

**Interim Measures
Corrective Action Plan
For
Public Water System (PWS)
Extensions
Corrective Action Area I
Operable Unit A
North Bennington and Bennington**

August 11, 2017

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1.0 Introduction/ Executive Summary

1.1 Purpose

This Corrective Action Plan (CAP) authorizes an interim measure corrective action for the selected drinking water remedy in Corrective Action Area I-Operable Unit A (CAA 1-OU A). The selected remedy is the extension of public water systems (PWS) to residences and businesses as shown on the map in Figure 1. Approximately 200 homes or businesses will be connected to municipal water. The use of an interim measures CAP is authorized by the Investigation and Remediation of Contaminated Properties Rule (IROCPR) § 35-506(b)(1)(B).

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

- The State of Vermont Consent Order (Consent Order) with Saint-Gobain Performance Plastics (Saint-Gobain), which was entered into State Superior Court on July 26, 2017, and
- The Vermont Agency of Natural Resources (ANR) Rule, “Investigation and Remediation of Contaminated Properties Rule (IROCPR), effective July 27, 2017”. Approval of this CAP allows for water line extensions to begin this construction season.

Other CAPs as required in Appendix A of the Consent Order will be prepared separately. More details about the corrective action work items and schedule are provided in [Appendix A of the Consent Order](#).

1.2 Summary of Site Investigation Work

Site investigative work was conducted by multiple parties, including consultants on behalf of Saint Gobain, the ANR, the U.S. Environmental Protections Agency (EPA), and a group of 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 and samples, sludge samples, and soil samples. This investigative work included the development of a Conceptual Site Model (CSM) provided by Saint Gobain, which, among other things, identified potential sources and pathways for PFOA found in groundwater. The CSM incorporated the data collected from the site investigative work to evaluate the complete PFOA 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 can be found in [Appendix D of the Consent Order](#), and [the CSM](#). As noted in Appendix D of the Consent Order, the ANR has determined that additional investigation of the Site is required and additional refinement of the CSM is necessary prior to the ANR's concurrence with the conclusions contained within the CSM.

1.3 *Remedial Objectives*

The major remedial objective of this CAP is to provide a long-term remedy that protects human health by eliminating the pathway for people to drink water contains PFOA in concentrations at or above 20 parts per trillion (ppt), or wells that are believed to be at risk and PFOA levels are below 20 ppt where PWS extension work ("Water Line Extension Work"), has been planned, designed, and permitted within CAA 1-OU 1 (the Project Area).

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

Barr Engineering, on behalf of Saint-Gobain, prepared a comparative analysis of corrective action for eliminating drinking water pathways and addressing groundwater. This document is [Appendix C 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 comparative analysis 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 IROCPR:

- Overall protectiveness to human health and the environment;
- Compliance with applicable, relevant, and appropriate requirements;
- Short-term effectiveness;
- Long-term effectiveness and permanence;
- Reduction of contaminant mass, mobility, and toxicity through treatment;
- Implementability;
- Cost; and
- Community acceptance.

1.5 *Description of Selected Corrective Action*

As specified in the ANR decision document (Appendix D of the Consent Order), the preferred corrective action is to connect impacted water supply wells with PFOA concentrations at or above 20 ppt and other potentially at-risk wells to the municipal water supply, where technically feasible and cost effective.

The Town of Bennington and the Village of North Bennington hired consulting firms, MSK Engineering and Otter Creek Engineering, respectively, to perform this evaluation, working in close consultation with the applicable state programs to ensure any proposed Water Line Extension Work was designed to comply with all applicable health-based and environmental requirements. CAA 1 OU A are those areas where it is technically feasible and cost effective to extend water lines. Figure 1 shows the proposed water-line extensions within CAA 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 restoration of property disturbance. The remedy does not include water usage costs to the PWS or refurbishment or replacement of existing internal plumbing and other items as further set forth in the Consent Order.

This CAP only includes areas where waterlines have been permitted to be extended within the CAA 1 OU A. A separate CAP will address the remedies to protect human health in CAA 1 OU B.

2.0 **Performance Standards**

The performance standard for this CAP is completion of the Water Line Extension Work, which requires the extension of municipal water service to all homes and businesses as required by the Consent Order within CAA 1 OU A.

Compliance with this performance standard shall be documented by submittal to ANR the required information specified in the two respective PWS Construction Permits (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.

Public Water System Construction Permit Project C-3478-17.0
Water System: North Bennington Water Department WSID # VT0005017
Permitee: Village of North Bennington
Project Name: Distribution main extensions to provide water service to properties
with on-site wells contaminated with PFOA and PFOS.
Permit Issued: June 5, 2017

Public Water System Construction Permit Project C-3495-17.0
Water System: Bennington Water Department WSID # VT0005016
Permitee: Bennington Town
Project Name: Distribution main extensions to provide water service to properties
with on-site wells contaminated with PFOA and PFOS.
Permit Issued: July 12, 2017

A copy of the public water system construction permit Project C-3478-17.0 (Expansion of North Bennington water system) can be found in Attachment A. A copy of the public water system Construction permit Project C-3495-17.0 (Expansion of Bennington water system) can be found in Appendix B.

