RECORD OF DECISION

Saint-Gobain McCaffrey Street
Operable Unit Number 02: Municipal Water Supply
State Superfund Project
Hoosick Falls, Rensselaer County
Site No. 442046
December 2021

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

Saint-Gobain McCaffrey Street
Operable Unit Number: 02
State Superfund Project
Hoosick Falls, Rensselaer County
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Statement of Purpose and Basis

This document presents the remedy for Operable Unit Number: 02: Municipal Water Supply of the Saint-Gobain McCaffrey Street site a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375 and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the NYSDEC) for Operable Unit Number: 02 of the Saint-Gobain McCaffrey Street site and the public's input to the proposed remedy presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

- Development of two new groundwater supply wells: Existing test wells located south of Hoosick Falls will be converted to production wells.
- Provide required redundancy by maintaining a minimum of one existing Village well: A third well is required to provide redundancy in the case of an outage of the primary wells.
- Construction of a water transmission line from the new wells to the Hoosick Falls water treatment plant along public rights of way;
- Continued maintenance and operation of the public water supply treatment plant for removal of naturally occurring elements, disinfection and distribution to meet applicable water supply requirements; and
- Retain the existing granular activated carbon treatment system to ensure non-detect concentrations of site-related contaminants of concern in the finished drinking water.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

December 3, 2021
Date

Susan Edwards
Susan Edwards, P.E., Acting Director
Division of Environmental Remediation

RECORD OF DECISION

Saint-Gobain McCaffrey Street
Hoosick Falls, Rensselaer County
Site No. 442046
December 2021

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of hazardous wastes at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The NYSDEC has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The NYSDEC seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the NYSDEC in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repository:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=442046

Cheney Library
73 Classic Street
Hoosick Falls, NY 12090-0177
Phone: (518) 686-9401

A virtual public meeting was conducted on May 13, 2021. At the meeting, findings of the on-going site remedial investigation (RI) and the Municipal Water Supply Study (MWSS) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in Appendix A of the ROD.

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Saint-Gobain McCaffrey Street Site is a 6.41-acre site located at 14 McCaffrey Street in the village of Hoosick Falls (Village).

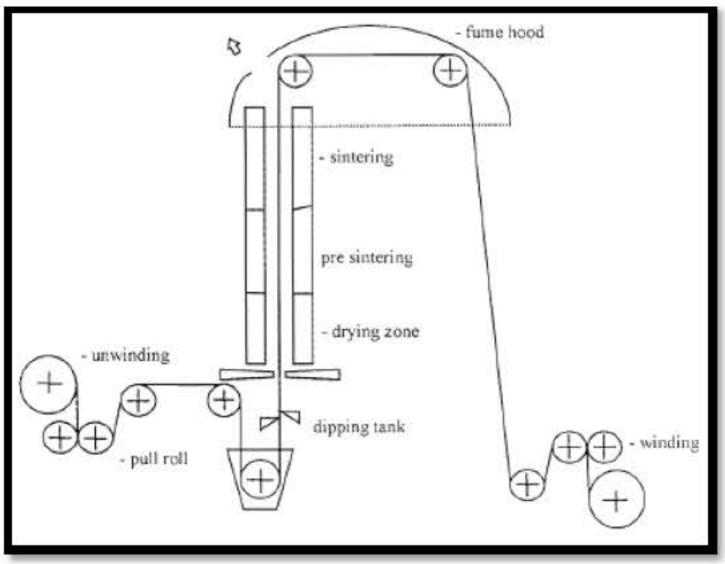


Figure 1: Fabric Coating Process using PTFE Dispersions

Site Features: The site is occupied by an active manufacturing facility. The site building was built in 1961, with additions completed in 1966, and 1975. The remainder of the site consists of parking areas and green space (lawn). The northeast corner of the parcel is unimproved woodland. The site slopes from the northwest towards the southeast with a steep drop in elevation of approximately 20 feet in the central portions of the site.

Current Zoning and Use: The parcel is zoned industrial and is bound to the north and east by residential properties; the Village water well field, Village highway garage, and Village water treatment plant to the south; and the Hoosick River Greenway to the west.

The Saint-Gobain Performance Plastics facility converts raw material resin powder to sheets of polytetrafluoroethylene (PTFE[1]) resin plastic of a variety of thicknesses and lengths for shipment to other facilities for further processing into various finished products. The resin powder is first compressed into billets. The billets are heated to remove moisture (sintering) in on-site ovens. After the billet has been cooled, on-site processing includes a shaving (skiving) process or an extrusion process to manufacture varying types and thicknesses of the PTFE resin sheets. Unlike past PTFE surface coating operations at the facility, these current processes do not produce liquid waste.

Past Use of the Site: The facility was constructed in 1961 and has been operational since 1962 under a number of corporate owners and has manufactured a variety of PTFE tape and fabric

[1] PTFE is the acronym for polytetrafluoroethylene and is a scientific name for fluorinated organic compounds such as Teflon™.

products. From 1962 through approximately 2003, PTFE dispersions used in some manufacturing processes at the McCaffrey Street facility contained PFOA. Most notably, the McCaffrey Street facility utilized up to eight towers which housed ovens used to manufacture PTFE-coated fabrics. Using a liquid PTFE dispersion, the fabric was dipped into the liquid PTFE dispersion, and the coated material was threaded through rollers into a heated tower.

Temperatures in the tower were maintained at levels to achieve sintering of the PTFE dispersions on the fabric which continued to be rolled back down the tower, through lower temperatures to cure the PTFE coating. Once cured, the product could be re-rolled. Multiple applications of the dispersions were needed depending on product specifications.

Temperatures required to sinter the PTFE dispersions exceed the boiling temperature of PFOA, causing the chemical to vaporize and exit the plant through stacks or vents. Airborne fumes and/or gas-phase PFOA migrated from the facility dependent on factors such as stack height, stack velocity, meteorology, topography, etc. The PFOA eventually settled out of the atmosphere and deposited on soils and in surface water.

Application of liquid PTFE dispersions at the facility was discontinued in 2003 however, atmospheric deposition of PFOA from the McCaffrey Street facility is thought to have been a significant contributor to levels of the contaminant found in soil and surface waters in, and around, the village of Hoosick Falls.

In addition to the atmospheric deposition pathway at the McCaffrey Street facility, the disposal of the spent liquid dispersions and wash-down from duct cleaning or other maintenance activities from the fabric coating process has also contributed to direct and indirect contamination of soil and groundwater on and around the McCaffrey Street site. Historically, the spent dispersions were disposed of directly into the sewers at the site, as indicated by high concentrations of PFOA in soils and groundwater collected from monitoring wells installed in the vicinity of the sewage ejector pit. Additionally, some of the spent dispersions are alleged to have been shipped off-site for disposal at various landfills or wastewater treatment plants.

Site Geology and Hydrogeology: The site is situated in the New England Upland (Taconic Range) physiographic province which is located in the Hoosic River Valley. Bedrock underlying the site is encountered between 19 and 43 feet below ground surface (bgs) and is identified as slate and phyllite of the Walloomsac Formation. Unconsolidated materials beneath the site and on top of the bedrock consist of glacio-lacustrine sand, silt and clays in varying thickness, as well as glacial till encountered across the northern portion of the site consisting of sand, silt, gravel, and clay. The till is encountered between 12 to 15 feet bgs, and ranges from 8 to 12 feet in thickness. Groundwater flow directions in the unconsolidated material and in the bedrock are generally radial; away from the site, with the on-site facility being located on a topographically high point. Low permeability layers are present, though discontinuous.

The Hoosic River is located 250 feet west of the site, and a retention pond and intermittent brook are located east and south. Surface runoff flows toward the Hoosic River and the wetland areas.

Significant geologic investigations have been conducted throughout the Hoosic River valley, including the installation of two test wells approximately 0.8 miles to the south of the existing village wellfield. The general geologic description for the Hoosic River valley from the site and extending south can be described as glacio-lacustrine deposits. These deposits consist of sand, gravel, silt and clay and vary based on the historic depositional environments such as glaciers, water, and erosion. In general, unconsolidated materials in the valley between the McCaffrey Street site and the test well location can be grouped into a lower unit, an upper unit, and a confining unit. The lower unit, just above bedrock, consists of glacially-deposited sand and gravel while the upper unit consists of sand, silt, and gravel formed by more recent alluvial events. These two are separated by a low permeability confining unit of lacustrine silts and clays which results in a lower aquifer and an upper aquifer. This confining unit varies in thickness throughout the Hoosic River valley, partly due to erosional events. In the portion of the valley where the test wells are located, this layer is approximately 60 to 100 feet thick. While the lower aquifer is generally isolated from surficial influences and irregularities, the upper aquifer is more directly influenced by surface dynamics such as climate change, precipitation events, vegetation, the nearby Hoosic River, etc. The low transmissivity of the confining layer, as indicated by the recent hydrologic testing and geologic observation, limits the interaction between the upper and lower aquifers, confirming their separation. When an aquifer is located beneath a confining, low permeability geologic layer, the aquifer is protected from impacted media above this layer.

The test well location south of the origin of the contaminant plume at McCaffrey Site (OU-01), is hydraulically upgradient (against natural flow) from the site. Results of pumping tests conducted on the water supply test wells show no interaction between the contaminated aquifer at the McCaffrey Street site and the aquifer in which the test supply wells are located. A rise in bedrock elevation between the site and the test well location also acts to provide further separation. The upgradient distance from the contamination source, the confining layer, and the bedrock surface topography are expected, with a high degree of to prevent impacts via the lower aquifer to the groundwater supplying the test wells. The confining layer also serves to limit the interaction between the upper and lower aquifers.

