Corrective Action Plan
Corrective Action Area I – Operable Unit B
North Bennington and Bennington

Prepared for
Saint-Gobain Performance Plastics

May 2018

Corrective Action Plan
Corrective Action Area I – Operable Unit B
North Bennington and Bennington

May 2018

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Acronyms

Acronym	Description
ANR	Agency of Natural Resources
CAAI	Corrective Action Area I
CAAII	Corrective Action Area II
CAP OUB	Corrective Action Area I– Operable Unit B
CAP	Corrective Action Plan
CSM	Conceptual Site Model
IROCPR	Investigation and Remediation of Contaminated Properties Rule
LTM	long-term monitoring
MNA	monitor natural attenuation
OMM	operation, maintenance and monitoring
OUA	Operable Unit A
OUB	Operable Unit B
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanic acid
PFOS	perfluorooctanesulfonic acid
POET	point-of-entry treatment
ppb	parts per billion
ppt	parts per trillion
QA/QC	quality assurance and quality control
VTDEC	Vermont Department of Environmental Conservation

1.0 Introduction/ Executive Summary

1.1 Purpose

This corrective action plan, prepared by Barr Engineering Co. (Barr) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), is developed pursuant to the Consent Order and Final Judgement, which was entered on October 2, 2017 (Consent Order). This corrective action plan (CAP) addresses Appendix A of the Consent Order, Section III Corrective Action Area I– Operable Unit B, paragraph 4 (CAP OUB).

The Consent Order defines two corrective action areas: Corrective Action Area I (CAAI) and Corrective Action Area II (CAAII). As identified in Appendix B to the Consent Order, CAAI generally consists of a bounded area west of Route 7 and CAAII generally consists of a bounded area east of Route 7. CAAI is divided into two operable units. Operable Unit A (OUA) is the subject of a separate corrective action plan prepared by the Vermont Agency of Natural Resources (ANR), dated August 11, 2017. This CAP addresses Operable Unit B (OUB) and is prepared in accordance with the Consent Order and "Investigation and Remediation of Contaminated Properties Rule (IROCPR)," effective July 27, 2017.

1.2 Summary of Site Investigation Work

Investigative work is ongoing and has been conducted by multiple parties, including consultants on behalf of Saint-Gobain, the ANR, the U.S. Environmental Protection Agency, colleges, and universities. Investigative work has included surficial and bedrock mapping; borehole geophysics; measurements of groundwater elevation; and the collection of drinking water samples from private wells and municipal supplies, groundwater samples from monitoring wells and springs, surface water samples, sediment samples, fish tissue samples, sludge samples, and soil samples.

This investigative work informed development of a Conceptual Site Model (CSM), which, among other things, identified certain potential sources and pathways for per- and poly-fluoroalkyl substances (PFAS) found in groundwater. Potential sources of PFAS identified in the CSM, in addition to emissions from the former Saint-Gobain facilities, include other local sources from area industries and the Bennington Landfill, as well as background sources resulting from long-range transport from sources outside of CAAI. The CSM is described in detail in the *Draft Conceptual Modeling of PFOA Fate and Transport: North Bennington, Vermont*, prepared by Barr, dated June 2017 (Draft CSM Report). The CSM incorporated the data collected from the site investigative work to evaluate the complete 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 Draft CSM Report.

As noted in Appendix D of the Consent Order, ANR as part of the Consent Order, requested additional investigation in CAAII to further evaluate the potential fate and transport of perfluorooctanoic acid (PFOA) and to further assess the potential source or sources of PFOA in CAAII. Additional field investigation and

the schedule for submitting a Site Investigation Report with the additional information are addressed in Appendix A of the Consent Order, Section V Corrective Action Area II, paragraph 9.

1.3 Remedial Objectives

The major remedial objective of CAAI OUB is to provide a long-term remedy in areas where public water is not, or will not be, provided and private wells may contain concentrations of PFOA at or above the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt). A map showing the extent of OUB is provided as Figure 1.

1.4 Analysis of Remedial Alternatives

Barr, on behalf of Saint-Gobain, prepared a comparative analysis of corrective actions for eliminating drinking water pathways and addressing PFOA concentrations in groundwater. This comparative analysis is Appendix C of the Consent Order.

Three remedial options were evaluated that would eliminate the drinking water pathway:

- Long-term operations of point-of-entry treatment (POET) systems
- Extension of the existing municipal water lines
- Drinking water replacement wells

The 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 Actions

As specified in the ANR decision document (Appendix D of the Consent Order), the selected corrective action in CAAI OUA requires connecting locations with impacted water supply wells (PFOA concentrations at or above 20 ppt) and other locations with the potential for PFOA concentrations to be at or above 20

ppt, where technically feasible and cost-effective, to municipal water lines. A separate *Interim Measures Corrective Action Plan for Public Water System (PWS) Extensions, Corrective Action Area I, Operable Unit A*, developed by ANR, dated August 11, 2017, addresses the area where water lines will be extended within CAAI.

This correction action plan for OUB (CAP OUB) addresses the remedial alternative selected for areas where it was determined not to be technically feasible or cost-effective to extend municipal water lines. The remedial alternatives selected for CAA OUB include: long-term operation of POETs or replacement of drinking water wells in select locations.

This CAP OUB is a series of individual Plans that address those properties for which connection to the municipal water lines is not technically feasible or cost-effective. These Plans include:

- **Well Replacement Plan (Attachment A)** – addresses potential well replacement and associated activities at properties at which PFOA concentrations are at or above 20 ppt.
- **New Well Testing Plan (Attachment B)** – addresses sampling requirements at properties with newly proposed and installed wells.
- **Bottled Water Plan (Attachment C)** – addresses interim actions (i.e., supplying bottled water) upon identification of PFOA concentrations at or above 20 ppt in replacement wells or any wells in the long-term monitoring plan.
- **POET OM&M Manual (Attachment D)** - addresses POET Operation, Maintenance and Monitoring (OM&M) requirements at properties with POET systems.
- **Long-Term Monitoring Plan (Attachment E)** – addresses the sampling requirements for drinking-water wells without POET systems.
- **Long-Term MNA Plan (Attachment F)** – presents a long-term plan to monitor natural attenuation (MNA) of soil and groundwater until the associated soil and groundwater performance standards are met; and
- **Institutional Control Plan (Attachment G)** – presents a plan for institutional controls associated with CAAI OUB.

The relationship between these plans is shown on Figure 2.

If as part of the CAP, a private water well is being replaced with a new well or eliminated if the location is being connected to municipal water, the well will be properly closed in accordance with ANR, Chapter 21, Water Supply Rule or converted into a long-term monitoring well.

2.0 Performance Standards

The performance standards for this CAP OUB address the requirements associated with the POET OM&M Plan, the LTM Plan, and the Long-Term MNA Plan and are incorporated into these respective plans (Attachment D, Attachment E, and Attachment F). These performance standards also address the overall completion of the corrective actions for CAAI.

Compliance with these performance standards shall be documented by submittal of monitoring results and operation/maintenance records to Vermont Department of Environmental Conservation (VTDEC) as specified in the individual plans.

The performance standards[1] for CAAI OUB include:

- Groundwater - PFOA concentrations are below 20 ppt at groundwater compliance points established by the Secretary for CAAI and Saint-Gobain has established there is a stable or decreasing trend, meaning PFOA concentrations below 20 ppt for eight consecutive rounds of quarterly sampling and the statistical trend analysis for eight quarters of sampling shows an overall downward trend in PFOA concentration in the water supply or a flat trend if the concentrations are below 20 ppt PFOA.
- Soil - PFOA concentrations are below 300 parts per billion (ppb) at soil compliance points established by the Secretary for CAAI or appropriate institutional controls are in place.
- Drinking water supply wells - PFOA is not present in any drinking water supply wells at or above 20 ppt and Saint-Gobain establishes a stable or decreasing trend, meaning PFOA concentrations below 20 ppt for eight consecutive rounds of quarterly sampling and the statistical trend analysis for eight quarters of sampling shows an overall downward trend in PFOA concentration in the water supply or a flat trend if the concentrations are below 20 ppt PFOA.
- Surface water – Vermont water quality standards are achieved at any surface water compliance point established for CAAI.
- All required institutional controls, engineered controls, and inspection plans are in place.
- All groundwater monitoring wells are properly closed unless such wells are required for any required institutional controls, engineered controls, or inspection plans, or otherwise approved by the State to remain open.

[1] These performance standards must be met to obtain a final Certification of Corrective Action Completion, but individual wells or monitoring points may be removed from monitoring consistent with the relevant plans, e.g. all drinking water supply wells without POETs do not need to be monitored until all such wells are below the standard for eight consecutive quarters.

- All site remedial infrastructure or monitoring points are properly closed, unless part of ongoing institutional controls, engineered controls, or inspection plans, or otherwise approved by the State to remain open.
- Any outstanding or overdue balances owed to the State have been paid.

3.0 Remedial Construction Plan

Detailed construction plans and specifications are specified in the individual Plans, where applicable, and will include the signature of a Vermont-licensed professional engineer, where applicable.

4.0 Waste Management Plan

Excess soil and/or groundwater generated during implementation of the individual Plans will be managed in accordance with the individual Plans, where applicable, and as approved by VTDEC.

5.0 Implementation Schedule

Implementation schedules that include milestones, where applicable, are specified in the individual Plans.

6.0 Corrective Action Maintenance Plan

Maintenance plans, if applicable, are included in the individual Plans.

7.0 Institutional Controls

As specified in the Consent Order, the groundwater within CAAI OUA, following the completion of the municipal water line extension work, will be reclassified by the State as Class IV non-potable groundwater in areas served by the municipal water line in accordance with the IROCPR and state groundwater protection rules.

The institutional controls applicable to CAAI OUB are specified in the Institutional Control Plan (Attachment G). To the extent allowed by law, the State may use its reclassification authority to develop well construction standards to the extent that such standards may avoid the consumption or use of water containing PFAS-regulated compounds.

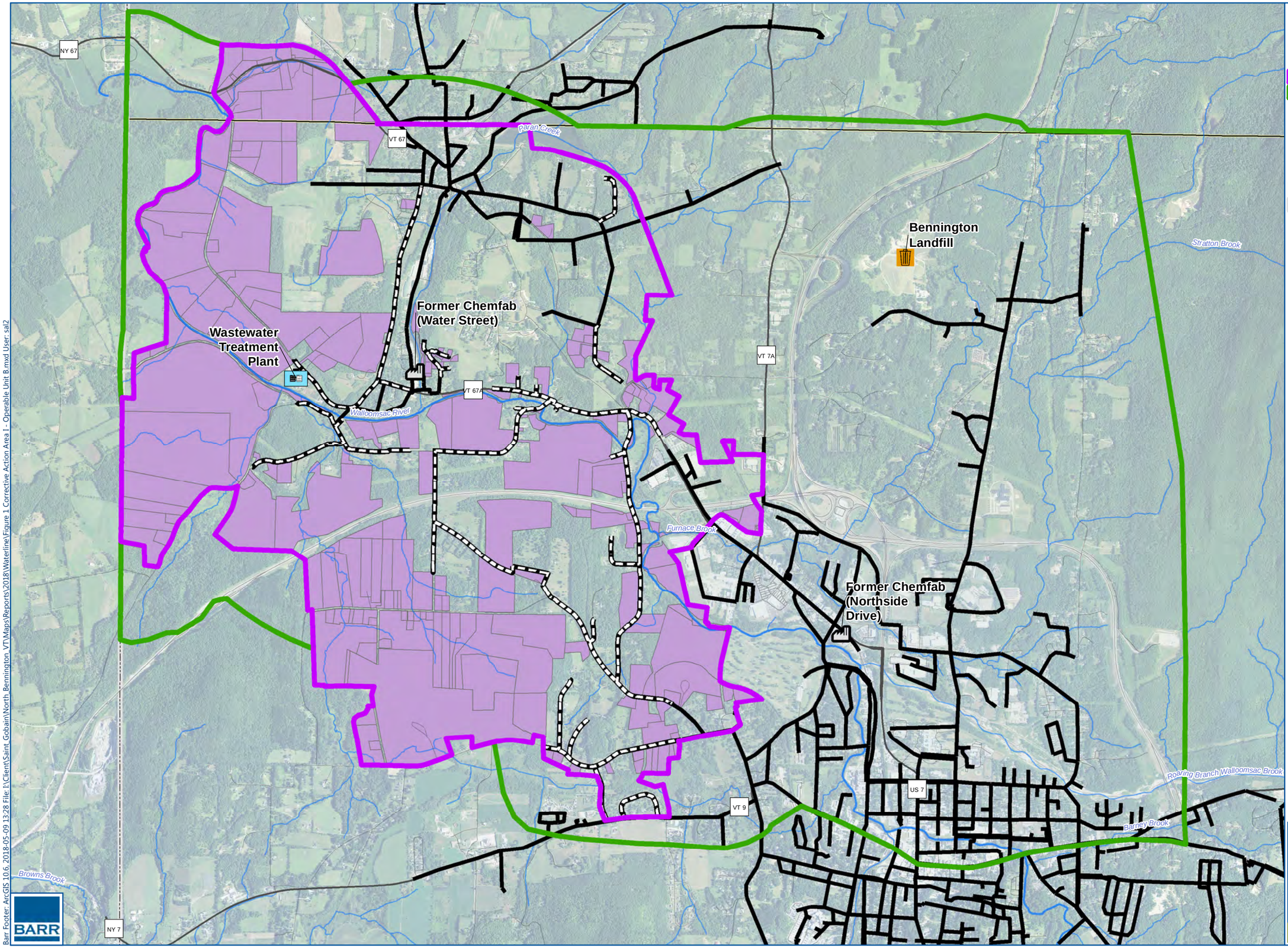
8.0 Quality Assurance and Quality Control (QA/QC Plan)

The Quality Assurance and Quality Control (QA/QC) requirements are included in the individual Plans, where applicable.

9.0 Public Notice

Attachment H contains the public notice that will be sent to individuals located within CAAI OUB. Notice shall be provided to property owners impacted by CAP OUB on a form provided by the Secretary. A copy of this CAP will be posted electronically for 30 days for public comment.

Figures



Corrective Action Area I
Operable Unit B
Saint-Gobain
Bennington and
North Bennington, VT

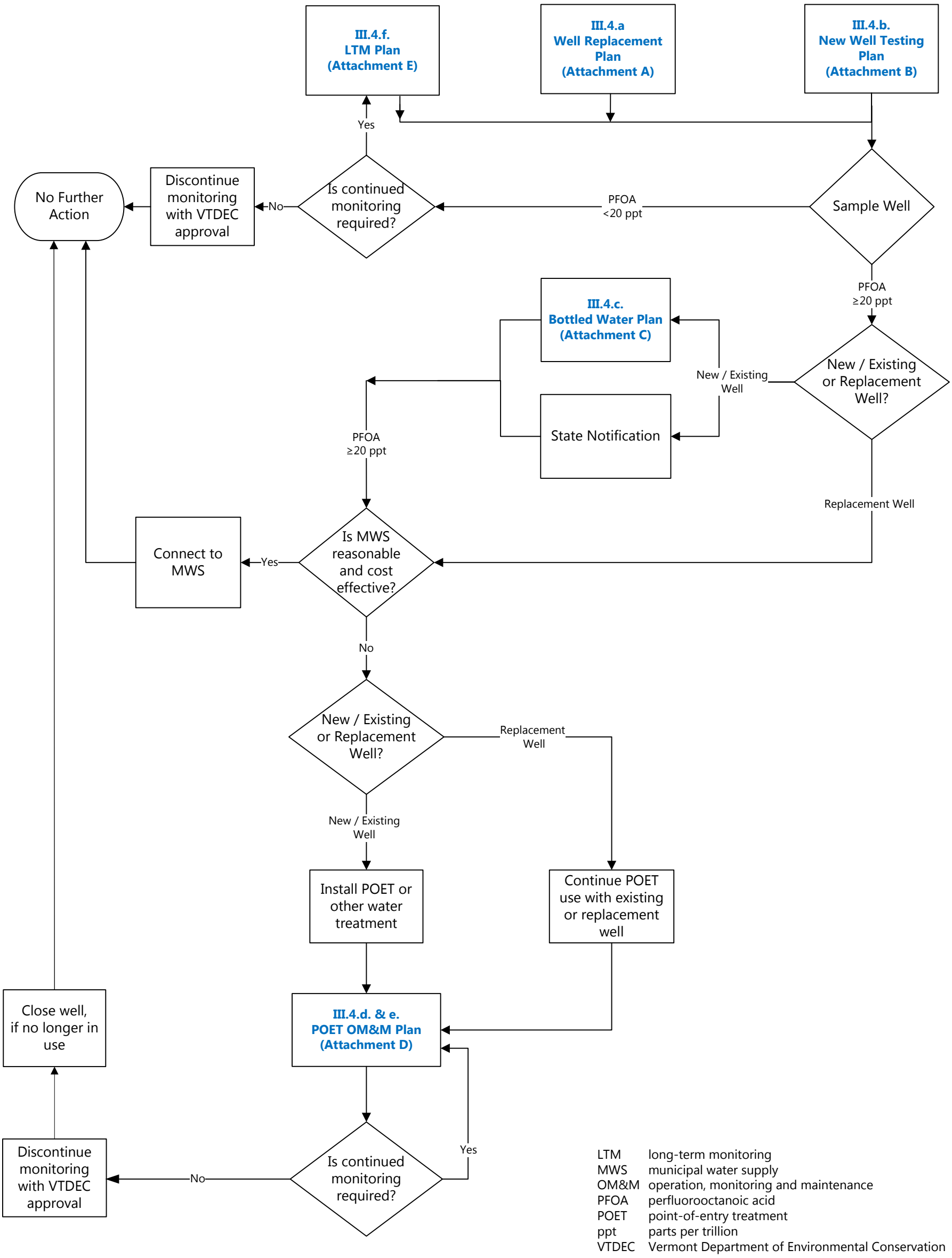
FIGURE 1

BARR

Barr Footer: ArcGIS 10.6, 2018-05-09 13:28 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Waterline\Figure 1 Corrective Action Area I - Operable Unit B.mxd User: sal2

Figure 2
Corrective Action Plan Framework
Corrective Action Area I – Operable Unit B

Saint-Gobain Performance Plastics*
Bennington, VT



LTM	long-term monitoring
MWS	municipal water supply
OM&M	operation, monitoring and maintenance
PFOA	perfluorooctanoic acid
POET	point-of-entry treatment
ppt	parts per trillion
VTDEC	Vermont Department of Environmental Conservation

Referenced Plans are included as Attachments to the Corrective Action Plan. The Long-Term Monitored Natural Attenuation (MNA) Plan (Attachment F) and an Institutional Control Plan (Attachment G) are also part of the Corrective Action Plan and included as attachments; however, because they are independent of this framework they are not referenced in the above framework.

* Potential sources of per- and poly-fluoroalkyl substances (PFAS) identified in the conceptual site model (CSM), in addition to emissions from the former Saint-Gobain facilities, include other local sources from area industries and the Bennington Landfill, as well as background sources resulting from long-range transport from sources outside of Corrective Action Area I (CAAI).

Attachments

Attachment A

Plan for Private Well Replacement at Locations with POETs

Plan for Private Well Replacement at Locations with POETs

Corrective Action Area I – Operable Unit B
Attachment A

Prepared for
Saint-Gobain Performance Plastics

March 2018

A1.0 Introduction

This Plan for Private Water Well Replacement at locations with point-of-entry treatment (POET) systems (Well Replacement Plan), prepared by Barr Engineering Co. (Barr) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), complies with the Consent Order and Final Judgement, effective date of October 2, 2017 (Consent Order). Specifically, this Well Replacement Plan addresses Appendix A, Section III Corrective Action Area 1– Operable Unit B (CAAI OUB), paragraph 4a, of the Consent Order, which requires a plan for siting, drilling, and testing of new private wells at locations that have POET systems as of the effective date of the Consent Order.

Currently, Barr is implementing the *Revised Work Plan Domestic Water Well Replacement: Bennington, Vermont*, dated September 2017 (Well Replacement Work Plan). At select locations, well replacement is being evaluated as an alternative remedy for those properties with POET systems that will not be connected to municipal water. Replacement wells may also result in the elimination of or reduction in concentrations of perfluorooctanoic acid (PFOA). Based on the outcome of implementing the Well Replacement Work Plan, Barr will evaluate the feasibility of replacing other private water supply wells (water wells) in CAAI OUB that currently operate with POET systems.

A2.0 Proposed Scope of Work

This Well Replacement Plan applies to private wells within CAAI OUB with POET systems installed as of the Consent Order effective date. It excludes locations with POET systems that are currently proposed to be connected or are already connected to the municipal water supply. Candidate locations for private well replacement under the Well Replacement Plan are listed in Table A1.

This Well Replacement Plan is designed to utilize the results of the Well Replacement Work Plan to assess the effectiveness of installing replacement wells through a designed well installation process, and as modified based on implementation experience. Through the implementation and evaluation of the results of the Well Replacement Work Plan, additional replacements at an expanded network of water wells with POET systems will be evaluated. Figure A1 is a flowchart of the process associated with this Well Replacement Plan. The objective of the Well Replacement Plan is to provide an alternate to the POET systems if well replacements are shown to be a more feasible and effective means for providing drinking water that meets the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt) PFOA.

If, as part of the Corrective Action Plan (CAP), a private water well is being replaced with a new well (or eliminated if the location is being connected to municipal water), the private water well will be properly closed in accordance with ANR, Chapter 21, Water Supply Rule or converted into a long-term monitoring well.

A3.0 Well Replacement Work Plan Summary

Barr is currently implementing the Well Replacement Work Plan to evaluate, on a well-by-well basis, if well construction can explain the isolated groundwater concentrations exceeding 20 ppt of PFOA in areas

where other nearby or adjacent water wells have no detectable concentrations. Well replacement activities are being conducted at up to six pilot locations with POET systems. The decisions to retain or replace and abandon the existing water wells will be based on results of an assessment of the existing well and the replacement well borehole and will be made in consultation with the Vermont Department of Environmental Conservation (VTDEC), in accordance with the Well Replacement Work Plan.

Following well replacement and connection to the existing POET system, the POET system influent will be monitored for PFOA in accordance with the *Operation & Maintenance Manual, Point of Entry Systems (POET), Private Water Supply Systems, North Bennington, Bennington County, Vermont*, dated February 24, 2017 (POET O&M Manual). The PFOA concentrations will demonstrate the effectiveness of well replacement as a method of PFOA reduction in the water wells and allow use of the POET system to be discontinued if PFOA concentrations are consistently below the site-specific corrective action standard and show no statistically increasing trend. Reporting will be performed in accordance with the Well Replacement Work Plan and include revisions to the Well Replacement Work Plan, as needed, resulting in an Updated Well Replacement Work Plan and recommendations for well construction specifications, as applicable.

