



# Groundwater Reclassification Petition

## *North Bennington and Bennington, Vermont*

Prepared for  
Vermont Agency of Natural Resources

January 28, 2021

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## Abbreviations and Acronyms

CAAI	Corrective Action Area I
CAAIL	Corrective Action Area II
CAA	Corrective Action Area
CAP	Corrective Action Plan
CSM	Conceptual Site Model
IROCPR	Investigation and Remediation of Contaminated Properties Rule
LTM	Long-term Monitoring
MNA	Monitored Natural Attenuation
OUA	Operable Unit A
OUB	Operable Unit B
OUC	Operable Unit C
PFAS	per- and poly-fluoroalkyl substances
PFHpA	perfluoroheptanoic acid
PFHxS	perfluorohexane sulfonate
PFNA	perfluorononanoic acid
PFOA	perfluorooctanic acid
PFOS	perfluorooctanesulfonic acid
POET	point-of-entry treatment
ppt	parts per trillion
VTANR	Vermont Agency of Natural Resources
VTDEC	Vermont Department of Environmental Conservation

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# 1 Introduction

This petition, prepared by Barr Engineering Co. (Barr) on behalf of the State of Vermont Agency of Natural Resources (VTANR), describes the proposed reclassification of groundwater in portions of the Towns of Bennington and Shaftsbury and the Village of North Bennington, Vermont. This Groundwater Reclassification Petition was completed in accordance with the requirements of the Consent Order between the VTANR and Saint-Gobain Performance Plastics, dated May 28, 2019 (Consent Order) and addresses comments from VTANR (VTDEC, 2019a; VTDEC, 2019b; VTDEC, 2020). This Consent Order supersedes the Consent Order and Final Judgment, dated October 2, 2017.

The Consent Order defines two corrective action areas: Corrective Action Area I (CAAI) and Corrective Action Area II (CAII) and, for the purpose of this petition, are collectively referred to as the CAA (Figure 1). The CAA is managed in accordance with the requirements of the Consent Order and pursuant to the VTANR Investigation and Remediation of Contaminated Properties Rule (IROCPR; § 35-506 July 6, 2019). This petition was completed in accordance with the *Procedure for Class IV Groundwater Reclassification*, dated July 5, 2018, and the *Vermont Groundwater Protection Rule and Strategy*, adopted by VTANR on July 6, 2019.

## 1.1 Background

The CAA generally consists of an area east of the New York state line and west of the Green Mountains (Figure 1). The CAA is divided into three operable units (Figure 2). Municipal waterlines were extended or will be extended to properties in Operable Unit A (OUA) and Operable Unit C (OUC) as a part of the corrective actions and in accordance with the Consent Order. Existing waterlines are present or ongoing groundwater corrective actions are currently being implemented in Operable Unit B (OUB) in accordance with the Consent Order.

Delineation of the CAA was achieved based on analytical results from water supply wells and through computer modeling and site investigations during which soil and groundwater samples from across the CAA were collected and analyzed for per- and poly-fluoroalkyl substances (PFAS). The extent of CAAI was defined by modeling the fate and transport of PFAS, specifically perfluorooctanoic acid (PFOA), potentially in historical air emissions from the former Chemfab facilities in Bennington and North Bennington, Vermont (Figure 2). The modeling incorporated the data available at the time and is described in the *Draft Conceptual Modeling of PFOA Fate and Transport: North Bennington, Vermont* (Barr, 2017).

From August 2017 to January 2018, soil and groundwater samples were collected from across the CAA to verify the modeling and confirm and refine the CSM. In March 2018, a *Conceptual Site Model Site Investigation Report: Bennington, Vermont*, was prepared for the CAA. This report summarized the soil and groundwater data and evaluated the distribution of PFAS in soil and groundwater (Barr, 2018). The extent of CAII was defined based on the results of this investigation.

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## 1.2 Objectives

The objective of this petition is to reclassify groundwater in the CAA and at one property adjacent to the CAA (Groundwater Reclassification Area; Figure 3) from Class III to Class IV. Based on recent groundwater sample results, PFAS concentrations exceed the enforcement standard<sup>1</sup> in portions of the Groundwater Reclassification Area (Figure 4). Therefore, VTANR has determined that the groundwater in the Groundwater Reclassification Area does not meet the requirements for a Class III groundwater source as defined by the *Vermont Groundwater Protection Rule and Strategy*.