Operable Units: The site is divided into three operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

Operable Unit 1 (OU-01) includes the 6.41–acre site, as well as groundwater contamination directly attributable to on-site disposal of hazardous waste.

Operable Unit 2 (OU-02) includes the existing contaminated municipal water supply (Water Supply).

Operable Unit 3 (OU-03) includes off-site contamination related to the atmospheric deposition of site-related contaminants and direct off-site disposal of site-related liquid and/or solid wastes.

Operable Unit (OU) Number 02 is the subject of this document.

A Record of Decision (ROD) will be issued for OUs 01 and 03 in the future.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The NYSDEC may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. This PRAP evaluates remedial options for addressing the Water Supply portion of the groundwater plume and does not address on-site soil remediation. On-site soil contamination will be addressed in the PRAP for the McCaffrey Street site upon completion of the OU-01 RI/FS.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The PRPs for the site, documented to date, include:

Saint-Gobain Performance Plastics Corporation
Honeywell International Inc.

Saint-Gobain Performance Plastics and Honeywell International, Inc. (PRPs) initially entered a comprehensive Order on Consent (Index No. CO 4-20160212-18) with the NYSDEC effective June 3, 2016. The Order established the requirement for the PRPs to investigate the nature and extent of contamination including but not limited to PFOA contamination at, and migrating from, the Saint-Gobain McCaffrey Street (McCaffrey Street) site, Saint-Gobain Liberty Street (Liberty Street) site, as well as, off-site at the Village of Hoosick Fall Municipal Water Supply (MWS) well field.

An additional requirement of the Order includes assessment of alternatives, in the form of a study, to eliminate or reduce PFOA in the municipal water supply.

A work plan submitted by the PRPs for the McCaffrey Street site remedial investigation and feasibility study (RI/FS), which required a municipal water supply study (MWSS) and specified tasks needed to complete the MWSS, was approved on August 30, 2016. A supplemental workplan was approved on May 12, 2017. The MWSS was completed and the final report was submitted to the NYSDEC on November 13, 2020. The OU-01 RI/FS remains in progress.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation and Water Supply Study

A remedial investigation is on-going for OU-01 and OU-03 to fully define the nature and extent of contamination resulting from past manufacturing activities at the site. To address OU-02, a study was conducted to identify and evaluate water supply options for the village of Hoosick Falls. The final report was approved by the NYSDEC in December of 2020 describing the study and identifying potential water supply options.

The MWSS identified water supply options in the following categories:

1. A new groundwater source
    a. With GAC treatment not included;
    b. With GAC treatment included
2. A new surface water source;
3. Connection to an existing municipal system;
4. Continued use of existing village well field with appropriate treatment technology; and
5. Continued use of existing village well field with appropriate treatment technology and operation of an IRM at the McCaffrey Street site.

A screening process was conducted after potential water sources in each category were identified to evaluate the best potential options within the MWSS. All options identified are listed in the MWSS report.

The final options that were determined to be the most appropriate and feasible include the following:

1. Withdrawal of groundwater from new supply wells just south of the village of Hoosick Falls;
2. Withdrawal and transmission of surface water from the Tomhannock Reservoir;
3. Connection to the City of Troy water supply in Cropseyville;
4. Continued use of the Village supply wells #3 and #7 including GAC treatment; and
5. Continued use of the Village supply wells # 3 and #7 with GAC treatment and continuation of the groundwater extraction IRM at the McCaffrey Street site to hydraulically contain the contaminant migration.

To evaluate the new groundwater source option, test wells were installed on the west side of the Hoosic River along with surrounding groundwater monitoring wells. The wells were installed to evaluate the ability of the aquifer to produce a sufficient quantity of water to meet the estimated demand as well as the quality of the groundwater in this location. Geophysical studies, pump tests and collection of groundwater and soil samples were carried out to fully evaluate the aquifer characteristics. The results of these activities were used to evaluate the new groundwater option against other options as discussed later in this ROD.

To evaluate a potential new surface water source (the Tomhannock Reservoir), multiple reports were reviewed to assess the quantity and quality of the water source, including the 2018 safe yield study and the final NYSDEC trip report for sampling activities conducted at the reservoir in 2019. Analysis of the tracts of land between the reservoir and the village of Hoosick Falls was also performed to establish a potential route for the necessary transmission line from the reservoir to the village.

The option for interconnection to the Troy municipal water supply was largely evaluated through use of the safe yield study and review of potential locations for connection. Analysis of the land between the connection location and the village was also performed to establish a potential route for the transmission line to the Village.

6.1.1: Standards, Criteria, and Guidance (SCGs)

The water supply options presented must all conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration applicable guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

The objective of the remedy selection process for OU-02 is to determine a source of drinking water that will adequately supply the Village's water demand under feasible and sustainable operation and maintenance requirements. The breadth of SCGs needed to evaluate the options previously identified include NYSDOH Part 5, Subpart 5-1 standards for drinking water (including Maximum Contaminant Levels (MCLs) for site-related contaminants) as well as regional guidance for the development and operation of public water supplies known as the "Recommended Standards for Water Works", also known as the "Ten States Standards."

Based on data from the on-going remedial investigation of OU-01, contaminants of concern have been identified. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The contaminant(s) of concern identified for this Operable Unit at this site is/are:

- perfluorooctanoic acid (PFOA)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- drinking water

The State Superfund program requires that threats to public health be addressed through the evaluation of potential remedial alternatives to eliminate exposure to contaminants. These remedial alternatives are referred to as water supply options or "Options" for the purposes of this ROD. The presence of PFOA at levels above SCGs in Hoosick Falls' drinking water supply poses a threat to public health and necessitates evaluation of water supply options.

The study of potential water supply options is also warranted due to the proximity of the existing Village wellfield to the source of contamination, other anticipated remedial activities over the short and long term, as well as the current understanding of the environmental fate, transport, and persistence of PFOA.

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

IRMs were required under the consent order referenced in Section 5. They included:

1. Continued operation, maintenance and monitoring of the temporary, 0.5 million gallons per day (MGD) granular activated carbon (GAC) system; and
2. Design and construction of a full capacity GAC treatment system at the water treatment plant.

PRPs were required to maintain a temporary GAC water treatment system, which was installed as an emergency measure at the village of Hoosick Falls Municipal Water Treatment Plant. The temporary system was installed to treat 0.5 MGD of raw water from the village wellfield and was operational as of March 30, 2016. Subsequently, the PRPs were ordered to pay for the design, installation, operation, monitoring and maintenance of a full capacity system (to treat 1 MGD) to replace the temporary GAC treatment system. The full capacity system was constructed and placed in operation on December 30, 2016. This system remains in operation under a NYSDEC and NYSDOH - approved operation and maintenance plan.

Figure 2: Steel vessel containing granular activated carbon (GAC).

The objective of the full-capacity GAC treatment system IRM on the Village Water Supply is to remove PFOA, and other site-related contaminants, from the water supply prior to distribution to Village residents and to "…monitor, maintain, and operate the full capacity system to deliver water that meets or exceeds applicable standards." as stated in the "Granular Activated Carbon, Water Treatment Plant Addition Construction Completion Report – Draft April 2019."

The GAC treatment system is comprised of two vessels that each contain 40,000 lbs of GAC media. Vessels are operated in series such that there is a lead vessel and lag vessel. The GAC is effective at removing organic compounds, including PFOA, from the Village's drinking water prior to distribution. Drinking water is monitored on a regular basis at multiple sampling points including the influent, mid-point, and effluent, as well as multiple stages in each of the vessels. Sampling results are used to determine when the GAC media in the lead vessel is approaching saturation and needs to be replaced with virgin GAC as described in the facility Protocol Work Plan (2017, Revised 2019).

Routine analysis of the finished drinking water provided by the treatment system indicates that the IRM objectives are being achieved.

The full capacity GAC system will continue to operate as an IRM until the new water source wells and infrastructure are constructed and approved for operation.

A third IRM has also been completed at the McCaffrey Street site (OU-01) to prevent continued migration of highly contaminated groundwater to the village wellfield. This system continues to operate as designed.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources impacted and exposure pathways identified, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary for OU-02.

PFOA in untreated water from the Village's wellfield is currently present in the range of 150 to 500 ppt. These levels exceed the MCL established for drinking water by New York State of 10 ppt for PFOA.

The MCL value of 10 ppt is used to assess drinking water contamination for PFOA and perfluorooctane sulfonic acid (PFOS). Environmental concerns related to PFOA contamination will be addressed under OU-01 and OU-03 remedial investigations, feasibility studies and appropriate remedial objectives.