A4.0 Well Replacement Plan

After implementing the Well Replacement Work Plan, Saint-Gobain will re-evaluate the effectiveness of well replacement at reducing PFOA concentrations in select water wells with POETs.

If the water well replacements reduce PFOA concentrations to a level consistently below 20 ppt in POET system influents, Saint-Gobain will assess and consider replacement of other private wells at locations with POET systems. These replacements would be performed in accordance with the Updated Well Replacement Work Plan. Factors for consideration in the Updated Well Replacement Work Plan will include technical practicability, feasibility, and other factors. The existing water well, if replaced, will either be retained for monitoring or properly closed in accordance with ANR, Chapter 21, Water Supply Rule.

If the replacement wells do not effectively reduce PFOA concentrations in the POET influent to below 20 ppt, Saint-Gobain will assess if it is feasible and/or cost-effective to connect individual locations to the municipal water lines. If it is impractical to connect the location to the municipal water lines, the existing POET system will be maintained in accordance with the approved POET O&M Manual.

The iterative evaluation of well replacement will continue until the locations with POET systems have been evaluated for well replacement, continued POET system use, or connection to municipal water.

A5.0 Schedule

Work will be initiated upon completing the evaluation of the data from the six pilot locations for well replacement, updating the Well Replacement Work Plan, as necessary (referred to as the Updated Well Replacement Work Plan), and approval of this Well Replacement Plan. It is anticipated that the Updated Well Replacement Work Plan will be submitted within 90 days of the completion of the last well in the pilot implementation program.

A6.0 Reporting

The Updated Well Replacement Work Plan will be revised, as appropriate, based on the ongoing implementation, experience, and knowledge gained at the pilot locations and subsequent replacement locations.

Well completion reports will be submitted within 90 days of completion of the replacement well as required by the VTDEC. Additionally, the Updated Well Replacement Work Plan will be evaluated for revisions based on the ongoing implementation and experience of replacing water wells.

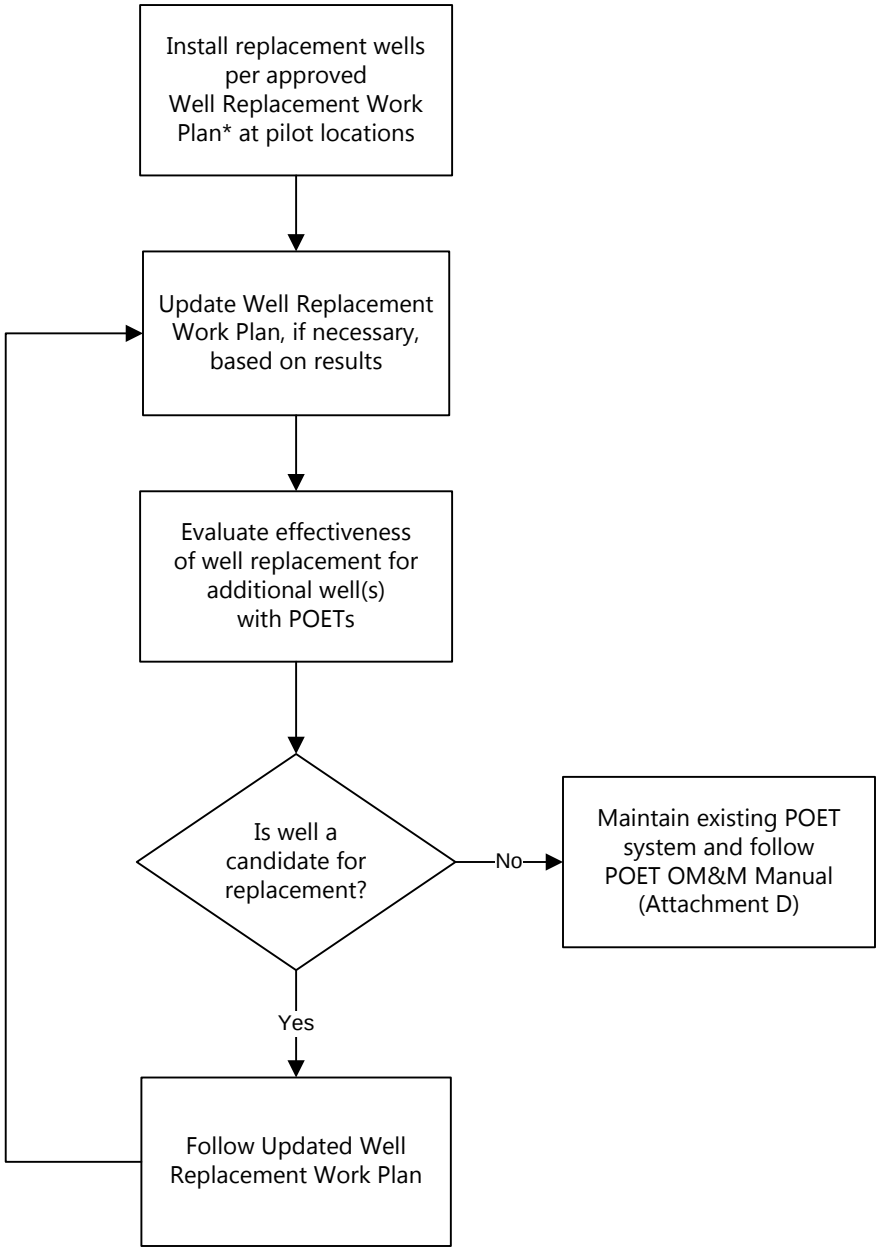
List of Attachments

Figure A1 Plan for Private Well Replacement at Locations with POETs

Acronyms

CAAI OUB	Corrective Action Area 1 Operable Unit B
CAP	Corrective Action Plan
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
POET	point-of-entry treatment
ppt	parts per trillion
VTDEC	Vermont Department of Environmental Conservation

Figure A1
Flowchart for Private Well Replacement at Locations with POETs
Corrective Action Area I – Operable Unit B
Saint-Gobain Performance Plastics
Bennington, VT



OM&M Operation, monitoring and maintenance manual
POET Point-of-entry treatment

*This reflects the current implementation of 2017 Revised Work Plan for Domestic Water Well Replacement, prepared by Barr Engineering Co., dated September 2017 (Well Replacement Work Plan)

Attachment B

Plan for Testing New Water Wells

Plan for Testing New Water Wells

Corrective Action Area I – Operable Unit B
Attachment B

Prepared for
Saint-Gobain Performance Plastics

March 2018

B1.0 Introduction

This Plan for Testing New Water Wells (New Well Testing Plan), prepared by Barr Engineering Co. (Barr) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), complies with the Consent Order and Final Judgement, effective date of October 2, 2017 (Consent Order). Specifically, this New Well Testing Plan addresses Appendix A, Section III Corrective Action Area I – Operable Unit B (CAAI OUB), paragraph 4b, of the Consent Order, which requires a plan for testing new wells in CAAI OUB and implementing a remedy, if necessary.

A new water well is a permitted well or an unpermitted replacement well allowed under the applicable state rules, installed after the effective date of the Consent Order. For new wells that require a permit (permitted well), the State of Vermont (State) will notify Saint-Gobain that a well will need testing within 120 days of issuing a new permit. The intent of the New Well Testing Plan is to determine if the well water from a new water well installed in CAAI OUB has a perfluorooctanoic acid (PFOA) concentration that is equal to or exceeds the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt). The outcome of the New Well Testing Plan will be to select and implement an appropriate remedy for the new well, if necessary. Figure B1 is a flowchart of the process associated with this New Well Testing Plan.

B2.0 Pre-Sampling Notification of a New Well

Prior to sample collection, a new well must be proposed within CAAI OUB. If the new well is a permitted well, it is anticipated that through the State's well permit process, in conjunction with the findings of the *Revised Work Plan Domestic Water Well Replacement: Bennington, Vermont*, dated September 2017, methods of well construction, including the specification and/or prohibition of drilling tools and well equipment, will be prescribed by the State to prevent the introduction of per- and poly-fluoroalkyl substances (PFAS) related to these sources. Within 120 days of the State issuing a permit, the State will notify Saint-Gobain of the permitted new well and its proposed location. If the new well is an unpermitted well, the State will notify Saint-Gobain of the unpermitted well within 120 days of their knowledge of the well.

B3.0 Well Sampling and Testing

Following installation of a well by a licensed well driller contracted by the property owner or being notified of an unpermitted well and Saint-Gobain's receipt of the required notification from the State as discussed in Section B2.0, Saint-Gobain will offer to test the new well for PFOA at no cost to the property owner. Provided access is granted, Saint-Gobain and/or the State, as appropriate, will collect and analyze a water sample to determine if the PFOA concentration in the new well is equal to or exceeds 20 ppt.

If the groundwater concentration of PFOA in the new well is below 20 ppt, Saint-Gobain will notify the State of the test result within the reporting schedule defined by the Consent Order (i.e., 30 days from sample collection). Following State notification, Saint-Gobain will monitor the new well in accordance with

the Long Term Monitoring (LTM) Plan (Attachment E) and revise the LTM Plan to include the new well location.

If the groundwater concentration of PFOA in the new well is equal to or exceeds 20 ppt, Saint-Gobain will notify the State as soon as practicable of the new well test results and provide bottled water to the property owner, as outlined in the Bottled Water Plan (Attachment C). Saint-Gobain will also review the well installation details to understand whether State-approved methods for well design and construction were followed.

Saint-Gobain will assess whether it is technically feasible and cost-effective to connect the property to the municipal water lines, and, depending on the analysis and consultation with the State, will either coordinate the connection of the property to the municipal water supply or initiate the installation of a point-of-entry treatment (POET) system.

If the property is connected to the municipal water supply, Saint-Gobain will discontinue providing bottled water and take no further action. If a POET system is installed, the POET system will be maintained in accordance with the approved POET OM&M Manual (Attachment D).

B4.0 Schedule

Well testing will be initiated following notification by the State.

B5.0 Reporting

Reporting to the State will be performed in accordance with the Consent Order (within 10 days of validated sampling results from the laboratory or 30 days from the sampling date, whichever is sooner).

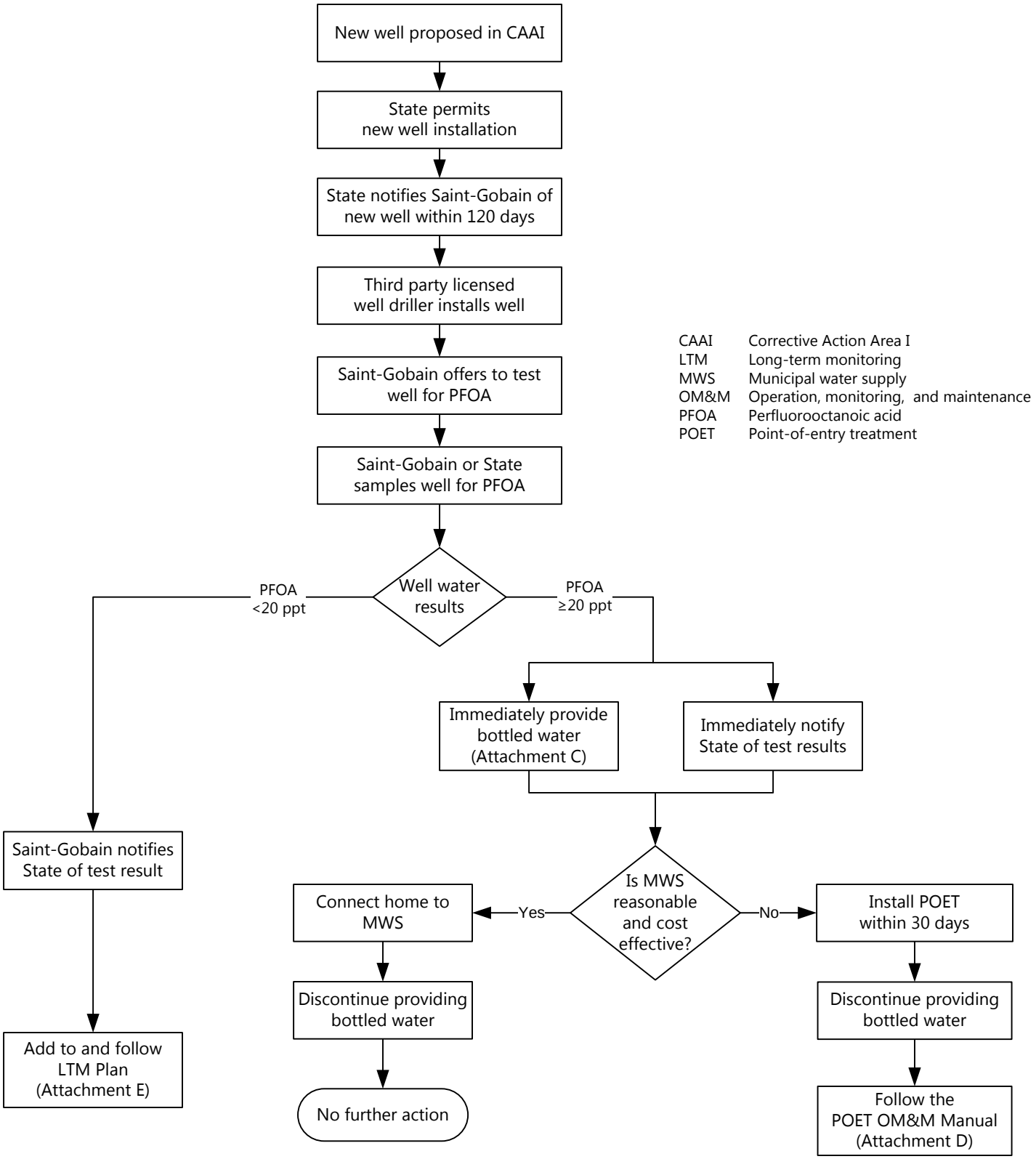
List of Attachments

Figure B1 Flowchart for Testing New Wells

Acronyms

CAAI OUB	Corrective Action Area I – Operable Unit B
LTM	long term monitoring
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
POET	point-of-entry treatment
ppt	parts per trillion
State	State of Vermont

Figure B1
Flowchart for Testing New Wells
Corrective Action Area I – Operable Unit B
Saint-Gobain Performance Plastics
Bennington, VT



CAAI	Corrective Action Area I
LTM	Long-term monitoring
MWS	Municipal water supply
OM&M	Operation, monitoring, and maintenance
PFOA	Perfluorooctanoic acid
POET	Point-of-entry treatment

Attachment C

Bottled Water Plan

Bottled Water Plan

Corrective Action Area I – Operable Unit B
Attachment C

Prepared for
Saint-Gobain Performance Plastics

March 2018

C1.0 Introduction

This Plan for providing Bottled Water (Bottled Water Plan), prepared by Barr Engineering Co. (Barr) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), complies with the Consent Order and Final Judgement, effective date of October 2, 2017 (Consent Order). Specifically this Bottled Water Plan addresses Appendix A, Section III Corrective Action Area I – Operable Unit B (CAAI OUB), paragraph 4c, of the Consent Order, which requires that bottled water be provided for properties in CAAI OUB where the concentration of perfluorooctanoic acid (PFOA) is at or exceeds the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt) PFOA in a replacement well, new well, and/or any well being sampled as part of the long-term monitoring (LTM) plan.

The intent of the Bottled Water Plan is to describe the methods and procedures to be followed when providing bottled water to such properties. Figure C1 is a flowchart of the process associated with this Bottled Water Plan.

C2.0 Proposed Scope of Work

After receipt of the water well sampling results within the reporting schedule defined by the Consent Order (i.e., 10 days following data validation or 30 days from sample collection, whichever is sooner), Saint-Gobain will send a list of eligible properties directly to the State and a bottled water provider, such as W.B. Mason. W.B. Mason is the Vermont Department of Environmental Conservation's current contractor for bottle water delivery and is currently providing bottled water to the Bennington area, as needed.

Saint-Gobain will coordinate with the State of Vermont (State) to provide each property owner the results of the sampling event and to inform the owner of his or her eligibility to receive bottled water at no cost. The notification will include directions for signing up for bottled water delivery, including the contact information for the bottled water provider. Bottled water delivery will then begin after the property owner contacts the water provider and requests delivery.

Bottled water will continue to be provided to eligible property owners until any one of the following conditions is met:

- Saint-Gobain has demonstrated and the State of Vermont concurs that a point-of-entry treatment (POET) system is operating effectively as set forth in the POET Operation, Monitoring, and Maintenance Manual;
- The property is connected to the municipal water system; or
- The PFOA concentration is below 20 ppt for eight consecutive rounds of quarterly sampling and the statistical trend shows an overall downward trend in PFOA concentrations or a flat trend of PFOA concentrations below 20 ppt.

C3.0 Schedule

Saint-Gobain will offer bottled water to eligible property owners following receipt of sampling results indicating PFOA concentrations at or exceeding 20 ppt.

C4.0 Reporting

Saint-Gobain will provide a list of eligible properties to the State and to a bottle water contractor. Saint-Gobain will coordinate with the State to provide each property owner the results of the sampling event, the information regarding their eligibility to receive bottled water, and/or the termination of bottled water delivery.

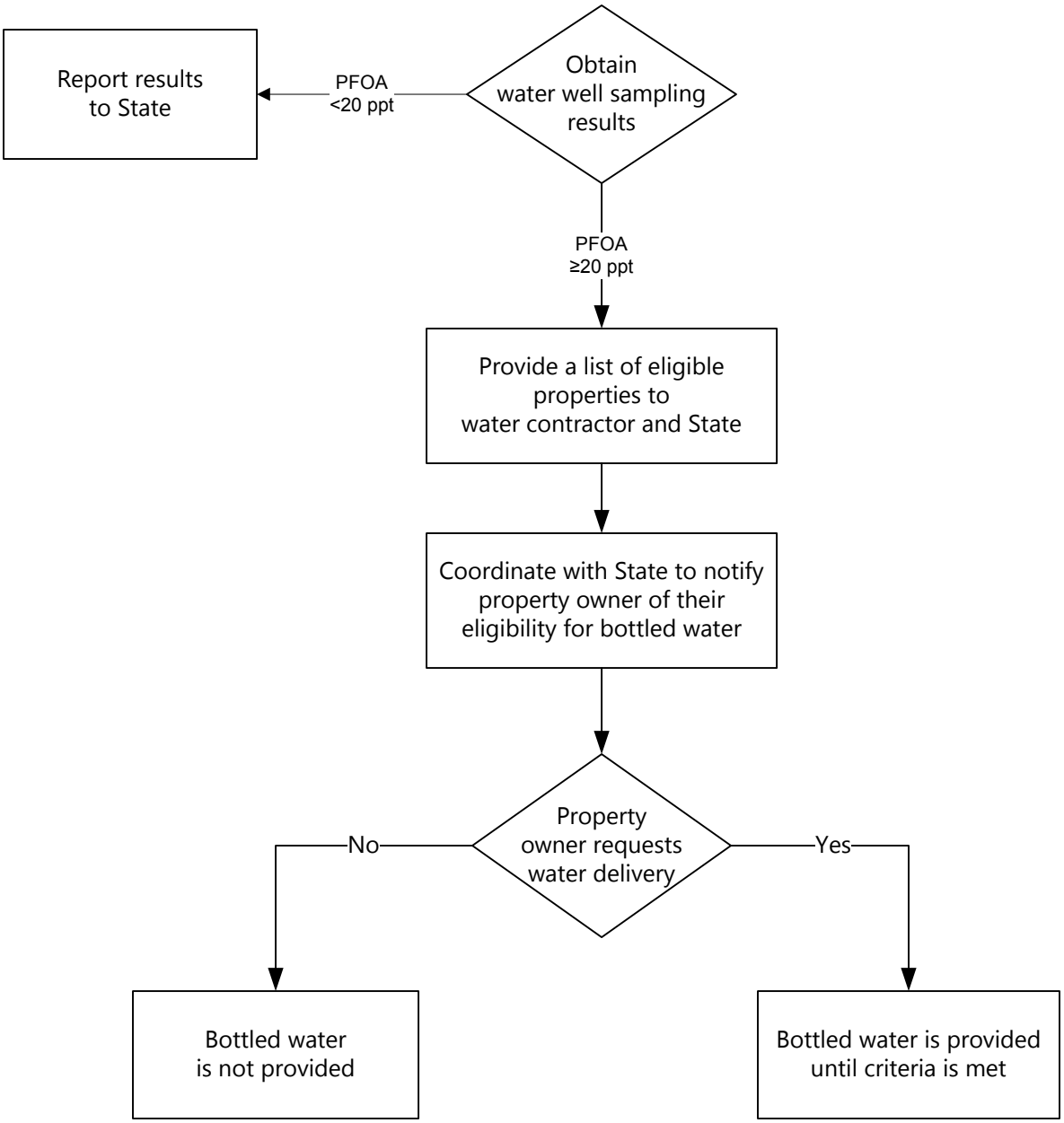
List of Attachments

Figure C1 Flowchart for the Bottled Water Plan

Acronyms

CAAI OUB	Corrective Action Area I – Operable Unit B
LTM	long term monitoring
PFOA	perfluorooctanoic acid
POET	point-of-entry treatment
ppt	parts per trillion

Figure C1
Flowchart for the Bottled Water Plan
Corrective Action Area I – Operable Unit B
Saint-Gobain Performance Plastics
Bennington, VT



PFOA Perfluorooctanoic acid
ppt Parts per trillion

Attachment D

POET OM&M Manual

March 2018

OPERATION, MONITORING & MAINTENANCE MANUAL (Rev. 2) Point of Entry Systems (POET) Private Water Supply Systems North Bennington Bennington County, Vermont

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POET OM&M MANUAL (Rev. 2)
Village of N. Bennington & Town of Bennington, VT

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1.0 INTRODUCTION

This Point of Entry Treatment (POET) Operation, Monitoring and Maintenance (OM&M) Manual has been revised to comply with the Consent Order and Final Judgment, effective date of October 2, 2017 (Consent Order) and Vermont Department of Environmental Conservation (VTDEC) comments to the December 15, 2017 OM&M Manual dated January 31, 2018. Specifically this revision addresses Corrective Action Area I – Operable Unit B (CAAI OUB), paragraph 4d of the Consent Order. The revisions have been made to reflect and be consistent with other plans and requirements set forth in Appendix A, Section III (CAAI OUB) of the Consent Order.

The intent of this document is to provide the requirements for the installation, operation, monitoring and maintenance of POET systems installed at residential and other non-public water supply well locations within the Village of North Bennington (Village) and Town of Bennington (Town), Vermont. This manual does not pertain to Public Water Systems or Non Transient Water Systems which are addressed on a site-by-site basis.

The POETs are installed to treat all water entering the building from the current water supply source. In this manner, the POET provides treated water to all water fixtures (sinks, baths/showers, toilets, ice makers, outside hose connections, etc.) of the structure.

