

**Vermont Department of Environmental Conservation  
Drinking Water and Groundwater Protection Division**

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*Agency of Natural Resources*

February 12, 2016

Crystal Springs Water System  
Attn: Bernard Chenette, Jr., PE  
69 Plateau Drive  
Barre, VT 05641

Re: Sanitary Survey, Crystal Springs Water System, a Public Community Water System, East Montpelier, VT WSID #5264

Dear Mr. Chenette:

A sanitary survey of the Crystal Springs Water System (Water System) was conducted on January 15, 2016. Heather Collins and Patrick Smart represented the Vermont Department of Environmental Conservation, Drinking Water and Groundwater Protection Division (Division); Deane Hedges, the Water System Operator, and Malcolm Grandfield represented the Water System. The Water System requested a second site visit to observe the repairs and resolutions listed as minor deficiencies #3-5 below. This second site visit occurred on February 2, 2016 with Heather Collins and Patrick Smart representing the Division. The Water System was issued a Permit to Operate (PTO) on April 28, 2015. The PTO does not have an expiration date, although the PTO will be amended by this Division as deemed necessary over time.

Section II.B.1 of the PTO required the Water System resolve the outstanding deficiency that was first identified during a sanitary survey performed May 31, 2013. Section II.B of the PTO required the Water System to:

- 1. On or before July 30, 2015 the Permittee shall provide detailed sketches or documentation identifying the construction of each in-home booster pump setup, establish and submit a protocol and procedure for annual inspecting and maintaining the air gaps provided at each unit, and seek the approval of the Secretary for the in-home booster pumps serving the water system.**

This PTO also contained a special condition for the Water System to comply with. Section IV.C of the PTO required the Water System to:

- C. On or before July 30, 2015, the Permittee shall submit documentation, certified by a Professional Engineer, that all customers that are removed or at one time had been removed from the Water System have been physically and permanently disconnected.**

In a letter dated December 18, 2015 the Division alleged that the Water System was being operated in violation of these conditions of the PTO. The Division's observations during this recent sanitary survey confirm that the Water System continues to operate in violation of its PTO. These observations are documented as two significant deficiencies, which are described below.

**Please be aware that pursuant to 10 V.S.A., Section 8008, the Agency may issue an Administrative Order for violations. An Administrative Order may assess penalties; require correction and/or remediation of the alleged violations; and may require other measures as deemed appropriate by the Division.**

Two significant deficiencies were identified during the sanitary survey, these deficiencies are described in the following paragraphs. These deficiencies must be corrected in order for the water system to be compliant with its PTO and the requirements of the Vermont Water Supply Rule (the Rule). These deficiencies are:

- 1. In-home Booster Pumps:** Under Chapter 21, Appendix A, Part 8.9.2 of the Vermont Water Supply Rule (Rule), *“Individual home booster pumps shall not be allowed for any individual service connection to the Public water system, unless installation is approved in writing by the Secretary, includes a properly sized and located air gap, and conforms to the Secretary’s guidelines.”* The Water System has two connections with in-home booster pumps which still need to have a properly sized and located air gaps documented and submitted to the Division for approval. If these air gaps are approved by the Division, then an annual maintenance and inspection program of the in-home booster pumps will need to be included in the Water System’s O&M Manual.
- 2. Cross connection hazard with onsite wells:** Under Chapter 21, section 8.1 of the Rule, *“no physical connection, unless approved by the Secretary, shall be permitted between the distribution system of a public or non-public water system and any pipes, pumps, hydrants, tanks, or other water systems whereby contaminated or polluted water or other contaminating substances may be discharged or drawn into the public and nonpublic water system. Any physical connection with a non-potable source of water shall include an adequate backflow prevention device which meets the requirements of American Water Works Association Standards.”* The Water System has had several customers over the years disconnect from the Water System. It is uncertain whether these connections still have the capability of being served by the Water System or if they are solely served by onsite sources. The Water System must submit a record signed and stamped by a Vermont Professional Engineer, that all customers that are removed or at one time had been removed from the Water System have been physically and permanently disconnected.

During the sanitary survey and file review the following minor deficiency was identified and needs correcting.

- 3. Operation and Maintenance (O&M) Manual:** Under Chapter 21, Section 7.1.1 of the Rule. *“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 Operation and Maintenance Manual.”* The Water System has an O&M Manual, but the manual has not been updated and submitted to the Division for review and approval since January 29, 2001. The Water system has recently changed several operational procedures of the water system including:
  - a.** Converted all fire hydrants connected to the system to flushing valves by painting the hydrants black and providing written notification to the local fire department that these hydrants are not to be connected to or pumped from in the event of a fire. This

information regarding the limitations of these hydrants is required to be updated in the Water System's O & M Manual.