Additionally, and as described in the Site Geology and Hydrogeology portion of Section 3, the subsurface conditions in the Hoosic River Valley, between the McCaffrey Street site and the test well locations, include both a lower and an upper aquifer separated by a low permeability silt and clay confining layer. However, gaps in this confining layer exist under the McCaffrey Street site allowing the contamination in the upper aquifer to mix with the lower aquifer near the site. The current Village well field is screened in this mixed unit within close proximity to the McCaffrey Street site and, thus, the contaminants have impacted the Village's water supply. The confining layer was identified south of the site and was observed to be from 60 to 100 feet in thickness in the area of the test well locations. A rise in the bedrock topography between the site and the test wells was also observed during investigations. The low transmissivity of the confining layer, as indicated by the hydrologic testing and geologic observation, limits the interaction between the upper and lower aquifers, confirming their separation. Laboratory tests show levels of PFOA at 530 ppt in the upper aquifer and between non-detect to 2.5 ppt in the lower aquifer. An aquifer located beneath a confining, low permeability geologic layer (generally fine silts and clay as has been confirmed in the Hoosic River valley), is protected from impacts above this layer. The newly installed test wells were also subjected to 72-hour pump tests which show no indication of influence on the wells around the McCaffrey Street site nor at the Village well field. Failure of the pump tests to affect the well field aquifer water levels provides further indication that localized groundwater contamination from the McCaffrey Street site at the Village well field will not affect the test well aquifer.

Considering the approximate 0.8-mile separation from the McCaffrey Street site and the rise in bedrock elevation between the areas, as well as being upgradient (against the natural flow), the test well locations are effectively separated from, and not expected to be impacted by, the McCaffrey Street site contamination.

6.4: Summary of Human Exposure Pathways

Chemicals can enter the body through three major pathways (inhalation, direct contact and ingestion). This is referred to as *exposure.* This human exposure assessment focuses on the ingestion of site-related contaminants in drinking water from the Village's municipal water supply system.

Sampling by the NYS Department of Health and the village of Hoosick Falls identified the presence of perfluorooctanoic acid (PFOA) in public and private water supplies in and near the Village. Actions have been taken to reduce human exposures to PFOA and other site-related per- and polyfluoroalkyl substances (PFAS) in these drinking water supplies. These actions included measures to address the contamination in the Village's municipal supply (e.g., installation of a treatment system) and actions to address individual wells that are not part of the municipal supply (e.g., point-of-entry or point-of-use filters). Additional sampling is being completed to further evaluate where and how people may be exposed to site-related contaminants.

When elevated levels of PFOA are present in drinking water consumed by the public, PFOA levels in blood are expected to be higher than levels in the general U.S. population. Once the exposure to PFOA is prevented, PFOA levels decline in blood by about half every two to four years. In Hoosick Falls, bottled water was available for area residents starting in November 2015 and the Village's water supply had no detectable PFOA level (above the analytical reporting limit of 2 parts per trillion) starting March 24, 2016 as a result of GAC filtration.

6.4.1: Summary of Biomonitoring Program

NYSDOH offered two rounds of blood testing to interested community members in the Hoosick and Petersburgh areas. Testing for both rounds were conducted by the NYSDOH Wadsworth Center laboratories. The 1st round of blood tests occurred from February to November 2016 and looked for only PFOA. Round 1 included 3,411 people in the Hoosick and Petersburgh areas. The 2nd round of blood tests occurred from June 2018 to March 2019 and looked for PFOA and 5 other PFAS compounds to provide participants with additional information. The timeframe for Round 2 began about two and one-half years after most people's exposures to PFOA from drinking water ended. A total of 685 people participated in Round 2.

By comparing each person's Round 1 PFOA level to their Round 2 level, NYSDOH calculated each person's PFOA rate of decline. That rate of decline is usually expressed in terms of half-life, which is the estimated length of time it takes for the PFOA level to go down by half after exposures have ended. Several other studies have estimated PFOA half-lives in other groups of people (Olsen et al, 2007; Li et al, 2017). Based on results from those investigations, NYSDOH expected that the average blood PFOA half-life for Hoosick Falls adult residents would be about three years. Round 1 versus Round 2 blood PFOA comparisons show PFOA levels have gone down for the group of participants as a whole by approximately 40%. Round 2 blood PFOA results show that Hoosick Falls residents continue to have levels that are higher than the general U.S. population. Group-level results for the five additional types of PFAS tested in Round 2 show that Hoosick Falls residents have levels that are very similar to levels in the general U.S. population.

The biomonitoring conducted by NYSDOH indicated elevated levels of PFOA in blood of people who consumed drinking water containing PFOA. The actions taken to reduce the level of PFOA below the analytical reporting limit have effectively addressed the primary exposure pathway and resulted in a reduction of the levels of PFOA in blood.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles. The remedy for OU-02 addresses one portion of the site contamination concerns. Remedies for OU-01 and OU-03 will be developed in the future to address the remaining concerns. The following remedial action objectives (RAOs) have been established for OU-02.

Drinking Water

- Prevent ingestion of drinking water with contaminant levels exceeding drinking water standards (maximum contaminant levels).
- Minimize the body burden of PFAS within the population by providing drinking water that that does not exceed analytical reporting limits for site-related contaminants.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected, the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the RAOs identified for the operable unit, which are presented in Section 6.5. Potential remedial alternatives for the operable unit were identified, screened and evaluated in the MWSS report.

A summary of the water supply options that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of options to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for options with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved. A summary of the water supply option costs is included as Exhibit C.

The basis for the NYSDEC's selected remedy is set forth in Exhibit D.

The selected remedy to address the water supply is referred to as the New Groundwater Source with GAC Treatment.

The estimated present worth cost to implement the remedy is $9,700,000. The cost to construct the remedy is estimated to be $5,100,000 and the estimated average annual cost is $330,000.

The elements of the selected water supply remedy are as follows:

- Development of two new groundwater supply wells: Existing test wells located south of Hoosick Falls will be converted to production wells.
- Provide required redundancy by maintaining a minimum of one existing Village well: A third well is required to provide redundancy in the case of an outage of the primary wells.
- Construction of a water transmission line from the new wells to the Village water treatment plant along public rights of way;
- Continued maintenance and operation of the public water supply treatment plant for removal of naturally occurring elements, disinfection and distribution to meet applicable water supply requirements; and
- Retain the existing granular activated carbon treatment system to ensure non-detect concentrations of site-related contaminants of concern in the finished drinking water.

Remedial Design

A design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the Village supply wells. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;

- Reducing direct and indirect greenhouse gases and other emissions;

- Increasing energy efficiency and minimizing use of non-renewable energy;

- Conserving and efficiently managing resources and materials;

- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;

- Maximizing habitat value and creating habitat when possible; and

- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;

Technology: Drinking Water Supply via Groundwater Extraction & Treatment

Engineering and Institutional Controls

1. Engineering Controls
    a. Installation and operation of multiple, large diameter wells in the clean, lower aquifer to extract up to 1.14 million gallons per day of water;
    b. Pumping extracted raw water through approximately 2.5 miles of pressurized water main to the existing Village water treatment plant;
    c. Using existing treatment technology and capabilities to remove contaminants and impurities from the raw water as necessary; and
    d. Supplying treated, potable water to the Village residents and consumers for use.

2. Institutional Controls
    a. Filing of an institutional control in the form of an easement for the property on which water supply system infrastructure is located that provides for access:

3. Site Management Plan: A site management plan is required which includes the following:
    a. An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the water supply and details the steps and media -specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
        i. Engineering Controls: The water supply system components identified in paragraph 1 above. This plan includes, but may not be limited to:
            1. Provisions for the management and inspection of the identified engineering controls, including establishing roles and responsibilities for system operation, maintenance and repairs;
            2. Maintaining site access controls; and
            3. The steps necessary for periodic review and certification of the institutional and/or engineering controls.
        ii. Institutional Controls: The easement discussed in paragraph 2 above.
        iii. Financial Assurance: Financial assurance that is acceptable to the NYSDEC (such as a letter of credit, corporate bond, trust fund or other) to ensure that future O&M requirements are adequately funded.

    b. A Monitoring Plan to
        i. assess the water supply performance and condition of the municipal water supply aquifer; and

ii. assess the performance of the implemented water supply option to provide potable water with concentrations of PFOA, and other site-related contaminants, below analytical reporting limits. This plan includes, but may not be limited to, the following:
    1. continuation of the NYSDOH biomonitoring program (or similar); and
    2. analysis of future results through comparison to baseline values to facilitate trend analysis.

iii. The monitoring plan includes, but may not be limited to:
    1. groundwater monitoring, site inspections, etc. as may be required by the Institutional and Engineering Control Plan discussed above; and
    2. collection of blood samples and analysis for PFAS.

EXHIBITS A Thru D

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated for this operable unit (OU). As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination associated with OU-02.

The medium of concern relevant to OU-02 is the Village of Hoosick Falls (Village) municipal drinking water supply (Water Supply). PFOA is the primary COC that continues to impact the current Village drinking water supply source at concentrations exceeding applicable SCGs. Disposal of PFOA at the McCaffrey Street site has contaminated groundwater around the facility and the Village of Hoosick Falls' water supply wells.

The geologic setting within the Hoosick River Valley, described in Section 3 of the ROD, generally consists of an upper and a lower aquifer separated by a low-permeability confining unit (lacustrine silt and clay layer). Detailed subsurface investigations indicate the confining unit to be non-contiguous in the vicinity of the village of Hoosick Falls, including the McCaffrey Street site proper and the Village wellfield. The non-contiguous confining layer in this area allows significant vertical mixing between the upper and lower aquifers and explains the presence of high concentrations of PFOA in the lower aquifer resulting from the disposal of PFOA to the upper aquifer.

