

Approved Minutes of the Technical Advisory Committee Meeting
December 13, 2011

Attendees: Roger Thompson Bruce Douglas
Mark Bannon Peter Boemig
Scott Stewart Cindy Parks
Kim Greenwood Bill Zabiloski
John Beauchamp Gail Center
Spencer Harris Steve Revell
Denise Johnson-Terk Craig Heindel
Justin Willis Ernest Christianson
Rodney Pingree Anne Whiteley
Christine Thompson

Scheduled meetings:

January 10, 2012	1-4 PM	Liquor Control Conference Room- Montpelier
February 14, 2012	1-4 PM	Liquor Control Conference Room- Montpelier

Agenda:

The agenda was reviewed and accepted.

Minutes:

The draft minutes of the November 1, 2011 meeting were reviewed. Rodney asked that the name of the new division be corrected to read “Drinking Water and Groundwater Protection Division.”

Annual Report to the Legislature

Roger said that it is time to start working on the annual report for the legislature. After many years of extraordinary work, Craig asked if he could be excused from being the lead person drafting the report. Steve suggested that Roger do the draft which he agreed to. Roger will contact Ernie to run the computer queries for the reports on the number of permits issued, denied, etc.

Ongoing Impacts of Hurricane Irene

Ernie said that he had checked the number of permits issued for failed systems in the last two months and the 99 permits had been issued. 15 of these were directly related to the flooding. Craig asked if any of the failed systems had been previously permitted by the State and Ernie did not know. Craig asked if the tracking system included information on why the systems failed. This information is not tracked and the TAC members said that

that the reasons for failure are often uncertain. While washing away in a flood would be clear, things such as too much grease, leaking plumbing fixtures, etc. are pretty hard to determine. Ernie said that something informal might be possible with a short checklist prepared by the staff and sent to him just to see if there are any trends. Roger said that one factor that might be useful is to know, when replacing a previously permitted system, is whether the original soil determinations were accurate.

Ernie also said that the folks from Presby Environmental Company were making a claim that mound systems often fail when a secondary bio-mat forms between the native material and the sand fill and that use of the Enviro-Septic[®] System prevents these failures. This was briefly discussed with the consensus being that this type of failure is seldom seen in Vermont. There was also a claim that Vermont's requirement that an outlet filter be installed interferes with air flow that is intended to be from an inlet pipe at the leachfield with an exit from the plumbing vent on the roof.

Anne commented on the Irene Task Force that was established to learn from what happened and to plan for the future. Anne said that a group of attorneys and legislators has been looking at many issues grouped into housing issues, planning issues, flood plain management strategies, and property law.

The property law group is working on what happens when rivers move. The Governor suspended stream alteration permitting requirements so that emergency work could be done immediately. A number of septic systems were damaged or totally destroyed and in order to allow rapid repairs a number of systems were granted oral approval to begin reconstruction. This approval was subject to future submission of an application, plans, and fees so that the paperwork record would be complete. Failure to do this will result in a cloud on the property title. No legislative changes are proposed relative to septic system repair. There are other groups looking at adding some statutory language related to future emergencies that specifically allow for waivers under emergency situations. There are concerns about maintaining public records. Land records are recorded and stored by individual towns. Some have good systems to protect their records and others are subject to hazards such as the recent flooding. Some legislative action to require and support the preservation of these key records may be needed.

