at the K values for impeding soils and maybe clarify the difference between horizontal travel used to determine site capacity and vertical travel used to protect underlying aquifers. The Rules may be able to consolidate the definitions of impeding and impervious soil.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – 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

Surface Water Sources

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson

Approved Minutes of the Technical Advisory Committee Meeting

February 26, 2018

Attendees: Roger Thompson
Gunner McCain
Denise Johnson-Terk
Graham Bradley
Chris Russo
Sille Larsen
Ken White
Ernie Christianson
Scott Stewart
Bryan Redmond
Craig Heindel
Jessanne Wyman
Peter Boemig
Carl Fuller
John Beauchamp
Rich Wilson
Diane Sherman

Scheduled meetings:

March 13, 2018 1-4 PM Montpelier Rm at the
National Life Building

Minutes: The minutes for the prior meeting of February 13, 2018 were accepted as drafted.

Annual Report: An electronic copy of the draft report was circulated to the TAC. A few comments were received, and the comments and updated contact information will be added. Graham will provide some comments related to the I/A System process.

Rule Review: The review of the draft rules continued. In addition to editorial comments several issues were discussed.

Ernie said that the exemption related to subdivision of improved lots was updated so that lots connected to both municipal water and wastewater systems would not be required to meet a 500' setback to the new property lines.

The TAC discussed the requirements to bring existing water and sewer lines up to current standards when there is a change in use of an existing building. The TAC supported the approach of allowing a change in use, including an increase in design flow, while using the existing water and sewer lines. The lines would need to be upgraded if the increase in design flow requires an increase in the size of the lines.

Chris asked about the discharge of water treatment system backwash to soil-based wastewater disposal systems. John discussed research done on this topic that indicated few or no negative impacts on the disposal system while noting that this topic has been controversial for many years. Some manufacturers of advanced wastewater treatment systems prohibit backwash discharge into their treatment system. An exemption for filter backwash disposal systems was added to the Underground Injection Control Rules a few years ago which allows for the installation of a separate disposal system without a permit. This reduces the regulatory pressure to discharge the backwash to the soil-based wastewater disposal system, though the current rules allow for this discharge without requiring a permit or permit amendment.

The draft rules propose a change in the variance requirements for a replacement wastewater disposal system. The existing rules allow for a variance when the cost of a more compliant system is not justified by the amount of increased protection of public health and the environment. The proposed rules only allow for this approach when full compliance is not technically possible while the existing rules allow the approach for any replacement system when there is no increase in design flow. The TAC supports maintaining the existing variance process.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – 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

Surface Water Sources

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson

Approved Minutes of the Technical Advisory Committee Meeting

March 21, 2018

Attendees:	Roger Thompson	Gunner McCain
	Scott Stewart	Steve Revell
	Denise Johnson-Terk	Graham Bradley
	Craig Heindel	Rodney Pingree
	Peter Boemig	Mary Clark
	Mark Bannon	Ken White
	Claude Chevalier	John Beauchamp
	Sille Larsen	Rich Wilson
	Ernie Christianson	Bryan Redmond

Scheduled meetings:

March 27, 2018	9-12 AM	Annex Building
April 3, 2018	1-4 PM	Annex Building

Minutes: The minutes for the prior meeting of February 26, 2018 were accepted as drafted. Steve asked that the minutes indicate which sections of the draft rules were reviewed during that meeting, so people can be prepared for the next meeting.

Annual Report: The TAC discussed whether specific recommendations were made during the 2017 meetings with if manganese should be included in the rules as a primary standard and whether there was a recommendation to use a specific protocol when testing for radioactive

contaminants. After a short review of information from Sille, Scott, Rodney, John, and others, the TAC acknowledges that there is a current primary standard for manganese which should be included in the draft rules. The TAC also acknowledged that the Vermont Department of Health has a protocol for the sequence of testing when testing for radioactive contaminants which should be followed by projects subject to the Wastewater System and Potable Water Supply Rules.

Rule Review: The review of the draft rules continued starting with subchapter 8. Ernie noted that, in response to TAC comments from the previous meeting, the language related to the cost/benefit analysis of replacement systems has been revised. The revised language was circulated to the TAC by email. The TAC supports the revised language.

Steve asked about the requirement that the minimum design flow is for two bedrooms when a new lot is created for a single-family residence. This is the existing requirement. Census data for Vermont indicates that the average occupancy for a single-family residence is slightly more than 3 persons and that while the initial construction might be for only a single bedroom there would be a lot of pressure by future owners for more capacity. The TAC supported keeping the minimum at two bedrooms.