The current Village well field is located directly down gradient from the site and the drinking water supply wells withdraw raw water from this contaminated area of the lower aquifer. Analysis of the raw water from the village's supply wells (groundwater prior to treatment) routinely indicates that expected concentrations of PFOA range between 400 and 500 ppt, though results have been observed to be outside of those values A maximum contaminant level (MCL) of 10 ppt for drinking water has been established for PFOA by the New York State Department of Health (NYSDOH). PFOA concentrations in groundwater samples collected from monitoring wells slightly to the south of the supply wells range from 50 to 340 ppt; slightly lower than the raw water concentrations. Other per- and polyfluoroalkyl substances (PFAS) are present at much lower concentrations in this area of the aquifer. Typical results for these compounds are in the single ppt range (less than 10 ppt). PFOS is detected between non-detect levels and 5 ppt (below the MCL of 10 ppt) in the raw water.

Analysis of groundwater samples collected from the upper and lower aquifers 2,000 feet to the south of the Village wellfield confirms the extent of groundwater contamination from OU-01 is controlled by topographic conditions and is limited to locations hydraulically downgradient of the OU-01 releases to on-site groundwater. PFOA is sporadically present in the upper aquifer at this southern location at concentrations up to 530 ppt[1]. Groundwater samples collected from the lower aquifer have approximately 3 ppt of PFOA. Other samples collected from this distance to the south are non-detect for PFOA. PFOS is not detected in this area.

1 The source of PFOA at this location is suspected to be separate from OU-01 and may be related to atmospheric deposition, localized direct disposal of PFAS, or a combination of mechanisms.

Extensive investigation and analysis of the aquifer in the vicinity of the test wells described previously, 0.8 miles to the south, and upgradient of the Village well field have been performed. Current testing finds that PFOA concentrations in the lower aquifer at this location range between non-detect levels and 5.5 ppt. PFOS is detected in some samples but the results are estimated values that are below the laboratory reporting limit.

Analysis of groundwater in the aquifer that supplies the test wells identified the following organic compounds that are sporadically present below SCGs (drinking water MCLs) and that appear to be representative of the aquifer conditions: a) PFOA, b) PFOS, c) 6:2 FTS, d) endrin aldehyde, e) lindane, and f) alpha-BHC. Naturally occurring inorganic materials present in the aquifer greater than SCGs include manganese. Additional organic compounds were detected in the samples but have been determined to be related to laboratory materials or equipment used to collect the samples. Those compounds include the following: a) acetone, b) toluene, and butyl benzyl phthalate.

Groundwater chemistry data from these investigations indicate the aquifer containing the test well location is not impacted by OU-01. Field observations of water levels to document groundwater flow and hydraulic conditions in the valley's lower aquifer directly show while pumping up to 400,000 gallons per day from the Village wellfield there is no effect on the groundwater conditions at the groundwater source supplying the test wells, nor on groundwater flow at a location midway between the existing Village wellfield and the test well location. The DEC has concluded from these two data points that contamination from OU-01 has not and will not affect the portion of the lower aquifer containing the test wells.

Additionally, several lines of lines of geologic evidence support the conclusion that the new offsite water supply wells will not be impacted by the plume of contaminated groundwater originating from McCaffrey Street site. These lines include:

1) the upgradient location of the test wells;
2) the physical distance; and
3) variable thicknesses of multiple geologic units and presence of a confining layer.

These lines of evidence are elaborated upon below:

- While the currently operating Village water supply wells and test wells are screened in the same lower aquifer, the test wells are located upgradient (higher pressure) from the current Village well field (lower pressure). Groundwater must always flow in the direction from high pressure to low pressure. Therefore, the flow of groundwater will be from the selected remedy location toward the Village well field; not in the opposite direction.
- In addition to the test wells being located upgradient from the village well field, the wells are sufficiently far away from the Village well field and from the McCaffrey Street site so that they are not expected to be hydraulically connected. During a 72-hour pump test conducted at the proposed water supply wells, monitoring wells in the Village well field and at the McCaffrey Street site did not exhibit a response from the pumping activity in the proposed remedy well locations, supporting the conclusion that the wells are sufficiently far from the site and are not hydraulically connected.
- Throughout the water supply study, the supplemental data gap analysis, and during the onsite site characterization and remedial investigations at the McCaffrey Street site, the subsurface geology within the vicinity of the site and south of the site in the area surrounding the test wells has been extensively studied. The overburden (unconsolidated geologic

deposits above the bedrock surface) generally consists of three contiguous and identifiable geologic units. These units are 1) the lower semi-confined sand and gravel aquifer, 2) the confining unit composed of low-permeability silt and clay which ranges from 60 to 100 feet thick, and 3) the upper aquifer, also composed of sand, silt, and clays. While the composition of the three units is consistent, the thickness of the three units varies throughout the river valley. Most noticeably, the confining unit is thin to absent across much of the McCaffrey Street site. The absence of this confining unit means that there is direct connection at the site between that highly contaminated upper aquifer, and the lower aquifer, while throughout the rest of the valley, that confining unit prevents contamination present in the upper aquifer from moving into the lower aquifer. During the water supply study and the supplemental data gap analysis investigations, hydrogeologic testing found that the confining unit is consistently present, and effectively separates the lower aquifer from the upper aquifer in the vicinity of the selected remedy well locations.

Exhibit B

Description of Remedial Alternatives

The following alternatives for a water supply source have been identified and were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified for this OU as described in Exhibit A. All options (other than Option 4), as described, would be implemented in parallel with on-going and future remedial actions to address contamination present at other Operable Units, including the on-site IRM that is intercepting high concentrations of contamination currently migrating off-site.

Option 1: Development of a New Groundwater Source

Option 1 (Development of a New Groundwater Source) provides for the development of new groundwater wells to replace the existing wellfield as the primary Village water source. Under this option, test wells installed during the MWSS located 0.8 miles south of the Village are converted to permanent production wells. One of the Village's existing wells is maintained to fulfill redundancy requirements of applicable water supply regulations.

Option 1 considers two scenarios to provide water from the new supply wells.

Option 1A, "New Groundwater Source" conveys water from the new supply wells to the existing Hoosick Falls' water treatment plant (WTP) for manganese removal, disinfection, and distribution. At least one existing village well, along with existing treatment plant components, including the granular activated carbon (GAC) system, are maintained to meet maximum day demand should the largest of the new wells be temporarily out of service. The new wells would be designated to operate as the primary water supply. Water quality data from the new wells indicate that treatment via microfiltration membranes and GAC is not required to meet SCGs. Periodic operation and maintenance (O&M) of the Village's retained, active supply well through the microfiltration units and GAC media is included in Option 1A, as it is necessary to maintain both systems in readily usable condition to meet redundancy requirements.

Option 1B: "New Groundwater Source with Granular Activated Carbon Treatment" differs from Option 1A in that the GAC treatment system IRM previously implemented to remove PFOA, remains an active treatment component of the raw water treatment from the new supply wells. Current data indicate that water from the new wellfield meets existing SCGs and meets the MCLs of 10 ppt for each of the compounds PFOA and PFOS. Continued use of the existing GAC treatment system eliminates the need to maintain the vessels in usable condition through separate actions and ensures removal of organic contaminants should groundwater quality in the aquifer change over time. Maintenance of one existing Village supply well and the microfiltration unit as part of the backup water source is also included.

Under both Options 1A and 1B, water from the new wells is treated for manganese removal and disinfection at the WTP. However, since the aquifer tests, micro-particulate analysis (MPA), and water quality data for the new wells indicate that the new wells would not be classified as groundwater under the direct influence of surface water, the microfiltration membrane process would be bypassed (but remain in operational condition for when needed for use of the retained Village supply well). As presented in the MWSS report, the projected 180-day drawdown for the test wells under concurrent pumping conditions substantiates the ability of these two wells to meet the 1.13 MGD objective of future maximum day demand. Additional testing may be necessary to obtain the necessary water withdrawal and water supply permits required for permanent use by permitting authorities such as NYS and Rensselaer County Department of Health (RCDOH).

As presented in the MWSS report other constituents were detected in groundwater in the vicinity of the new wells. Therefore, groundwater quality evaluations and monitoring are included as part of this option to assess the potential for PFAS (or any other contaminant) migration during operation of the new wells.

Each well would be outfitted with a new sanitary cap, submersible pump and motor, and discharge pipe. Variable frequency drive controllers are installed to adjust pump speed to match well withdrawal rates with current demand. New electric services would be extended to the new wells to power the pumps. Since these wells are located within a FEMA flood zone they also would require extended casings to prevent inundation.

Individual 8-inch water mains would connect the wells to the public right-of-way on Route 22 before joining into a single 12-inch main. The 12-inch main would head north along NYS-22 and River Street, cross the Hoosic River on the bridge, turn south, and follow Fiske Street and Water Works Road to the WTP. The 8-inch well discharge pipes and 12-inch common raw water main were selected based on reasonable hydraulic losses for the pumping distances required under maximum day demand conditions.

The entirety of the alignment would be within the public right-of-way, with the exception of the well discharge mains on the LaCroix and Wysocki properties. Permanent easements or transfer (sale) to the Village is required from these landowners. The total length of water main is approximately 2.7 miles. The conceptual water main route selected for Options 1A and 1B has the fewest barriers to implementation. Though other routes exist, such as the route beneath the Hoosic River, they were deemed to be more technically and administratively challenging. Nevertheless, alternate water main routes are to be considered during detailed design of this option.

The topography of the raw water main route is relatively flat, varying less than 50 feet in elevation. Based on surficial geology, the proposed raw water main would be installed in primarily sand and gravel soils. Surface rock is not present according to record mapping, although small quantities may be encountered.