The treatment of per- and polyfluoroalkyl substances (PFAS) with use of Granular Activated Carbon (GAC) is well understood and demonstrated at multiple municipal water supply systems. However, applications in residential locations are highly dependent on water quality parameters besides PFAS, which can vary from location to location. As approximately 300 POETs have been installed and monitored for a period of up to approximately 2 years in many instances, performance of the POETs is generally predictable and supports revision to system startup monitoring (Section 3.2). Additionally, this revised plan is consistent with, and where applicable, references several other Consent Order required project plans for CAAI OUB. Lastly, this revised plan provides the criteria for when a POET can be permanently removed from service (Section 3.4).

1.1 Project Background

Perfluorooctanoic acid (PFOA) is a member of the class of substances referred to as PFAS. PFAS have been produced and used in commercial products and industrial processes for over 60 years. Known commercial uses of PFAS include: water-, soil-, and stain-resistant coatings for clothing, leather, upholstery, and carpets; oil-resistant coatings for food contact paper; aviation hydraulic fluids; fire-fighting foams; paints, adhesives, waxes, polishes, and other products. Known industrial uses of PFAS include: surfactants, emulsifiers, wetting agents, flash inhibitors, additives, non-stick coatings on cookware, membranes for waterproof/ breathable clothing, electrical wire casing, fire and chemical resistant tubing, and plumbing thread seal tape.

Investigations conducted by the VTDEC in early 2016 within the Village of North Bennington, Vermont identified PFOA in several residential water supply wells in the immediate vicinity of the former Chemfab facility located at 1030 Water Street. The concentration of PFOA was detected at concentrations greater than the PFOA Vermont Drinking Water Heath Advisory. The VT Health Department subsequently promulgated (June 22, 2016) a drinking water health advisory of 20 parts per trillion (ppt) applicable to the sum of perfluorooctanesulfonic acid (PFOS) and PFOA.

As a result of the PFOA detections, VTDEC required the installation of POETs at properties within the Village and Town with water supply wells with concentrations of PFOA at or greater than 20 ppt. The majority of POETs within the Village and Town have PFOA concentrations less than 200 ppt. Five locations in close proximity to the former ChemFab facility in North Bennington have exhibited PFOA+PFOS at concentrations greater than 1,000 ppt.

POETs are currently being maintained at 305 locations. Table D1 provides a list of the addresses in which POETS are being maintained by Saint-Gobain in CAA1.

2.0 PURPOSE & ORGANIZATION OF MANUAL

2.1 Organizational Structure

Table 1 in Appendix A presents the overall project organization structure, and identifies the various agencies, firms and contractors and their overall responsibilities.

For this project, VTDEC and other State agencies are responsible for overall project oversight and management. The initial sampling and analysis of the individual water supply wells for PFAS evaluation is performed by VTDEC. Periodically, VTDEC provides lists of locations and analytical results where water samples have been collected and analyzed, and identification of which locations require the installation of a POET system. Culligan of Vermont (Culligan) is the water treatment contractor for the POET installations. C.T. Male is responsible for the sampling and analysis of each installed POET as further discussed herein. Analytical results related to the ongoing operation of each POET are provided to VTDEC as they become available by C.T. Male. In turn, VTDEC issues the results to each owner of a property that has received a POET system.

2.2 O&M Contractor

Culligan, a Vermont licensed water treatment contractor, is responsible for the installation, scheduled inspection, and scheduled and non-scheduled maintenance of each POET system. In the event a new contractor takes over the responsibility of the OM&M of the POETs, VTDEC will be informed in advance of the change. The POET OM&M Manual will be revised to reflect the contractor change.

2.3 Treatment System Overview

The POET systems components include the follow:

- Pre-filter (Dual Gradient 50 -5 micron)
- Lead GAC Canister (2 ft3 Calgon Cullar F600AW)
- Lag GAC Canister (2 ft3 Calgon Cullar F600AW)
- Post-Filter (Dual Gradient 50 -5 micron)
- UV Lamp (VIQUA S8Q-PA)
- Flow Meter (total gallons)

- Influent, Midpoint and Effluent Water Sampling Ports

A schematic and picture of a typical POET system installation is presented in Appendix B. The manufacturer's information and specification sheets for each system component are presented in Appendix C. The plumbing piping and fittings used are composed of PEX Products, and are typically three-quarter inch diameter. All plumbing fittings are NSF approved.

3.0 OPERATION

3.1 Operational Overview

The POET system operates through pressurized flow from the water supply well pump and pressure tank system within the structure. Electrical service for the UV unit is taken from the electrical service (115V) within the building.

Well water from the water supply well/pressure tank first flows through a polypropylene pre-sediment filter. It is then plumbed to the Lead and Lag GAC canisters. GAC treated water then flows through a post- polypropylene sediment filter and a totalizing mechanical flow meter, to record the total gallons of water before passing through the UV unit. Lastly, the water passes through a flow controller to assure sufficient disinfection by the UV unit.

3.2 POET System Startup

Prior to installing a POET, Culligan completes a site visit to review the existing water system and area required for the equipment installation. In most instances the POET is installed within the basement of the building, but this may not always be possible depending on the set up of the existing water supply systems. During the pre-installation site visit, an un-treated water sample from the source is collected, analyzed and recorded by Culligan for Hardness, Iron, Manganese, Hydrogen Sulfide, Alkalinity, Total Dissolved Solids and pH. This data is retained by Culligan for future reference and evaluation.

Arsenic is a naturally occurring metal in the GAC media at very low concentrations and was detected in some of the POETs initially installed. To remove the residual arsenic from the GAC media to a concentration less than the VT regulatory drinking water standard of 10 micrograms per liter (ug/L or parts per billion (ppb)) several processes have been initiated.

The first step was to substitute Calgon Cullar F400AW with Calgon Cullar F600AW. The production of Calgon Cullar F600AW involves an acid wash specifically used to remove residual arsenic from the GAC for drinking water applications. Prior to the installation of the GAC vessels, each vessel is also prewashed, backwashed and flushed by Culligan

at its facility. Following the installation of a POET, approximately 200 gallons of water are processed through the system prior to collecting the initial set of water samples for PFAS and arsenic analyses.

Prior to the above efforts, arsenic was detected above 10 ppb at system startup in a limited number of the POETs installed in early 2016. In review of analytical data for arsenic since the above processes were initiated (approximately 300 samples), the arsenic concentrations have been consistently below 10 ppb. Therefore, the collection and analysis for arsenic at the initial POET system startup and at the time of GAC vessel replacement has been eliminated.

At system startup, water samples are collected for PFAS analysis from the water sampling point located prior to the Lead GAC canister and from the effluent water sampling point after the Lag GAC canister. A visual check of the UV unit is completed to ensure it is operating. The total gallons of water treated are then recorded at the flow meter.

For the POETs installed to date (>300 systems), a subsequent round of samples are collected from the influent and midpoint sampling points for PFAS analysis approximately 1 month thereafter, and again 1 month after the second round of sampling. The results for each round of samples collected are reported to VTDEC who in turn provide the results to the respective POET recipient.

Review of analytical data for the initial three rounds of POET sampling completed for over 300 POETs have documented that the initial round of POET startup samples demonstrate the system is capable of removing PFAS to non-detect levels. Therefore, sampling and analysis of influent and mid-point positions in the two preceding months following startup is unnecessary and has been eliminated. Subsequent sampling of the POETs will be completed in accordance with the schedule in Section 4.1.

3.3 Laboratory Analyses

The influent, mid-point and effluent samples from the POETs are analyzed by EPA Method 537 Rev. 1.1 (Low Level) for the following list of PFAS:

CAS #	Compound	MRL
375-73-5	Perfluorobutanesulfonic acid (PFBS)	2 ng/L
375-85-9	Perfluoroheptanoic acid (PFHpA)	2 ng/L
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	2 ng/L
375-95-1	Perfluorononanoic acid (PFNA)	2 ng/L
1763-23-1	Perfluorooctane sulfonate (PFOS)	2ng/L
335-67-1	Perfluorooctanoic acid (PFOA)	2 ng/L
307-24-4	Perfluorohexanoic acid (PFHxA)	2 ng/l
335-76-2	Perfluorodecanoic acid (PFDA)	2 ng/L
2058-94-8	Perfluoroundecanoic acid (PFUnA)	2 ng/L
307-55-1	Perfluoroudodecanoic acid (PFDoA)	2 ng/L
72629-94-8	Perfluorotridecanoic acid (PFTriA)	2 ng/L
376-06-7	Perfluorotretradecanoic acid (PFTA)	2 ng/L

Notes:
MRL denotes Minimum Reporting Limit
ng/L denotes nanograms per liter or parts per trillion (ppt)

3.4 System Shutdown & Removal

The POETs are designed to operate continuously and to treat the supply water whenever there is water use within the building. Other than the UV unit which requires electrical power, the POET components rely on water pressure and flow to operate. The only time the POET will not treat water is during a power outage (i.e. as the water well pump will not be in operation).

Many locations equipped with a POET will be connected to municipal water. In these instances, the POET system will be disconnected and removed from the premises by Culligan. POETs which will remain in service will continue to be maintained in accordance with Section 4.0 of this OM&M plan until they can be removed as further described below.

For properties in CAA1-OUB, a POET system will be removed once the analytical results for the influent sampling port sample demonstrates a PFOA concentration below the site-specific corrective action standard pursuant to the Consent Order of 20 ppt and influent water concentrations have remained below 20 ppt over a subsequent monitoring period of 8 quarters in accordance with the Long Term Monitoring (LTM) plan. For property owners deciding not to connect to municipal water in CAA1-OUB, the POETs will be left in place and operation and maintenance of this POET will become the responsibility of the home owner once the connections to the municipal water system in this area are

complete. Before responsibility for operation, monitoring and maintenance of a POET is shifted to a property owner under this section, Saint-Gobain will have is POET maintenance contractor, Culligan, perform one last maintenance on the POET system. If the lead and lag GAC vessels have not been replaced within the last 12 months at the time the municipal water line connections have been completed in the immediate area, both the lead and lag GAC vessels will be replaced with new vessels. The POETs will remain in service during the LTM period to ensure the water is being treated in the event there is a PFOA detection at or above 20 ppt during the LTM period.

Upon achieving the criteria for the removal of a POET system, Culligan will removal all system components that were installed, and restore the water system to its pre-POET condition. The property owner will be given the opportunity to keep the system components after they have been permanently disconnected. If the property would like to reconnect the system after the system has been disconnected by Culligan, it will be the owners' responsibility to have a licensed water treatment specialist complete the work as well as be responsible for the POET system operation and maintenance.

4.0 INSPECTION AND MAINTENANCE REQUIREMENTS

4.1 Scheduled Inspection and Maintenance

Following the installation of each POET system, a quality control inspection of the system will be completed by Culligan to ensure the system components have been installed and are properly functioning. The initial sampling/monitoring of each POET is generally completed several days after installation to allow for at least 200 gallons of the water to be treated by the POET system. The POET is not approved by VTDEC for consumption until the analytical results for the initial system sample have been received and the effluent sample indicates a PFOA concentration is not detected above the method detection limit (MDL). VTDEC will provide the initial POET system sample results and notification that the water is safe to consume to the POET recipients.

Scheduled maintenance of each POET system is as follows:

Pre and Post Filter Replacement:	Every 4 months
Ultraviolet Lamp Replacement:	Every 12 months
Ultraviolet Quartz Sleeve Cleaning:	Every 12 to 24 months
GAC Canister Replacement:	As needed depending on periodic analytical monitoring (see Section 4.2)

Non-scheduled POET system maintenance by Culligan is completed on an as-needed basis.

4.2 GAC Change Out

Following the collection and analysis of the initial effluent water sample from a POET system, subsequent samples will be collected from the midpoint sample port, between the Lead and Lag GAC canisters. Sampling at the midpoint ensures that if the Lead GAC media in the Lead canister has been saturated with PFAS it can be scheduled for change out.

The change out of the GAC canisters will be initiated when the PFOA concentration in the water sample collected from the midpoint sample port is above the MDL. As soon as

practicable after receiving the laboratory report indicating an exceedance of the MDL for PFOA at the midpoint sampling port, a water sample will be collected from the effluent sampling port to document the concentration of PFOA is below 20 ppt. The GAC canisters will then be scheduled for immediate change out as follows:

- Remove the Lead GAC canister.
- Remove the Lag GAC canister and place it in the Lead GAC position.
- Install the replacement GAC canister in the Lag position.
- Spent GAC media will be bulked by Culligan for subsequent shipment to Calgon. GAC media will be accumulated and stored undercover at Culligan's facility until approximately 1 ton of media is accumulated. Pick-up of the bulked media will then be scheduled by Culligan with Calgon. The bulked material will be transported to Calgon's facility for processing.
- Upon return of the Lead GAC canister to Culligan, the GAC media will be evaluated and recorded for indications of biofilm accumulation, and mineral encrustation to determine if "channeling" is occurring within the GAC canister beds. Channeling can reduce the GAC life cycle and is important in determining when a GAC canister should be replaced as discussed in Section 4.4.

4.3 UV Change Out

The UV lamp will be replaced with a new unit or serviced on a 12-month basis.

Depending on the visual condition of the UV quartz sleeve at the time the UV lamp is replaced, it will either be replaced or cleaned. The frequency for cleaning the UV quartz sleeve is dependent upon the hardness of the well water. Culligan will maintain a written record of the water hardness for each POET system from the time of installation, and during each UV system inspection until the POET system is permanently removed. The following establishes the general timeframe for the cleaning of the UV quartz sleeve.

- 0 - 8 gpg (grams per gallon): Every 12 months
- 9 – 14 gpg: Every 6 months
- 15+ gpg: Every 4 months

4.4 Filter Change Out

The pre- and post-polypropylene sediment cartridge filters will be replaced by Culligan every four months. The frequency of filter changes may be modified over time as location specific historical data is developed for each POET system.

4.5 System Data Records

Saint-Gobain will direct its water treatment contractor, Culligan or any subsequent contractors, to keep records of work and modifications made to the POET systems as outlined in this POET OM&M Manual. The contractor will also be directed to provide these records to VTDEC upon request, and to provide the records of an individual property owner to that property owner within one week of a request for such records.

5.0 ONGOING MONITORING AND REPORTING

The sampling activities conducted as part of this POET OM&M Manual will be performed in accordance with the following supporting documents:

- Field Sampling Plan (FSP) dated December 2017, which presents the standard field sampling and data gathering procedures to be followed during implementation of the field activities.
- Quality Assurance Project Plan (QAPP) dated January 2018, which provides project-specific organization details, objectives, data acquisition, data assessment, oversight, data review procedures, and analytical parameters. Protocols for sample collection, handling, storage, chain-of-custody (COC), laboratory and/or field analyses, data evaluation and validation, and reporting are also addressed.
- Project-Specific Health & Safety Plan (PHASP) dated January 2018, which addresses the potential health and safety hazards that may be encountered while performing the work.

5.1 Sample Collection and Analysis

As indicated in Section 3.2, initial system water samples are collected prior to the Lead GAC Canister (influent) and after the Lag GAC canister and analyzed by the laboratory of record for PFAS.

After the completion of the initial system sampling for PFAS (as presented in Section 3.2), the follow-up sampling of the influent and mid-point samples from the POET systems will be performed on the following frequency based on the POET system influent PFOA concentration:

Influent PFOA Concentration $\geq$ 1,000 ppt: **Every 3 months**

Influent PFOA Concentration $\geq$200 ppt to <1000 ppt: **Every 6 months**

Influent PFOA Concentration <200 ppt: **Every 12 months**

After a year of system monitoring, inclusive of the initial and first follow-up monitoring event, the above sampling frequency will be reevaluated to determine if it should be

modified*. For example: if breakthrough of the Lead GAC canister for a POET system with an influent sample PFOA concentration greater than 1,000 ppt does not occur within the initial year of operation sampling, the sampling frequency may be extended an additional 3 or 6 months.

Regardless of whether or not there has been breakthrough of the Lead GAC canister after two years of operation, the Lead GAC canister will be replaced as discussed in Section 4.2.

Any change in sampling frequency will be formally submitted to VTDEC for review and approval before making any sampling frequency changes.

5.2 System Sampling

Sampling of the POET systems (influent, mid-point or effluent) are normally collected mid- to late-morning and up until the mid-afternoon, during which time the water has been running and treated for bathing, cooking, washing, flushing, etc. Regardless, the water will be run to waste at a faucet location for approximately 10 minutes prior to the collection of the system samples.

5.5 Periodic Reporting

The results of each monitoring event for each POET system will be provided to VTDEC in accordance with the Consent Order sample reporting and consistent with the data and report submissions provided to date. The results for all POET system sampling events, dating back to the initial set of VTDEC results from the water supply wells, will be provided in a master Excel spreadsheet to VTDEC on an annual basis.

TABLE D1
Addresses at which POETS are Maintained

Table D1
Active POETs in CAA 1
March 2018

Street #	Street Name	Town	Date Installed
22	Asa Way	North Bennington	3/5/2016
25	Asa Way	North Bennington	3/18/2016
27	Asa Way	North Bennington	3/18/2016
31	Asa Way	North Bennington	3/18/2016
35	Asa Way	North Bennington	3/18/2016
331	Austin Hill Road	North Bennington	5/19/2016
417	Austin Hill Road	Bennington	3/29/2016
430	Austin Hill Road	Bennington	4/7/2016
609	Austin Hill Road	Bennington	4/4/2016
791	Austin Hill Road	Bennington	3/29/2016
58	Bard Road	Bennington	4/3/2016
75	Bard Road	Bennington	4/3/2016
100	Bard Road	Bennington	4/3/2016
138	Bard Road	Bennington	4/3/2016
199	Bard Road	Bennington	4/3/2016
253	Bard Road	North Bennington	4/7/2016
274	Bard Road	Bennington	4/3/2016
27	Bridge Street	North Bennington	4/22/2016
43	Bridge Street	Bennington	3/28/2016
53	Bridge Street	Bennington	3/28/2016
66	Cardinal Lane	Bennington	4/20/2016
90	Cardinal Lane	Bennington	4/20/2016
132	Cardinal Lane	North Bennington	4/4/2016
166	Cardinal Lane	North Bennington	4/10/2016
182	Cardinal Lane	Bennington	5/19/2016
250	Cardinal Lane	Bennington	4/20/2016
271	Cardinal Lane	North Bennington	4/6/2016
29	Eaton Road	North Bennington	4/21/2016
175	Eaton Road	North Bennington	4/21/2016
334	Eaton Road	Bennington	4/21/2016
23	Edith Way	North Bennington	3/28/2016
42	Edith Way (POU)	North Bennington	10/1/2017
111	Edith Way	North Bennington	3/28/2016
276	Fairview Street	Bennington	5/18/2016
484	Fairview Street	Bennington	6/6/2016
495	Fairview Street	Bennington	6/2/2016
250	Gypsy Lane	Bennington	6/7/2016
34	Harrington Road	North Bennington	3/25/2016
169	Harrington Road	North Bennington	9/29/2016
301	Harrington Road	North Bennington	3/24/2016
379	Harrington Road	North Bennington	3/24/2016
761	Harrington Road	North Bennington	4/8/2016

Table D1
Active POETs in CAA 1
March 2018

Street #	Street Name	Town	Date Installed
1278	Harrington Road	North Bennington	4/21/2016
1682	Harrington Road	North Bennington	4/8/2016
1731	Harrington Road	North Bennington	6/24/2017
9	Hill Shadow Farm Road	Bennington	6/7/2016
53	Hill Shadow Farm Road	Bennington	6/10/2016
112	Hill Shadow Farm Road	Bennington	6/22/2016
131	Hill Shadow Farm Road	Bennington	6/14/2016
212	Hill Shadow Farm Road	Bennington	4/12/2017
293	Hill Shadow Farm Road	Bennington	7/28/2016
8	Jennings Drive	Bennington	6/8/2017
19	Jennings Drive	Bennington	6/19/2017
92	Matt Drive	North Bennington	12/30/2016
142	Matt Drive	North Bennington	9/6/2016
191	Matt Drive	North Bennington	6/23/2017
662	Matteson Road	North Bennington	3/24/2016
792	Matteson Road	North Bennington	4/6/2016
862	Matteson Road	North Bennington	4/6/2016
882	Matteson Road	Bennington	5/20/2016
900	Matteson Road	Bennington	7/18/2016
158	Murphy Road	North Bennington	4/5/2016
214	Murphy Road	North Bennington	4/5/2016
228	Murphy Road	North Bennington	4/5/2016
256	Murphy Road	North Bennington	4/5/2016
268	Murphy Road	North Bennington	4/5/2016
272	Murphy Road	North Bennington	4/5/2016
334	Murphy Road	North Bennington	4/5/2016
380	Murphy Road	North Bennington	4/6/2016
480	Murphy Road	North Bennington	4/5/2016
558	Murphy Road	North Bennington	4/19/2016
765	Murphy Road	North Bennington	3/24/2016
882	Murphy Road	North Bennington	4/19/2016
934	Murphy Road	North Bennington	5/16/2016
1088	Murphy Road	North Bennington	4/5/2016
1101	Murphy Road	North Bennington	3/17/2016
1139 (Home A)	Murphy Road	North Bennington	4/6/2016
1139 (Home B)	Murphy Road	North Bennington	4/6/2016
1154	Murphy Road	North Bennington	3/24/2016
927	North Bennington Road	North Bennington	4/2/2016
932	North Bennington Road	Bennington	4/2/2016
951	North Bennington Road	Bennington	4/2/2016
1005	North Bennington Road	Bennington	4/2/2016
1246	North Bennington Road	North Bennington	4/2/2016