3.0 Remedial Construction Plan

Detailed engineering designs, including preliminary engineering reports, design drawings, and technical specifications for the Water Line Extension Work have been developed for North Bennington and Bennington. These designs are referenced in Section A.5 of Permits C-3478-17.0 and C-3495-17.0, and include a Vermont licensed professional engineer signature of review for the PWS extensions as required in IROCP § 35-505 (4)(b). The respective water supply construction permits provide a summary description of the proposed modifications, and extension of two PWS systems. The [bid packages for North Bennington and Bennington, which include the respective designs, are available online](#) and at the offices of the Town of Bennington. The proposed Water Line Extension Work for Bennington is divided into four bid packages.

4.0 Waste Management Plan

All excess excavation materials generated during this project must be managed in accordance with a plan approved by ANR. For purposes of waste management planning, all soils and groundwater within CAA 1 OU A will be assumed to contain PFOA at levels that could affect groundwater at levels above Vermont's Standard for PFOA.

An approved waste management plan must be in place before construction of the waterlines can take place. Evaluation of final options is ongoing. Currently, up to approximately 35,000 cubic yards of excess soils may be generated from these two water line projects. Soil disposal locations are limited to locations within CAA 1 OU A, disposal facilities permitted to receive PFOA-containing soils, or other locations approved by ANR. Disposal of PFOA containing-soils within CAA 1 OU A is considered acceptable for the following reasons:

- PFOA concentrations in soils are not a direct contact concern. All of the soil samples collected to date, including those closest to the former Water Street facility, were significantly below the Vermont Department of Health Advisory level of 300 ug/kg, or part per billion (ppb), for human direct contact. All soil samples collected to date are below 70 ppb, with most being less than 10 ppb. Therefore, PFOA containing-soils within CAA 1 OU are not a direct contact issue.
- Soils within CAA 1 OU A are presumed to contain PFOA at levels that can impact groundwater to levels above Vermont groundwater standards. Therefore, moving soils around in this area will not contaminate groundwater that is currently below Vermont's standards to levels that could go above Vermont's standards.
- PFOA is already present in groundwater and the potential human exposure pathway will be eliminated by the corrective action measures for CAA 1 OU A.

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, additional soils must remain within CAA 1 OU A. Attachment C contains a document that evaluated possible disposal locations of excess soils within CAA 1 OU A. At this time, the three disposal locations being considered are the following:

- Right-of-Way between the end of Riverside Drive and Ore Bed Road (Approximately 1,000 feet).
- Right-of-Way between end of Bard Road to the end of Red Pine Road (Approximately 1,500 feet)
- Area to the north and south of Route 279 and west of Austin Hill Road. This location is on Vermont Agency of Transportation right-of-way.

Because federal funds were used in the construction and acquiring the right-of-way for Route 279, an environmental assessment must be performed for the proposed disposal location within the Route 279 right-of-way west of Austin Hill Road before Federal Highway Administration (FHA) can approve of these soils going to this location. Once FHA issues their approval document, the Vermont Agency of Transportation can authorize use of this right-of-way for disposal of excess soils generated during construction of PWS extensions.

In addition, it is possible that the permittees and their contractors could identify in their waste management plan(s) other potential permanent and temporary soil disposal locations. However, such locations must be approved by ANR prior to moving soils to these locations.

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 area where the water was removed or storing the water in tanks for treatment (that is, remove the PFOA using carbon canisters) prior to discharge. Any management or discharge of groundwater must comply with the applicable requirements.

At this time, no additional contamination besides PFOA are anticipated to be encountered. However, a preliminary site investigation was performed at two locations where petroleum underground storage tanks are, or were, present. The results of this preliminary site investigation are pending. If contamination besides PFOA is found as result of the preliminary site investigation in an excavation area associated with the Water Line Extension Work or during the actual construction of this work, then the procedures outlined in the VT DEC document "Guidance for Construction of Public Works Projects," effective date March 2002, must be followed for that given reach of waterline work where this contamination is present.

5.0 Implementation Schedule

Construction of the Water Line Extension Work for both North Bennington and Bennington are scheduled to begin in the Fall of 2017. The current goal is to have all the waterlines completed by the Fall of 2018.

6.0 Corrective Action Maintenance Plan

The two water systems are responsible to maintain their water systems 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 systems are 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 1 OU A, following the completion of the municipal water line extension work, will be reclassified as Class IV non-potable groundwater in areas served by the municipal water line in accordance with the IROCPR 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 each water system.

9.0 Proposed contractors and subcontractors

At this time, the contractors to construct the water line have not yet been selected. Request for Proposals were sent out for both water line projects in early August 2017. Selection of these contractors is scheduled to occur in late August of 2017 with contractors being signed in early September of 2017.

10.0 Corrective Action Completion Report

As indicated in Section 2 (Performance Standards), there is a condition in the respective PWS construction permits 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.

11.0 Public Notice

Attachment D contains the public notice that will be sent to individuals located within CAA 1 OU A using the mailing lists that the MSK Engineering and Otter Creek Engineering used to notify individuals and properties about their interest to be connected to a municipal water system. Notice shall be provided to all property owners impacted by this CAP on a form provided by the Secretary. A copy of this CAP will be electronically posted for 30 days for public comment.

- [Figure 1](#) Map showing Proposed Waterline Extension within Corrective Action Area 1
- [Attachment A](#) Public Water System Construction Permit Project C-3478-17.0
North Bennington
- [Attachment B](#) Public Water System Construction Permit Project C-3495-17.0
Bennington
- [Attachment C](#) Weston and Sampson Letter dated June 16, 2017 (Bennington and North
Bennington Water System Extension Excess Soils Disposal Option Analysis
- [Attachment D](#) Public Notice