Historical aerial imagery for this area of the Hoosic River indicates there is potential for the channel to vary over time from east to west. As it is expected that this meander trend will continue in the future, Options 1A and 1B include mitigation measures to prevent erosion towards the new supply wells. Based on the characteristics of bed and banks on this reach of the Hoosic River, it is anticipated that bendway weirs can be utilized to redirect the fastest flowing current away from the western bank. Options 1A and 1B will also include hard armoring at the toe of slope, regrading, and revegetation of the eroded bank for approximately 500 feet.

Options 1A and 1B would require administrative reviews and approvals from agencies and municipalities. At a minimum, coordination would be necessary with the NYSDEC, NYSDOH/RCDOH, NYSDOT, the Town of Hoosick, and the village of Hoosick Falls. Easements would be required from private landowners to provide necessary access to the wells and construction of connections to the water main route. The water main alignment crosses an agricultural district, so a notice of intent would be required with the NYS Department of Agriculture and Markets. Options 1A and 1B require a full design review from the US Army Corps of Engineers (USACE) and the NYSDEC for the construction of the bendway weirs and associated bank protection.

The site of both wells is currently agricultural and has already been cleared of vegetation. The remainder of the required infrastructure would require temporary disturbance along paved and unpaved shoulders of existing roads, and privately-owned property.

Both Options 1A and 1B utilize some or all of the existing equipment at the WTP. As the WTP is rated to produce a maximum of 1.0 MGD, the finished water pumps would need to be expanded to supply the conceptual future maximum day demand of 1.13 MGD. This would not be necessary until the completion of a distribution system infrastructure associated with any future expansion.

The estimated direct construction cost for Option 1A is $4.0 million. The estimated indirect costs (engineering, permitting, construction administration and legal fees) are $1.1 million. The present value of the total estimated O&M cost over a 30-year period is $2.7 million. A 30-year period is used to estimate long-term cost for comparison purposes only. As it is necessary to maintain proper operation of the supply system, O & M would continue for the life of the project. The overall present value cost of Option 1A is estimated to be $7.7 million. Refer to Appendix E of the MWSS Report for further detail on the cost estimates.

The estimated direct construction cost and indirect costs (engineering, permitting, construction administration and legal fees) for Option 1B are the same as Option 1A (i.e., $5.1 million). The present value of the total estimated O&M cost over a 30-year period for Option 1B is higher due to periodic GAC replacement and is estimated to be $4.7 million. The overall present value cost of Option 1B is estimated to be $9.7 million.

Implementation of either Options 1A or 1B is estimated to require approximately two to three years to complete. The full capacity GAC system would remain operational during that time to remove PFOA and other PFAS from the current water supply.

The conceptual configuration for this option is shown in Figure 2.

Option 1A
Present Worth:..$7,708,000
Capital Cost:...$4,990,000
Annual Costs (Years 1-3):..$293,000
Annual Costs (Years 4-30):..$78,000

Option 1B
Present Worth:..$9,692,000
Capital Cost:...$4,990,000
Annual Costs (Years 1-30):..$329,000

Option 2: Development of a New Surface Water Source

Based on the screening evaluation performed in the MWSS, the Tomhannock Reservoir is the closest surface water source to the Village with adequate quantity and quality. Option 2 presents the use of the Tomhannock Reservoir as a new surface water source.

Use of the Tomhannock Reservoir as a new surface water source for the Village requires additional infrastructure including a raw-water intake, a raw-water pump station and pre-disinfection station, and a raw-water transmission main connecting the pump station to the WTP. Depending on the chemistry of the raw water, the addition of orthophosphates at the proposed pump station may also be required to prevent corrosion inside the transmission mains.

The conceptual raw-water intake is located approximately 1,200 feet northwest of the intersection of Reservoir Lake Road and Croll Road. An evaluation of properties available for a pump station was not included as part of MWSS.

The pump station would be designed using variable speed pumps that can satisfy the current average maximum day demand of 0.71 MGD as well as the conceptual future maximum day demand of 1.13 MGD. The raw water transmission main would be sized for the future capacity since it would be impractical to upgrade the size after it has been installed. The preliminary required size of the main is 16-inch diameter.

The most direct route for a raw-water transmission main generally extends east from the reservoir along Croll Road, Quaker Street, and Lower Pine Valley Road before following the existing electric utility right-of-way to the Village. Although much of the new transmission main would be installed within the public right of way, some easements are expected to be required from the city of Troy for the pump station on the east shore of the Tomhannock Reservoir, as well as from National Grid to construct a water main within its corridor. Easements from multiple private property owners would be needed.

Following the conceptual alignment, the total length of new water main from the raw-water pump station at the reservoir to the existing Village water treatment plant is approximately 13.4 miles.

Surface geology data along the conceptual alignment shows variable soil textures, ranging from silts and clays to coarse gravels. Some areas of surface bedrock are identified from available data, but soil borings as part of a detailed design will better identify areas of potential construction obstacles. The transmission main alignment crosses several streams along its length, so horizontal directional drilling (HDD) methods would be required in these areas. The alignment also is adjacent to several wetlands which could be impacted by the construction. The elevation along the raw-water main alignment changes from approximately 395 feet at the reservoir, 1,110 feet at the high point, and 435 feet at the Village water treatment plant. Multiple pressure reducing stations would be required to prevent damage to the transmission main.

The raw-water transmission main would connect to the upstream side of the existing Village WTP for treatment consisting of microfiltration and disinfection to comply with drinking water standards. Because the concentrations of detected PFAS in the Tomhannock Reservoir are below any regulatory standard, the full capacity GAC system would not be needed. However, under this option it would undergo periodic O&M involving cycling of potable water through the GAC system to maintain the integrity of the media in the event it was needed in the future. Once treated at the WTP, water would be pumped into the distribution system using the existing finished water pumps.

The water from the Tomhannock Reservoir may have different characteristics than the current groundwater source (which is deemed to be under the direct influence of surface water) that the Village WTP currently treats. Direct microfiltration of surface waters has precedent, but additional pretreatment may be required to prevent natural organic matter and other constituents in the reservoir from fouling the microfiltration membranes. A review of Tomhannock raw water quality records (provided by the City of Troy) indicates seasonal fluctuations in reservoir turbidity, ranging from less than 1 NTU to more than 50 NTU; therefore, the addition of a coagulant upstream of the filtration units may be required. If necessary, the existing 26,000-gallon pre-treatment storage tank could be repurposed for contact time of the coagulant polymer. A pilot study would be needed to demonstrate the microfiltration units can successfully treat the Tomhannock raw water without requiring excessive cleaning cycles; the associated costs are included in this option.

Option 2 would require administrative reviews and approvals/permits from state and federal agencies as well as local municipalities. At a minimum, coordination is needed with the NYSDEC, NYSDOH, RCDOH, NYSDOT, National Grid, the city of Troy, the town of Hoosick, and the village of Hoosick Falls. The transmission main alignment crosses an agricultural district for the majority of its length, so a notice of intent would be required with the NYS Department of Agriculture and Markets. Option 2 is also anticipated to require a review of wetlands impact from the US Army Corps of Engineers and Full Environmental Assessment.

The estimated direct construction cost for Option 2 is $24.7 million. The estimated indirect costs (engineering, permitting, construction administration and legal fees) are $6.7 million. The total estimated O&M cost, in present dollars over a 30-year period, is $4.3 million. The overall present cost of the option is estimated to be $35.2 million. Refer to Appendix E of the MWSS Report for further detail on the cost estimates.

The conceptual transmission line for this option is shown in Figure 3.

Present Worth:..$35,217,000
Capital Cost:..$31,000,000
Annual Costs (Years 1-5):..$353,000
Annual Costs (Years 6-30):..$140,000

Option 3: Interconnection with an Existing Water Supply Source

Screening performed in the MWSS concludes that the city of Troy water system presents the closest public water supply source with sufficient quantity and quality to support the Village as a wholesale customer. Option 3 provides for an interconnection with the city of Troy water system to deliver drinking water to the Village.

The closest connection to drinking water from the city of Troy distribution system is a 16-inch diameter main located along Route 278 (Brick Church Road) in Cropseyville, within the town of Brunswick. Sufficient pressure has been stated to be available in the existing water main for a new interconnection. A booster pump station and wholesale water meter would be installed at the new connection. Depending on the chemistry of the Troy finished water, the addition of orthophosphates as a corrosion inhibitor may also be required.

The pump station design incorporates variable speed pumps that can satisfy the current average maximum day demand of 0.71 MGD as well as the conceptual future maximum day demand of 1.13 MGD. The transmission main is sized for the future capacity since it would be impractical to upgrade the size after it has been installed. The preliminary required size of the main is 16-inch diameter.

The transmission main delivers water to the WTP, where it is re-chlorinated and pumped into the distribution system using the finished water pumps. Further design would be needed to evaluate the potential for disinfection byproducts formation during the extended transit time from Troy and appropriate treatment options.

In total, the proposed transmission main length is approximately 18 miles. Easements from multiple private property owners would be needed, which adds to the construction costs and possible delays in the implementation of this option.

Based on surficial geology, the proposed water transmission main would be installed through rock along Tamarac Road south of Storm Hill Road for approximately 0.7 miles. The remainder of the transmission main would be installed in variable soil textures, ranging from silts and clays to coarse gravels. The transmission main alignment crosses several streams and wetland areas along its length, so HDD methods would be used in these areas to avoid impacts. The elevation along the water transmission main alignment changes from approximately 505 feet at the connection point, to 1,110 feet at the high point, and 435 feet at the existing water treatment plant. Multiple pressure reducing stations would be required to prevent damage to the water transmission main.

