

## H-871 Montpelier Charter Change – Berlin Pond Source Water Control

Testimony of Thomas McArdle, Montpelier Director of Public Works

Prepared Remarks

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This matter is about the water. It's not about the land, the people, the kayaks, the fishermen, the politics or unspoiled places vs open natural resources; it about the water. Land uses, roads, parking areas, etc. are squarely within the regulatory and jurisdictional domain of the Town of Berlin. Montpelier has no say, nor any interest in interfering with any of those functions. **This is about the drinking water for the City of Montpelier** and any action taken or not taken that would affect it.

As the Public Works Director, I have the fiduciary responsibility for the Montpelier water system and am charged with official communication with the regulators and all public communications including the consumer confidence report issued annually, the financial report including revenues and expenditures, fiscal controls, long term planning, timely completion of our sanitary survey, the source protection plan, and all the various requirements of the city's permit to operate a water system.

To accomplish this and to ensure we deliver safe & reliable potable water, we employ highly qualified and certified plant operators and a City Engineer with extensive water treatment experience & knowledge. We also rely on the expertise of a private consultant and certified water testing laboratories. Therefore, my testimony today is about the water and only those issues or activities that might affect it. In our source protection plan, this is known as identifying "Potential Sources of Contamination" (PSOC).

Our water system operates as an enterprise fund. It is entirely paid for by users through rates not by tax assessments and includes customers located outside the bounds of Montpelier. Over the last 30 years, significant debt was incurred when the treatment plant was constructed, two storage tanks were developed, and large transmission mains were replaced. These debt payments are on top of costs to operate and maintain a system that is in excess of 110 years old. We just completed our most recent water system master plan & hydraulic analysis which identifies about \$75,000,000 for internal distribution system needs with a 50 year financial plan to pay for it.

Remaining financially solvent has resulted in steadily increasing rates. Even with higher rates, we're barely keeping up with operating costs and debt service because revenues have decreased as a result of effective conservation measures and loss of large business customers. We were producing 1.5 mgd when the plant was constructed 16 years ago with an average of 850,000 gpd being produced today.

One of the documents we issue annually is a "water quality report" aka "consumer confidence report". As with most operational requirements, reporting is mandated by the EPA as administered by the Drinking Water & Ground Water Protection Division of the VT Department of Environmental Conservation. The report explains the source of the water, potential contaminants inherent to surface

water sources, contaminant treatment goals, any violations that may have occurred, and the average test results for the year. Our “source protection plan” must remain current and the next update is due in September of this year. In the report, we must identify all potential sources of contamination; evaluate the health risk posed by each and the controls or measures being employed to address them on a regular and documented basis.

In 2004, we completed a “Community Water System Vulnerability Assessment as required by The Public Health and Security and Bioterrorism Act of 2002”. Each of these documents points to the fact that access to the source water was not permitted at the time they were written. This is an important distinction because we are now faced with potentially costly upgrades to these reports and operational modifications for something we no longer control. We hired an engineer with vast water treatment expertise to assist us as we faced the inevitability of this loss of control for the long term. Again, it’s about the water and it’s now about the affordability.

You were provided a copy of a lengthy letter I wrote to Deputy Commissioner Desch in which I attempted to lay out a case to secure their assistance calling upon them to extend beyond their regulatory function and attempting to enjoin them to act in a literal interpretation of the title of their regulatory division; Drinking Water & Ground Water **Protection** Division.

I also pointed out my objection to public statements issued by DEC about our water treatment facility’s alleged capabilities with repeated assurances issued to the public that our “state of the art” treatment plant is capable of treating any potential contaminants that may result from recreational use.

It was in the paper again the other day. I then called & spoke with Mr. Desch and I learned that they can neither support nor oppose the City’s control of the source water. This is understandable because the organizational structure of the Agency of Natural Resources houses a drinking water regulatory division through its Department of Environmental Conservation and divisions administering and supporting recreation through Fish & Wildlife and Forests, Parks & Recreation.

I have no doubt that balancing sometimes competing needs is best accomplished by bringing them under one roof so that both sides can be assessed through a collaborative approach seeking to assure the mission of each division is considered to serve all needs equally. His response that they must take a balanced approach to this subject is the only reasonable means of managing two potentially competing interests.