## 1.3 Applicability

VTANR Environmental Protection Rules, Chapter 21, Water Supply Rules (March 17, 2020) define potable water and public water source as follows:

**Potable water** means water free from impurities in amounts sufficient to cause disease or harmful physiological effects, and having bacteriological, chemical, physical, and radiological quality conforming to applicable standards of the Secretary.

**Public water source** means any surface water or groundwater intake used, or permitted to be used, as a source of potable water for a public water system.

**Public water supply (PWS)** means any system(s) or combination of systems owned or controlled by a person that provides drinking water through pipes or other constructed conveyances to the public that has at least 15 service connections or serves an average of at least 25 individuals daily for at least 60 days out of the year. Such term includes all collection, treatment, storage, and distribution facilities under the control of the water supplier and used primarily in connection with such system, and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Public water systems shall also mean any part of a system which does not provide drinking water, if use of such a part could affect the quality or quantity of drinking water supplied by the system. Public water system shall also mean a system which bottles drinking water for public distribution and sale.

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## 2 Existing Conditions

This section describes the existing conditions at the Groundwater Reclassification Area including groundwater quality, groundwater use, and the ongoing corrective action activities.

### 2.1 Current Groundwater Quality

PFAS is present in groundwater at concentrations above the enforcement standard in portions of the Groundwater Reclassification Area. The highest groundwater PFAS concentrations, as of January 25, 2021, at drinking water wells are shown on Figure 4. Twenty-two compliance wells are identified for long-term monitored natural attenuation (MNA) of PFAS (Barr, 2020). These compliance wells and their PFAS concentrations, as of January 25, 2021, are also shown on Figure 4.

Groundwater in the area surrounding the Bennington Landfill Superfund site was reclassified as Class IV groundwater in 2003 (Figure 4).

### 2.2 Current Groundwater Use

Groundwater use in the Groundwater Reclassification Area is primarily for potable water supplied by the drinking water wells shown on Figure 5 and summarized in Table 1. Figure 5 also shows the drinking water wells located within a 300-foot buffer of the Groundwater Reclassification Area. No high-capacity industrial or commercial wells permitted by the State of Vermont were identified from available information on water use and well construction (Barr, 2017).

The municipal water sources for the Town of Bennington and the Village of North Bennington are outside of the Groundwater Reclassification Area with the exception of Morgan Spring. Morgan Spring is a spring water source located in downtown Bennington and is one of the municipal water sources for the Town of Bennington. Bolles Brook in the Town of Woodford is a surface water source and is also a source of municipal water for the Town of Bennington (Town of Bennington, 2016). The municipal water sources for the Village of North Bennington are supply wells near the surface-water intake on Basin Brook, which is located in Shaftsbury (VTDEC, 2016). PFOA has not been detected in these municipal water supplies (Barr, 2017).

### 2.3 Corrective Action Activities

Corrective Action Plans (CAPs) were prepared for each operable unit and provide a long-term remedy for the CAA as described in the Consent Order. The operable unit boundaries and the municipal water lines that were or will be installed during corrective actions in OUA and OUC are shown on Figure 2.

#### 2.3.1 CAA OUA

The OUA CAPs for CAAl and CAAll describe the municipal water line extension requirements and the waste management plan for excess soil and groundwater generated during construction. The current status of the corrective actions in CAAl and CAAll is described in the following sections.

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### **2.3.1.1 CAAI OUA**

In accordance with the OUA CAP for CAAI, municipal water lines were extended to properties in CAAI OUA (VTANR, 2017). This work was completed in fall 2018. In general, after the property was connected to municipal water, the drinking water well was sealed, and the point-of-entry treatment (POET) system, if present, was removed. Eleven property owners within CAAI OUA declined municipal water connections and seven drinking water wells were re-designated to monitoring wells to be used to monitor for natural attenuation in accordance with the OUB CAP.

### **2.3.1.2 CAAIL OUA**

In accordance with the OUA CAP for CAAIL, municipal water lines are currently being extended to properties in CAAIL OUA (VTANR, 2019). This work is scheduled to be completed in fall 2020. As of January 28, 2021, 11 properties refused municipal water connections within CAAIL OUA. Four drinking water wells within OUA will be re-designated to monitoring wells and will be used to monitor for natural attenuation in accordance with the OUB CAP.

### **2.3.2 CAA OUB**

The OUB CAP for the CAA was approved by the VTANR on April 30, 2020 and includes a series of plans for properties with drinking water wells that are not part of the municipal water line extension project (Barr, 2020).