Option 3 requires administrative reviews and approvals from agencies and municipalities. At a minimum, coordination would be needed with the NYSDEC, NYSDOH, RCDOH, NYSDOT, National Grid, the city of Troy, the town of Brunswick, the town of Hoosick, and the village of Hoosick Falls. The transmission main alignment transits an agricultural district for the majority of its length, so a notice of intent would be required with the NYS Department of Agriculture and Markets. Option 3 is also anticipated to require a review of wetlands impact from the US Army Corps of Engineers and a Full Environmental Assessment under SEQR. The site of the conceptual booster pump station requires clearing and permanent land development. The remainder of the required infrastructure requires temporary disturbance along unpaved shoulders of existing roads, previously cleared utility easements, and privately-owned property.

Although Option 3 involves the purchase of treated water from Troy, it would still utilize some existing equipment at the village WTP, including the chlorination equipment and finished water pumps. As the WTP is rated to produce a maximum of 1.0 MGD, the finished water pumps would need to be expanded as to supply the conceptual future maximum day demand of 1.13 MGD. This would not be necessary until completion of the expanded distribution system infrastructure. The existing GAC system would not be utilized under this option after the interconnection is active.

The estimated direct construction cost for Option 3 is $30.7 million. The estimated indirect costs (engineering, permitting, construction administration and legal fees) are $8.3 million. The present value of the total estimated O&M cost over a 30-year period is $10.5 million, which is significantly higher than Option 2 due to the need to purchase water from Troy at a wholesale rate. The overall present cost of the option is estimated to be $49.0 million. Refer to Appendix E of the MWSS Report for further detail on the cost estimates.

It is estimated that the design, permitting, and construction of the interconnection, booster pump station, and water transmission main would take approximately five to six years to complete. The design stage, including the initial alignment study, coordination with stakeholders, acquisition of property, field survey and borings, detailed transmission main design, permitting, and agency review process, is anticipated to take two to three years. Construction of the pump station, transmission main, and water treatment plant modifications are anticipated to take over two years, which includes multiple winter shutdown periods that would interrupt the transmission main progress. The full capacity GAC system removes PFOA and other PFAS from the current source of supply in the interim while the new interconnection is constructed.

The conceptual transmission line for this option is shown in Figure 4.

Present Worth:..$48,956,000
Capital Cost:...$38,477,000
Annual Costs (Years 1-5):..$622,000
Annual Costs (Years 6-30):..$408,000

Option 4: Retain Existing System with Use of Wells 3 and 7 (No Further Action with continued O&M)

The No Further Action with continued Operation and Maintenance option recognizes the completed GAC treatment system IRM described in Section 6.2. Ongoing operation and maintenance would continue to be necessary to confirm the ongoing effectiveness of the IRM. This alternative maintains the engineering controls which were part of the IRM and includes an operation and maintenance plan for the completed IRM to protect public health and the environment from contamination remaining in the water supply.

This option to supply water for the village of Hoosick Falls involves using the full-capacity GAC treatment system already in operation at the existing village water treatment facility for the removal of PFAS. The system outlined in this option was approved by the NYSDOH, constructed, and became operational in February 2017. The full capacity GAC treatment system was designed to match the production rate of the existing water treatment plant (1.0 MGD) and was installed downstream of the existing microfiltration units. The GAC water discharge is subsequently treated with sodium hypochlorite to disinfect prior to distribution.

The full capacity GAC treatment system consists of two 12-foot diameter vessels installed within the existing water treatment plant property; no additional easements are required for this option. Each vessel is loaded with 40,000 pounds of virgin coal-based GAC.

The vessels are arranged in a lead-lag series configuration, where the lead vessel will remove all PFAS and the lag vessel serves as a backup to the lead vessel. Regular water quality monitoring at the system influent, midpoint (i.e., between vessels) and effluent is performed monthly for a minimum of 21 PFAS compounds. When there is a detection of PFAS at the midpoint (between the lead and lag vessels), the sampling frequency increases to every two weeks. In addition, samples are tested from three locations along the height of each vessel; this allows the operators to determine how far the PFAS compounds have traveled through the GAC media. When there is a detection of PFAS halfway through the lag vessel, the lead GAC vessel is refilled with clean GAC media. The vessel containing clean GAC is reassigned to the lag position, and the former lag vessel is placed in the lead position. See Figure 5 for typical GAC vessel layout.

The MWS is limited to a capacity of 1.0 MGD. Upgrades to the WTP are required to supply the future maximum day water demand of 1.13 MGD. These upgrades would not need to occur until the expanded infrastructure were to become active.

Present Worth:..*$8,368,000*
Capital Cost:..*$2,414,000*
Annual Costs:...*$493,000*

Option 5: Continued Use of Public Supply Wells #3 & #7 with Treatment through Full Capacity GAC System and PFOA Remediation through the OU-01 IRM

This option involves all the components of Option 4, plus measures to control off-site migration of groundwater from the McCaffrey Street site toward the village wellfield. These measures reduce the overall mass and volume of PFAS in the subsurface.

Specifically, this option combines Option 4 with the McCaffrey Street OU-01 IRM. The McCaffrey Street IRM was approved by NYSDEC on April 4, 2019, is constructed, and remains operational.

The McCaffrey Street facility is located northwest of the MWS, and portions of the McCaffrey Street facility are upgradient of the MWS. Ongoing investigations at this facility have identified the presence of PFOA in soil and groundwater. The approved IRM intercepts groundwater with the potential to migrate southeast from the McCaffrey Street Site.

The IRM pumps groundwater from two extraction wells in the southeastern portion of the McCaffrey site, treats the water with GAC, and discharges the treated water to the Hoosic River. The IRM work plan (C.T. Male, 2019) presents design details for the groundwater extraction and treatment systems, and the process for installing and implementing the system. A figure with the general layout of the system relative to the existing wellfield is included as Figure 6. The IRM is designed to:

- Capture groundwater containing PFAS within the eastern and southern portions of the McCaffrey site;
- Pose no impact on the yield of the MWS and its ability to provide sufficient water to serve the needs of the Village; and
- Not compromise the structural integrity of buildings on the McCaffrey site.

The cost estimate for Option 5 encompasses all elements included in Option 4, construction of the McCaffrey IRM, and the operation, maintenance and monitoring of the McCaffrey IRM for 30 years. Because the IRM will reduce concentrations of PFAS in the Village wellfield, the full capacity GAC system will run more efficiently and require less frequent media replacement in the future.

The estimated direct construction cost for Option 5 is $2.5 million, which includes the construction costs for the full capacity GAC system (already incurred), the costs to upgrade the WTP in the future, and the IRM construction costs (already incurred). The estimated indirect costs (engineering, permitting, construction administration and legal fees) are $0.6 million. In present dollars, the total estimated O&M cost over a 30-year period is $9.0 million. The overall present cost of the option is estimated to be $12.1 million, of which $1.5 million associated with the full capacity GAC system and $572,000 associated with the IRM construction has already been spent. Therefore, the future cost of this option is approximately $10 million.

Present Worth:..*$12,127,000*
Capital Cost:..*$3,129,000*
Annual Costs:...*$397,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	**Capital Cost ($)**	**Annual Costs ($)**	**Total Present Worth ($)**
Option 1A New Groundwater Source	4,990,000	293,000 (1-3) 78,000 (4-30)	7,708,000
Option 1B New Groundwater Source with GAC	4,990,000	329,000	9,692,000
Option 2 New Surface Water Source	31,000,000	353,000 (1-5) 140,000 (6-30)	35,217,000
Option 3 Connection to Public Supply	38,000,000	622,000 (1-5) 408,000 (6-30)	48,956,000
Option 4 Continued Use of Existing Wells (existing)	2,414,000	493,000	8,368,000
Option 5 Continued Use of Existing Wells and Remediation (existing)	3,129,000	397,000	12,127,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is selecting Option 1B, Development of a New Groundwater Source with Granular Activated Carbon Treatment as the remedy for this site. Option 1B achieves the remediation goals for the site by supplying a sufficient quantity of drinking water that attains all applicable requirements identified in this ROD without the necessity of treatment to remove contamination above standards. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 2.

Basis for Selection

The selected remedy is based on the data generated from the on-site RI, options identified in the MWSS and the following evaluation of those options. The criteria to which potential options were compared are defined in 6 NYCRR Part 375.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each option's ability to protect public health and the environment.

Option 1A meets the overall protectiveness of public health criterion since the finished water meets health-based drinking water standards at the Village WTP.

Option 1B is the same as 1A but retains the existing microfiltration and full capacity GAC systems as added protection from potential future contaminants in the aquifer. Option 1B meets the overall protectiveness of public health criterion since the finished water meets health-based drinking water standards at the Village WTP.

Options 1A & B also include requirements for well head protection and erosion control to prevent impacts to the installed wells further ensuring that health-based standards are attained.

Option 2 meets the overall protectiveness of public health criterion since the raw water from the Tomhannock Reservoir will be treated to meet health-based drinking water standards and water quality requirements at the Village WTP.

Option 3 consists of connecting to the city of Troy public water supply system and the construction of a booster pump station and transmission main to connect to the Village WTP. Drinking water under Option 3 is re-chlorinated to provide secondary disinfection; additional treatment may be needed to eliminate disinfection byproducts. Option 3 meets the overall protectiveness of the public health criterion since the City of Troy's water distribution system is appropriately treated to meet health-based drinking water standards and water quality requirements and upon delivery would be re-disinfected at the Village WTP.