- b. Reconfigured its disinfection application plumbing to provide adequate disinfection application and disinfection contact time for water produced by all sources.
- c. Installed cross-connection controls (air gaps) for in-home booster pumps connected to the Water System. An annual maintenance and inspection program of the air gaps associated with the in-home booster pumps must be included in the Water System's O&M Manual. Records of these annual inspections should be maintained in the Water System's operational records

The Water System must include all elements listed in Appendix D of the Rule in its O&M Manual. The Division has a guidance document and a template to assist the Water System in the development of an O&M Manual available at <http://drinkingwater.vt.gov/opcertapps.htm>. **On or before December 1, 2016, the Division requests the Water System electronically submit an updated O&M Manual for review and approval to the Division's FTP site by following the instructions on the link: <http://www.drinkingwater.vt.gov/pws/pdf/ftpinstructions.pdf>**

Additionally, during the sanitary survey the following three minor deficiencies were identified; however, the Water System has since resolved these deficiencies as observed during the Division's site visit on February 2, 2016. The Division thanks you for your prompt attention attending to these deficiencies. **Deficiencies 4 to 6 have been resolved.**

4. **Source Cap Integrity (Emergency Well Gasket):** Under Chapter 21, Appendix A, Part 12.4.17.1 of the Rule, "*a water-tight, non-corrodible vented cap must be installed on each well. Each cap must have a screened 40 mesh vent designed to shed water and snow.*" The Water System has an emergency back up well located off from Carleton Blvd. (WL002). This well is equipped with a gasketed compression seal to prevent contaminants from entering the well. During the survey, the gasket was disintegrated, resulting in a seal that was no longer water-tight, and required replacement. During the February 2, 2016 site visit, the Division observed that a new gasket had been installed for the emergency well's cap.
5. **Cross connection with Emergency Well:** Under Chapter 21, Section 8.1.1 of the Rule, "*any physical connections with a non-potable source of water shall include an adequate backflow prevention device which meets the requirements of American Water Works Association Standards.*" It was observed during the sanitary survey that the emergency back up well located off from Carleton Blvd. (WL002) was connected to the Water System without appropriate backflow prevention. During the February 2, 2016 site visit, the Division observed that the Water System had installed an appropriate air gap on the piping from this emergency well.
6. **Inadequate Storage Tank Integrity:** Under Chapter 21, Appendix A, Part 7.0.11 of the Rule, "*the roof and sidewalls of all structures must be watertight with no openings except properly constructed vents, manholes, overflows, risers, drains, pump mountings, control ports, or piping for inflow and outflow.*" It was observed during the sanitary survey that the storage tank lid penetrations for the erosion chlorinator delivery pipe, storage tank controls electrical service pipe, and storage tank vent pipe did not contain watertight seals as air gaps were observed in the annulus space between the storage tank lid and the pipes

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penetrating the lid. However, during the February 2, 2016 site visit, the Division observed that these pipe penetrations had been appropriately sealed, the Water System provided documentation that NSF 61 approved silicone sealant was used to resolve this deficiency.

The following item is provided for the Water System's review, consideration, and comment:

- **Continuous Disinfection Required:** The two outstanding PTO compliance items identified as significant deficiencies #1-2 in this letter present cross-connection hazards. Due to these cross-connection hazards, the Water System must provide continuous disinfection, and maintain a measureable disinfectant residual concentration throughout and to the ends of the distribution system until otherwise notified by the Division.

The Division requests that the Water System provide a written response to the items above by **March 12, 2016**. The written response should provide a proposed schedule for resolving deficiencies 1 to 3.

I appreciate you meeting with us in order to conduct the sanitary survey of the Crystal Springs Water System. I look forward to working with all of you in the future. If you have any questions or would like to discuss anything regarding the survey, please feel free to contact me at the address above, by email at [heather.collins@vermont.gov](mailto:heather.collins@vermont.gov), or by phone at 802-461-3722.

Sincerely,



Heather Collins

System Operations Specialist

c: Deane Hedges, Water System Operator, WSID# 5264  
Patrick Smart, System Operations Supervisor, DWGWP  
Ben Montross, Compliance and Support Services Section Chief, DWGWP  
Julie Hackbarth, Compliance and Certification Manager, DWGWP  
Jeff Girard, Compliance Analyst, DWGWP  
WSID File #5264