Table D1
Active POETs in CAA 1
March 2018

Street #	Street Name	Town	Date Installed
1335	North Bennington Road	North Bennington	4/4/2016
1360	North Bennington Road	North Bennington	4/4/2016
1363	North Bennington Road	North Bennington	5/23/2016
1385	North Bennington Road	North Bennington	4/5/2016
1390	North Bennington Road	North Bennington	4/4/2016
1414	North Bennington Road	North Bennington	4/4/2016
1422	North Bennington Road	North Bennington	3/20/2016
1424	North Bennington Road	North Bennington	3/20/2016
1433	North Bennington Road	North Bennington	3/25/2016
1463	North Bennington Road	North Bennington	7/6/2016
1477	North Bennington Road	North Bennington	3/21/2016
1514	North Bennington Road	North Bennington	4/20/2016
1517	North Bennington Road	North Bennington	4/20/2016
1535	North Bennington Road	North Bennington	3/21/2016
1575	North Bennington Road	North Bennington	3/20/2016
1589	North Bennington Road	North Bennington	4/4/2016
1617	North Bennington Road	North Bennington	3/20/2016
1639	North Bennington Road	North Bennington	4/4/2016
1641	North Bennington Road	North Bennington	3/20/2016
1681	North Bennington Road	North Bennington	4/4/2016
1703	North Bennington Road	North Bennington	3/26/2016
1729	North Bennington Road	North Bennington	3/26/2016
1749	North Bennington Road	North Bennington	3/20/2016
1789	North Bennington Road	North Bennington	4/4/2016
406	Ore Bed Road	North Bennington	12/21/2017
438	Ore Bed Road	North Bennington	3/30/2016
468	Ore Bed Road	North Bennington	3/18/2016
474	Ore Bed Road	North Bennington	3/18/2016
514	Ore Bed Road	North Bennington	3/30/2016
1075	Ore Bed Road	North Bennington	3/30/2016
626	Park Street	North Bennington	3/27/2016
19	Pippin Knoll	Bennington	5/17/2016
165	Pippin Knoll	Bennington	7/18/2016
203	Pippin Knoll	Bennington	6/7/2016
212	Pippin Knoll	Bennington	5/17/2016
324	Pippin Knoll	Bennington	5/17/2016
400	Pippin Knoll	Bennington	5/17/2016
38	Red Pine Road	Bennington	3/29/2016
83	Red Pine Road	Bennington	5/16/2016
118	Red Pine Road	Bennington	8/26/2016
754	River Road	North Bennington	5/16/2016
1661	River Road	North Bennington	3/19/2016

Table D1
Active POETs in CAA 1
March 2018

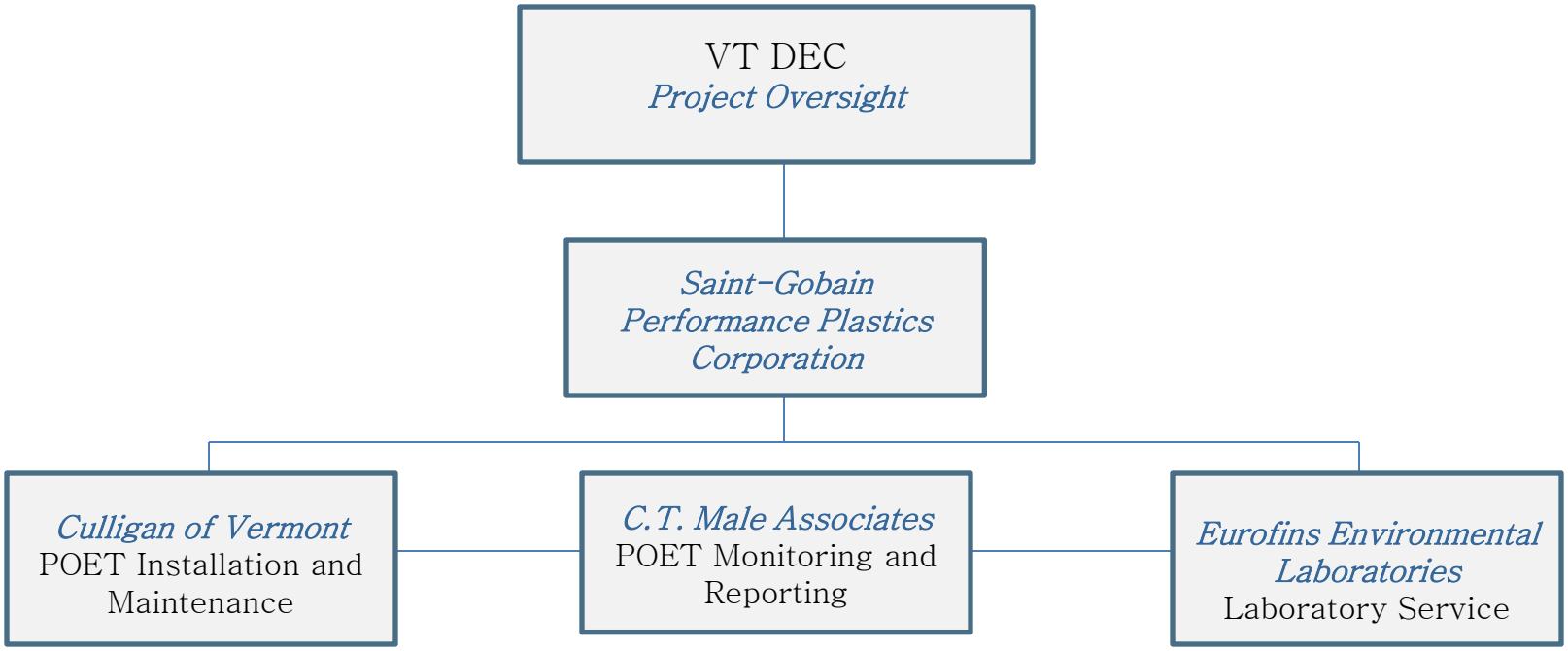
Street #	Street Name	Town	Date Installed
88	Riverside Drive	North Bennington	4/6/2016
90	Riverside Drive	North Bennington	3/30/2016
93	Riverside Drive	North Bennington	3/30/2016
471	Route 67 W	North Bennington	4/9/2016
662	Route 67W	North Bennington	4/20/2016
12	Royal Street	North Bennington	3/19/2016
17	Royal Street	North Bennington	3/19/2016
19	Royal Street	North Bennington	3/19/2016
32	Scarey Lane	North Bennington	3/4/2016
85	Silk Road	Bennington	7/25/2017
99	Silk Road	Bennington	4/21/2016
730	Silk Road	North Bennington	4/19/2016
747 (Home A)	Silk Road	Bennington	3/29/2016
747 (Home B)	Silk Road	Bennington	4/7/2016
789	Silk Road	Bennington	4/4/2016
818	Silk Road (POU)	Bennington	1/20/2018
996	Silk Road	Bennington	3/29/2016
1058	Silk Road	Bennington	3/29/2016
1111	Silk Road	North Bennington	4/19/2016
22	Susan Taylor Lane	North Bennington	3/25/2016
24	Susan Taylor Lane	North Bennington	3/25/2016
37	Susan Taylor Lane	North Bennington	3/9/2016
39	Susan Taylor Lane	North Bennington	3/26/2016
107	Vail Road	Bennington	11/14/2016
404	Vail Road	Bennington	4/6/2016
548	Vail Road	Bennington	4/6/2016
883	Vail Road	Bennington	4/10/2016
951	Vail Road	Bennington	6/1/2016
1214	Vail Road	Bennington	4/22/2016
1302	Vail Road	Bennington	6/24/2017
566	Walloomsac Road	Bennington	6/7/2016
573	Walloomsac Road	Bennington	6/9/2016
630	Walloomsac Road	Bennington	11/10/2016
664	Walloomsac Road	Bennington	6/6/2016
694	Walloomsac Road	Bennington	5/18/2016
842	Walloomsac Road	Bennington	7/1/2017
981	Walloomsac Road	Bennington	6/6/2016

POU indicatesPoint of Use System

Total number of POETs = 163

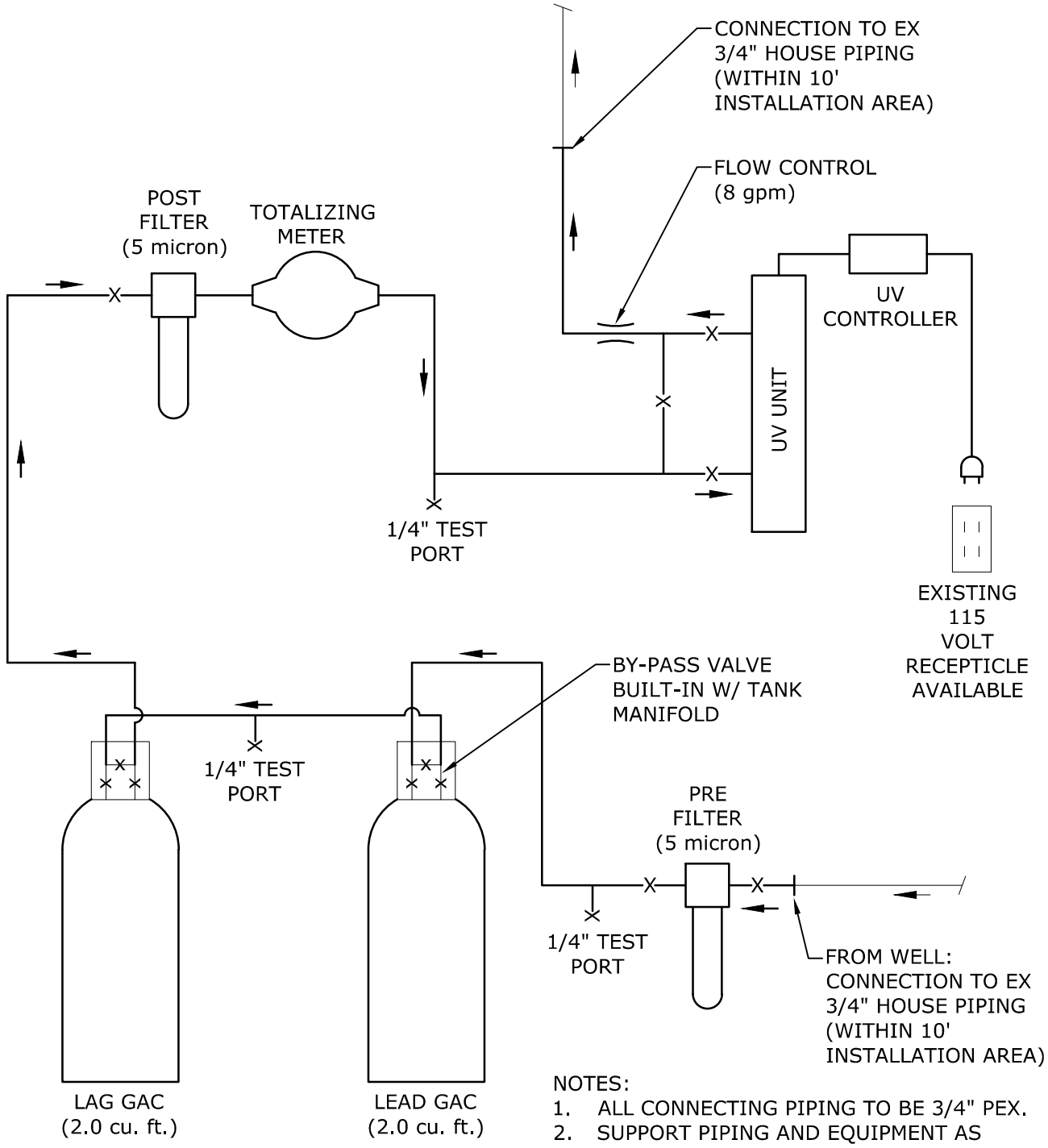
APPENDIX A
PROJECT ORGANIZATION

TABLE 1 – PROJECT ORGANIZATION



APPENDIX B
POET SYSTEM INSTALLATION SCHEMATIC

NONE :XREFS



NOTES:
1. ALL CONNECTING PIPING TO BE 3/4" PEX.
2. SUPPORT PIPING AND EQUIPMENT AS NECESSARY.

Date	RECORD OF WORK	Appr.

Drafter: DLP	Checker: DPR
Appr. by: DPR	Proj. No. 16.6131

SCHEMATIC
TYPICAL GAC POET SYSTEM
VARIOUS RESIDENTIAL / COMMERCIAL LOCATIONS

BENNINGTON AREA	VERMONT

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SCALE: NONE	DATE: MAR 15, 2016

CAD DWG. FILE NAME: K:\Projects\166131\Civil\schematic.dwg


Culligan
Culligan

APPENDIX C
POET INSTALLATION AND OPERATIONS MANUAL (CULLIGAN)

Installation and Operation Manual

Exchange Carbon Filter System

Contents

Overview

This Portable Exchange Carbon Filtration System is designed to be installed in residential applications for the reduction of traces of organic chemical contamination from well water supplies. The system provides maximum flow rate of up to 8 GPM and includes a cartridge type sediment pre-filter (Dual Gradient 50-5 micron), a dual Carbon Filter system containing a total of 4 Ft^3 of a Filtrasorb F600AW Bituminous Coal Acid Washed Granular Activated Carbon (Culligan Cullar F600AW), cartridge type sediment post-filter (Dual Gradient 50-5 micron) and a final UV Light Water Sterilizer rated at 8 GPM flow rate. The system incorporates test ports in the inlet, in between the two carbon vessels and at the outlet of the system for monitoring the system efficiency. Also, a water totalizing meter is included in the outlet of the system to record water usage and facilitate service monitoring.

System Design – Typical Operation

System is installed on the main water line of the residence after the well pressure tank as indicated in the system flow diagram (Fig. 1) below. The first sediment filter is used for the removal of sediments and suspended matter. Then water flows through two (2) 10"x54" vessels in series each containing 2.0 Ft^3 of the Cullar F600AW (#SPC10776) Granular Activated Carbon media for the adsorption of traces of organic contaminants. The dual filter approach provides for a continuous back contingency. Following the carbon filter vessels a secondary cartridge type sediment filter is utilized to provide clean water to the residence. Finally, a UV light water sterilization unit is providing microbiological control prior to distribution of the water to the household.

The system operation is designed to be simple and maintenance free. Periodic exchange of the carbon filters is performed by your local Culligan dealer. Sampling ports are included during the installation to facilitate testing the system efficacy and determine when the carbon filter(s) need to be replaced. The spent carbon should be disposed according to applicable local and federal requirements as it may contain the contaminants being removed in the process and has to be treated accordingly.

Refer to this manual for further details and instructions for the system components.

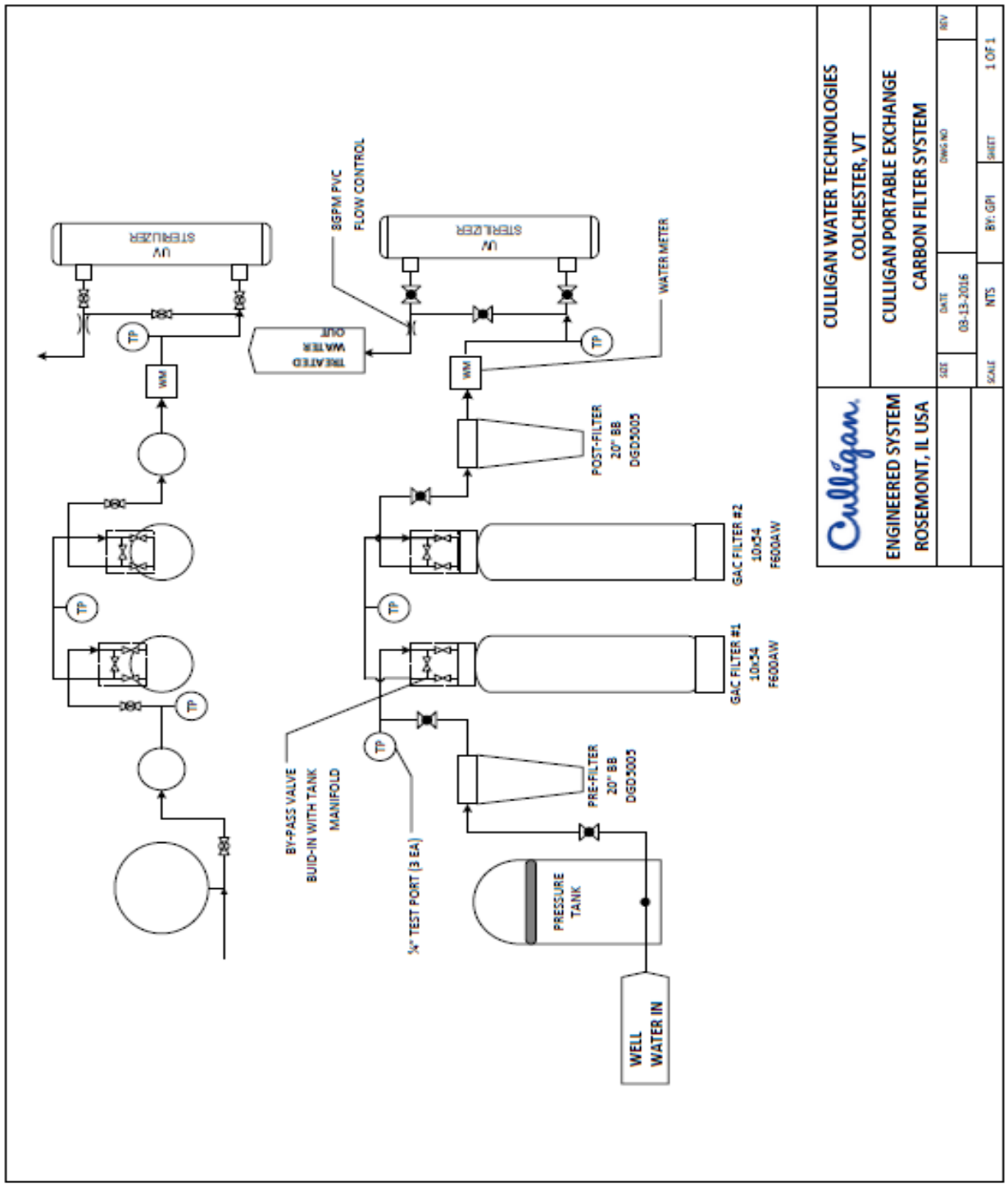


Figure 1: System Flow Diagram

PORTABLE EXCHANGE CARBON FILTERS

FILLING AND START UP PROCEEDURES

The following procedures should be followed every time a new Portable Exchange carbon filter is installed or exchange for an application. Every filter needs to be prepared according to the following instructions before it is placed in service.

I. FILLING PROCEEDURES:

1. Insert the Outlet distributor manifold in the tank and make sure it is properly centered
2. Cover the opening of the manifold with a clean rag.
3. Place a wide-mouth funnel in the tank opening.
4. Open one (1) 55 lbs. bag of Filtrasorb F600AW carbon. Slowly pour the carbon into the tank via the funnel. Fill the carbon within 2" – 3" from the top. Each tank depending on the size used should take 2 Ft^3 of carbon.
5. Fill the tank with water and allow the media to soak for 24-48 hours. The water level in the tank will decrease as the media soaks up water. Add water to the tank to keep the media submerged so all the media gets saturated.
6. Thread the tank closure with the inlet strainer into the tank; be careful not to miss thread.

II. RECOMMENDED START UP PROCEDURE:

1. It is advisable that every new filter is backwashed for 10 - 15 minutes at a flow rate of 5 – 8 GPM.
2. Easiest way to backwash the PE Carbon Tanks is utilizing a backwash funnel assembly, usually installed in a Culligan dealership. Backwash the media in the funnel for 10-15 minutes to make sure water is clean and all carbon fines are washed out.
3. Drop media back in the tank, drain excess water. Unit is ready to set in service.
4. If a backwash funnel is not available reverse the flow of the water on the tank manifold. Flow backwards to drain for 10-15 minutes at a flow rate no more than 5 GPM. If flow starts diminishing is because media is lifted around the top manifold. After 10-15 minutes make sure that the water to drain comes out clear. Reverse the flow and run to drain for another 5 min at 5 GPM to settle the bed.
5. You are ready to place the unit to service.
6. When installing the unit make sure that the Inlet & Outlet are hooked up correctly.

For servicing of the system contact the Culligan Dealer in your area.

Portable Exchange Carbon Filtration
Specifications and Operating Data

Cullar Portable Exchange Carbon Unit – 10x54 FRP Tank, 2.0 Ft^3

The 10"x54"-CARB FRP 1" will Provide:

Superior Quality Flow, gpm	: 3.1 @ 2 psi loss
High Quality Flow, gpm	: 4.7 @ 4 psi loss
Utility Quality Flow, gpm	: 6.3 @ 6 psi loss
Carbon Volume, ft^3	: 2.0

Miscellaneous Design Data:

Tank Size, in.	: 10x54
Tank Area, ft^2	: 0.54
Operating Pressure, psi	: 0-150
Oper. Temperature, °F	: 33-120

The 10"-CARB FRP 1" System Requirements:

Voltage	: None*
Pipe Conn, in NPT...	
Inlet	: 1.0
Outlet	: 1.0
Weight per tank, lbs...	
Shipping	: 132.0
Operating	: 195.0
Overall Dimensions, in....	
Width	: 11.0
Depth	: 12.0
Height	: 56.0

* Note: Voltage may be required for water quality instruments.

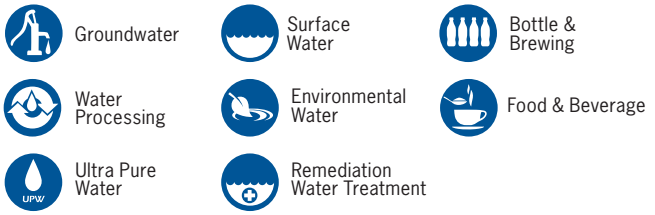
Cullar – Filtrasorb F600AW Activated Carbon Media:

The Filtrasorb F600AW media is a granular activated carbon for the removal of dissolved organic compounds from water. Such contaminants include taste and odor compounds, organic color, Total organic Carbon (TOC), and industrial organic compounds such as TCE, PCE and others. The F600AW is made of selected grades of bituminous coal and it is acid wash to provide cleanliness. See attached factory data sheet for more details.

FILTRASORB® 600

Granular Activated Carbon

Applications



With its enhanced high energy pore structure, FILTRASORB 600 is ideally suited for trace removal applications and offers a significant performance advantage over traditional activated carbon products used in these types of applications.

Specific applications include:

- Removal of MTBE
- Removal of DBCP
- Removal of THMs
- Removal of pesticides and herbicides
- Removal of other organics at concentrations < 1 ppm
- Potable water treatment
- Groundwater treatment
- Ultrapure water treatment

Description

FILTRASORB 600 is a granular activated carbon for the removal of dissolved organic compounds from water and wastewater as well as industrial and food processing streams. These contaminants include taste and odor compounds, organic color, total organic carbon (TOC), and industrial organic compounds such as TCE and PCE.

This activated carbon is made from select grades of bituminous coal through a process known as reagglomeration to produce a high activity, durable, granular product capable of withstanding the abrasion associated with repeated backwashing, hydraulic transport, and reactivation for reuse. Activation is carefully controlled to produce a significant volume of both low and high energy pores for effective adsorption of a broad range of high and low molecular weight organic contaminants.

FILTRASORB 600 is formulated to comply with all the applicable provisions of the AWWA Standard for Granular Activated Carbon (B604) and Food Chemicals Codex. This product may also be certified to the requirements of ANSI/NSF Standard 61 for use in municipal water treatment facilities. Only products bearing the NSF Mark are certified to the NSF/ANSI 61 - Drinking Water System Components - Health Effects standard. Certified Products will bear the NSF Mark on packaging or documentation shipped with the product.

