



State of Vermont
Department of Environmental Conservation

Agency of Natural Resources

WATER SUPPLY DIVISION

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June 26, 2008

Mr. Larry Williams
210 College St.
Suite 201
Burlington, VT 05401

Re: Sanitary Survey, Catamount Bolton Water and Sewer, Public Community Water System, WSID #5051

Dear Mr. Williams:

A sanitary survey of the Catamount Bolton Water System (the Water System) was conducted on May 28th, 2008. Tom Brown and Matt Guerino represented the Vermont Department of Environmental Conservation, Water Supply Division (the Division) and Michael Bernardine represented the Water System. The Water System was issued a Temporary Permit to Operate (TOP) on April 30th, 2007, which expires on July 1st, 2011.

The Division's records show that Bill Wilson is the Authorized Contact for the Water System. It was noted during the survey that Bill Wilson is no longer associated with the Water System. The Division has requested on several occasions that the Water System submit a new Water System Officials Contact Form so that our records can be updated. The Water System has not complied with these requests. Enclosed is a new Water System Officials Contact Form. Please complete the form and submit it to the Division **within 7 days**.

The following significant deficiencies were identified and need to be corrected:

1. *Bacteriological Sampling Plan:* In accordance with the Vermont Water Supply Rule (WSR), Subchapter 21-6, all Public Water Systems shall collect total coliform samples at sites that are representative of water throughout the distribution system according to a written sampling plan and rationale that includes a map of the system. The Water System has an approved bacteriological sampling plan but it is outdated. The bacteriological sampling plan must be re-evaluated and updated using a rationale that will include monitoring in areas of the distribution system of potential concern due to age, materials, frequency of line breaks, etc. Also, the second pressure zone (served by the Billy Bump Pump Station) must be represented in the plan. The Water System must submit a bacteriological sampling plan including a distribution system map that is representative of water throughout the entire distribution system and, pending Division review and approval, follow that plan for all bacteriological samples. Bacteriological sampling plan guidance and templates are available at the following web address: www.vermontdrinkingwater.org/wsops.htm. For further assistance regarding bacteriological sampling plans please contact Matt Guerino at 802-241-3415 (direct line) or 800-823-6500 (toll-free in state). **The Water System's TOP, Part IV, Section C, Item 1 requires that this deficiency was to have been corrected by June 1, 2008.** To date, this deficiency has not been corrected.
2. *Storage Tank Integrity:* In accordance with the WSR, Appendix A, Part 7, all structures shall be watertight with no openings except those that are properly constructed. The concrete storage tank has been patched



numerous times, and during the sanitary survey was observed weeping water from the corners. The finished water storage tank is not watertight, and as a result does not adequately protect the sanitary quality of the drinking water. It was also reported that the Water System has significant water loss (unaccounted for water usage), which may be attributed to other below grade storage tank leaks. A letter from Ellen Parr-Doering of the Division, dated 4/18/08 requires that the Water System consult with a structural engineer (familiar with construction of potable water storage tanks) to evaluate the improvements necessary to meet the technical standards of the WSR and submit an engineering proposal to the Division for consideration by July 1, 2008. The Division requests that the storage tank be repaired or a new storage tank constructed by December 1, 2008. The Water System reported during the survey that their consulting engineer has completed an evaluation of the tank and is currently preparing the engineering proposal. **The Division requires that this deficiency (submittal of an improvements plan and schedule) be completed by July 1, 2008.**