The TAC discussed the process described in the draft rules used to determine design flows for uses not specified in the design flow tables or used to justify lower design flows for existing projects. One situation is when an existing operation wants to increase its use and onsite flow monitoring may justify a reduction in design flow. Another situation is when a change in use is proposed and an applicant wants to justify a reduction in design flow. Ernie noted that there are many issues related to determining a different design flow. The process to collect flow and waste strength data is time consuming and expensive. Any use of data collected at a different location must include an analysis of why the data from one location will translate to another location. Wastewater strength from some operations, such as restaurants, is highly dependent on the management at the location that may carefully control the discharge of grease and oil into the system. In some cases, an existing building with low measured flows may see an increase with a change in ownership or management.

Steve asked about design flows for small country stores where there may be a couple of small tables and just a few chairs. These operations are important for small communities. Requiring a design flow of 30 GPD per seat seems excessive for operations where a few people gather for a cup of coffee. The TAC discussed various categories of operation, other than restaurants, that might be applied and supported a proposed design flow of 15 GPD for grocery stores with limited food service that may satisfy this issue.

Gas station design flows were also discussed. Ernie suggested using a per fueling space, rather than per pump or per hose, design flow. The TAC supported this approach.

Mary raised the issue of wastewater strength and whether the numbers for low-strength should be revised. She said that the Indirect Discharge Program collects a lot of data from the regulated systems. A total of 1863 results were analyzed, and the influent BOD averaged 144 mg/l and the TSS averaged 63 mg/l. These numbers would be reduced after septic tank treatment. Gunner and others noted that even though the averages are low, the range for low strength wastewater should be large enough to cover what can be expected in residential wastewater. Peter suggested removing section 1-805(a)(2)(A)(ii) which indicates that additional septic tank capacity might be a method of reducing wastewater strength. This might be a method that should be determined by a Professional Engineer per the rules. Rich suggested that the category for moderate strength wastewater, 1-805(b)(2), could also be removed. The group recommended making just two categories of wastewater strength, with the higher category requiring advanced treatment. A designer could also choose to provide additional tankage, or some other method of waste strength reduction, to reduce wastewater strength even when not required by the rules.

The discussion then moved to subchapter 11 for the last few minutes of the meeting. Isolation distances were discussed. Gunner asked about the point of measurement for roadways. The rules will be made clear that if there is a ROW the measurement is from the ROW. Steve asked about the message that Ernie had circulated related to isolation distances from farming operations. Ernie said that the Agency of Agriculture had established some isolation distances based on their own review and that the DEC had accepted their recommendations during the interim. An additional meeting with Agriculture is needed to discuss the isolation distances.

The next meeting will continue with subchapter 11 and then return to subchapters 9, 10, and 12.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – 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

Surface Water Sources

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson

Approved Minutes of the Technical Advisory Committee Meeting

March 27, 2018

Attendees:	Roger Thompson	Rich Wilson
	Ken White	Carl Fuller
	Scott Stewart	Steve Revell
	Justin Willis	Gunner McCain
	Peter Boemig	Graham Bradley
	Craig Heindel	Sille Larsen
	Mary Clark	John Beauchamp
	Jessanne Wyman	Ernie Christianson

Scheduled meetings:

April 3, 2018	1-4 PM	Annex Building
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Minutes: The minutes for the prior meeting of March 21, 2018 were accepted as drafted.

Rule Review: The group resumed review of subchapter 11. The previous meeting ended with a discussion of isolation distances for cemeteries. The group recommends having a single category for cemeteries without any variation based on how the body is, or is not, prepared for burial.

Ken asked about the isolation distances for storm water infiltration basins and noted that there can be an impact on the neighboring properties that is like the impact from water and wastewater systems. Gunner asked if a designer would need to know if there are any storm water systems that are permitted, but not constructed, if there is a first in time approach. The group expressed concerns about the relatively large isolation distances that are proposed. The “hot spot” concept

applied by the storm water section that prohibits subsurface discharge from some areas, such as gas station fueling areas, might reduce the chances that a storm water discharge would create a large risk to a drinking water source. The group noted that there are some required storm water disposal systems, such as rain gardens, that present a low risk that would have a large isolation distance under the proposed rules. Ernie will discuss these concerns with the Storm Water Section and the TAC will discuss the response at a future meeting.

Steve asked if the proposed isolation distances related to agricultural operations will be included in the revised rules. Ernie said that they would be for now, but we need to decide how to address types of water supplies not identified by the Agency of Agriculture and if we agree with these isolation distances for our rules. Ernie also said that he will be having discussions with the Agency of Agriculture to consider how to balance the impacts on farmers and their neighbors.