Features / Benefits

- Produced from a pulverized blend of high quality bituminous coals resulting in a consistent, high quality product.
- Carbon granules are uniformly activated through the whole granule, not just the outside, resulting in excellent adsorption properties and constant adsorption kinetics.
- The reagglomerated structure ensures proper wetting while also eliminating floating material.
- High mechanical strength relative to other raw materials, thereby reducing the generation of fines during backwashing and hydraulic transport.
- Carbon bed segregation is retained after repeated backwashing, ensuring the adsorption profile remains unchanged and therefore maximizing the bed life.
- Reagglomerated with a high abrasion resistance, which provides excellent reactivation performance.
- High density carbon resulting in a greater adsorption capacity per unit volume.

Specifications[1]	FILTRASORB 600
Iodine Number, mg/g	850 (min)
Moisture by Weight	2% (max)
Abrasion Number	80 (min)
Trace Capacity Number, mg/g	16 (min)
Screen Size by Weight, US Sieve Series	
On 12 mesh	5% (max)
Through 40 mesh	4% (max)

[1]Calgon Carbon test method

Typical Properties*	FILTRASORB 600
Apparent Density (tamped)	0.62 g/cc
Water Extractables	<1%
Non-Wettable	<1%

*For general information only, not to be used as purchase specifications.

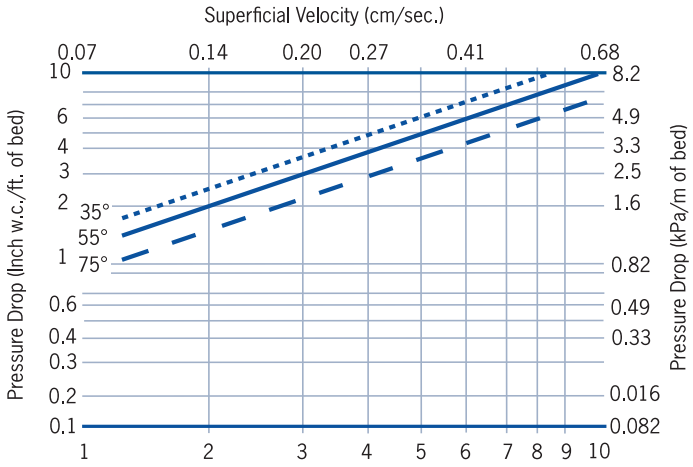
Safety Message

Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

DS-FILTRA60015-EIN-E1

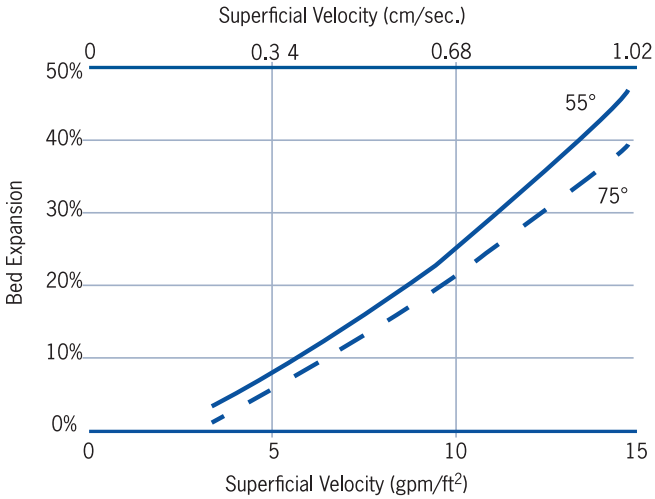
Typical Pressure Drop

Based on a backwashed and segregated bed



Typical Bed Expansion During Backwash

Based on a backwashed and segregated bed



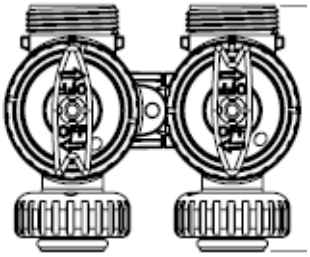
Safety Message

Wet activated carbon can deplete oxygen from air in enclosed spaces. If use in an enclosed space is required, procedures for work in an oxygen deficient environment should be followed.

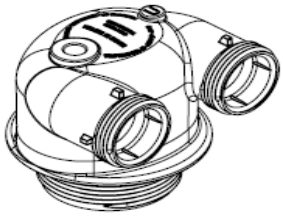
1.800.4CARBON calgoncarbon.com

DS-FILTRA60015-EIN-E1

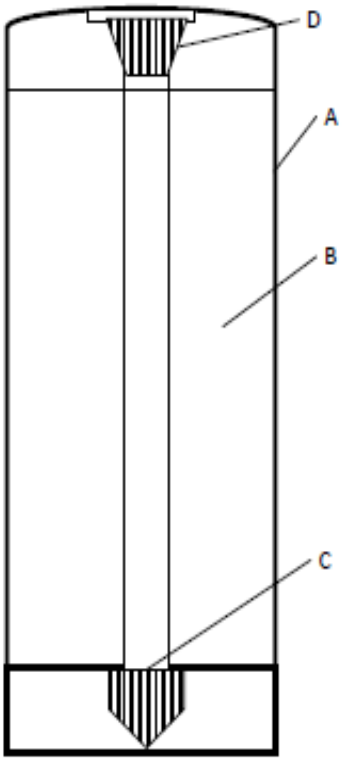
Carbon Filter Component Parts:



By-Pass Valve WS1 (#SPC10762)



In & Out Tank Head (#SPC10761)



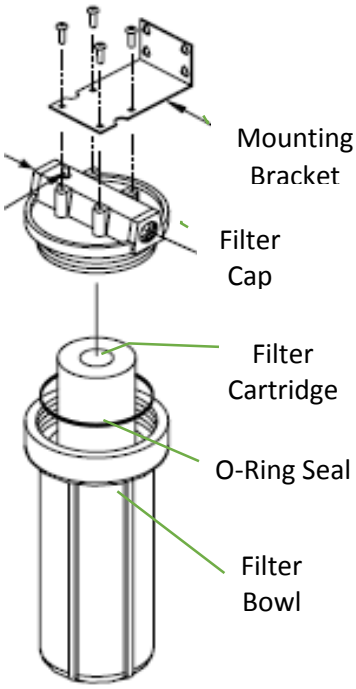
A. Filter Tank, FRP, 10”x54” (#SPC10770)

B. Carbon Media, 2 Ft^3, Cullar F600AW (#SPC10776)

C. Distributor Manifold (#SPC10773)

D. Top Distributor Basket (#SPC10765)

Filter Cartridge Replacement Procedures



The pre and post filter cartridges need to be replaced when a significant pressure drop across the filter increases, or in a regular intervals as determine by local water conditions.

1. Turn off water supply to filter. Depress red pressure-relief button to relief the pressure from the filter.
2. Using the filter wrench provided (#MS010522), unscrew the filter bowl.
3. Remove and discard old filter cartridge.
4. Clean the filter bowl with a damp cloth and rinse thoroughly.
5. Remove the wrapper from the new cartridge (#MS004512). Install the cartridge in the bowl, making sure it seals in the bottom of the bowl.
6. Check the O-ring seal (#MS404498) for dryness and cuts. Replace the seal if necessary and use silicone lube as needed.

   CAUTION! Do not use petroleum-based lubricants, which destroy the synthetic rubber seal.

7. Screw the filter bowl onto the filter cap and hand tighten. DO NOT OVER-TIGHTEN.
8. Slowly turn on the water supply to allow filter to fill with water and then press the red pressure-relief button on top of the filter cap to release trapped air.

UV Sterilizer # S8Q-PA-C (#D1022214)

Models:

S2Q-PA, S5Q-PA, S8Q-PA, S2Q-P/12VDC, S5Q-P/12VDC

NSF Standard 55 Class B Validated Models:

SV5Q-PA, SV8Q-PA

Powered by Sterilight

425 Clair Rd. W, Guelph, Ontario, Canada N1L 1R1
t. (+1) 519.763.1032 • tf. (+1) 800.265.7246 (US and Canada only)
t. (+31) 73 747 0144 (Europe only) • f. (+1) 519.763.5069
e-mail: info@viqua.com
www.viqua.com

System Tested and Certified by NSF International against CSA B483.1 and NSF/ANSI 55 for Disinfection Performance, Class B

MEMBER Water Quality Association

Section 1 Safety Information

These are the original instructions. Please read this entire manual before operating this equipment. Pay attention to all danger, warning, and caution statements in this manual. Failure to do so could result in serious personal injury or damage to the equipment.

Make sure that the protection provided by this equipment is not impaired. DO NOT use or install this equipment in any manner other than that specified in the installation manual.

1.1 Potential Hazards:

Read all labels and tags attached to the system. Personal injury or damage to the system could occur if not observed.

	Waste electrical and electronic equipment (WEEE). This symbol indicates that you should not discard wasted electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.		This symbol indicates not to store any combustible or flammable material close to the system.
	This symbol indicates there is Mercury present.		This symbol indicates that the contents of the transport package are fragile and the package should be handled with care.
	This is the safety alert symbol. Obey all safety messages that follow this symbol to avoid potential injury. When on the equipment, refer to the Operational and Maintenance manual for additional safety information.		This symbol indicates safety glasses with side protection is required for protection against UV exposure.
	This symbol indicates a risk of electrical shock and/or electrocution exists.		This symbol indicates gloves must be worn.
	This symbol indicates the marked equipment may contain a component that can eject forcibly. Obey all procedures to safely depressurize.		This symbol indicates safety boots must be worn.
	This symbol indicates the system is under pressure.		This symbol indicates the operator must read all available documentation to perform required procedures.
	This symbol indicates there is a potential UV hazard. Proper protection must be worn.		This symbol indicates the plumber must use copper piping.
	This symbol indicates the marked item could be hot and should not be touched without care.		This symbol indicates that the system should only be connected to a properly grounded, grounding-type controller receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI).
	This symbol indicates there is a potential for VERY hot water when flow is started.		

Warning: This product may contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

1.2 Safety Precautions:

⚠DANGER

Failure to follow these instructions will result in serious injury or death.

- **Electric Shock:** To avoid possible electric shock, special care should be taken since water is present near the electrical equipment. Unless a situation is encountered that is explicitly addressed by the provided maintenance and troubleshooting sections, DO NOT attempt repairs yourself, refer to an authorized service facility.
- **GROUNDING:** This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electrical shock. This system is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances. Improper connection of the equipment-grounding conductor can result in a risk of electrocution. Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded. DO NOT modify the plug provided with this system – if it does not fit in the outlet, have a proper outlet installed by a qualified electrician. DO NOT use any type of adapter with this system.
- **GROUND FAULT CIRCUIT INTERRUPTER PROTECTION**: To comply with the National Electrical Code (NFPA 70) and to provide additional protection from the risk of electric shock, this system should only be connected to a properly grounded, grounding-type controller receptacle that is protected by a Ground Fault Circuit Interrupter (GFCI) or to a residual current device (RCD) having a rated residual operating current not exceeding 30 mA. Inspect operation of GFCI as per manufacturer's suggested maintenance schedule.
- DO NOT operate the disinfection system if it has a damaged cord or plug, if it is malfunctioning or if it has been dropped or damaged in any manner.
- DO NOT use this disinfection system for other than intended use (potable water applications). The use of attachments not recommended or sold by the manufacturer / distributor may cause an unsafe condition.
- DO NOT install this disinfection system where it will be exposed to the weather or to temperatures below freezing.
- DO NOT store this disinfection system where it will be exposed to the weather.
- DO NOT store this disinfection system where it will be exposed to temperatures below freezing unless all water has been drained from it and the water supply has been disconnected.

⚠WARNING

- During extended periods of no water flow, the water in your chamber can become very hot (Approx. 60 °C) and potentially lead to scalding. It is recommended to run your water until this hot water has been purged from your chamber. Do not allow water to contact your skin during this time. To eliminate this condition, a temperature management valve can be installed at the outlet of your UV system.
- This system contains a UV Lamp. Do not operate the UV Lamp when it is removed from the chamber. Unintended use or damage of the system may result in the exposure of dangerous UV radiation. UV radiation may, even in little doses, cause harm to the eyes and skin.
- Changes or modifications made to this system without the consent of the manufacturer could render the system unsafe for operation and may void the manufacturer's warranty.

⚠CAUTION

Failure to follow these instructions could result in minor or moderate injury.

- Carefully examine the disinfection system after installation. It should not be plugged in if there is water on parts not intended to be wet such as, the controller or lamp connector.
- Due to thermal expansion concerns and potential material degradation due to UV exposure, it is recommended to use metal fittings and at least 10" of copper pipe on the outlet of your UV chamber.
- **Hg EXPOSURE**: The UV lamp contains mercury. If the lamp breaks, then avoid inhalation or ingestion of the debris and avoid exposure to eyes and skin. Never use a vacuum cleaner to clean up a broken lamp as this may scatter the spilled mercury. Obey local regulations and guidelines for the removal and disposal of mercury waste.

NOTICE

- The UV lamp inside the disinfection system is rated at an effective life of approximately 9000 hours. To ensure continuous protection, replace the UV lamp annually.
- The UV system is not to be used or played with by children. Persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, are also not to handle the UV system unless they have been given supervision or instruction.
- This system is intended to be permanently connected to the water lines.
- This system is not intended to be used in or above water or outdoors or used in swimming pools when persons are in the pool.
- **EXTENSION CORDS**: If an extension cord is necessary, use only 3-wire extension cords that have 3-prong grounding-type plugs and 3-pole cord connectors that accept the plug from this system. Use only extension cords that are intended for outdoor use. Use only extension cords having an electrical rating not less than the rating of the system. A cord rated for less amperes or watts than this system rating may overheat. Exercise caution when arranging the cord so that it will not be tripped over or pulled. DO NOT use damaged extension cords. Examine extension cord before using and replace if damaged. DO NOT abuse extension cord. Keep extension cord away from heat and sharp edges. Always disconnect the extension cord from the receptacle before disconnecting this system from the extension cord. Never yank cord to pull plug from outlet. Always grasp the plug and pull to disconnect.
- If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.
- **SYSTEM PROTECTION:** To protect your Controller, a UL1449 certified (or equivalent) transient voltage surge suppressor is strongly recommended.
- The UV lamp in this system conforms to the applicable provisions of the Code of Federal Regulations (CFR) requirements including, Title 21, Chapter 1, Subchapter J, Radiological Health.
- Read and understand the Owner's Manual before operating and performing any maintenance on this equipment.

1.3 Water Chemistry

Water quality is extremely important for the optimum performance of your UV system. The following levels are recommended for installation:

Water Quality and Minerals	Level
Iron	< 0.3 ppm (0.3 mg/L)
Hardness*	< 7 gpg (120 mg/L)
Turbidity	< 1 NTU
Manganese	< 0.05 ppm (0.05 mg/L)
Tannins	< 0.1 ppm (0.1 mg/L)
UV Transmittance	> 75% (call factory for recommendations on applications where UVT < 75%)

* Where total hardness is less than 7 gpg, the UV unit should operate efficiently provided the quartz sleeve is cleaned periodically. If total hardness exceeds 7 gpg, the water should be softened. If your water chemistry contains levels in excess of those mentioned above, proper pre-treatment is recommended to correct these water problems prior to the installation of your UV disinfection system. These water quality parameters can be tested by your local dealer, or by most private analytical laboratories. *Proper pre-treatment is essential for the UV disinfection system to operate as intended*.

Section 2 General Information

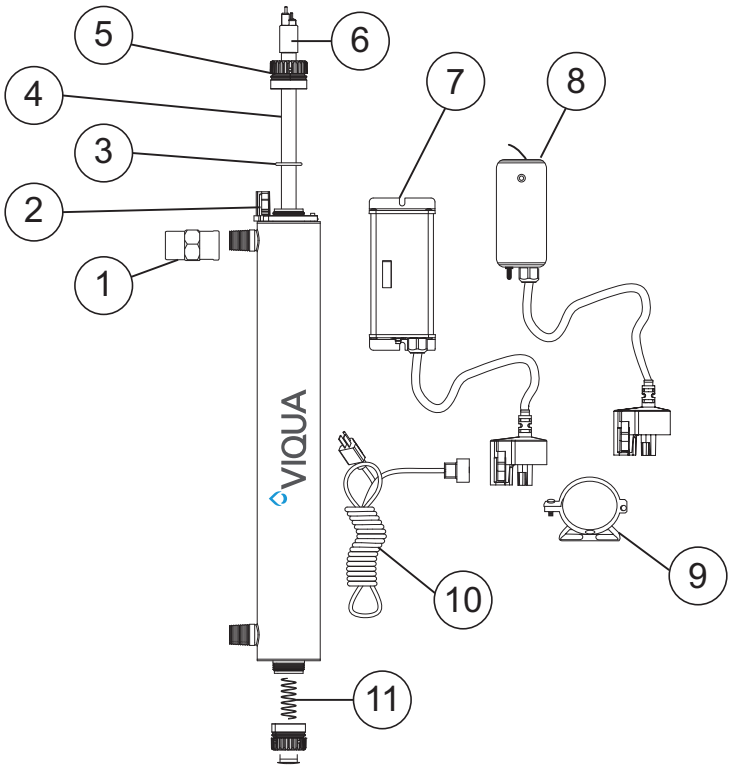


Figure 1 System Components

Item	Description	Part Number	UV Systems
1	Flow restrictor (Only for certified models)	440263-R	SV5Q-PA
		440264-R	SV8Q-PA
2	Lamp connector base	270276-R	Used on all systems
3	O-ring	410867	Used on all systems
4	Open-ended, 214 fused quartz sleeves with fire polished ends	QS-001	S1Q-PA
		QS-330	S2Q-PA
		QS-463	S5Q-PA, SV5Q-PA
		QS-810	S8Q-PA, SV8Q-PA
5	Retaining nut	RN-001	Used on all systems
6	Hard glass, coated Sterilumze®-EX UV lamps for long, consistent life (9000 hours)	S330RL	S2Q-PA
		S463RL	S5Q-PA, SV5Q-PA
		S810RL	S8Q-PA, SV8Q-PA
7	Controller (for 100-240V models only)	BA-ICE-S	S5Q-PA, S8Q-PA, SV5Q-PA, SV8Q-PA
8	Controller (for 12VDC models only)	BA-RO/P/12	S2Q-P/12VDC, S5Q-P/12VDC
9	2.5” Mounting brackets	410958-R	Used on all systems
10	IEC replacement power cords for VIQUA ICE Controller (sold separately)	260010	NORTH AMERICAN (NEMA 5-15P), 3-PRONG GROUNDED
		602637	CONTINENTAL EUROPEAN (CEE 7/7) 2-PIN WITH GROUND, “SCHUKO”
		260012	UK VERSION (BS 1363) 3-PRONG GROUNDED (5 AMP FUSE)
		260013	AUSTRALIAN VERSION (AS 3112) 3-PRONG GROUNDED
		260019	NO CONNECTOR, 3-WIRE, BARE LEADS
11	Spring	SP008	Used on all systems

Section 3 Installation

3.1 UV Disinfection System

⚠CAUTION

⚠ Electronic controller must be connected to a Ground Fault Protected Circuit (GFCI) receptacle. Ensure green ground wire ring terminal is securely fastened to ground stud on UV chamber.

The disinfection system is designed to be mounted either horizontally or vertically at the point-of-use or point-of-entry depending on the specific flow rate of the unit.

Note: *The ideal installation is vertical with the lamp connector on top. This is to prevent water damage from occurring on the lamp pins and lamp connector.*

- The controller should be mounted either above or beside the UV chamber. Always mount controller horizontally to prevent moisture from running down cordage and causing a potential fire hazard. Drip loops in all cordage connected to controller is highly recommended. Refer to Figure 5.
- The complete water system, including any pressure or hot water tanks, must be sterilized before start up by flushing with chlorine (household bleach) to destroy any residual contamination. Refer to Section 3.2.
- The disinfection system is intended for indoor use only. DO NOT install disinfection system where it may be exposed to the weather.
- Install the disinfection system on cold water line only, before any branched lines.
- A 5 micron sediment filter must precede the disinfection system. Ideally, the disinfection system should be the last treatment the water receives before it reaches the faucet.

Procedure:

1. Figure 2 shows the installation of a typical disinfection system and the related components that may be used for the installation. The use of a by-pass assembly is recommended in case the system requires “off-line” maintenance. In this case, note the system requires supplementary disinfection for the distribution system if any water is used during by-pass condition. In addition, during by-pass, the water will NOT be disinfected and a “DO NOT CONSUME THE WATER” tag should be physically installed on the by-pass assembly until such time as the system is sanitized and returned to service. For more information, refer to Section 3.2. If the water is to be consumed while the system is off-line, the water must be boiled for two minutes prior to consumption.

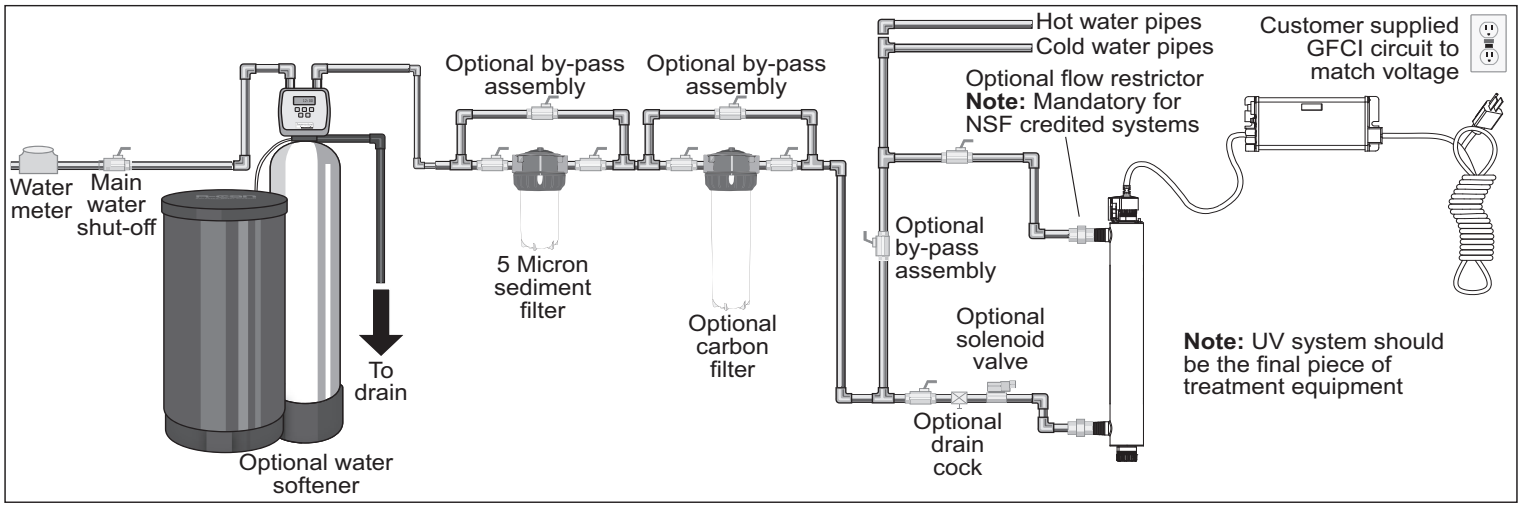


Figure 2 Disinfection System

2. Select a suitable location for the disinfection system and its related components. As it is recommended to install a GFCI, make sure that this is taken into consideration prior to any installation. The system can either be installed vertically (inlet port at the bottom) as shown in Figure 3 A, or horizontally as shown in Figure 3 B. However, the vertical installation is the most preferred method. When selecting a mounting location, leave enough space to allow the removal of the UV lamp and/or quartz sleeve (typically leave a space equal to the size of the UV chamber itself).