3. *Inadequate Water Quantity:* In accordance with the WSR, Subchapters 21-3 and 21-7, all Public Water Systems shall reliably and consistently produce an adequate supply of potable water from permitted, non-emergency sources to meet normal and peak demands. The yield from Joiner Brook East Branch does not meet system demands during dry seasons. The Water System must plan for additional source capacity with the appropriate treatment. The Water System must provide an adequate supply of potable water and demonstrate a reserve capacity (combined permitted source yield greater than maximum day demand) to the Division. The Water System has applied for Source Permits for proposed wells, which is currently being considered by Dennis Nealon of the Division. **The Water System's TOP, Part IV, Section C, Item 6 requires that this deficiency be corrected by December 1, 2008.**
4. *Continuous Disinfection For All Sources Required (Well #4 and Well# 4A):* In accordance with the WSR, Subchapter 21-7 and Appendix A, Part 4, Public Community and Non-Transient Non-Community water systems shall have the capability of continuous disinfection; minimum free chlorine residual at distant points in a water distribution system should be 0.1 milligrams per liter (mg/L); and 40 CFR, Part 141.72(b)(3)(i), the residual disinfectant concentration in the distribution system measured as total chlorine, combined chlorine, or chlorine dioxide, ... cannot be undetectable in more than 5 percent of the samples each month, for any two consecutive months that the system serves water to the public. The Water System does not have the capability to provide continuous disinfection for Well #4 (WL003) and Well #4A (WL002). Due to maximum daily system demands, the Water System must supplement the surface water treatment plant's production using these two wells, which currently do not have disinfection capabilities installed. The Water System is introducing untreated ground water from Well #4 and Well #4A directly into the distribution system creating a mixing zone (estuary effect) and, coupled with fluctuating raw water quality impacting the treatment plant, making maintaining consistent free chlorine residual in the distribution system an operational challenge. Compliance with the Surface Water Treatment Rules, Lead/Copper Rules, and the D/DBP rules are a true "balancing act" for water system's and therefore, the optimization of disinfection processes is paramount. Disinfection capabilities for the two well sources must be constructed and operated continuously for these two sources. The Division requires that a minimum of 0.1 mg/L free residual chlorine be provided for all points of the distribution system. A Permit to Construct must be obtained from the Division prior to modifying the Water System. For additional information on construction permits or continuous disinfection, please contact Greg Bostock at 802-241-3407 (direct line) or 800-823-6500 (toll-free in state). **The recommended compliance date for this deficiency is January 1, 2009.**
5. *Required Disinfection By-Product (DBP) Monitoring and Monitoring Plan (Stage 2):* In accordance with the WSR, Subchapter 21-6, Public Water Systems which add a chemical disinfectant to the water in any part of the drinking water treatment process or purchase water from a Public Water System which contains a chemical disinfectant shall comply with the provisions of 40 CFR, Part 141, Subpart V. The Water System is currently collecting water quality samples for Disinfection By-Products (DBPs) at maximum residence time locations in accordance with a Stage 1 DBP monitoring plan. The Water System was to have submitted a Stage 2 Disinfection By-Products (DBP) Sampling Plan, including a distribution system map, for Water Supply Division review and approval by April 1, 2008. To date, this Stage 2 DBP Sampling Plan

has not been submitted to the Division for review and approval. The Water System must develop a Stage 2 DBP Sampling Plan and submit it to the Division for review and approval. Pending Division review and approval, all DBP samples must be collected in accordance with this plan. Questions related to DBP sampling plans may be directed to Ellen Parr-Doering of the Division at 802-241-3410 (direct line) or 800-823-6500 (toll-free, in state). The Water System must comply with all DBP monitoring requirements and any treatment requirements set forth by the Division. DBP sampling plan guidance and templates are available at the following web address: www.vermontdrinkingwater.org/wsystsops.htm. **The Water System's TOP, Part IV, Section C, Item 3 requires that this deficiency was to have been corrected by April 1, 2008.** To date, this deficiency has not been corrected.

