

Approved Minutes of the Technical Advisory Committee Meeting
September 20, 2022

Participation by videoconference

Attendees:	Scott Stewart*	Bruce Douglas*
	Justin Willis*	Roger Thompson*
	Jen Fleckenstein*	Steve Revell*
	Lisa Stevens	Denise Johnson-Terk
	Bryan Harrington*	Sheri Young*
	Terry Shearer	Craig Jewett*
	Mark Bannon*	Karen Adams*
	Bret McCreary	Angela McGuire
	Tom DeBell	Cristin Ashmankas*
	Sille Larsen*	Gunner McCain*
	Jason Henderson	David Potts
	Ken White*	Claude Chevalier

*Technical Advisory Committee members or substitutes

Scheduled meetings:

October 18, 2022	Virtual
November 15, 2022	Hybrid
December, 20, 2022	Virtual

Minutes:

The draft minutes of July 19, 2022 meeting were reviewed and accepted as drafted.

Agenda and Updates:

Scott asked that discussion of a procedure for abandoning shallow and dug wells be added to the agenda.

Bruce said that Tom DeBell, VDH Environmental Health Engineer, will be replacing Anna Gallagher as a Vermont Health Department representative.

Bruce said that corrections will be made to the list of TAC members appointed by the Governor. Some previous members that have retired or resigned were reappointed. The list will be updated and submitted for approval which is required after each election for Governor. Cristin reminded the group that TAC members are eligible for continuing education credits for their work on the TAC.

Currently proposed Changes to the Wastewater System and Potable Water Supply Rules (WW Rules):

Bruce said that he has not had a chance to finish the updates to the WW Rules but has scheduled time this coming Thursday and Friday to complete the work. Bruce will circulate the draft to the TAC at the same time is referred for legal review.

Innovative/Alternative (I/A) Systems:

The Department of Environmental Conservation (DEC) is reviewing a request that the Geomatrix Company's GeoMat™ system be approved as an advanced treatment system producing Filtrate Effluent as defined in the WW Rules. The product is currently approved as a distribution system. The system consists of a non-woven fabric that is wrapped in a hygroscopic membrane installed over a layer of ASTM C33 sand (also approved as mound sand in the WW Rules) at least 6" in depth. Geomatrix allows application of wastewater to the system using gravity flow, dosing, or pressure distribution. Unlike other advanced treatment systems, the GeoMat™ System also serves as the distribution system. The system was tested at the Massachusetts Testing Center with a loading rate of 2 gallons/day/sqft. The system met the NSF Standards 40 requirements. The GeoMat™ has been approved in New Hampshire for general use with a similar separation to seasonal high-water table as would be approved in Vermont. It has also been approved in other states (Massachusetts, Wisconsin, and Colorado) for remedial use generally equivalent to a filtrate system.

Bruce noted that under the WW Rules a method of collecting the treated effluent is required and a small lysimeter pan underneath the system is proposed for this purpose. The system will require pressure distribution per the WW Rules. Cristin said that a service provider may not be needed as the only moving part is the dosing pump.

Steve asked if 6" of sand under the system is sufficient should the mound system requirements be changed to allow for only 6" of sand. Bruce said that his concern is how you would measure the depth of sand over a plowed layer. If you measure from the bottom of the furrow 6" of sand might only fill the furrow leaving an insufficient thickness of sand for even

application of the effluent. Justin asked if the depth to Seasonal High-Water Table (SHWT) is measured from the bottom of the GeoMat™ or the bottom of the 6” of sand and Bruce said from the bottom of the sand. Sheri asked if there is an expected life span for the system and if any venting is required. Bruce said he did not have information about the life span of the system and that venting is not required. David Potts, President of Geomatrix, joined the meeting and said that field testing found atmospheric levels of oxygen in the system without venting and that adding venting would reduce the pressure produced by entry of effluent into the system that could be used to force air into the surrounding soil.

Bruce asked if there was any objection to issuing a separate approval for the GeoMat™ for general use as a filtrate approval pending receipt of an appropriate design manual for filtrate. No objections were raised.

Instantaneous Peak Demand

Instantaneous Peak Demand (IPD) is the flow rate in gallons per minute that the water system must supply. The calculation is based on either the International Plumbing Code analysis of the number and type of plumbing fixtures, or 5 gallons per minute per living unit, or an alternate method approved by the Secretary of The Agency of Natural Resources. The WW Rules require that either the long-term yield of the water source and the pumping capacity meet the IPD or that a storage tank and booster pump system that meets the IPD be added to the water system. The WW Rules waive the requirement for a storage tank, but require that the well pump meet the IPD, when the water system serves a single-family residence, a single-family residence with an attached one bedroom living unit with a total design flow of 560 gallons per day or less, or a non-residential structure with a design flow of 560 gallons per day or less and with an IPD of 15 gallons per minute or less.