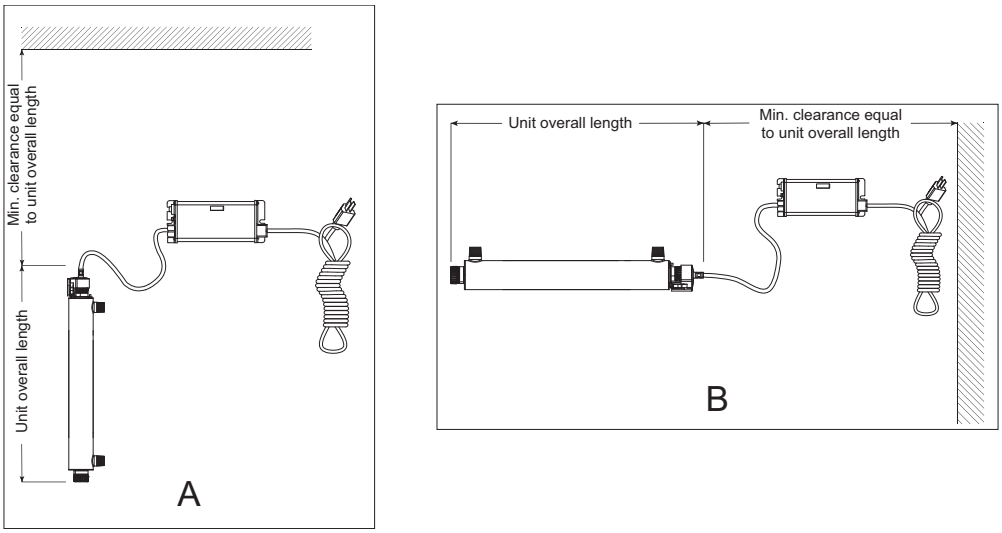


Figure 3 Disinfection Installation - Vertical and Horizontal

3. Mount the system to the wall using the supplied clamps. Various connection methods can be used to connect the water source to the system, however union type connectors are recommended. The use of a flow restrictor device will help to maintain the manufacturers rated flow. The flow restrictor should be installed on the outlet port and is designed to be installed in one direction only. Ensure that the flow of the water matches the flow direction as indicated on the flow restrictor. Refer to Figure 4.

   Note: *DO NOT solder connections while attached to the system as this could damage the O-ring seals.*

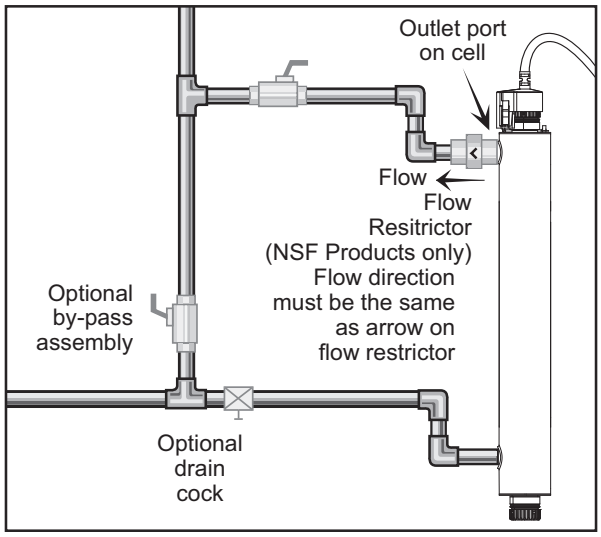


Figure 4 Flow Restrictor

4. Mount the VIQUA ICE controller horizontally to the wall, near the UV chamber. Ideally place the controller above the chamber and away from any water connection point, to prevent any water from potentially leaking onto the controller by means of a leak at a connection point or a “sweating” system. Make sure you allow for a “drip-loop” as shown in Figure 5 on the UV lamp, UV sensor, and power cord, again, to prevent any water from potentially entering the controller.

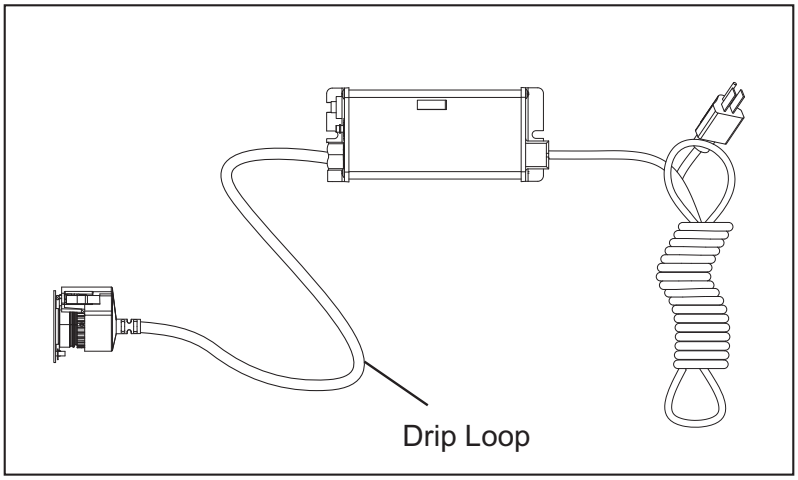


Figure 5 Drip Loop

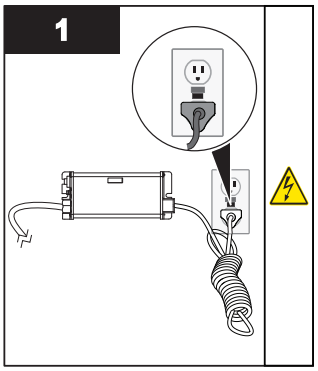
5. Install the UV lamp. Refer to Section 4.1.
6. When all plumbing connections are complete, slowly turn on the water supply and check for leaks. The most likely cause of leaks is from the O-ring seal. In case of a leak, shut water off, drain cell, remove the retaining nut, wipe the O-ring and threads. Clean and re-install.
7. Once it is determined that there are no leaks, plug the system into the ground fault interrupter and check controller to ensure the system is operating properly. The controller should illuminate without any alarms.

   Note: *DO NOT look directly at the glowing UV lamp.*
8. Allow the water to run for a few minutes to clear any air or dust that may be in the UV chamber.

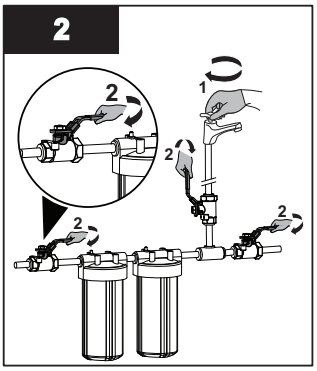
   Note: *When there is no flow, the water in the cell will become warm, as the UV lamp is always on. To remedy this, run a cold water tap anywhere in the house for a minute to flush out the warm water.*

3.2 Disinfection Procedure

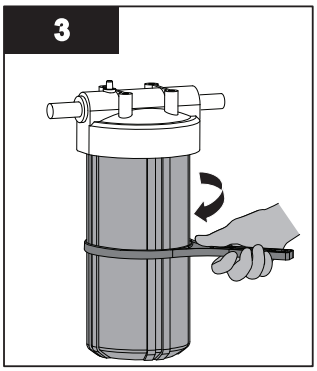
UV disinfection is a physical disinfection process and does not add any potentially harmful chemicals to the water. As UV does not provide a disinfection residual, it is imperative that the entire distribution system located after the UV be chemically disinfected to ensure that the plumbing system is free from any bacteriological contaminants. The disinfection process must be performed immediately after the UV unit is installed and repeated thereafter whenever the UV is shut down for service, without power, or inoperative for any reason. The procedure for sanitizing the plumbing system is readily accomplished as follows:



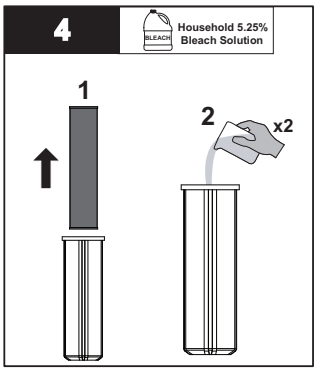
- Ensure the controller is plugged in for entire disinfection process.



- Shut off the water supply.
- Close each faucet.

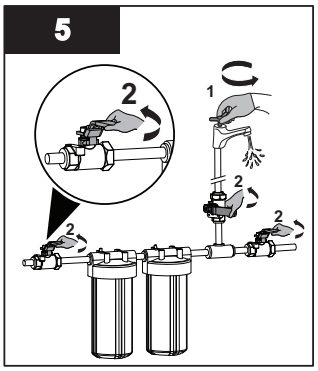


- Remove filter cartridge(s).

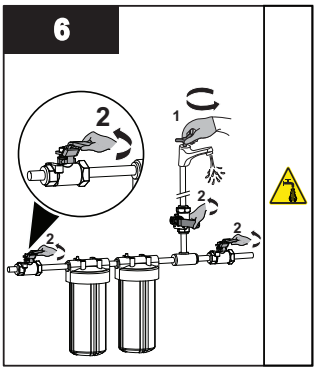


- Pour 2 cups of household bleach solution into the filter housing(s).

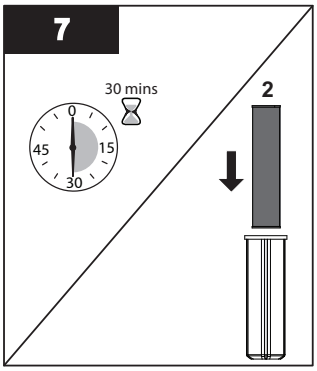
  Note: *DO NOT use Hydrogen Peroxide.*



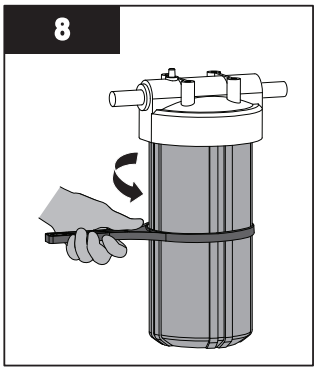
- Re-install the housings.
- Turn on the cold water supply.
- Open each faucet and all water openings until you smell the bleach and then close the faucets.



- Turn on the hot water supply.
- Open each faucet and all water openings until you smell the bleach and then close the faucets.



- DO NOT use water for 30 minutes.
- Flush the system until no chlorine smell is detectable and reinstall the filters.



- Reinstall filter housing(s).

Notes: *1) The addition of chlorine (bleach) to a hot water tank that has in the past been fed with untreated raw water with high levels of other contaminants (iron, manganese, hydrogen sulphide, organics, etc.) will result in oxidation of these contaminants and may require repeated flushing of the hot water tank. This contingency must be dealt with independently under the start-up procedure for any other conditioners that may form a part of the pre-treatment for the UV unit.*

2) The above disinfection procedure will result in a massive chlorine residual far in excess of the 0.5 to 1.0 mg/L typically present in municipally chlorinated water and of a magnitude consistent with the minimum 50 mg/L chlorine solution recommended for the disinfection of distribution systems known to be contaminated. DO NOT consume water until complete system has been flushed.

Section 4 Maintenance

⚠WARNING

- Always disconnect power before performing any work on the disinfection system.
- Always shut-off water flow and release water pressure before servicing.
- Regularly inspect your disinfection system to ensure that the power indicators are on and no alarms are present.
- Replace the UV lamp annually (or biennially if seasonal home use) to ensure maximum disinfection.
- Always drain the chamber when closing a seasonal home or leaving the unit in an area subject to freezing temperatures.

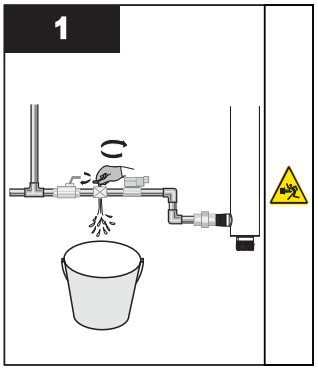
4.1 Replacing UV Lamp

NOTICE

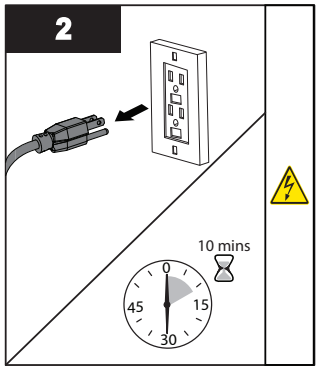
- Reset UV lamp life timer after UV lamp replacement. Refer to Section 5.1.3. Refer to www.lamprecycle.org for UV lamp disposal.
- DO NOT use water during replacement of UV lamp.

UV lamp replacement is a quick and simple procedure requiring no special tools. The UV lamp must be replaced after 9000 hours of continuous operation (approximately one year) in order to ensure adequate disinfection.

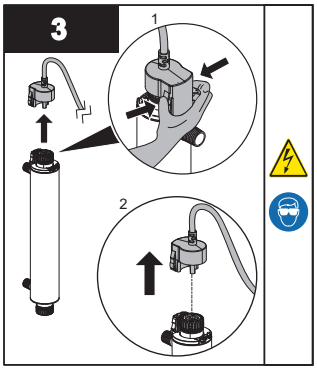
Procedure:



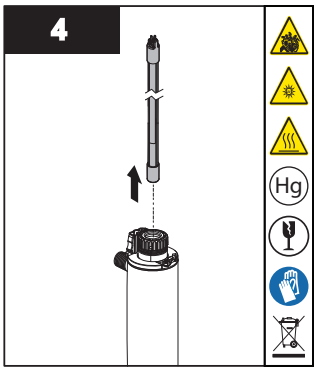
- Shut off the water line to chamber and release system pressure before servicing.



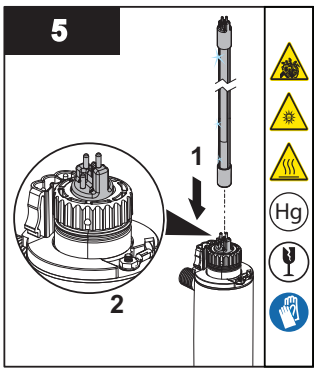
- Disconnect main power source and allow the unit to cool for 10 minutes.



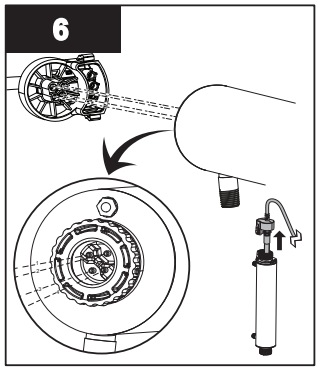
- Remove the lamp connector by squeezing the plastic locking tabs on the side of the connector.



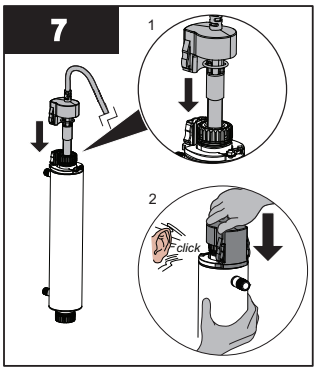
- Remove the lamp in upward direction from the chamber and lamp connector base.
- Always hold the lamp at the ceramic ends.



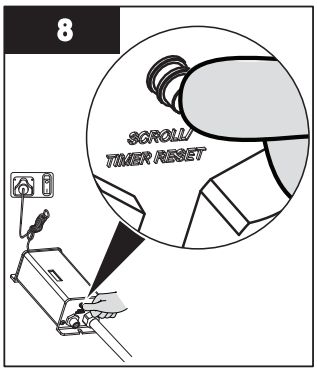
- Insert the new lamp fully into the chamber leaving about two inches of the lamp protruding from the chamber.



- Attach the connector to the lamp and note that the connector will only allow correct installation in one position.



- Push the lamp connector against lamp connector base together until an audible click is heard.
- Re-pressurize the system to check for leaks.



- Hold down the timer reset button and reapply power to the controller until you see rSEt, then release timer reset button.
- A 5 second delay will occur until you hear an audible tone and LED display will read once again 365.

VIQUA

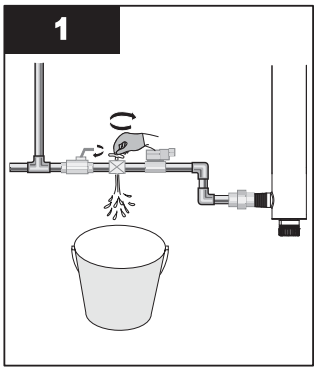
4.2 Cleaning and Replacing Quartz Sleeve

Note: *Minerals in the water slowly form a coating on the quartz sleeve. This coating must be removed because it reduces the amount of UV light reaching the water, thereby reducing disinfection performance. If the sleeve can not be cleaned, it must be replaced.*

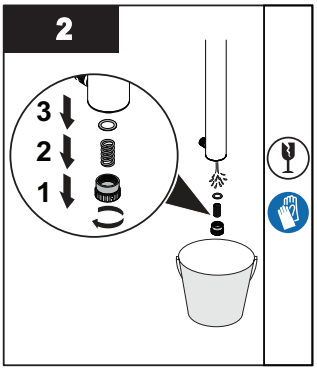
Prerequisites:

- Shut off water supply and drain all lines.
- Remove the UV lamp. Refer to Section 4.1.

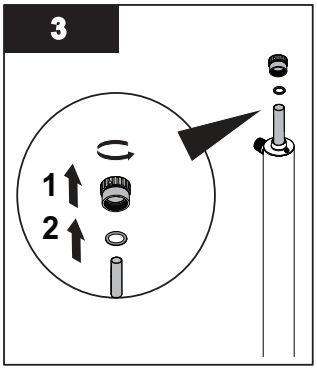
Procedure:



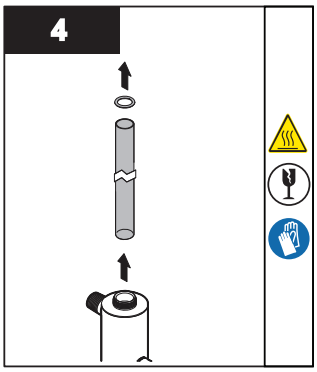
- Drain the chamber by using the drain port.



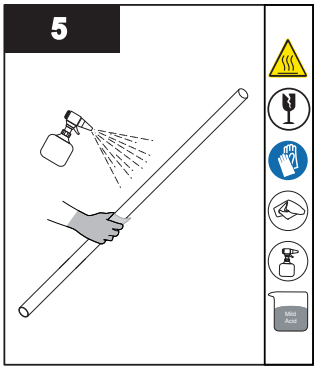
- Remove the bottom retaining nut, floating spring, and O-ring.



- Remove the top retaining nut and O-ring.

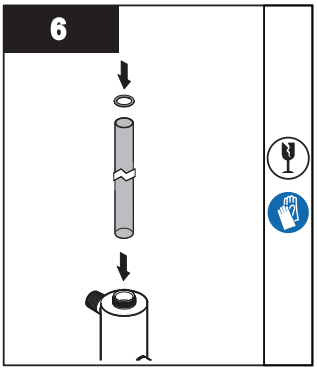


- Carefully, remove O-ring adhering to the quartz sleeve.
- Remove the quartz sleeve.

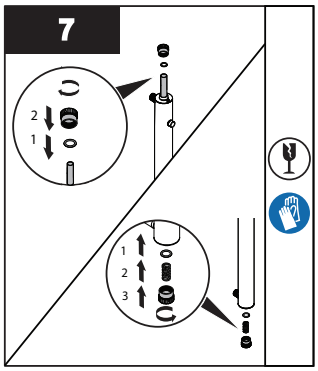


- Clean the quartz sleeve with a cloth soaked in CLR, vinegar or some other mild acid and then rinse with water.

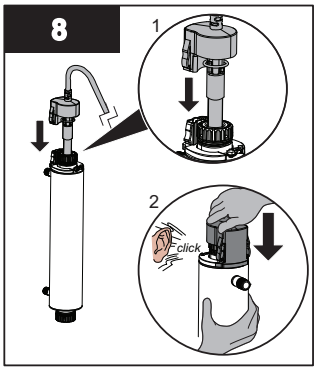
  Note: *If sleeve cannot be cleaned completely or it is scratched or cracked, then replace the sleeve.*



- Reinstall the quartz sleeve in the chamber allowing the sleeve to protrude an equal distance at both ends of the chamber.
- Slide supplied O-rings onto each end of the quartz sleeve.



- Reinstall the top and bottom retaining nuts, floating spring, and O-rings respectively.
- When service is complete, assemble the prerequisites in the reverse order of disassembly.



- Push the lamp connector against lamp connector base together until an audible click is heard.
- Plug in controller and verify the POWER-ON LED display.
- Re-pressurize the system to check for leaks.

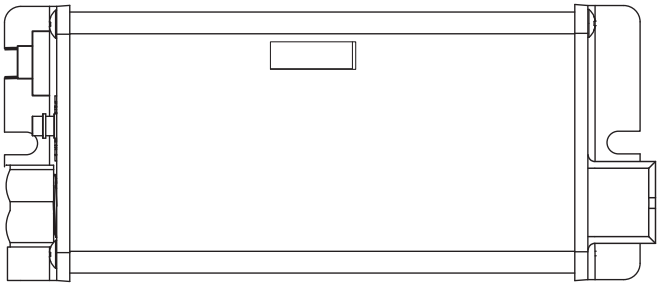
Note: *After replacing the UV lamp or quartz sleeve perform the disinfection procedure, refer to Section 3.2.*

Section 5 Operation

⚠ WARNING

The advanced warning system has been installed to provide the optimum protection against microbiological contamination in water. DO NOT disregard the warning signals. The best way to ensure optimum UV performance is to have the water microbiologically tested by a recognized testing agency on a regular basis.

5.1 Basic Systems Incorporating BA-ICE-S Controller



5.1.1 UV lamp Life Remaining (days)

365 The controller tracks the number of days of operation of the UV lamp and the controller. The default screen will display the total UV lamp life remaining (in days). The controller will count down the number of days remaining until the UV lamp requires changing (365 days to 1 day). At “0” days, the controller will display A3 and sound an intermittent audible chirp (1 second on, 5 seconds off), indicating the need to change the UV lamp.