Roger asked how the property law applies when a river changes course. Anne said it depends on whether the change occurs suddenly or gradually. There are court decisions that make it clear that gradual movement of streams, which is always occurring at least when the stream is not contained in a bedrock channel, results in the property line moving as the stream moves. In this case some people gradually lose land, some people gain land, and some just have their land move to the other side of the stream. In all cases, if the stream is designated as the property boundary, the ownership moves with the stream. The law, when there is rapid change, such as occurred during Hurricane Irene, is different. The boundary does not move so on paper the landowner may own land that is now under the stream or on the other side of the stream. The use of the land under a stream may be restricted because of public trust rights so it may not be possible to fill in or redirect the stream in order to restore the property to its former status. During the

immediate aftermath of the storm, there was a significant amount of work done to return streams to their previous bed, to remove gravel from a streambed, and to restore roads. This was done under the waiver granted by the Governor which is supported to some extent by existing statutory language. Whether some of this work exceeded what the waivers allowed and whether remediation will be needed in some cases is still being determined on a case by case basis. Peter said that many people did not know that permits were required for flood repair work or that they might need to file at a later date to avoid clouding their title. Anne said the title concerns are limited to those people who need a permit for the replacement of a failed septic system.

Roger said that his local newspaper mentioned possible plans to have floodplain development regulated at the state level. Anne said that another group is looking at this with some people thinking the regulation would be more consistent and effective if done at the state level. One thing everyone agreed on was the need to get all of the towns that do not currently participate in the Federal Flood Insurance Program enrolled and participating. Anne said there is talk of increasing the requirements that would limit or reduce construction in a floodplain and ensure that development in the floodplain had less potential for creating damage during a flood event. One example might be tying down propane tanks. FEMA is also working on a limited program to buyout people who had buildings in the flood plain. One concern about this is that the land will eventually be transferred to the towns and there will be a loss of property tax for the town.

John said that he has been dealing with wells that failed the test for coliform after the flood. People are now in the process of chlorinating and retesting. John said he was wondering about the impact of stream relocation on the underlying aquifer feeding the wells. He also noted that a number of fuel oil tanks floated away and then leaked which created a potential for contamination. Gail said that after the flood the Vermont Health Department sent out about 3,200 water test kits. About 1,000 were returned for testing and about ½ show the presence of coliform. Some wells have been chlorinated and retested several times. When people ask about what they should do, Gail said she tells them, to be on the safe side, put in a treatment system. She tells them this may require a water softener or pre-filter to be installed as well in order to have the disinfection system work properly.

Reorganization of WWMD

Chris said that December 14th was the official date of the reorganization that will combine the Regional Office operations with the Water Supply Division into the new Drinking Water and Groundwater Protection Division. Chris has been delegated the authority to sign water supply permits since November so the transition tomorrow will be smooth. The Regional Offices will not be greatly affected by the reorganization for now. Chris will evaluate the new division and make changes as needed for efficiency and consistency. Chris said that under the temporary plans, the Division is expected to remain in the Winooski office location for at least two years.

Proposed Prohibition of Hydrofracturing for the Production of Hydrocarbons

Cindy said that Sen. Galbraith and Rep. Kline and Peltz are working on legislation that would prohibit hydrofracturing in Vermont for the purpose of hydrocarbon recovery. The existing Vermont Underground Injection Control Rules prohibit injection wells used for oil and gas production but these rules could be revised or the program returned to the Federal Government which does not prohibit this use. EPA is looking at the hydrofracturing process both for the chemicals and additive that are injected to break up the rock and for the potential of creating connections to and contamination of potable water aquifers. While most of Vermont is not known to include areas likely to produce hydrocarbons, at least one well was drilled into a shale formation that runs through Vermont and into Canada. There is some activity in Canada evaluating the potential for hydrocarbon extraction. DEC/ANR will have proposed legislation that will be reviewed by the TAC. The concerns are mostly with the sand and ceramic particles used to prop open the rock fractures after the pressure is released along with the chemicals used to facilitate their injection into the rock fractures. These chemical mixtures are often considered to be proprietary by the company but they contain materials that may be mutagens, carcinogens, and teratogens. There is an Oil and Gas Board authorized in Vermont Law but it is not active.