Option 4 involves the continued use of the existing well field and the full capacity GAC treatment system IRM. Regular testing of the GAC system's influent, midpoint, and effluent shows the system to be effective at removing PFOA and other PFAS as verified by sampling data. Since Option 4 includes the treatment of COCs to meet health-based drinking water standards, it meets the overall protectiveness of public health criterion.

Option 5 is identical to Option 4 but includes the operation of the McCaffrey Street IRM. This IRM captures and treats PFOA-contaminated groundwater and discharges it, after treatment, to the surface water. The IRM prevents highly contaminated on-site groundwater from migrating to the existing wellfield. This Option also includes continued operation of the GAC treatment system IRM at the Village WTP to treat PFOA, thus meeting the criterion of overall protectiveness of public health related to delivery of potable water.

All options, as previously described, protect public health as required by this criterion. The source water options identified, and treatment components described, in each option provide water that complies with applicable drinking water requirements (DOH drinking water standards). While all MWSS options meet this threshold, options that include treatment with granular activated carbon provide finished drinking water below analytical reporting limits for organic compounds, including site-related COCs.

2. <u>Compliance with New York State Standards, Criteria, and Guidance (SCGs).</u> Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

Option 1A utilizes new groundwater wells to replace the existing Village groundwater supply wells (two wells have been drilled and tested). Manganese removal and chlorination is performed at the existing Village WTP. The treatment methods are in accordance with state and federal regulations, including *Recommended Standards for Water Works* ("Ten States Standards"), NYSDOH Part 5-1 *Public Water Systems*, and USEPA Drinking Water Rules. Routine water quality sampling of the raw and finished water is conducted according to NYS requirements for public water supplies. Option 1A complies with SCGs.

Option 1B builds on Option 1A by including the continued use of the existing full capacity GAC treatment system IRM at the Village WTP. Regular testing of the GAC system's influent, midpoint, and effluent have shown the GAC to be effective at removing PFOA and other PFAS from the existing, more contaminated aquifer and would be equally as effective at treating organics in the raw water from the new wells should they be present. Due to the very low levels of contaminants that may be found in the raw water, less frequent GAC media replacement is necessary. Routine water quality sampling of the raw and finished water continues to be conducted according to the regulations. Option 1B complies with SCGs.

Option 2 includes a raw water intake at the Tomhannock Reservoir. The water is treated appropriately using filtration and disinfection processes at the Village WTP. The water treatment methods are in accordance with state and federal regulations. Routine water quality sampling of the raw and finished water is conducted according to the regulations. Option 2 complies with SCGs.

Option 3 consists of connecting to the City of Troy public water supply distribution system in Cropseyville and the construction of a booster pump station and transmission main to connect to the Village WTP. The water received from Troy is treated and is also re-disinfected as necessary upon delivery to the Village WTP. Routine water quality sampling of the raw and finished water would be conducted according to the regulations. Option 3 complies with SCGs.

Option 4 proposes the continued use of the existing full capacity GAC treatment system. Regular testing has been performed since the GAC was brought on-line at the system's influent, midpoint, and effluent. The system has proved effective at removing PFOA and other PFAS as verified by sampling data. Routine water quality sampling of the raw and finished water continues to be conducted according to the regulations. Option 4 complies with SCGs.

Option 5 includes the implementation of the McCaffrey Street IRM. Upon meeting the specified IRM objectives, highly contaminated groundwater from on-site is prevented from migrating toward the existing wellfield and treats PFAS in groundwater. Village WTP operations, along with the full capacity GAC provides potable water as required by state drinking water standards. Option 5 complies with SCGs.

Options 1 thru 5 all attain applicable drinking water SCGs through meeting such at the water source and/or appropriate selection and implementation of treatment technologies. SCGs are met through using analytical data from the source water and utilizing those data to specify necessary treatment technologies. This approach is consistent with other public water supplies under the purview of New York State drinking water regulations (10 NYCRR Part 5)

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. <u>Long-term Effectiveness and Permanence.</u> This criterion evaluates the long-term effectiveness of the options after implementation. If residual contamination remains after the selected option has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

All options considered provide a permanent drinking water supply and are capable of supplying both the current and conceptual future maximum day demands.

Option 1A consists of the installation of two new wells to replace the existing source for the Village. The long-term reliability of a new groundwater source is ultimately determined by the treatment capabilities for that source though water quality may change due to the presence of various contaminants (PFAS or other) in the region over time. Two wells have been drilled and analyzed under high yield pumping conditions. Subsurface investigation results indicate that future groundwater extraction will not be impacted by contaminated groundwater from the existing well field migrating to new wells. Factors leading to this conclusion include the natural groundwater flow direction, distance between the well locations, and low permeability geologic units preventing transport of contaminants to the new source. Because PFAS were detected at low concentrations in monitoring wells and domestic supply wells near the LaCroix property, sentinel well monitoring at key locations are included in this Option.

Option 1B (same as 1A with the GAC system included) has the added protection of removing potential organic contaminants from the raw water and addresses the potential for low concentrations of PFAS detected in the deep aquifer. The long-term operation and maintenance requirements of the test wells source and treatment strategy are similar to the existing wellfield and current WTP operations but with a reduced O&M cost for the GAC system due to lower levels of contaminants.

Option 2 requires a considerable length of new water main, increasing the risk of water supply interruption in the event of damage (i.e., more waterline needs to be maintained). While the recently completed capacity analysis supports adequate supply is available from the reservoir, like any surface water supply, long-term viability could be affected by drought or contamination (surface water runoff or other unknown sources) of the Tomhannock Reservoir, as with any surface water supply. PFAS at low concentrations has recently been detected in the Tomhannock Reservoir, thus the possibility exists that treatment to remove PFAS may be required in the future (i.e., if concentrations were to increase). For Option 2, long-term operation and maintenance of the raw water intake, pump station, and water main would be required, along with continued operation of the disinfection and filtration processes at the existing WTP.

Option 3 is similar to Option 2 with additional operation and maintenance required for the booster pump station and water main. Disinfection may be necessary but there may be supply interruptions due to existing municipal supply conditions. Potential source water impacts identified in Option 2 would carry through to this Option.

Option 4 provides a solution to provide drinking water to the Village in the long term that is consistent with a “No Further Action” remedy. The GAC treatment system is already operational and effectively removes PFAS from the water supply. The full capacity GAC system requires regular maintenance primarily to replace the carbon media. GAC systems are the Best Available technology (BAT) for treating organic compounds in water and GAC will be readily available for the foreseeable future. However, regular media replacement is required on a more frequent basis due to the high concentrations of PFAS in the existing Village wellfield.

The long-term effectiveness of Option 5 in terms of providing safe drinking water to the Village is the same as that of Option 4. The IRM is expected to be effective in the long-term by maintaining hydraulic control of groundwater migrating toward the Village well field from the McCaffrey Street site, capturing and treating the PFAS impacted groundwater, and reducing concentrations of PFAS in the aquifer over time. The IRM would improve the operations of the full capacity GAC system, reducing the frequency of GAC media replacement.

The five options are all capable of attaining long-term effectiveness as they rely on similar engineering controls to prevent exposure to site-related contaminants. However, based on the various factors described above, Option 1B carries the highest level of long-term effectiveness due to a cleaner water source, its close proximity to end users, and anticipated O&M. Other options that include the GAC treatment are similar in their ability to ensure long-term effectiveness at achieving the remedial action objectives for the site but fall short of Option 1B.

Prior to installation and operation of GAC treatment at the public water supply system, residents of Hoosick Falls who consumed drinking water from the Village’s municipal water supply system experienced increased exposure to PFOA and, as a result, levels of PFOA in many residents’ blood were observed to be higher than levels of the contaminant found in the general U.S. population. Therefore, minimizing potential for continued exposure to site COCs is warranted. Options that incorporate GAC effectively eliminate potential exposure and better achieve the remedial action objective(s) for this OU and are more protective of this community's health. Those options include 1B, 4, and 5.

4. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

This criterion is used to evaluate the relative effectiveness of remedial alternatives that directly address contamination in various media related to the disposal of hazardous waste at a specific site. None of the water supply options identified are expected to directly reduce the toxicity, mobility or volume of the contamination associated with the McCaffrey Street site. The options for this OU rely on source water quality and engineering controls to achieve the RAOs. The toxicity of any contaminants that may enter the water supply from any source, not just from the McCaffrey Street site, would be addressed through the application of standard water treatment system components, and for organics in particular, the GAC system. Given the RAOs for OU-02, there is no expectation that any of the options will meet this criterion in any significant manner. Therefore, no significant reduction of toxicity, mobility or volume of contamination in media related to OU-01 is achieved under the options evaluated to supply drinking water that achieves the RAOs. However, the degree to which this criterion is achieved will be a consideration for remedies selected for the other operable units comprising this site.

While remedial actions can be implemented to address contamination identified in OUs 01 and 02 separately, the OUs are not completely independent. Certain remedial actions for OU-02 (Water supply options) may limit remedial options available for OU-01 and thereby affect reduction of toxicity, mobility, and volume. Options 4 and 5 utilize the existing Village wellfield as a permanent water source. The wellfield is hydraulically connected to the source of site-related COCs and therefore may be significantly impacted by future OU-01 remedial alternatives that may be necessary to address receptors affected by OU-01 COCs. Therefore, continued reliance on the entirety of the existing wellfield under options 4 and 5 may negatively impact the ability for remedial alternatives developed for OU-01 to significantly reduce toxicity, mobility or volume of waste. Alternatives will be developed during the OU-01 feasibility study and will evaluate the range of potential remedial actions. OU-02 options 4 and 5 may limit the feasible alternatives.

