Corrective Action Plan
For
Public Water System (PWS)
Extensions
Corrective Action Area II
Operable Unit C
Bennington

March 19, 2020

Corrective Action Plan For
Public Water System (PWS) Extensions- Corrective Action Area II
Operable Unit A
Bennington

March 19, 2020

1.0 Introduction/ Executive Summary

1.1 *Purpose*

This Corrective Action Plan (CAP) authorizes a corrective action for the selected drinking water remedy in Corrective Action Area II-Operable Unit C (CAA II OU C). The selected remedy within CAA II OU C is the extension of public water system (PWS), as shown on the map in Figure 1, Within CAA II OU C, 80 residences are eligible to be connected to municipal water. The Town of Bennington is extending the public water system using funds provided or distributed by the State.

This CAP is necessary to meet requirements related to corrective action in the following documents:

- The State of Vermont Consent Order (Consent Order) with Saint-Gobain Performance Plastics (Saint-Gobain), which the State Superior Court ordered and entered as final judgement on May 28, 2019, and

- The Vermont Agency of Natural Resources (ANR) Rule, "Investigation and Remediation of Contaminated Properties Rule (IRule), effective July 6, 2019."

Approval of this CAP allows for water line extensions to begin this construction season. Two CAPs have either been or in the process of being finalized for the remainder of CAA II. One of the CAPs is titled "Interim Measures Corrective Action Plan for Public Water Systems (PWS) Extension-Corrective Action Area II Operable Unit A and was finalized on July 8, 2019, after the formal comment period ended. The waterline work described in the CAP for CAA II OU A is ongoing and is expected to be completed this construction season. The CAP for CAA II OU B, which includes areas within CAA II not being connected to a public water system, should be available for public comment within the next several weeks.

1.2 *Summary of Site Investigation Work*

The primary source of information indicating the need for this corrective action is the sampling of private water supplies initially performed by ANR and additional sampling performed by Saint-Gobain's consultant. Additional site investigative work was conducted by the Vermont Geological Survey and other ANR programs, the U.S. Environmental Protection Agency (EPA), the U.S. Geological Survey, and scientists from several colleges and universities. Investigative work included surficial and bedrock mapping; borehole geophysics; measurements of groundwater elevation; and

the collection of drinking water samples, groundwater samples from monitoring wells and springs, surface water samples, sludge samples, and soil samples. This investigative work also included the development of a Conceptual Site Model (CSM) provided by Saint-Gobain, which, among other things, identified potential sources and pathways for per- and polyfluoroalkyl substances (PFAS) found in groundwater. The CSM incorporated the data collected from the site investigative work to evaluate the complete PFAS transport pathway from source to sensitive receptor, that is, primarily people drinking the water, which required multiple numerical models to assess fate and transport through air, the unsaturated zone, and groundwater. A more detailed summary of the site investigation work and CSM can be found in Appendix D1 of the Consent Order.

1.3 *Remedial Objectives*

The major remedial objective of the CAP is to provide a long-term remedy that protects human health by eliminating the drinking water pathway for people living in locations where drinking water has been found to contain the combined concentrations of perfluorooctanoic acid (PFOA), perfluorooctane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS), perfluoroheptanoic acid (PFHpA), and perfluorononanoic acid (PFNA) at or above the Vermont Groundwater Enforcement Standard, which is currently 20 parts per trillion (ppt).

1.4 *Remedial Alternatives Considered to Protect Human Health (Eliminate Drinking Water Pathway)*

Barr Engineering, on behalf of Saint-Gobain, prepared an evaluation of corrective action alternatives for eliminating drinking water pathways and addressing groundwater This document is Appendix C1 of the Consent Order.

For remedies to protect human health, that is, eliminate the drinking water pathway, they evaluated three options:

- Long-term Operations of Point-of-Entry Treatment Systems (POETs)
- Extension of existing community PWS distribution mains
- Drinking water replacement wells

Their evaluation of these options was performed using the criteria specified in 40 C.F.R. § 300.430(e)(9)(iii), which is also consistent with the requirements within Subsection 35-503 (Evaluation of Corrective Action Alternatives) in the IRule

- Overall protectiveness to human health and the environment;
- Compliance with legal requirements;
- Short-term effectiveness;
- Long-term effectiveness and permanence;
- Reducing toxicity, mobility, and volume;
- Implementability;
- Cost;
- Environmental impacts and sustainability; and
- Community acceptance.