Roger asked about the reason for pursuing legislation when there did not seem to be much prospect for development in Vermont. Anne said that there was actually discussion of a project in Southern Vermont which had caught the attention of some Legislators. Cindy noted that it was not only the materials used in the process and the disposal of the wastewater but also the use of fresh water. A large volume of water is required in the process of hydrofracturing. State Geologist Larry Becker has been asked about the potential for hydrocarbon development in Vermont and responds that it depends on the price of energy. If the price goes high enough it might become feasible. Craig said his understanding is that the potential in Vermont shale is related to the degree of metamorphism that has occurred. A high degree of metamorphism reduces the likelihood that hydrocarbons would still be present. The bedrock of Eastern and Central Vermont is generally fairly highly metamorphosed but the shale in westernmost Vermont is less so and therefore might contain viable hydrocarbon resources, which is the reason that they have been explored at various times in the past.

Rodney asked about Vermont's authority to regulate hydrofracturing if there is a Federal Exemption that allows for it. Anne said a state that has been delegated operation of the Underground Injection Control Program, such as Vermont, can impose more restrictive limits than contained in the Federal Rules. Kim noted that regulation of the use of groundwater is subject to NAFTA (North American Free Trade Agreement) with foreign companies arguing that they cannot be restricted from developing a groundwater resource under state law. Anne said this depends on whether the law was proposed before or after the foreign company is involved.

Bruce Douglas – Going Beyond the Minimum Isolation Distance

Bruce gave a version of his presentation to the Northeast Private Water Well Symposium that he made on November 15th in Southbury, Connecticut. A copy of the presentation is attached to these minutes. This talk is based on work that Bruce and DEC have done over many years and the work of others that demonstrates a hydrogeologic connection between drilled drinking water wells and shallow sources of nitrate contamination. The sources include domestic wastewater disposal systems and surface application of fertilizer. The studies found that in situations where the bedrock was not protected by a layer of soil with low permeability such as clay or silt, the nitrate could move into the bedrock aquifer and then to the bedrock well at distances much greater than 100'. This demonstration of flow to wells at larger distances was, in part, the basis for considering how far wells should be located from sources of pathogens, such as domestic wastewater disposal systems. Approximately 20 years ago, when Bruce worked for DEC a literature review of pathogen travel in groundwater determined that the two-year time of travel standard, based on viral die off rates at Vermont groundwater temperatures, was appropriate, but there was a need to prioritize where to apply the two-year time of travel. Further review of the literature indicated a significant decrease in the probability of bacterial contamination of drilled wells separated from leachfields by more than 200 feet. The current drilled well isolation zone was developed using this information. Craig said that when Bruce first mentioned use of the two-year time of travel standard some of the audience gasped. Others gasped when Bruce said that the isolation zone, in Vermont at least, can extend on neighboring properties. Bruce noted that the two-year time of travel concept, first implemented in Vermont in 1982, was re-evaluated by the Vermont Technical Advisory Committee last year, and the consensus remained the same.

Peter noted that New Hampshire has a 75 foot well isolation distance and that several other states have smaller isolation distances than does Vermont without reports of contaminated wells. Peter suggested there should be a risk based approach to defining the well isolation distances.

Anne reviewed the status of overshadowing complaints she is dealing with. In several cases, after discussion by phone or with a face to face meeting, the neighbor was reassured that there was little or no actual impact on their ability to develop.

Mark said that in his experience almost every neighbor getting a notice calls his office to ask questions or complain. On average four to five neighbors must be notified for each application submitted. On one project over a dozen notifications were sent and each made calls to his office. The calls and inquiries in some cases seemed very legitimate such as some neighbors requests to have the area flagged out. However, flagging requires expensive survey work which the neighbor feels should be paid by the applicant. Almost all neighbors request face to face meetings with the designer to explain details. All of this adds significant cost to the project, in some cases thousands of dollars. Spencer noted that he has laid out some projects in a way that he normally would not in order to

avoid having to send notice to a neighbor and that in some cases the design, while complying with the rules, might be more expensive or otherwise less desirable. Anne said that there will be legislation proposed this year related to overshadowing due to the number of complaints.