6. *Disinfection By-Product (DBP) Maximum Contaminant Level (MCL) Exceedance:* In accordance with the WSR, Subchapter 21-6, Public Water Systems shall comply with the maximum contaminant levels (MCLs), maximum residual disinfectant levels (MRDLs), monitoring requirements, routine sampling and repeat sampling requirements, and public notification requirements for microbiological, inorganic chemical, organic chemical, and radiological contaminants established in this subchapter and in 40 CFR, Parts 141 and 143. Public Water Systems which add a chemical disinfectant to the water in any part of the drinking water treatment process or purchase water from a Public Water System which contains a chemical disinfectant shall comply with the provisions of 40 CFR, Part 141, Subpart L (Appendix E of the WSR). The Water System has a history of exceeding the MCL for Total Haloacetic Acids (HAA5). The Water System indicated that they are in the process of developing new ground water sources so that the use of the water filtration plant can be minimized. The Water System must submit an improvements plan and schedule to the Division that details how the Water System will correct this deficiency. **The recommended compliance date for this deficiency (submission of an improvements plan and schedule) is October 1, 2008.**
7. *Optimization of Corrosion Controls / Treatment Required for Well #4 and Well #4A:* In accordance with the WSR, Subchapter 21-6, all Public Water Systems shall comply with the provisions of 40 CFR, Part 141, Subpart I, Control of Lead and Copper, including § 141.80-91, which requires water systems to optimize corrosion control, when exceeding the action levels of 0.015 mg/L for lead and 1.3 mg/L for copper. The Water System has a history of exceeding the federal action level for lead. **The Water System's TOP, Part IV, Section C, Item 2 requires that the Water System was to have submitted a plan outlining corrosion control optimization to the Division by September 1, 2007.** To date, the Water System has not submitted a plan outlining corrosion control optimization. The Water System currently applies Potassium Orthophosphate for the surface water source and does not provide corrosion control treatment for the well sources. Effective and reliable corrosion control treatment using an orthophosphate relies on the establishing and maintaining a coating on the piping surfaces throughout the system to prevent corrosion. Introducing water from sources that are not properly treated with orthophosphate compromises the coating that is trying to be established and maintained. Because the Water System is not providing orthophosphate treatment for all water sources, the corrosion control treatment system is not optimized. Corrosion control must be provided for Well #4 and Well #4A. Additionally, in conferring with Ray Solomon, Treatment Specialist with the Division, he notes that the pH of the water appears to be too low for reliable orthophosphate treatment. He indicated that the pH of the water should be raised from current levels of approximately 6.5 to a range of 7.2 to 7.8 and the Alkalinity should be raised from current levels of approximately 6 mg/L up to 20 mg/L so that the orthophosphate treatment is reliably effective and could be considered optimized. However, it should be noted that raising the pH of the water may require additional the need for additional disinfection contact time. A Permit to Construct must be obtained from the Division prior to modifying the Water System. For additional information regarding construction permits or corrosion control treatment, please contact Greg Bostock at 802-241-3407 (direct line) or 800-823-6500 (toll-free in state). **The Water System's TOP, Part IV, Section C, Item 7 requires that this deficiency be corrected by April 1, 2009.**

The following minor deficiencies were identified and need to be corrected:

8. *Process Monitoring/Testing Equipment:* In accordance with the WSR, Chapter 21, Appendix A, Part 2 each Public water system shall have minimum equipment and facilities for laboratory testing as approved by the Secretary and as necessary to assure proper operation. At the time of the survey, the Turbidimeter calibration standard (Formazin) was expired. The Water System must obtain the new calibration standards. All turbidimeter calibrations must be conducted in accordance with the manufacturer's recommendations. **The recommended compliance date for this deficiency is September 1, 2008.**
9. *Source Drainage (Well #4A):* In accordance with the WSR, Chapter 21, Appendix A, Part 12, adequate isolation distances between wells and potential sources of contamination are required. The Water System currently has a depression near the Well #4A, allowing surface water to collect, and potentially contaminate the source. The area surrounding the well casing is to be filled with low permeability soil, compacted, and graded so that water runs away from the well casing to prevent the direct influence of surface water contamination. **The recommended compliance date for this deficiency is November 1, 2008.**
10. *Source Integrity Improvements (Well #4 and Well #4A):* In accordance with the Vermont Water Supply Rule (WSR), Appendix A, Part 12, a Public Water System must meet certain requirements relative to the construction of their source well(s). These requirements outline the current standards for a proper well sanitary seal. The electrical conduits on each of the source wells were compromised. The well cap on Well #4A was loose and the well cap gasket for Well #4 was not properly installed. Additionally, it was reported that Well #4A overflows on occasion and does not have an overflow pipe installed. The gasket for Well #4 must be reinstalled and the well cap bolts for Well #4A must be properly secured so that sanitary seals are provided for each well. A properly constructed (sanitary) well overflow pipe must be installed for Well #4A. The electrical conduits must be repaired or replaced such that one end is securely fastened to the well cap and the other end terminates at a point at least 2-feet below grade. The Division recommends that frost sleeves be installed on each of the electrical conduits. **The recommended compliance date for this deficiency is November 1, 2008.**
11. *Storage Facility Alarm/Level Controls:* In accordance with the WSR, Appendix A, Part 7, controls shall be provided to maintain levels in distribution system storage structures. Level indicating devices should be provided at a central location. Low level alarms are required. The Water System's storage tank does not have level controls, or a low-water level alarm. The Water System must install water level controls and a low-water level alarm for the finished water storage tank. **The Water System's TOP, Part IV, Section C, Item 4 requires that this deficiency be corrected by December 1, 2008.**
12. *Backwash Water Settling Tank and Lagoon Monitoring and Maintenance:* In accordance with the WSR, Appendix A, Part 4, "Lagoons should be designed to produce an effluent satisfactory to the Secretary and should provide for...adequate freeboard". The Water System is designed with an underground holding tank to receive backwash water from the plant, which is then pumped to a settling lagoon to allow solids to settle out of the wastewater before the water is discharged into the West Branch of the Joiner Brook. It was discussed during the survey that the Water System does not have a discharge permit for the water treatment facility backwash system. The access for the backwash tank was unable to be located and it was reported that there is no access. The tank has never been cleaned or inspected. Although the lagoon was not inspected during the survey, it was reported that the lagoon has never been cleaned out. The storage tank must be cleaned and inspected and all sludge disposed of properly. This aspect of the treatment plant must be addressed in the O&M Manual. Please contact Randy Bean of the Wastewater Management Division for assistance with obtaining a discharge permit and guidance for proper backwash sludge disposal. Randy can be contacted at (802)-241-3825. Please provide the Division with a report outlining the status of the backwash water tank and lagoon. **The recommended compliance date for this deficiency is December 1, 2008.**
13. *Closure of Abandoned Wells:* In accordance with the WSR, Chapter 21, Appendix A, Part 12, all abandoned wells shall be closed to prevent the contamination of ground or surface water resources, the migration of fluids, and risks to the health and safety of the public. Well abandonment shall be performed only by a Vermont licensed water well driller or monitoring well driller and in conformance with all

Department regulations. There is an old well located near the storage tank that is no longer usable. This well, and any other wells that are no longer usable, must be properly abandoned according to the standards established in the WSR. For further assistance regarding proper well abandonment please contact Dennis Nealon of the Division at 802-241-3411 (direct line) or 800-823-6500 (toll-free in state). **The recommended compliance date for this deficiency is January 1, 2009.**

14. *Standby Power:* In accordance with the WSR, Subchapter 21-7 and Appendix A, Part 6, to ensure continuous service when the primary power has been interrupted, a power supply shall be provided from at least two independent sources or a standby/auxiliary source shall be provided. A portion of the Water System's distribution system relies on the booster pumps and associated hydropneumatic tanks to provide adequate water pressure and flow to all customers. When power is interrupted, the hydropneumatic system that serves the distribution system is quickly depleted, allowing this portion of the distribution system to depressurize. When depressurized, distribution systems are vulnerable to contamination. The Division requests that standby power for the pump/pressure systems be provided so that the distribution system is not allowed to be compromised by depressurization. In the short term, the Water System must provide for "quick" connections and appropriate switch gear so that a generator(s) can be provided on an interim basis and the collection of bacteriological samples following system depressurization must be addressed in the Water System's bacteriological sampling plan by December 1, 2008. **The recommended compliance date for this deficiency is January 1, 2010.**
15. *Operation and Maintenance (O&M) Manual:* In accordance with the WSR, Subchapter 21-7, all Public Community Water Systems shall have an O&M Manual approved by the Division and shall be operated in a manner consistent with the approved O&M Manual. The Water System does not have a Division approved O&M Manual. The Water System must include health and safety measures, a flushing program, a schematic with the best possible approximation of pipe locations, and connections and all elements listed in Appendix D of the WSR in their O&M Manual. O&M Manual guidance and templates are available at the following web address: www.vermontdrinkingwater.org/wsrules.htm. **The Water System's TOP, Part IV, Section C, Item 8 requires that this deficiency be corrected by December 1, 2010.**

Please send a written reply addressing any recommended compliance dates listed above and the schedule for completion of each item to the Division by August 18th, 2008; alternatively, you are requested to respond in writing that any recommended compliance dates above are acceptable, at which point the dates may be incorporated into a compliance schedule, operating permit, or temporary permit to operate. Please refer to the WSR, Subchapter 21-4, to determine if the required improvements noted above, require a Permit to Construct from the Secretary.