A variety of ongoing corrective action activities are performed in accordance with the OUB CAP including long-term operation, maintenance, and monitoring of POET systems, an evaluation to determine alternative water sources including replacement wells in select locations, and long-term monitoring (LTM) of wells with PFAS concentrations below the enforcement standard. If groundwater concentrations exceed the enforcement standard at the LTM wells, bottled water is provided until a POET system or other long-term remedy is installed and operational.

### **2.3.3 CAAIL OUC**

The CAAIL OUC CAP describes the municipal water line extension requirements and the waste management plan for excess soil and groundwater generated during construction (VTANR, 2020). Municipal water lines are currently being extended to properties in CAAIL OUC. This work is scheduled to be completed in the 2021 construction season.



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## 3 Groundwater Reclassification

This section describes the proposed groundwater reclassification for the Groundwater Reclassification Area, recommended well design standards for wells installed in the Groundwater Reclassification Area and estimated costs, and public notification of this groundwater reclassification. The Groundwater Reclassification Area is presented at a scale that shows the entire Groundwater Reclassification Area boundary on Figure 6 and in detail on the figures in Appendix A. A GIS shapefile of the Groundwater Reclassification Area is provided in Appendix B. Properties that are adjacent to the Groundwater Reclassification Area are shown on Figure 7.

### 3.1 Proposed Groundwater Reclassification

As described in §12-502 of the Groundwater Protection Rule and Strategy (July 6, 2019), groundwater that is expected to exceed the regulatory criteria for five or more years should be reclassified to Class IV groundwater. The groundwater within the Groundwater Reclassification Area meets these requirements and, as required by the Consent Order, it is proposed that groundwater within the Groundwater Reclassification Area be reclassified from Class III to Class IV and that no groundwater use for potable water is permitted by the Secretary within 200 feet of the municipal waterlines. Groundwater in the Groundwater Reclassification Area may or may not be suitable as a source of potable water without treatment and/or monitoring. This means that any new dwelling or business located within 200 feet of a waterline must connect to municipal water. This requirement does not apply to dwellings and businesses that are currently using an existing well.

The Groundwater Reclassification Area is the appropriate boundary of the Class IV area based the best available data collected across the area. Most of the area was established in the Consent Order and its appendices summarize the soil and groundwater data from this area and evaluated the distribution of PFAS in soil and groundwater. The Groundwater Reclassification Area is based on property boundaries and reflects the extent of PFAS concentrations that exceed the enforcement standard for PFAS, which was the outcome of this evaluation where over 650 water supply wells were sampled (Figure 5; VTDEC, 2018).

In portions of Groundwater Reclassification Area, municipal water has been provided to occupied properties as a source of potable water and is the preferred source for potable water in the Groundwater Reclassification Area. In other portions of Groundwater Reclassification Area, drinking water wells will require the following actions (Barr, 2020):

- Existing drinking water wells with PFAS concentrations below the enforcement standard require long-term monitoring in accordance with the OUB CAP (i.e., *Long-Term Monitoring Plan for Private Wells without POETS*).
- Existing drinking water wells with PFAS concentrations above the enforcement standard require the operation of a POET system that is maintained and monitored in accordance with the OUB CAP (i.e., *POET Operation, Monitoring & Maintenance Manual*).

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- New drinking water wells require the property owner to notify the State of Vermont of their installation in accordance with the OUB CAP (i.e., *Plan for Testing New Water Wells*).

## 3.2 Well Design Standards and Cost Estimates

As required in the Consent Order, recommended well design and installation standards for new or replacement wells are included in Appendix C. The estimated associated costs for implementing the proposed design and installation standards are also included. These design standards and costs can be used for consideration by homeowners when installing wells in the Groundwater Reclassification Area.

## 3.3 Public Notice

The public notices that will be sent to owners of properties within the Groundwater Reclassification Area are included in Appendix D. In addition, notices will also be sent to owners of properties adjacent to the Groundwater Reclassification Area. Contact information for owners of properties within the Groundwater Reclassification Area is provided in Table 2 and contact information for owners adjacent to the Groundwater Reclassification Area is provided in Table 3.

A copy of this groundwater reclassification petition and a draft decision issued by the State of Vermont will be posted electronically by VTANR for 30 days for public comment. When the final decision has been issued, the State of Vermont will provide notice to the public.

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## 4 References

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- Vermont Department of Environmental Conservation (VTDEC), 2020. Letter to Christopher Angier re: Groundwater Reclassification Petition, Bennington, Vermont (SMS Site #2016-4630), May 8, 2020.