1.5 *Description of Selected Corrective Action*

As specified in the ANR decision document (Appendix D1 of the Consent Order), the preferred corrective action is to connect impacted water supply wells with concentrations of PFOA, PFOS, PFHxS, PFHpA, and PFNA at or above the Vermont Groundwater Enforcement Standard and other potentially at-risk wells to a public water system, where technically feasible and cost effective.

The Town of Bennington hired the engineering consulting firm MSK Engineering to perform this evaluation, working in close consultation with the relevant state programs to ensure any proposed extension of PWS ("Water Line Extension Work") is designed to comply with all applicable health-based and environmental requirements. CAA II OU C is an area that the Secretary determined is technically feasible and cost effective to extend water lines (Figure 1).

The scope of work associated with the extension of the PWS includes installation of water service lines to the existing internal plumbing within the home or business and the restoration of property disturbance. The remedy does not include the following:

- water usage costs to the PWS; or
- the refurbishment or replacement of existing internal plumbing and other items as further set forth in the Consent Order.

Connection to the expanded PWS is optional. However, if an eligible resident declines connection, then the residence would be responsible to connect to the PWS after construction of the permitted waterline expansions, as identified in this CAP, are completed. In addition, if a resident eligible declines connection and currently has a treatment system to remove PFOA and other PFAS, then the resident will be responsible to maintain and operate the system into the future.

The CAP only includes areas where waterlines have been permitted to be extended within the CAA II OU C. As stated on Section 1.1, other CAPs address the remedies to protect human health for CAA I1 OU A, and CAA II OU B (Figure 1).

2.0 Performance Standards

The performance standard for the CAP is as follows:

Completion of the Water Line Extension Work, which requires the extension of municipal water service to all residences within CAA II OU C (Chapel Road and Upper East Road between its intersection with Crossover Road and Chapel Road). The Town divided the extension of the public water system into two projects. Upper Chapel Road (north of Crossover Road) and Upper East Road is one project, a.k.a Contract 8, and Lower Chapel Road (south of Crossover Road) is the other, a.k.a Contract 9.

Each project has its own respective Construction Permit Project #. Compliance with this performance standard shall be documented by submittal to Vermont Department of Environmental Conservation (VT DEC) the required information specified in the PWS

Construction Permit listed below, including record drawing, signed and stamped by a professional engineer, and a letter certifying conformance with all permit conditions from the professional engineering firm responsible for observation of construction.

Contract 8 area (Upper Chapel Road and Upper East Road)

Public Water System Construction Permit Project # C-3736-19.0
Water System: Bennington Water Department WSID # VT0005016
Permittee: Bennington Town
Project Name: Phase II Distribution main extensions to provide water service to properties contaminated with PFOA/PFOS, Contract 8.
Permit Issued: September 26, 2019

A copy of PWS Construction permit Project C-3736-19.0 can be found in Attachment A.

Contract 9 area (Lower Chapel Road)

Public Water System Construction Permit Project # C-3750-19.0
Water System: Bennington Water Department WSID # VT0005016
Permittee: Bennington Town
Project Name: Phase II Distribution main extensions to provide water service to properties contaminated with PFOA/PFOS, Contract 9.
Permit Issued: November 5, 2019

A copy of PWS Construction permit Project #C-3750-19.0 can be found in Attachment B.

3.0 Remedial Construction Plans

Detailed engineering designs, including preliminary engineering reports, design drawings, and technical specifications for the Water Line Extension Work have been developed for this Project. The designs are referenced in Section A.5 of the respective construction permits and include a Vermont licensed professional engineer signature of review for the PWS extensions as required in IRule § 35-505 (4)(b). The Permit also provides a summary description of the proposed modifications, and extension to the PWS system. The design referenced in Permit Project # C-3736-19.0 can be found in Attachment C. The design referenced in Permit Project #C-3750-19.0 can be found in Attachment D. Also, both approved designs can be found at the Town of Bennington Offices.