Ken asked that there be specific language related to a reduction in isolation distance around a drinking water source and that the language address the use of extra casing and grouting as a basis for a reduction in isolation distance. The discussion covered both variances and waivers. Variances can only be used for repairs or replacement of existing systems and may result in less health or environmental protection when full compliance is not possible. Waivers can be granted for new projects, or for increases in design flow for existing projects when the site conditions and/or construction techniques ensure as much health and environmental protection as the prescriptive requirements in the rules. The group suggested adding references to these provisions in other places in the rules to make designers and applicants aware of these options. A decision to use additional casing and/or grouting as part of a variance can be made by a Licensed Well Driller when replacing a water source for a single-family residence on its own lot. Other variances or waivers will be based on a site specific hydrogeologic evaluation

Gunner noted that the isolation distances in the table are reversed for storm sewers.

The issue of confined and unconfined aquifers was raised. The hydrogeological subcommittee will meet to discuss and clarify the language.

Sille asked about the diagram illustrating how to draw an isolation zone around a well. The diagram is not correct. Ernie said that the diagram has been updated.

Craig said that the rules should be clear that isolation distance reductions can be applied to both water and wastewater systems.

Steve, Rich, Scott, and others discussed the relative position of section 1-1106 and some of the following sections. The group discussed the options and Ernie will determine if a rearrangement would make the rules easier to use.

Sille asked about the contents of tables 11-6 and 11-7. Some new water sources must be tested, and the tables specify which contaminants must be evaluated. Sille noted that these lists are different than the recommended list used by the Vermont Health Department. John provided a detailed background on how the list was developed based on which contaminants are likely to be naturally occurring in Vermont. The group discussed why there is a required list of secondary contaminants when these contaminants do not determine if the system is a failed water system or not. John noted that there are health concerns, such as for sodium, by some users at relatively low levels and that the information is useful to the well users. John also noted that other secondary standards, such as pH provide information about why some systems have physical deterioration and suggest treatment methods to protect the system. The question of whether lead should be added to the list of primary standards was considered. The primary source of lead in drinking water systems is from the piping system rather than from the aquifer. Therefore, it may be appropriate to reserve the testing for those water systems with older piping systems. Ernie asked if the list of secondary standards should remain as a requirement in the rules. The TAC recommended retention of the testing requirement.

Roger asked if section 1-1112(e)(4) should specify a level of treatment. The group decided that because this is a section that requires a design by a Professional Engineer, and that the levels of treatment for the final product are specified, the performance of the individual components should be left to the Professional Engineer. Ken suggested that the rules should require a solenoid valve with all systems using ultra-violet light that would stop the water flow when the light intensity falls below the required level. The group supports this. John noted that there have been many improvements in ultra-violet light systems, including the ability to neutralize the adenovirus. He also noted that there is support for requiring the use of chlorine because of its effectiveness against a broad range of biological contaminants commonly found in surface water while the risk of chlorination byproducts is low.

The level of chlorination needed to disinfect new or repaired water systems was discussed: i.e. “shock-chlorination.”. Sille expressed concern with the proposal to reduce the level to 10 mg/l. The current rules require 50 mg/l of free residual chlorine and 100 mg/l is recommended by the Health Department for shock-chlorination. Either of these two recommended levels make the water unusable for human contact until the system is flushed after a recommended 12-hour contact time. This seems like a reasonable requirement for health protection. The water pumped during flushing of the system should be discharged to the ground surface in location without direct flow to surface water. Ken noted that in a situation where the water source provides a very low flow, such as a well with a yield of ½ GPM with a few hundred feet of casing storage, it can take many days before the system is flushed enough to be drinkable.

The next meeting will start reviewing subchapter 9.

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – 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

Surface Water Sources

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson

Approved Minutes of the Technical Advisory Committee Meeting

April 3, 2018

Attendees:	Roger Thompson	Graham Bradley
	Gunner McCain	Carl Fuller
	Jessanne Wyman	Denise Johnson-Terk
	Ken White	Justin Willis
	Mary Clark	Rich Wilson
	Claude Chevalier	Ernie Christianson

Scheduled meetings:

Minutes: The minutes for the prior meeting of March 27, 2018 were accepted as drafted.