Some of the new legislation might look at ways to reduce the well shield as a means to reduce the notifications. Mark asked rhetorically if the legislature would ask the TAC for an opinion on reducing Vermont's well shield distance to match New Hampshire's 75' isolation distance would they object. The group responded that they would object to reducing Vermont's isolation distance to 75' or even a 100' distance. Mark asked rhetorically whether the group's responses would change if the applicants were required to purchase easements from affected neighbors as compensation for the portion of the shield or shadow extending onto a neighbor's land. The group's answer was no, noting that the TAC has reviewed the isolation distances several times in a lot of detail, including last year, and deciding that the existing approach using a fixed radius of 100' around a bedrock well, with an extension of the isolation to 200' in the upslope direction remains scientifically valid.

Roger said that the committee had spent time on discussion of site specific evaluation methods, that on a case by case basis can allow for reductions in isolation distance, which Craig noted could be to a little as 50' under ideal conditions. Scott stated that there are some simple hydrogeological tests that can be done to reduce the isolation distances in some cases. In some situations a few test pits, dug deeper than needed for the septic system evaluation, demonstrate that the deeper layers are slowly permeable to an extent that a reduction in isolation distance can be approved.

Mark asked if it was appropriate for some of these procedures to be drafted into a guidance document similar to that used for the "desktop hydro chart" to aid both designers and regulators. The group was in favor of developing such guidance. The TAC decided to delegate the task to the Hydrogeologic Subcommittee. Steve asked that Mark be added to the subcommittee to provide an engineering perspective and Mark agreed to join the committee. The subcommittee includes Mark, Peter, Craig, Steve, and Bill to write a guidance document.

Craig said that the reduction in isolation distance question seems to be similar in nature to the evaluation that TAC made of proposed regulations that would allow wastewater systems to surface under some conditions. The TAC made a scientific evaluation of what was needed, in the group's opinion, to provide adequate public health protection and proposed what was believed to be the minimum requirements. Any reduction beyond that would be a policy decision.

Craig asked if there should be a policy advisory subcommittee that could be a resource for the Agency and Legislature.

Guidance for Drawing Well Isolation Zones

The next step will be for Bill, Anne, and Ernie to discuss the new procedure. Justin and Spencer will help with the CAD illustrations needed for the document.

Groundwater Monitoring Subcommittee

Steve asked if there was going to be a resolution for this topic. Craig said that after the last meeting there did not seem to be a consensus. After a short discussion it was decided that the committee should meet again and try to move forward in some fashion.

Bruce Douglas

Bruce said that he has a new job in New Jersey with the Natural Systems Utilities Company that is doing advanced work on water reuse and treatment. Bruce asked to resign from the committee as he will not have time to fully participate.

Hydro Subcommittee

Scott and Mark will be added to the subcommittee.

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

1. Soil identification vs. perc test **medium**
2. Curtain drain with presumption of effectiveness **high**
3. Revisions to desktop hydro chart **medium**
4. Minimum amount of sand under a mound **high**
5. Water Supply Rule update **high**
6. Seasonal High Water Table determination for performance based systems **high**
7. Wastewater Strength

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, and Steve Revell.

Overshadowing of Isolation Distance Issues –

Anne Whiteley, Ernie Christianson, Roger Thompson, John Beauchamp,
Gail Center, Chris Thompson

UIC Rules and Geothermal Wells -

Craig Heindel, Steve Revell, Roger Thompson, Ernie Christianson, Scott Stewart,
Rodney Pingree, Kim Greenwood, Cindy Parks

SHWT Monitoring –

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

UIC Rules and Disposal of Wastewater from Water Treatment Systems –

John Beauchamp, Gary Adams, Roger Thompson, Ernie Christianson,
Gail Center, Cindy Parks

Wastewater Strength -

Mary Clark, Cindy Parks, Peter Boemig, Bill Zabiloski, Roger Thompson,
John Akielaszek,