4.0 Waste Management and Excess Soil Plan(s)

All excess excavation materials generated during this project must be managed in accordance with a plan approved by VT DEC. For purposes of waste, soil, and groundwater management planning, all soils and groundwater within CAA II OU C will be assumed to contain PFOA, PFOS, PFHxS, PFHpA, and PFNA at levels that could cause groundwater to have combined levels at or above the Vermont Groundwater Enforcement Standard for PFOA, PFOS, PFHxS, PFHpA, and PFNA.

An excess soil plan approved by VT DEC must be in place before construction of the waterlines can take place. Currently, between 20,000 and 30,000 cubic yards of excess soils may be generated from waterline extension work within CAA II OU C. Locations to place

excess soils are limited to areas within CAA II where waterlines have or are being installed, permitted disposal facilities that can receive PFOA, PFOS, PFHxS, PFHpA, and PFNA-containing soils, or other locations approved by VT DEC. This approach is considered acceptable for the following reasons:

- PFOA, PFOS, PFHxS, PFHpA, and PFNA levels in soils are significantly below the Vermont Soil Standardsof 1500 ug/kg, or part per billion (ppb).

- Soils within CAA II are presumed to contain PFOA and other PFAS at levels that can impact groundwater to levels above Vermont groundwater standards.

- PFOA, PFOS, PFHxS, PFHpA, and PFNA is already present in groundwater and the potential human exposure pathway will be addressed with the implementation of the corrective actions for CAA II.

The preferred alternative for soils removed during water line installation is to put these soils back into the water line trench. This will occur when soil geotechnical conditions are appropriate for this to happen. When this is not possible, the excess soils must remain within CAA II and at location(s) or permitted disposal facilities identified in the soil management plan approved by VT DEC.

Groundwater may be encountered during the installation of the water lines and it is possible that the excavated trenches for the water line will need to be de-watered. If de-watering is needed, the waste management plan must address how the water will be managed and will not make site conditions worse. Possible management options including re-charging the water in areas where the water was removed or storing the water in tanks for treatment (that is, remove PFOA, PFOS, PFHxS, PFHpA, and PFNA using carbon canisters) prior to discharge. Any management or discharge of groundwater must comply with applicable requirements.

At this time, no “other” contamination besides PFAS is anticipated to be encountered. An environmental assessment was performed by MSK’s environmental consultant in 2019 to assess if there are locations where “other” contamination, such as petroleum, may be present in the soils. No “other” contamination locations were identified. Assessment can be found in Attachment E. If “other” contamination are encountered during the construction of the Water Line Extension Work, then applicable rules and procedures, including the (IRule) and VT DEC guidance document for Construction of Public Works Projects must be followed. It is expected that an updated guidance document dealing with contamination in linear project public works projects, such as these, will be effective when construction work begins this summer.

5.0 Implementation Schedule

Construction of the Bennington Water Line Extension Work in CAA II OU C is scheduled to begin in August 2020, but it is possible that some work could begin in July 2020. Casella Construction, Inc. is the contractor for both Contract 8 and Contract 9. Based on discussions with Casella, the construction work in 2020 will focus on installing the main water line. Some connections may be installed in 2020, but it is expected that the remaining (and majority) of the connections will be installed within the 2021 construction season. Schedule updates will be provided throughout the duration of the two projects.

6.0 Corrective Action Maintenance Plan

The Town of Bennington water system is responsible to maintain their water system per their respective operating permits, and all other applicable requirements, to ensure that they are providing water to their users that meet the requirements of the Federal Safe Drinking Water Act and the Vermont Water Supply Rule. Once the construction of the water line extensions is completed, the water system is required to obtain an amended PWS permit to operate and provide an updated operation and maintenance manual to account for the expansion of their systems.