Mr. Desch also said the risks are “minimal” which is where I disagree. I ask that you consider our expert witnesses who will testify what minimal risk could mean to our water system in terms of health implications and costs. Because the fact of the matter is, our treatment facility is NOT capable of treating all potential sources of contamination; there are types of bacteria that we can neither completely remove nor safely inactivate.

I object to the public assurances issued by DEC because they aren’t factual and because I fear we may be faced with very large costs to meet current Federal regulations. Recreational use brings with it the

potential for untreatable contamination that the plant was not designed to address. Ironically, the DEC Water Supply rules are intended as a means of “assuring safe & affordable water.”

What does minimal risk really mean? When we talk about risk, I think about how engineers evaluate risk based on safety factor levels and margin of safety. A structure with a factor of safety (FOS) of 1 will support only the design load and no more. Any additional load will cause the structure to fail. A structure with a FOS of 2 will fail at twice the design load.

Essentially it’s a matter of assessing the risks posed to the safety of either the public or the employees depending on the use for which it was designed. These risk factors will determine how much stronger the system needs to be for its intended purpose.

There’s a cost associated with employing a greater FOS so it’s a matter of balancing the higher factor of safety cost with the probability of exposure to endangering life & limb. Engineers will assume the uses could exceed the known strength of materials and will factor in deterioration over time, etc.

So I considered what the appropriate factor of safety for drinking water should be – it’s essentially a food product so shouldn’t it have the highest possible factor of safety? There will still be contaminants that pass through the system but only at safe levels and daily testing makes certain that an operator’s level of confidence is at the highest possible margin.

When folks state that there’s only “minimal” risk, does that mean the factor of safety has been decreased? Has it been adversely impacted through this change of use of the source water? Is it an acceptable risk and if that risk is exposure to a contaminant we can’t eliminate, will “minimal” risk result in the need to modify the treatment plant with expensive retrofits such as ultra-violet disinfection, membrane microfiltration, or other alterations? How will it be paid for and by whom?

There are many risks when a water utility relies on surface water as their source. It’s exposed to all of the environmental elements such as turbidity caused by high winds, storm water road and stream channel erosion, warm water animals and pathogens, rotting plants and leaves and a range of organics. To design our treatment plant, there took place extensive & long term water source sampling to identify and account for all of these potential sources of contamination.

From this pre-design sampling, the engineers developed their basis of design. Given the fact that human contact was not present at the time of design nor was it considered inevitable, it was not included in the basis of design. Recreational and body: water contact is not reflected in the factor of safety. It’s a change that was not accounted for but now we have to consider it. Our source water testing plan had to be modified and we must now, in our short and long term plan, begin to consider alterations to our treatment facility.

Until such modifications are designed, funded and constructed (with increased operating expenses), one of the responses to a contaminant entering the raw water that we can’t safely treat for is issue a boil water order until the contaminant has been cleared. We’ve come close only one time since the plant

was constructed because of elevated e-coli levels but have not had to issue a single order in over sixteen years because of a source water problem. (The last boil water order resulted from a catastrophic water main rupture causing low system pressures)

The ANR has taken the only logical course their organizational structure allows but for them it's a need to balance and for the City, it's the potential decrease of our factor of safety. In my opinion, that attempt to achieve balance afforded a higher level of deference to recreation than it did to water Protection. Any other pond opened to public access can't compare if not a water source because this is about the water and affordability. Whether we like it or not and lose this attempt to regain control, the fact of the matter is that the rate payers will end up subsidizing recreational use.

The question before this committee is whether that balance is appropriate. On the one hand, fishermen and boaters are another set of eyes on the pond and most people would report any suspicious activity that could jeopardize the health of our customers. But, it is entirely conceivable to see 100 or more people engaged in an ice fishing derby on a nice weekend enjoying their time with their sodas, beers, chewing tobacco, cigarette butts, & human waste. That seems like a lot of "minimal risk" and it may be that weekend of fun and enjoyment yielding test results that don't meet standards and bumps us into Bin Level 2 requiring enhanced treatment.

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**I will close by repeating the one central fact. This matter is about water. . . .**

I: Water/Berlin Pond Source Protection/House Bill H 871\_TM Testimony prepared remarks X

April 19, 2016