Rule Review: Gunner asked about when high-strength wastewater is subject to rule requirements rather than just a recommendation that designers consider. There is a requirement to monitor waste strength when there is no specific design flow stated in the Wastewater System and Potable Water Supply Rules (Rules) or when there is a request to approve a smaller design flow for a project with a specified design flow in the Rules. In addition, wastewater strength information may be required as part of an application to replace a failed wastewater system. The group also recommended that any proposal to treat high-strength wastewater be designed by a Professional Engineer.

Gunner said that section 1-903(c) needs some rewording and that 1-903 should specify a maximum slope of 20% and then give the exceptions rather than specifying 30% and then giving the limitations. Justin and Gunner sections (o) and (r) need consistent language.

Mary raised concerns about using the proposed new section for bottomless sand filters for new projects with large flows. Under the proposed language a bottomless sand filter could be approved for up to 6499 GPD. The group discussed this with Ernie noting that an application using bottomless sand filters must have a replacement area while the same site with a mound system would not require a replacement area which might provide some safety factor. If the bottomless sand filter was overloading the primary disposal area the replacement system could be constructed and both operated at the same time which would reduce the loading rate on each disposal area by 50%. The group noted that a large system would require a design by a professional engineer based on a detailed hydrogeologic analysis. The group recommended keeping the draft language.

The group discussed proposed increases in septic tank sizing. Justin supported the proposed increases based on his observation of existing systems. Ernie said that literature on the subject supports a septic tank capacity of twice the daily design flow. Justin asked about the triggers that might require replacement or addition to an existing system. Ernie replied that things such as adding a single up-flush toilet, or a laundry tray would not require an upgrade. Ernie proposes to leave it up to the designer to decide if systems that pump to the septic tank need to have a large tank.

Roger asked about the leakage testing language which appears to require that every tank be leakage tested in place. This would likely be a significant increase in cost with the designers in the group agreeing that it would be at least a few hundred dollars of additional expense. The existing rules require leakage testing for a small number of systems. Ernie will amend the proposed new requirements to limit testing to when required by a permit.

Justin and Gunner objected to the proposed requirement that an outlet filter be installed in grease traps. They noted that this is not part of standard designs and in practice would clog so quickly they would just be removed from the system. Ernie will delete this proposed requirement.

Gunner asked about the proposed increases in pipe strength in section 1-910(b). The existing Rules require Class 160 or SDR 26. The proposed Rules require Class 200 or SDR 35. The group supported keeping the existing requirements which Ernie will do.

Roger asked about the section related to soil descriptions. The proposed language gives an example of 10yr⁴/₃ brown. Roger asked that the term brown be deleted because the Munsell Color Chart does not add the term brown. Graham recommended keeping this because the soil identification method based on using the Munsell Color Chart is new and not all designers would be well qualified in its use at the beginning.

Justin noticed a typo in the section on at-grade systems. The loading rate should be 1.0 gallons/sqft/day, not 1.2 gallons/sqft/day.

Gunner asked about the reasoning on why a drain must be at least 75' downslope of a leachfield while the distance to surface water is only 50'. Ernie responded that there are concerns that the discharge from a drain is concentrated at the discharge point while the discharge to surface water is more diffused.

Ernie said that Scott Stewart, Rodney Pingree, Graham, and he would be meeting with people from the Agency of Agriculture next week to review the isolation distances related to agricultural uses. Ken said that the differences between shallow and drilled wells should be covered. Ken and Claude volunteered to provide any information that would help with the discussion.

Ernie said that phrase continuous impermeable layer will be removed from the proposed Rules. The concept can still be proposed as part of a hydrogeologic analysis, but the concept is so site specific that trying to write a generic description for use by non-hydrogeologists is not workable.

Gunner recommended that section 1-915 include a requirement that orifice shields be included for downward facing orifices as well as upward facing ones. The group recommended leaving it up to the designer.

Gunner noted that in a previous meeting there was discussion about crushed stone and that there was agreement that the specification should also allow for stone that has not been crushed but is screened to the proper size. He remembered that some other term, possibly leachfield stone was proposed. Denise confirmed that her notes said leachfield stone. Ernie will make the change.

Gunner asked if the Rules should clearly state that a distribution box is required for distribution within a seepage bed. The proposed Rules require use of flow regulation devices but the need for a distribution box will be added to the proposed Rules.

Gunner noted that in section 1-921(d) the language should be at-grade trenches rather than at-grade beds.

Ernie asked for another meeting to complete the review of the proposed Rules which will be on April 12th, from 1-4 PM at the Essex Regional Office.