7.0 Institutional Controls

As specified in the Consent Order, the groundwater within CAA II, following the completion of the municipal water line extension work, will be reclassified as Class IV non-potable groundwater in accordance with the (IRule) and state groundwater protection rules.

8.0 Quality Assurance and Quality Control (QA/QC) Plan

The QA/QC requirements are included in the design plans and technical specifications for the project.

9.0 Proposed contractors and subcontractors

As stated in Section 5, Casella Construction, Inc. was awarded both Contracts 8 and 9.

10.0 Corrective Action Completion Report

As indicated in Section 2 (Performance Standards), there is a condition in the PWS construction permit requiring stamped and signed record drawings and a letter certification by the licensed professional engineering firm responsible for observation of construction to be submitted to the Secretary for review and verification after construction.

11.0 Public Notice

Attachment F contains the public notice that will be sent to individuals located within CAA II OU C using the mailing lists that the MSK Engineering used to notify property owners about their interest to be connected to a PWS. Also, individuals will be notified about the CAP using on the listserv related to the area-wide PFOA contamination in Bennington. A copy of this CAP will be electronically posted for 30 days for public comment and available by mail upon request.

Figure 1	Map showing Proposed Waterline Extension within Corrective Action Area II
Attachment A	Public Water System Construction Permit Project # C-3736-19.0, Contract 8
Attachment B	Public Water System Construction Permit Project # C-3736-19.0, Contract 8
Attachment C	Approved Design Plans for Water System Construction-Project C-3702-19.0
Attachment D	Approved Design Plans for Water System Construction-Project C-3702-19.0
Attachment E	Preliminary Environmental Investigation (Contracts 8 and 9), Sept 2019
Attachment F	Public Notice (see below)

Public Notice
Corrective Action Plan
Public Water System (PWS) Extension- Corrective Action Area II Operable Unit C
Bennington

March 19, 2020

A Corrective Action Plan (CAP) is being proposed that authorizes a corrective action measure for the selected long-term drinking water remedy in Corrective Action Area II-Operable Unit C (CAA II OU C). This area includes residences on Chapel Road and Upper East Road between its intersection with Crossover Road and Chapel Road.

The long-term remedy selected for CAA II OU C is the extension of public water systems (PWS) to residences. This selected long-term remedy for CAA II OU C protects human health by eliminating the drinking water pathway for people living in locations where drinking water from individual water wells has been found to contain concentrations of PFOA, PFOS, PFHxS, PFHpA, and PFNA at or above the Vermont Groundwater Enforcement Standard. Currently, eighty (80) residences are eligible to be connected to the public water system within this operational unit.

The waterline work within CAA II OU C is scheduled to begin in August 2020; however, some work could begin as early as July 2020. Completion of the waterline projects within CAA II OU C is expected to take place by the end of the 2021 construction season.

More detail about this proposed corrective action in CAA II OU C can be found in the CAP. Other CAP(s) for the remainder of CAA II have or in the process of being prepared and are separate.

The CAP for CAA II OU C, which includes a map showing the proposed water line extensions and the engineering design for the proposed extension to the Bennington public water system, is available for review and comment online.

https://dec.vermont.gov/commissioners-office/pfoa

Given the current CornonaVirus emergency, the CAP will not be available at the town offices for review. However, if anyone is unable to access the CAP electronically and would like a copy of the CAP mailed to you, please notify Richard Spiese or John Schmeltzer (see contact information below).

Per the requirements of Investigation and Remediation of Contaminated Properties Rule (IRule) § 35-506, interested persons shall have 30 days from the date of the notice to comment on the proposed CAP. Also, any interested person may request ANR to have a public informational meeting within 14 days of the date of the notice.

If you have any comments on this proposed CAP, please send your comments in writing by **April 20, 2020,** to Richard Spiese or John Schmeltzer at:

VT ANR/Department of Environmental Conservation
Waste Management and Prevention Division
1 National Life Dr – Davis 1
Montpelier VT 05620-3704

or

by email/phone
john.schmeltzer@vermont.gov
richard.spiese@vermont.gov
802 828-1138 for both