5.1.2 Understanding your “A3” Code

A3 ***DEFERRAL*** - Once the “A3” or end of UV lamp life message is shown on the LED display, the audible alarm can be deferred up to 4 separate times. The delay is designed to allow you time to address the alarm while you obtain a new UV lamp. This can be done by simply depressing the timer reset button for 5 seconds, which is located on the left side of the controller. Each time the timer reset button is pressed the controller alarm is deferred seven days. Once the final 7 day deferral has been reached the alarm can only be silenced by changing the UV lamp and manually resetting the controller timer, refer to Section 4.1.

5.1.3 Resetting UV lamp Life

Refer to Section 4.1.

Note: *Even though the alarm on the system can be deferred for a period of time, it is important to address each and every alarm condition as they are indicating that there is a potential problem with the system and should be remedied.*

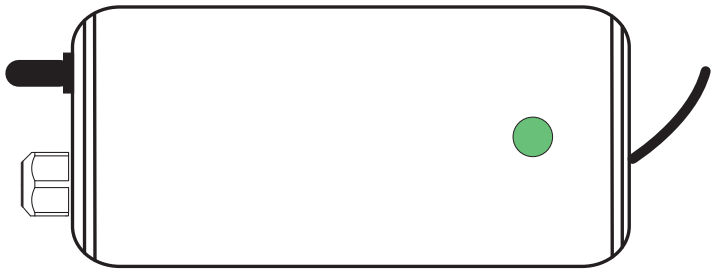
5.1.4 Total Days of Operation

1680 The controller also displays the total running time of the controller. To obtain this reading, press the push-button once. The total running time of the controller will be numerically displayed in days. This information will remain displayed for ten seconds and will then revert back to the UV lamp life remaining default screen. It should be noted that this value cannot be reset.

5.1.5 UV lamp Failure (Blank Screen)

When the system recognizes UV LAMP FAILURE (no current running through the UV lamp), the display will be blank (no default UV LAMP LIFE REMAINING screen) and the system will sound an intermittent audible tones (1 second on,1 second off). The system will remain in this state, until this condition is remedied.

5.2 12VDC Systems Incorporating BA-RO/P/12 Controller



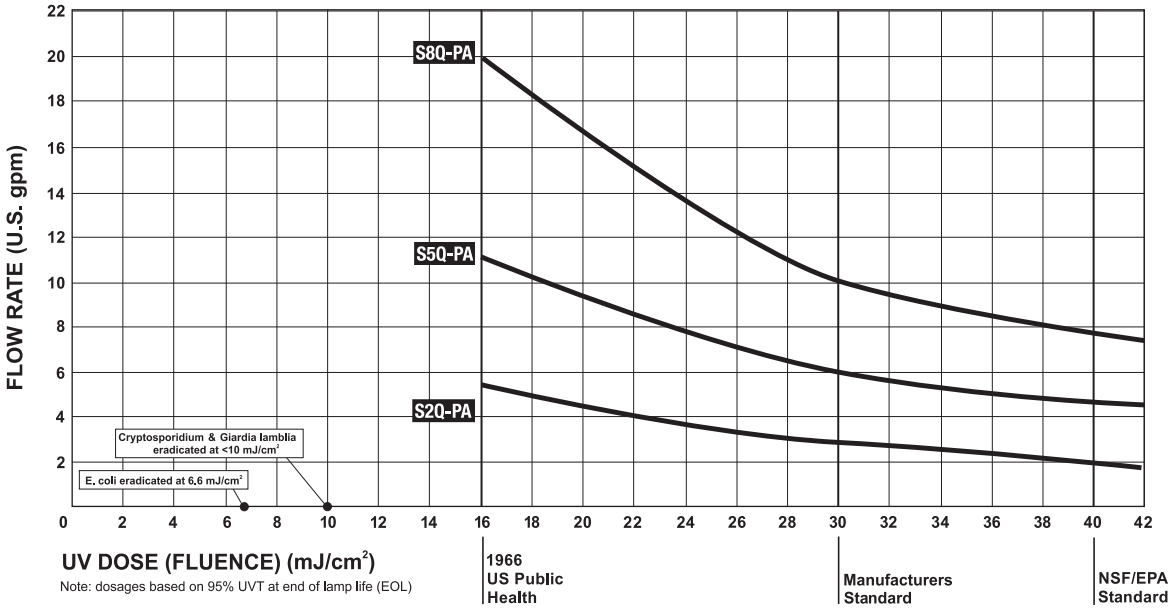
Green LED indicates UV lamp “ON”.

Section 6 Troubleshooting

Symptom	Possible Causes	Solutions
Pressure Drop	Sediment pre-filter clogged	Replace filter cartridge with appropriate 5 micron cartridge. ***Note:*** *Check source water supply as fluctuations may occur in source pressure.*
	Flow regulator	Flow regulator will result in pressure drop when approaching full flow.
High Bacteria Counts	Quartz sleeve is stained or dirty	Clean sleeve with scale cleaner and eliminate source of staining problem (ie. soften hard water, refer to Section 4.2.
	Change in feed water quality	Have source water tested to ensure that water quality is still within allowable limits for this system.
	Contamination in water lines after UV system (eg. power failures, plumbing	Disinfection system must have a bacterial free distribution system to work effectively. Refer to Section 3.2
	Possible break-through of sediment through pre-filter	Have source water tested for turbidity - may need stepped filtration in order to catch all sediment entering water system (20 micron filter followed by a 5 micron filter followed by UV
Heated Product Water	Common problem caused by infrequent use of water	Run water until it returns to ambient temperature.
Water Appears Milky	Caused by air in the water lines	Run water until air is purged.
Unit Leaking Water	Problem with O-ring seal (on retaining nut and/or UV sensor)	Ensure O-ring is in place, check for cuts or abrasions, clean O-ring, moisten with water/ lubricant and re-install, replace if necessary (410867).
	Condensation on UV chamber caused by excessive humidity & cold water	Check location of disinfection system and control humidity.
	Inadequate inlet/outlet port connections	Check thread connections, reseal with Teflon® tape and re-tighten.
System Shutting Down Intermittently	Interrupted controller	• Ensure system has been installed on its own circuit, as other equipment may be drawing power away from UV (ie. pump or fridge). • UV system should not be installed on a circuit which is incorporated into a light switch.
UV lamp Failure Alarm on - New lamp	Loose connection between UV lamp and connector	Disconnect UV lamp from connector and reconnect, ensuring that a tight fit is accomplished
	Moisture build up in connector may keep UV lamp and connector from making a solid connection	Eliminate chance of any moisture getting to the connector and/or lamp pins

DISPLAY FAULT MODES	
LED display reads “A3”	• UV lamp life expired - countdown is at “0” days. Refer to Section 5.1.2, Understanding your A3 Code. • Press reset button for a deferred alarm, replace UV lamp
LED display is blank	• Controller is in UV lamp failure mode. Refer to Section 5.1.5, UV Lamp Failure. Replace UV Lamp, refer to Section 4.1. • Power system down, allowing it to reset itself; apply power in order to confirm that the controller is able to power UV lamp • Check to see if there is sufficient power to the UV system
Green LED off (12 VDC only)	• UV lamp failure. Replace UV Lamp, refer to Section 4.1. • No input voltage to controller

Section 7 Manufacturer's Dose Flow Chart



Section 8 Specifications: Standard and Validated

Model		S2Q-P/12VDC/ S2Q-PA		S5Q-P/12VDC/ S5Q-PA/SV5Q-PA*		S8Q-PA/ SV8Q-PA*
Flow Rate	*NSF Class B Certified 16mJ/cm² @ 70% UVT	-		3.6 gpm (13.6 lpm) (0.8 m³/hr)		7 gpm (26.5 lpm) (1.6 m³/hr)
	US Public Health 16mJ/cm² @ 95% UVT	5 gpm (19 lpm) (1.1 m³/hr)		11 gpm (42 lpm) (2.5 m³/hr)		20 gpm (75 lpm) (4.5 m³/hr)
	VIQUA Standard 30 mJ/cm² @ 95% UVT	3 gpm (11 lpm) (0.7 m³/hr)		6 gpm (23 lpm) (1.4 m³/hr)		10 gpm (38 lpm) (2.3 m³/hr)
	NSF/EPA 40mJ/cm² @ 95% UVT	2 gpm (7 lpm) (0.4 m³/hr)		4.5 gpm (17 lpm) (1.0 m³/hr)		8 gpm (29 lpm) (1.8 m³/hr)
Dimensions	Chamber	43.2 cm x 6.4 cm (17" x 2.5")		56 cm x 6.4 cm (22" x 2.5")		90 cm x 6.4 cm (35" x 2.5")
	Controller 100-250 VAC	18.6 cm x 8.1 cm x 6.4 cm (7.3" x 3.2" x 2.5")		18.6 cm x 8.1 cm x 6.4 cm (7.3" x 3.2" x 2.5")		18.6 cm x 8.1 cm x 6.4 cm (7.3" x 3.2" x 2.5")
	Controller 12 VDC	13.5 cm x 4.3 cm x 5.8 cm (5.3" x 1.7" x 2.3")		13.5 cm x 4.3 cm x 5.8 cm (5.3" x 1.7" x 2.3")		-
Inlet/Outlet Port Size[1]		1/2" MNPT		3/4" MNPT"		3/4" MNPT
Shipping Weight		2.7 kg (6 lbs)		2.7 kg (6 lbs)		4.5 kg (10 lbs)
Electrical	Voltage[2]	100-240 V / 50/60 Hz	12 VDC	100-240 V / 50/60 Hz	12 VDC	100-240 V / 50/60 Hz
	Max. Current	0.6 Amp	1.8 Amp	0.6 Amp	1.8 Amp	0.6 Amp
	Power Consumption	22 W	20 W	30 W	27 W	46 W
	UV lamp Watts	17 W	15 W	25 W	20 W	37 W
Maximum Operating Pressure		125 psi (861 kPa)		125psi (861 kPa)		125 psi (861 kPa)
Minimum Operating Pressure		15 psi (103 kPa)		15psi (103 kPa)		15 psi (103 kPa)
Ambient Water Temperature		2-40 ºC (36-104 ºF)		2-40 ºC (36-104 ºF)		2-40 ºC (36-104 ºF)
UV Lamp Type		Sterilume™-EX (standard-output)		Sterilume™-EX (standard-output)		Sterilume™-EX (standard-output)
UV Chamber Material		304 SS		304 SS		304 SS

[1] Units ending in "/2B" have BSPT connections.

[2] Units ending in "/2" are for 230V applications.

Section 9 Manufacturer's Warranty

Our Commitment

VIQUA is committed to ensuring your experience with our products and organization exceeds your expectations. We have manufactured your UV disinfection system to the highest quality standards and value you as our customer. Should you need any support, or have questions about your system, please contact our Technical Support team at 1.800.265.7246 or technicalsupport@viqua.com and we will be happy to assist you. We sincerely hope you enjoy the benefits of clean, safe drinking water after the installation of your VIQUA disinfection system.

How to Make a Warranty Claim

Note: *To maximise the disinfection performance and reliability of your VIQUA product, the system must be properly sized, installed and maintained. Guidance on the necessary water quality parameters and maintenance requirements can be found in your Owner's Manual.*

In the event that repair or replacement of parts covered by this warranty are required, the process will be handled by your dealer. If you are unsure whether an equipment problem or failure is covered by warranty, contact our Technical Support team at 1.800.265.7246 or e-mail technicalsupport@viqua.com. Our fully trained technicians will help you troubleshoot the problem and identify a solution. Please have available the model number (system type), the date of purchase, the name of the dealer from whom you purchased your VIQUA product ("the source dealer"), as well as a description of the problem you are experiencing. To establish proof of purchase when making a warranty claim, you will either need your original invoice, or have previously completed and returned your product registration card via mail or online.

Specific Warranty Coverage

Warranty coverage is specific to the VIQUA range of products. Warranty coverage is subject to the conditions and limitations outlined under "General Conditions and Limitations".

Ten-Year Limited Warranty for VIQUA UV Chamber

VIQUA warrants the UV chamber on the VIQUA product to be free from defects in material and workmanship for a period of ten (10) years from the date of purchase. During this time, VIQUA will repair or replace, at its option, any defective VIQUA UV chamber. Please return the defective part to your dealer who will process your claim.

Three-Year Limited Warranty for Electrical and Hardware Components

VIQUA warrants the electrical (controller) and hardware components to be free from defects in material and workmanship for a period of three (3) years from the date of purchase. During this time, VIQUA will repair or replace, at its option, any defective parts covered by the warranty. Please return the defective part to your dealer who will process your claim.

One-Year Limited Warranty for UV lamps, Sleeves, and UV Sensors

VIQUA warrants UV lamps, sleeves, and UV sensors to be free from defects in material and workmanship for a period of one (1) year from the date of purchase. During this time, VIQUA will repair or replace, at its option, any defective parts covered by the warranty.Your dealer will process your claim and advise whether the defective item needs to be returned for failure analysis.

Note: *Use only genuine VIQUA replacement lamps and sleeves in your system. Failure to do so may seriously compromise disinfection performance and affect warranty coverage.*

General Conditions and Limitations

None of the above warranties cover damage caused by improper use or maintenance, accidents, acts of God or minor scratches or imperfections that do not materially impair the operation of the product. The warranties also do not cover products that are not installed as outlined in the applicable Owner's Manual.

Parts repaired or replaced under these warranties will be covered under warranty up to the end of the warranty period applicable to the original part.

The above warranties do not include the cost of shipping and handling of returned items.The limited warranties described above are the only warranties applicable to the VIQUA range of products. These limited warranties outline the exclusive remedy for all claims based on a failure of or defect in any of these products, whether the claim is based on contract, tort (including negligence), strict liability or otherwise. These warranties are in lieu of all other warranties whether written, oral, implied or statutory. Without limitation, no warranty of merchantability or of fitness for a particular purpose shall apply to any of these products.

VIQUA does not assume any liability for personal injury or property damage caused by the use or misuse of any of the above products. VIQUA shall not in any event be liable for special, incidental, indirect or consequential damages. VIQUA's liability shall, in all instances, be limited to repair or replacement of the defective product or part and this liability will terminate upon expiration of the applicable warranty period.

Long-Term Monitoring Plan for Private Wells without POETs

Corrective Action Area I – Operable Unit B
Attachment E

Prepared for
Saint-Gobain Performance Plastics

May 2018

E1.0 Introduction

This Plan for performing Long-Term Monitoring (LTM Plan) of private wells without point-of-entry treatment (POET) systems, prepared by Barr Engineering Co. (Barr) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), complies with the Consent Order and Final Judgement (Consent Order), effective date of October 2, 2017. Specifically, this plan addresses Appendix A, Section III Corrective Action Area I – Operable Unit B (CAAI OUB), paragraph 4f, of the Consent Order, which requires a long-term monitoring plan for private wells in CAAI OUB without POET systems.

Monitoring of private wells without POET systems began prior to the Consent Order effective date, by the State of Vermont and Saint-Gobain, in accordance with the *Water Supply Well Re-Sampling Plan, Village of North Bennington, VT, Town of Bennington, VT,* dated March 6, 2017, revised April 5, 2017 (Re-Sampling Plan). Continued monitoring of private wells within CAAI OUB with concentrations of perfluorooctanoic acid (PFOA) less than the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt) will be performed under this LTM Plan. Private wells within CAAI OUB with PFOA concentrations at or above 20 ppt have received POET systems and are monitored in accordance with the POET Systems Operation & Maintenance Plan (POET OM&M Manual; Attachment D).

Based on the sampling conducted as of the effective date of the Consent Order, 60 private wells with PFOA concentrations below 20 ppt have been identified in CAAI OUB. Saint-Gobain began monitoring these private wells in April 2017, in accordance with the Re-Sampling Plan. As part of the Re-Sampling Plan, 2017 groundwater quality samples were collected on a biannual basis (twice per year) for laboratory analysis.

E2.0 Sampling Plan

The purpose of this LTM Plan is to establish a process for monitoring private wells in CAAI OUB that are not covered under the POET OM&M Manual because they either do not contain PFOA or contain PFOA concentrations less than 20 ppt. This LTM Plan applies to

- Existing wells in CAAI OUB that had not been tested as of the effective date of the Consent Order but have subsequently been tested by Vermont Department of Environmental Conservation (VTDEC);
- New wells in CAAI OUB that are drilled after the effective date of the Consent Order; and
- Wells that had POET systems in CAAI OUB as of the effective date of the Consent Order but the POETs have either been removed or are no longer required because the POET system performance standards have been met.

Water samples will be collected from the private wells to which the LTM Plan applies on a biannual basis, contingent on gaining access to the wells, until a new sampling frequency is supported based on the sampling results of these wells over time and the Secretary of the ANR concurs with a recommended change in this sampling frequency. Currently, the LTM Plan covers 60 private wells in CAAI OUB, which are listed in Table E1 and shown on Figure E1.

If the PFOA concentration is at or above 20 ppt in a private well monitored under this LTM Plan, Saint-Gobain will as soon as practicable notify the State and provide bottled water to the well owner, in accordance with the Bottled Water Plan (Attachment C). Within 30 days of receipt of the laboratory results, the reasonableness and cost effectiveness of connecting the subject property to the municipal water system, installing a POET system, or replacing the well (Attachment A) will be evaluated.

E2.1 Sample Collection Procedures

The sampling activities conducted under this LTM Plan will be performed in accordance with the following supporting documents:

- Field Sampling Plan (FSP), dated December 2017, which presents the standard field sampling and data gathering procedures to be followed during implementation of the field activities.
- Quality Assurance Project Plan (QAPP), dated December 2017, which provides project-specific organization details, objectives, data acquisition, data assessment, oversight, data review procedures, and analytical parameters. Protocols for sample collection, handling, storage, chain-of-custody, laboratory and/or field analyses, data evaluation and validation, and reporting are also addressed.
- Project-Specific Health & Safety Plan (PHASP), dated December 2017, which addresses the potential health and safety hazards that may be encountered while performing the work.

E2.2 Groundwater Performance Standards

Private wells will continue to be monitored at a schedule agreed to by VTDEC and Saint-Gobain, and the CAP will remain in place until the performance standards as set forth in the Consent Order, Appendix A, paragraphs 4(f) and 4(h) are met.

If as part of the CAP, a private water well is being replaced with a new well or eliminated if the location is being connected to municipal water, the private water well will be properly closed in accordance with ANR, Chapter 21, Water Supply Rule or converted into a long-term monitoring well.

E3.0 Schedule

Sampling in accordance with this LTM Plan will be initiated in 2018 following approval of the LTM Plan. Water samples will be collected on a biannual basis, contingent on gaining access to the private wells. Laboratory analytical results for each private well sampling event will be forwarded to VTDEC in accordance with the reporting schedule defined by the Consent Order.

E4.0 Reporting

For water samples with PFOA concentrations below 20 ppt, the laboratory report of the analytical results will be provided to VTDEC on the schedule specified by the Consent Order and the private well will continue to be monitored at the sampling frequency of the LTM Plan.

If the PFOA concentration in a private well is at or above 20 ppt, VTDEC will be notified as soon as practicable and provided a copy of the laboratory report of the analytical results. The need for further actions will be made in consultation with VTDEC. Saint-Gobain will coordinate with VTDEC to provide each property owner the results of each sampling event.

On an annual basis, a summary of the private well analytical results collected under this LTM Plan will be tabulated and provided to VTDEC. The annual summary will also include a compilation of the private wells sampled, where property access was denied or could not be coordinated, and other relevant notes collected during the sampling events.