The following items are provided to the Water System for review, consideration, and comment:

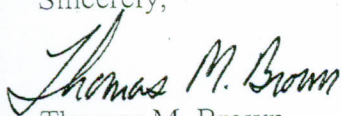
- *Disinfection Contact Time:* It was noted during the inspection that the volume of water storage available for filtration plant's disinfection contact time is too small and is a performance limiting factor. Currently, the Water System must inject chlorine prior to the surface water filtration system (pre chlorinating) in order to meet the required disinfection CT. While the Water System appears to be reliably providing the required disinfection CT, pre chlorination is significantly contributing to the formation of excessive DBP levels (see item #6, listed above). It was also noted the disinfection CT achieved during seasonal water temperatures less than 5 degrees Celsius is very marginal. The Water System should consider providing additional contact time storage volume after the filtration plant, prior to the first service connection, so that the chlorine injection point can be moved from before filtration to after filtration. By discontinuing or minimizing pre chlorination, DBPs may be reduced, although further evaluation would be needed to determine if the levels would be reduced enough to comply with the MCL or if further improvements would be necessary. The additional storage volume will also provide the Water System with operational flexibility when meeting disinfection CT requirements.

- *Long Range Plan:* In accordance with the WSR, Subchapter 21-5, a Public Water System may be required in a TOP to develop and submit to the Secretary a Long Range Plan (LRP) in accordance with Appendix B of the WSR. The Water System should consult with a Vermont-licensed Professional Engineer familiar with Public Drinking Water Systems to assist in the creation of a LRP that adequately addresses the deficiencies identified in this correspondence. The Long Range Plan should include a comprehensive list of water system improvements (listed in priority order based on public health risk) and a schedule under which each project is anticipated to be completed. The Long Range Plan must address both current and projected system improvements that are, or will likely be (i.e. distribution system piping replacement, etc.), necessary for the Water System to operate in compliance with the WSR in the future. Additionally, a full financial proposal for the improvements should be included (including the cost of operations and maintenance with revenues and expenses taken into account). The Water System may contact Ashley Lucht of the Division at 802-241-3424 or 800-823-6500 (toll-free in-state) for assistance with developing a long range plan.

The Division understands that in order for the Water System to correct these deficiencies it may require financial assistance. A potential source of financing for system improvements is the Division's Drinking Water State Revolving Fund (DWSRF) Program. Planning Loans (engineering planning and final design work) and Construction Loans may be available to the Water System through this fund. For a project to be eligible for DWSRF construction funding, it must be placed upon the water supply project priority list. Projects to correct the most serious risks to public health receive first consideration in awarding available funds. Completed applications for placement on the priority list must be filed by April 4th of this year to be eligible for the next October 1 to September 30 funding cycle. For more information regarding this program please contact Bryan Redmond of the Division at 800-823-6500 (in State) or (802) 241-3408 (direct line).

Thank you for your time while conducting the sanitary survey of the Catamount Bolton Water System and I look forward to working with you and your staff in the future. If you have any questions or would like to discuss anything on the survey, please feel free to contact me at the address above, by email at tom.brown@state.vt.us, or by phone at 800-823-6500 (in State) or (802) 241-3428 (direct line). The WSR and any necessary forms are now available online at www.vermontdrinkingwater.org.

Sincerely,



Thomas M. Brown
System Operations Specialist

- c. Jean Nicolai, Operations and Compliance Section Chief, WSD
Tim Raymond, Systems Operation Manager, WSD
Ellen Parr-Doering, Compliance and Certification Supervisor, WSD
Matt Guerino, Compliance Specialist, WSD
Dennis Nealon, Hydrogeologist, WSD
Greg Bostock, P.E., WSD
Ray Solomon, Water Treatment Specialist, WSD
Bryan Redmond, DWSRF Specialist, WSD
Ashley Lucht, Capacity Development Specialist, WSD
Randy Bean, Environmental Analyst, WWMD
Michael Bernardine, Certified Operator, WSID #5051
WSID File #5051