The review will continue after section 1-921

Executive Committee: Steve Revell, Ernest Christianson, Roger Thompson
Alternates – 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

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Surface Water Sources

Tim Raymond, John Beauchamp, Ray Soloman, Peter Boemig, Mark Bannon, Claude Chevalier, Perry Thomas, Mark Clark, Scott Stewart, Rodney Pingree, Chris Russo, Ernie Christianson

Approved Minutes of the Technical Advisory Committee Meeting

April 19, 2018

Attendees:	Roger Thompson	Graham Bradley
	Peter Boemig	Rich Wilson
	Ernie Christianson	Steve Revell
	Ken White	Gunner McCain
	Craig Heindel	Bryan Redmond

Scheduled meetings:

There are no scheduled meetings. Ernie will schedule when needed.

Minutes: The draft minutes for the prior meeting of April 12, 2018 were accepted with corrections and additions to clarify the Hydrogeologic Subcommittee report and the TAC discussion of that report.

Rule Review: Steve noted that the language related to the continuing education requirements states that the Secretary shall provide enough training opportunities to meet the requirements to maintain a Designer’s license. Graham said that his plan is to provide 2 days of soil related training, with 2 sessions each day, every year. Graham said that finding sites is difficult. There are also new restrictions on finding sites, and new requirements for open bidding when looking for training opportunities, which are difficult to implement when there are few sites and few training providers available. Graham will continue to approve as many training courses offered by others that are appropriate for Licensed Designers. Steve and others think that Graham’s plan for soil related training will be adequate as this will create 8 chances for State provided training during the 2-year cycle for continuing education compliance. Peter said that it is appropriate for licensed professionals, such as Engineers and Designers, to pay reasonable fees for training, and therefore programs such as offered by the Vermont Technical College and supported by the Agency are reasonable options for meeting the continuing education requirements.

Ernie discussed the proposed revisions that he circulated by e-mail on April 17th. The wording for the definition of “Design Rate” has been slightly altered to match with the Water Supply Rules. He also eliminated manganese from the definition of “Failed Supply” because the Public Water Supply sections considers it to be an advisory item. This will allow the treatment of manganese to be exempt from permitting requirements under the Rules.

Craig commented on the April 17th revisions. The use of the word “unit” in the new 1-805(b) is confusing. Looking at table 8-3 the TAC recommended that a term other than unit be used in the table and then carried forward into 1-805(b). Craig asked about the mention of a Designer adding treatment for projects that may have high-strength wastewater. The group discussed this and recommended removing the language from 1-805(b) if the language is only advisory because of concerns that it might create unintended liability. A note could be added to the design flow table but that might have the same concerns. The TAC had previously recommended that a requirement to consider wastewater strength not be added to the Rules, so the best course may be to not add any statement about it. Craig noted that the “mg/l” could be removed from 1-805(d)(2) because that is part of the definition of “standard.”

Graham asked if CBOD should be used instead of BOD because at least some testing of advanced treatment systems is done using the process for determining the CBOD.

The group also discussed the use of the term “FOG” (fats, oils, and grease). While the tests for BOD and CBOD include the oxygen demand for FOG, there are specific impacts on wastewater systems from FOG that should be considered as part of the system design. The group recommended keeping the existing usage.

Craig asked about the isolation distance for swales upslope of mound systems per section 1-912(b) and specifically if the distance can be less than 10’ to the upslope toe of the mound. Craig said that the closer the drain can be to the mound the more effective it is in protecting the operation of the mound. Ernie said that this is an allowable reduction under the Rules. Craig and Gunner suggested making it explicit that a reduction may be allowed.

Ernie said that he had reviewed the design flows other states use for barbers and thinks that the design flow proposed in the Rules is appropriate. Craig, and others, noted that it is not always clear from the design flow tables when flows from subcategories are cumulative and when they are inclusive. One example is employees are included in restaurant flows and not in doctor’s offices.

Ernie said that he had added a definition of impeding layer.

Craig asked about the definition of linear loading rate. When performing a hydrogeologic evaluation, the linear loading rate may be based on the groundwater contours that do not always follow ground surface contours. Ernie said that a design based on a hydrogeologic analysis is acceptable.

Gunner said that the proposed definition of normal high-water table is not useable. Craig suggested asking the Watershed Management Program for assistance. Ernie said that he is also working on the definitions for perennial streams.

The exemption that allows for the addition of bedrooms to a single-family residence (SFR) when the residence is connected to both a public water system and a wastewater treatment facility was discussed. The current draft allows this exemption when the lot contains only one SFR. Ernie said that the limit for only one SFR is because of cumulative impacts on shared components such as pump stations. The group recommendation is to allow for more than one SFR if each is connected separately to the water and wastewater systems.

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

Subcommittees:

Hydrogeology

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