List of Attachments

Table E1	List of Private Wells without POET Systems
Figure E1	Long-Term Monitoring Sampling Locations of Private Wells without POET Systems

Acronyms

ANR	Agency of Natural Resources
CAAI OUB	Corrective Action Area I – Operable Unit B
FSP	Field Sampling Plan
LTM	Long-Term Monitoring
PHASP	Project Health and Safety Plan
PFOA	perfluorooctanoic acid
POET	point-of-entry treatment
ppt	parts per trillion
QAPP	Quality Assurance Project Plan
VTDEC	Vermont Department of Environmental Conservation

Table E1
List of Private Wells without POET Systems in Corrective Action Area I
Bennington and North Bennington, VT
Saint-Gobain Performance Plastics

Street No.	Street Name	VTDEC Sampling Q1/Q2 2016	CTM Sampling 2Q 2017	CTM Sampling 4Q 2017	CTM Sampling 2Q 2018	CTM Sampling 4Q 2018
106	Airport Road	X	X	X	●	●
590	Airport Road	X	X	X	●	●
623	Airport Road	X	X	X	●	●
740	Airport Road	X	X	X	●	●
53	Austin Hill Road	X	X	--	●	●
159	Austin Hill Road	X	--	--	●	●
115	Harrington Road	X	X	--	●	●
147	Harrington Road	X	X	--	●	●
519	Harrington Road	X	X	X	●	●
801	Harrington Road	X	X	X	●	●
843	Harrington Road	X	X	X	●	●
882	Harrington Road	X	X	X	●	●
1076	Harrington Road	X	X	X	●	●
1151	Harrington Road	X	X	X	●	●
1452	Harrington Road	X	X	--	●	●
1591	Harrington Road	X	X	X	●	●
1645	Harrington Road	X	X	--	●	●
574	Ore Bed Road	X	X	X	●	●
759	Ore Bed Road	X	X	X	●	●
995	Ore Bed Road	X	X	X	●	●
558	Rice Lane	X	X	--	●	●
616	Rice Lane	X	X	--	●	●
674	Rice Lane	X	X	--	●	●
688	Rice Lane	X	X	--	●	●
691	Rice Lane	X	X	--	●	●
726	Rice Lane	X	X	--	●	●
842	River Road	X	X	X	●	●
1176	River Road	X	X	X	●	●
49	Route 67W	X	--	--	●	●
193	Route 67W	X	X	--	●	●
211	Route 67W	X	X	--	●	●
239	Route 67W	X	X	--	●	●
535	Route 67W	X	X	--	●	●
606	Route 67W	X	X	X	●	●
686	Route 67W	X	X	--	●	●

Table E1
List of Private Wells without POET Systems in Corrective Action Area I
Bennington and North Bennington, VT
Saint-Gobain Performance Plastics

Street No.	Street Name	VTDEC Sampling Q1/Q2 2016	CTM Sampling 2Q 2017	CTM Sampling 4Q 2017	CTM Sampling 2Q 2018	CTM Sampling 4Q 2018
9	School Street Village School - town water	X	--	--	●	●
972	Vail Road	X	X	--	●	●
1068	Vail Road	X	X	--	●	●
1101	Vail Road	X	X	--	●	●
1120	Vail Road	X	X	--	●	●
1152	Vail Road	X	X	X	●	●
1172	Vail Road	X	X	--	●	●
1244	Vail Road	X	X	--	●	●
1306	Vail Road	X	X	--	●	●
1312	Vail Road	X	X	--	●	●
1337	Vail Road	X	X	--	●	●
1389	Vail Road	X	X	--	●	●
1431	Vail Road	X	X	--	●	●
1506	Vail Road	X	X	--	●	●
1575	Vail Road	X	X	--	●	●
1584	Vail Road	X	X	--	●	●
1602	Vail Road	X	X	X	●	●
1645	Vail Road	X	X	X	●	●
1690	Vail Road	X	X	--	●	●
1742	Vail Road	X	X	X	●	●
11	Walloomsac Road	X	--	--	●	●
1563	Walloomsac Road	X	X	--	●	●
43	Westwood Drive	X	X	--	●	●
110	Westwood Drive	X	--	X	●	●
16	Wilkie Way	X	X	X	●	●

Notes:
VTDEC *Vermont Department of Environmental Conservation*
CTM *C.T. Male Associates*
X *Sampling completed.*
● *Sampling to be completed.*
-- *Sampling not completed.*

Barr Footer: ArcGIS 10.4, 2018-03-23 15:47 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2018\Waterline\Figure E2 Long Term Monitoring Sample Locations of Private Wells without POET Systems.mxd User: sal2

SHAFTSBURY
NORTH BENNINGTON
BENNINGTON
Former Chemfab (Water Street)
Wastewater Treatment Plant
Cold Spring Brook
Paran Creek
Lake Paran
Walloomsac River
Furnace Brook
Browns Brook
NY 67
NY 7
VT 67
VT 67A
VT 7A
VT 279
VT 9
US 7
606 Route 67W
686 Route 67W
115 Harrington Road
239 Route 67W
211 Route 67W
535 Route 67W
147 Harrington Road
193 Route 67W
49 Route 67W
1645 Harrington Road
1591 Harrington Road
1452 Harrington Road
9 School Street
1151 Harrington Road
1076 Harrington Road
882 Harrington Road
843 Harrington Road
801 Harrington Road
519 Harrington Road
1176 River Road
842 River Road
16 Wilkie Way
691 Rice Lane
674 Rice Lane
726 Rice Lane
558 Rice Lane
616 Rice Lane
688 Rice Lane
574 Ore Bed Road
759 Ore Bed Road
995 Ore Bed Road
1431 Vail Road
110 Westwood Drive
43 Westwood Drive
1645 Vail Road
1575 Vail Road
1602 Vail Road
1690 Vail Road
1742 Vail Road
1584 Vail Road
1506 Vail Road
740 Airport Road
590 Airport Road
623 Airport Road
1389 Vail Road
159 Austin Hill Road
1337 Vail Road
53 Austin Hill Road
1101 Vail Road
1120 Vail Road
1068 Vail Road
972 Vail Road
1152 Vail Road
1172 Vail Road
1244 Vail Road
1312 Vail Road
1306 Vail Road
1563 Walloomsac Road
106 Airport Road
11 Walloomsac Road

Sampling Locations
Former Chemfab Facility
Wastewater Treatment Plant
Corrective Action Area I
Corrective Action Area II
Parcel Boundary
Village/Township Boundary
State Boundary
N
0
2,000
Feet

BARR

LONG-TERM MONITORING SAMPLE LOCATIONS OF PRIVATE WELLS WITHOUT POET SYSTEMS IN CORRECTIVE ACTION AREA I
Bennington and North Bennington, VT
Saint-Gobain
FIGURE E1

Attachment F

Long-Term Monitored Natural Attenuation Plan for PFOA in Groundwater and Soil

Long-Term Monitored Natural Attenuation Plan for PFOA in Groundwater and Soil

Corrective Action Area I – Operable Unit B
Attachment F

Prepared for
Saint-Gobain Performance Plastics

March 2018

F1.0 Introduction

This Plan for performing Long-Term Monitoring for Natural Attenuation (Long-Term MNA Plan) of perfluorooctanoic acid (PFOA) in groundwater and soil, prepared by Barr Engineering Co. (Barr) on behalf of Saint-Gobain Performance Plastics (Saint-Gobain), complies with the Consent Order and Final Judgement (Consent Order), effective date of October 2, 2017. Specifically, this plan addresses Appendix A, Section III Corrective Action Area I – Operable Unit B (CAAI OUB), paragraph 4g, of the Consent Order, which requires a long-term monitoring plan to evaluate the effectiveness of natural attenuation of PFOA in soil and groundwater in CAAI.

Natural attenuation is a remediation strategy that relies upon natural processes such as biodegradation, chemical reactions, dilution, evaporation, and/or sorption to decrease concentrations of contaminants in soil and groundwater. Monitoring is required to assess the effectiveness of this remedy; therefore, the process is referred to as monitored natural attenuation (MNA).

F2.0 MNA Sampling Plan

The purpose of this Long-Term MNA Plan is to establish the process and procedures for monitoring groundwater and soils in CAAI to assess the effectiveness of natural attenuation of PFOA.

F2.1 Proposed Groundwater Monitoring

F2.1.1 Groundwater Monitoring Network

The groundwater monitoring network for this Long-Term MNA Plan consists of 17 wells located in CAAI (Figure F1). Available well construction information is summarized in Table F1. These wells were either installed as part of previous investigations at the former Chemfab facility at 1030 Water Street (Water Street) in North Bennington or were private water supply wells that have been or will be converted to monitoring wells. The wells selected for this Plan are based on a combination of the following factors:

- Representation of a range of PFOA concentrations, including several wells located near Water Street
- The availability of wells screened within the bedrock and unconsolidated aquifers for monitoring; and
- Spatial distribution within CAAI including potential monitoring points along the perimeter and throughout the interior of CAAI.

Within this Long-Term MNA Plan, these wells are referred to as compliance wells. As groundwater quality trends are observed during the process of MNA, compliance wells may be added to, or removed from, the monitoring network to meet the objectives of this Long-Term MNA Plan. The groundwater monitoring network will be re-evaluated annually as part of the annual reporting process.

F2.1.2 Groundwater Monitoring Frequency

Groundwater samples will be collected from compliance wells on a quarterly basis for two years prior to the evaluation of groundwater quality data and analysis of groundwater quality trends. If the PFOA concentrations at a compliance well are below the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt) and are stable or follow a decreasing trend, the sampling frequency will be reduced or eliminated. If the PFOA concentrations are at or above 20 ppt or are below 20 ppt but suggest an increasing trend, the sampling frequency will either remain the same or be adjusted following consultation with VTDEC. The sampling frequency change will be based primarily on evaluating the compliance well, the private wells monitored as per the Long-Term Monitoring Plan (Attachment E), and the point-of-entry treatment (POET) water quality data.

Monitoring at a compliance well will continue at a frequency agreed to by VTDEC and Saint-Gobain until the performance standards as identified in the Consent Order Appendix A paragraph 4(h) are met.

F2.2 Proposed Soil Monitoring

In March 2016, over 130 soil samples were collected from CAAI to evaluate the presence and distribution of PFOA in shallow soils (0 to 2 feet below ground surface (bgs)) at and in the vicinity of Water Street. The PFOA concentrations in these samples were below the Vermont Residential Soil Screening Value (SSV) of 0.3 milligrams per kilogram (mg/kg) or 300 parts per billion (ppb). The highest PFOA concentration in the upper 2 feet bgs was 45 ppb.

Based on these data, the PFOA concentrations are below the residential SSV and do not constitute a human direct contact concern. Therefore, performing additional soil sampling over time to assess the natural attenuation of PFOA is not proposed at this time. If soil analytical data collected in subsequent investigations are detected at concentrations above the residential SSV, soil sampling to demonstrate the effectiveness of natural attenuation in soil will be completed at the locations with PFOA concentrations above the residential SSV.

If a PFOA concentration in the soil is above the residential SSV (300 ppb), soil sampling for MNA evaluation will commence on a semi-annual basis along with establishing an institutional control to the extent required. Once the PFOA concentration in soil is stable or decreases below the residential SSV, the sampling will be considered complete. If soil monitoring results demonstrate an increasing trend in PFOA, soil monitoring will continue on a semi-annual basis.

MNA soil samples will be composite samples. Soil samples will be collected at a two-foot interval (from ground surface to a depth of two feet) within a ten-foot radius of the original sample location. A composite sample will consist of three near equal-volume subsamples from the same vertical depth interval within the general sample location (i.e., ten-foot radius of the original sample location). The subsamples will be homogenized to create one analytical sample.

F2.3 Sample Collection Procedures

Activities conducted under this Long-Term MNA Plan will be performed in accordance with the following supporting documents:

- Field Sampling Plan (FSP), dated December 2017, which presents the standard field sampling and data gathering procedures to be followed during implementation of the monitoring activities.
- Quality Assurance Project Plan (QAPP), dated December 2017, which provides project-specific organization details, objectives, data acquisition, data assessment, oversight, data review procedures, and analytical parameters. Protocols for sample collection, handling, storage, chain-of-custody, laboratory and/or field analyses, data evaluation and validation, and reporting are also described.
- Project-Specific Health & Safety Plan (PHASP), dated December 2017, which addresses the potential health and safety hazards that may be encountered while performing the work.

F2.4 Performance Standards for Soil and Groundwater

The performance standards for groundwater and soil include:

- **Groundwater** - PFOA concentrations at groundwater compliance wells established by the Secretary for CAAI and Saint-Gobain exhibit a stable or decreasing trend, meaning PFOA concentrations are below 20 ppt for eight rounds of quarterly sampling and the statistical trend analysis for eight quarters of sampling shows an overall downward trend in PFOA concentrations or a flat trend if the concentrations are below 20 ppt PFOA.
- **Soil** - PFOA concentrations at soil compliance points are below 300 ppb or appropriate institutional controls are in place.

F3.0 Schedule

Sampling in accordance with this Long-Term MNA Plan will be initiated in the first quarter of 2018 following approval of the Long-Term MNA Plan. Groundwater samples will be collected on a quarterly basis for two years or until the concentrations are consistently below 20 ppt and show no increasing concentration trend, contingent on gaining access to the wells each quarter. If a PFOA concentration in soil is at or above 300 ppb, soil samples will be collected on a semi-annual basis until the concentrations are below the residential SSV. Laboratory analytical results for each sampling event will be provided to the Vermont Department of Environmental Conservation (VTDEC) in accordance with the reporting schedule defined by the Consent Order.

F4.0 Reporting

Monitoring data will be used to document whether natural attenuation is effectively occurring. An Annual MNA Report will be submitted to the VTDEC by March 30 of each year. The Annual MNA Report will include a summary of completed tasks and analytical data for soil, if applicable, and groundwater.

Following eight quarterly events of groundwater monitoring, a statistical evaluation of data will be completed to determine if there are stable or decreasing trends of PFOA concentrations in groundwater. Groundwater results collected under this Long-Term MNA Plan will be used to determine if the sampling frequency is adequate. Similarly, soil results collected under this Long-Term MNA Plan will be evaluated to determine whether a decreasing trend is present. The Annual MNA Report will also consider the private well and POET water quality data to assess the MNA trends in context of broader groundwater quality trends.

Modifications to this Long-Term MNA Plan will be made in consultation with and approval by VTDEC following the annual data evaluation. In the event that unanticipated increasing groundwater or soil concentration trends are observed, that information will be communicated to the VTDEC, which may occur separately from, and in advance of, the annual report.

List of Attachments

Table F1	Proposed Long-Term MNA Groundwater Sample Locations
Figure F1	Compliance Wells Long-Term MNA Plan

Acronyms

bgs	below ground surface
FSP	Field Sampling Plan
MNA	monitored natural attenuation
PFOA	perfluorooctanoic acid
PHASP	Project Health and Safety Plan
POET	point-of-entry treatment
ppb	parts per billion
ppt	parts per trillion
QAPP	Quality Assurance Project Plan
SSV	Soil Screening Value
VTDEC	Vermont Department of Environmental Conservation

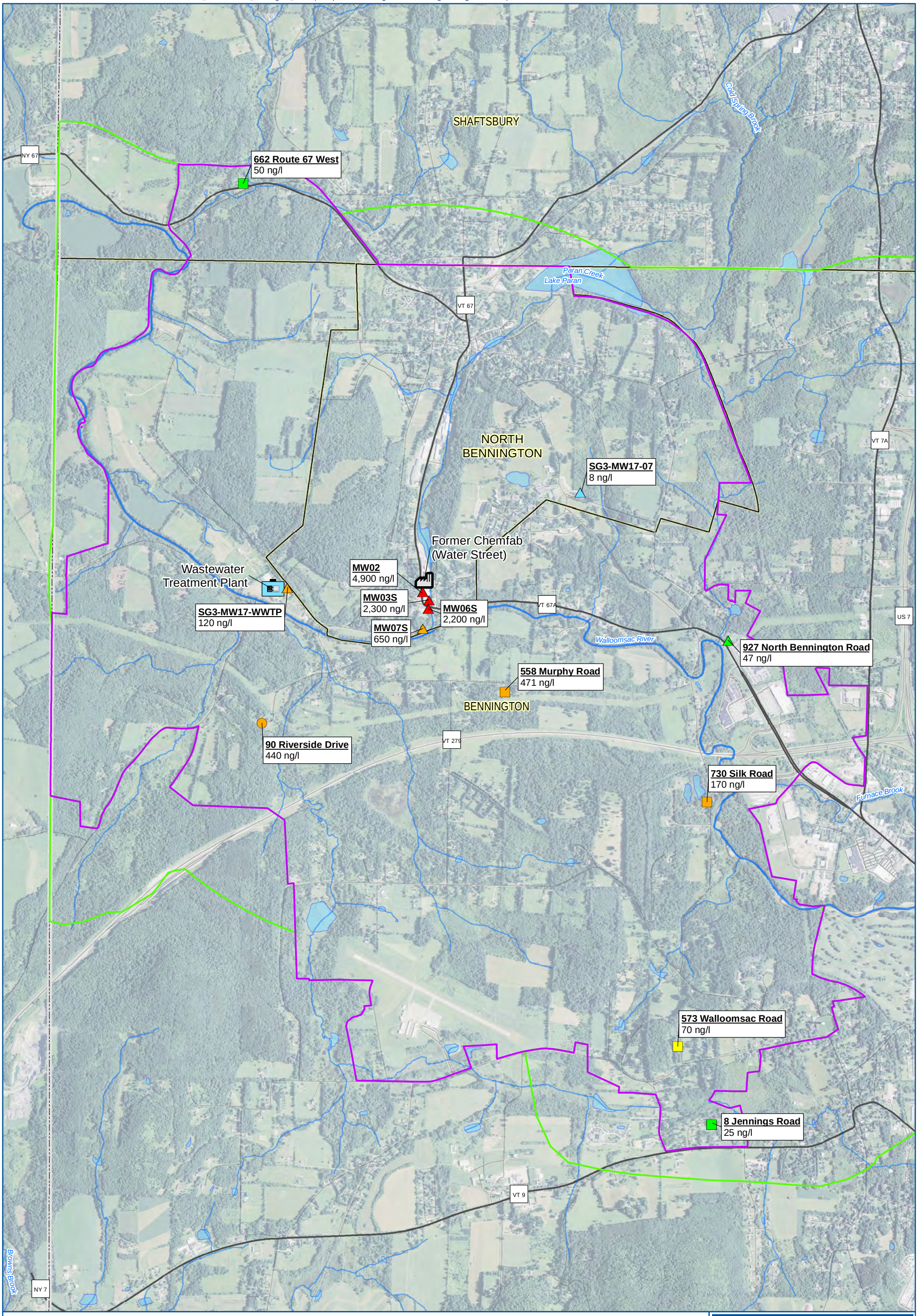
Table F1
Proposed Long-Term MNA Groundwater Sample Locations
Saint-Gobain Performance Plastics
Bennington, VT

Well Identification / Address	Well Type (screen interval in feet bgs)	Sampling Date	PFOA (ppt)
SG3-MW17-WWTP	Unconsolidated (25-35)	10/23/17	120
SG3-MW17-07	Unconsolidated (55-75)	10/25/17	8
558 Murphy Road	Unknown	3/22/16	471
8 Jennings Drive	Bedrock	2016	25
927 North Bennington Road	Unconsolidated	7/12/16	47
90 Riverside	Bedrock	2/2/17	440
662 Route 67 West	Unknown[1]	7/21/16	50
730 Silk Road	Unknown[1]	2/6/17	170
573 Walloomsac Road	Unknown[1]	8/31/16	48
Former ChemLab Water Street Facility MW-2	Unconsolidated (8-13)	7/13/16	4,900
Former ChemLab Water Street Facility MW-6S	Unconsolidated (5-13.5)	12/19/16	2,200
Former ChemLab Water Street Facility MW-3S	Unconsolidated (8-13)	12/16/16	2,300
Former ChemLab Water Street Facility MW-7S	Unconsolidated (9-19)	12/20/16	650

[1] Well evaluation will be completed during conversion of well from residential supply well to groundwater monitoring well.

bgs below ground surface
MNA monitored natural attenuation
PFOA perfluorooctanoic acid
ppt parts per trillion

Barr Footer: ArcGIS 10.4.1, 2018-03-05 11:33 File: I:\Client\Saint_Gobain\North_Bennington_VT\Maps\Reports\2017\Long Term Monitoring Plan\Figure F1 Compliance Wells 20180305.mxd User: rcs2



PFOA (ng/l) *
- > 1000
- 100 - 1000
- 50 - 100
- 10 - 50
- < 10

* ng/l = parts per trillion (ppt)

Well Type
- Bedrock
- Unconsolidated
- Unknown

Factory

Wastewater Treatment Plant

- Corrective Action Area I
- Corrective Action Area II
- Village Boundary
- Township Boundary
- State Boundary

N

0 600 1,200 1,800

Feet

BARR

COMPLIANCE WELLS
LONG-TERM MNA PLAN
Bennington, VT
Saint-Gobain

FIGURE F1

Attachment G

Institutional Control Plan

Institutional Control Plan

Corrective Action Area I – Operable Unit B
Attachment G

Prepared for
Saint-Gobain Performance Plastics

March 2018

G1.0 Introduction

Pursuant to paragraph 4i of the Consent Order and Final Judgment (Consent Order) between the Vermont Agency of Natural Resources (ANR) and Saint-Gobain Performance Plastics (Saint-Gobain), effective October 2, 2017, Saint-Gobain is required to submit an Institutional Control Plan that addresses institutional controls anticipated to be required to implement the selected remedial actions for Corrective Action Area I (CAAI), Operable Unit A (OUA) and Operable Unit B (OUB).

G2.0 Institutional Control Plan

Institutional controls will be required to implement the remedy selected for CAAI OUA. Under the Consent Order, the State shall reclassify groundwater in CAAI OUA as Class IV non-potable groundwater following the expansion of the municipal water systems in CAAI OUA. The State is required to reclassify groundwater in CAAI OUA in accordance with the Investigation and Remediation of Contaminated Properties Rule (IROCPR) and state groundwater protection rules to prohibit future use of this groundwater for human consumptive or other residential purposes in areas serviced by the municipal water line. Saint-Gobain will continue to consult with the State regarding the re-classification of groundwater in CAAI OUA.

Saint-Gobain also proposes to reclassify groundwater in CAAI OUB as Class IV groundwater with the provision that its use as a potable water supply conforms to the protocols established in the Corrective Action Plan, Corrective Action Area I – Operable Unit B, North Bennington and Bennington (CAP).

The plans included in the CAP that comprise the remedial action for OUB and that will confirm wells used for potable water supply within OUB meet the performance standards established in the Consent Order are referenced below:

- **Well Replacement Plan (Attachment A)** – addresses potential well replacements and associated activities at properties at which the perfluorooctanoic acid (PFOA) concentrations are at or above the site-specific corrective action standard pursuant to the Consent Order of 20 parts per trillion (ppt).
- **New Well Testing Plan (Attachment B)** – addresses sampling requirements at properties with newly proposed and installed wells.
- **Bottled Water Plan (Attachment C)** – addresses interim actions (i.e., supplying bottled water) upon identification of PFOA concentration at or above 20 ppt in a replacement or any wells in the long-term monitoring plan.
- **POET Operation, Monitoring and Maintenance (OM&M) Manual (Attachment D)** - addresses point-of-entry treatment (POET) OM&M requirements at properties with POET systems.
- **Long-Term Monitoring Plan (Attachment E)** – addresses the sampling requirements for drinking-water wells without POETs.

G3.0 Schedule

Saint-Gobain will provide a schedule for completing the groundwater reclassification following initial approval of this plan by Vermont ANR.

G4.0 Reporting

Reporting requirements will be determined following initial approval of this plan by Vermont ANR.

Acronyms

ANR	Agency of Natural Resources
CAAI	Corrective Action Area I
OUA	Operable Unit A
OUB	Operable Unit B
PFOA	perfluorooctanoic acid
POET	point-of-entry treatment system

Attachment H

Public Notice

[Date]

Public Notice

Corrective Action Plan for Private Wells
Corrective Action Area I - Operable Unit B
North Bennington and Bennington

A Corrective Action Plan (CAP) is being proposed to address the presence of perfluorooctanoic acid (PFOA) in groundwater and certain drinking water supply wells in portions of the Town of Bennington and the Village of North Bennington. The CAP specifically addresses properties in an area designated Corrective Action Area I, Operable Unit B in the Consent Order and Final Judgment between the Vermont Agency of Natural Resources ("ANR") and Saint-Gobain Performance Plastics, which became effective on October 2, 2017. The CAP includes the following plans:

- **Well Replacement Plan** – addresses potential well replacement and associated activities at properties at which the PFOA concentrations are at or above 20 parts per trillion (ppt).
- **New Well Testing Plan** – addresses sampling requirements at properties with newly proposed and installed wells.
- **Bottled Water Plan** – addresses interim actions (i.e., supplying bottled water) upon identification of PFOA concentrations at or above 20 ppt in a replacement well or any well in the long-term monitoring plan.
- **POET Operation, Monitoring and Maintenance (OM&M) Manual** – addresses POET OM&M requirements at properties with POET systems.
- **Long-Term Monitoring Plan** – addresses the sampling requirements for drinking-water wells without POET systems.
- **Long-Term MNA Plan** – addresses the long-term plan to monitor natural attenuation (MNA) of PFOA concentrations in soil and groundwater until the associated soil and groundwater performance standards are met; and
- **Institutional Control Plan** – addresses the institutional controls associated with CAAI OUB, as applicable.

More detail about this proposed corrective action can be found in the CAP. The CAP is available for review and comment online at [insert hyperlink] and at the Bennington Town Offices, located at 205 South Street, Bennington VT 05201.

Per the requirements of Investigation and Remediation of Contaminated Properties Rule (IROCPR) § 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 submit a request to the 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 **Xxxxxx XX, 2018**, 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

Richard.spiese@vermont.gov
john.schmeltzer@vermont.gov