TAC members are concerned that the existing WW Rules require well pump replacements that may be unnecessary when adding a one bedroom living unit to an existing single-family residence with total design flow of 560 gallons per day or less. Justin, Steve, Sheri, and Craig all said that they are receiving a large number of requests for the bedroom additions to existing single-family building and noted that many municipalities have made zoning changes to encourage this construction. The concern is that in many cases an existing well pump, that can produce about 7 gallons per minute, must be replaced with a pump that can produce 10 gallons per minute. The cost of this upgrade can exceed \$1,500.

The group identified factors that should be considered as part of updating the IPD requirements:

1. Bruce noted that the calculations for determining the IPD have not been updated to account for low flow plumbing fixtures. The Vermont Plumbing Board should be contacted for their input.

2. Roger said that one consideration is the protection of the occupants of the accessory unit. If this is a rental unit, and there is insufficient water flow to support all the plumbing fixtures, there needs to be a means to ensure the problem is corrected.
3. Justin suggested that there is no one size fits all response, and the requirements should allow for case specific determinations. He also noted that the town of Jericho is now allowing two-bedroom accessory apartments.
4. Scott said there are issues related to high-capacity pumps in low yielding wells. While the system might work for short term IPDs, extended pumping could dewater the well and damage the pump.
5. Steve said that well drillers are concerned about using just casing storage to meet the storage requirements. The extra drilling is expensive and may add to the cost of the well pump.
6. Craig said that there are now smaller storage tank and booster pump systems that can be cost effective in comparison to replacing existing well pumps and they reduce the risk of over pumping the well.
7. Ken said that in some cases a basement storage tank, maybe about 450 gallons in capacity, is an effective solution. Adding an ultraviolet disinfection system can be helpful.
8. Claude said that a first step is to examine the well curve of the pump in relation to the specific well being used. If the pump was sized to pump at the long-term yield at a calculated drawdown depth, it may produce more water when the water level is closer to its normal static depth. If the IPD is brief, an existing pump might meet the requirements.
9. Craig and Steve noted that the IPD is a short time demand which might be part of the solution to the problem.
10. Steve suggested that a short-term study group be formed, and the group agreed. Bruce will send out a request for members of the group.
11. Craig said that any changes to the WW Rules need to be coordinated with other rules that may apply.

The TAC will continue this discussion.

Exempt Replacement Wells

There are two exemptions in the WW Rules, 1-304(15) and (16) that allow for a well to be constructed without obtaining a permit. 1-304(15) allows for a replacement well that serves only one single-family residence on a lot without other buildings, structures, or campgrounds subject to specific conditions. 1-304(16) allows for construction of a supplementary well on a lot with only one single-family residence without other buildings, structures, or campgrounds subject to specific conditions. The specific conditions are different for each of the exemptions. The WW Rules require that a form, prepared by the DEC, be completed and filed on the municipal land records. The form is not filed with the DEC. The exemptions in the WW Rules require that a water quality test be completed with the results with the results sent to the Vermont Department of Health.

Scott said that more outreach to well drillers is needed. The completion reports can now be filed online. Scott said that getting this information into the system is important because it affects how other construction of wells and disposal systems can be done.

Claude asked about non-potable wells, such as for livestock. Cristin replied that these wells are exempt from the WW Rules and are not protected by the WW Rules. Claude and Ken discussed the problem with placing well tags on the casing for the non-potable wells that have casing that terminate below grade. Even if a well tag cannot be attached, it is still important to file the well completion report that the location can appear in the data base and the drilling information is available.

Alternative Water Sources

The TAC briefly discussed whether single-family residences should be able to use a water supply that is not currently approved in the WW Rules. This might include rainwater, surface water, or hand pumped from an exterior well. Craig said that at some level the purpose of regulations is protect the public, even if they may not appreciate the need. Cristin noted that the WW Rules do not require water quality testing of a surface water supply for a single-family residence. The WW Rules do limit the surface waters from which water may be drawn and do require that a water treatment system be installed that meets requirements for filtration and disinfection.

Abandoning Shallow Wells

Due to time constraints, this topic requested by Scott was not addressed and will be added to the agenda for the next meeting.