It should be noted that Option 5 includes operation of on-site treatment and hydraulic control of contaminated groundwater, by way of an IRM, implemented with the goal of lowering concentrations of site COCs in the village wellfield. However, this IRM remains under evaluation and will continue to operate under OU-01 regardless of the option implemented to address OU-02. Therefore, there are no significant advantages associated with any of the options under evaluation with respect to this criterion.

5. Short-term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Options1A and 1B require the installation of new production wells (drilled wells already installed for testing) and a transmission main, which is estimated to take between two and three years to complete. Options 1A and 1B require land disturbance for the installation of the new wells and for the length of the water transmission main, a distance of approximately two miles. Construction has minor short-term impacts to the community, such as noise and traffic disruptions, and temporarily requires construction of weirs and bank stabilization within the Hoosic River. Stormwater pollution during construction would be mitigated using standard erosion and sediment controls.

Option 2 includes construction of a raw water intake at the Tomhannock Reservoir and the construction of a pumping station and transmission main from the reservoir to the Hoosick Falls' WTP. Option 2 is estimated to require four to five years before construction could be completed and drinking water could be available. This timeframe accounts for the administrative complexities of coordinating the project among many state and local agencies. The installation of the surface water intake and raw water pump station at the Tomhannock Reservoir would require earthwork and land disturbance on the eastern shore. The raw water transmission main disturbs approximately 13.4 miles of land during installation along public right of ways and existing utility easements. Construction has short-term impacts throughout the project, including noise and traffic disruptions in the vicinity of work areas. Sensitive ecological areas, including wetlands and stream crossings, may be encountered and disturbed. Stormwater pollution during construction would be mitigated using standard erosion and sediment controls.

Option 3 consists of connecting to the City of Troy water distribution system in Cropseyville and the construction of a booster pump station and transmission main to connect to the Hoosick Falls' WTP. Option 3 is estimated to require five to six years before the connection to the Troy water system could be completed. This timeframe accounts for the complexities of coordinating the project among many state and local agencies. The installation of the pump station in Cropseyville would require earthwork and land disturbance, and the water transmission main disturbs approximately 18 miles along public right of ways and existing utility easements. Construction has short-term impacts throughout the project, including noise and traffic disruptions in the vicinity of work areas. Sensitive ecological areas, including wetlands and stream crossings, may be encountered and disturbed. Stormwater pollution during construction is mitigated using standard erosion and sediment controls.

Option 4 (no further action) is currently in operation providing potable drinking water to the Village; therefore, there are no short-term impacts associated with this option and the full capacity GAC system is operating effectively.

Option 5 includes operation of an IRM for the McCaffrey Street Site (OU-01). By meeting the IRM objectives, PFOA (and other associated PFAS) concentrations in groundwater will be reduced in the Village well field. However, meaningful reductions are expected to be realized over a decade or more.

Because the existing WTP including the GAC treatment system continues to provide drinking water during any design and construction period, all options are effective at meeting RAOs in the short term. Options 2 and 3 carry the greatest short-term impacts due to construction requirements. Option 4 has no associated short-term impacts.

6. <u>Implementability.</u> The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

All identified options are considered technically implementable based on construction and technology requirements. Installation of water mains, pump and lift stations, and treatment facilities are traditional components of water supply systems that can be designed and implemented utilizing existing engineering principles and construction practices. However, implementation of Options 2 and 3 is more complex due to multiple layers of administrative, technical, and physical challenges not present in the other options. Significantly more surveying, design, and earthwork (including blasting of shallow bedrock and directional drilling) is required by these options. Distance, variations in topography, potential sensitive ecological areas, property access issues, etc. all create additional technical and administrative challenges to implementation of these two options.

Options in closer proximity to the Village (Options 1, 4, and 5) have fewer administrative challenges, such as permitting and jurisdictional review, that require less effort to ensure appropriate approvals are in place. Options 4 and 5 are already represented by current operations that supply Hoosick Falls' residents with potable water.

7. Cost-Effectiveness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision.

The present worth costs of evaluated options vary significantly with the highest cost (Option 3) greater than six times higher than the lowest cost (Option 1A) while providing no significant advantages over other source water options, making the higher cost alternatives less cost effective. Annual costs (those costs associated with O&M) are lowest for options in close proximity to the Village and with lesser degrees of treatment indicating that Option 1A (New groundwater that meets MCLs) would have the lowest annual cost once implemented. However, this option is not guaranteed to provide drinking water with levels of PFOA below detection levels and, therefore, is not considered the most cost effective.

Options 1B, 4 & 5 have similar O&M costs and capital costs and all use GAC to provide drinking water with non-detect levels of PFOA drinking water and, are therefore, considered similarly cost effective. It should be noted that capital costs for Options 4 and 5 were incurred during implementation of OU-01 and OU-02 IRMs.

Options 2 and 3 carry several times the cost of other options and do not provide any significant additional benefits or performance improvements. Therefore, they are less cost effective.

8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

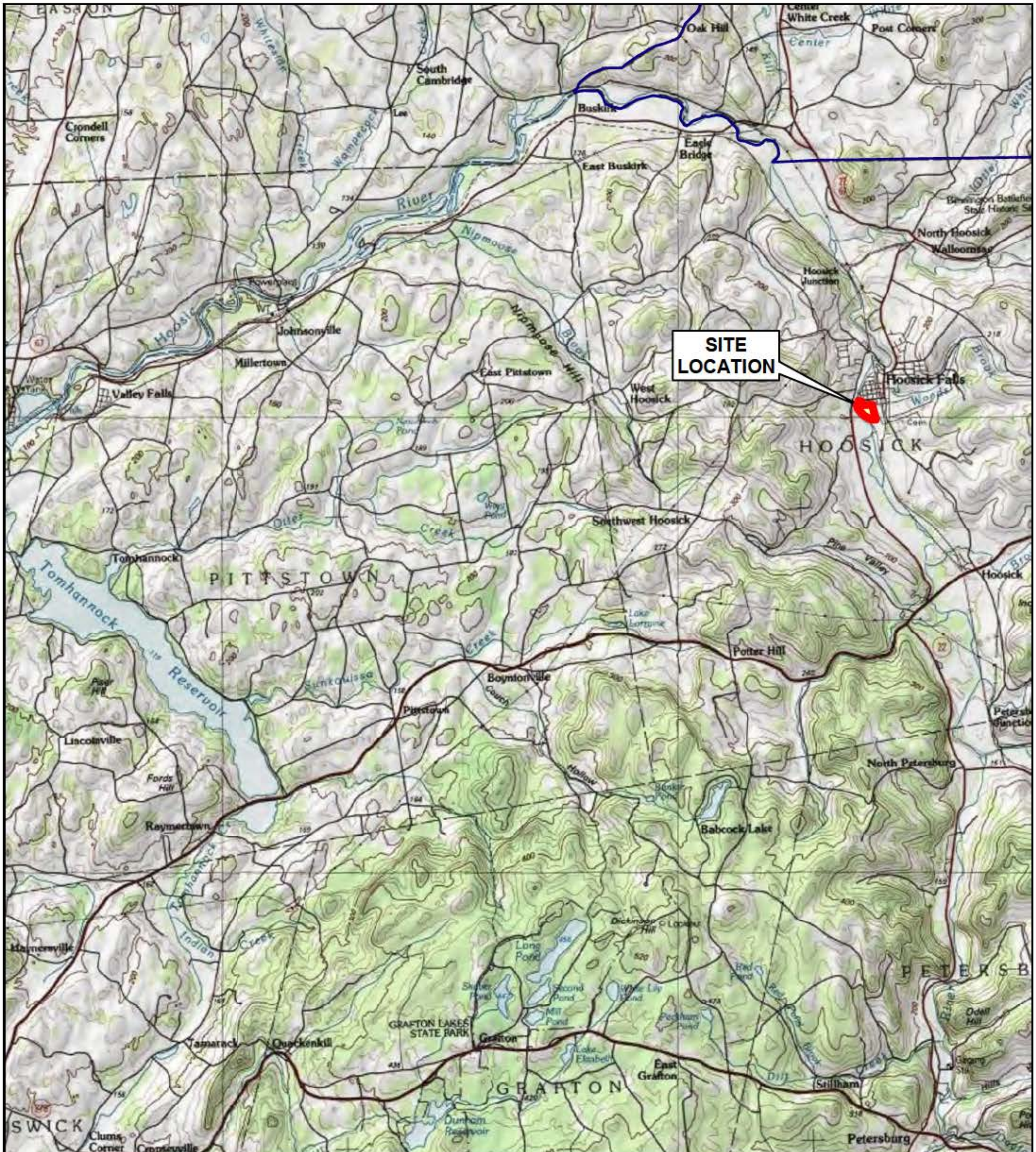
The evaluation of water supply options is separate from evaluation of remedial alternatives that will address other contaminated media that may present health or ecological risks posed by other routes of exposure, such as direct contact with contaminated soil. This criterion will be utilized to assess remedial alternatives for the remaining operable units.

The final criterion, Community Acceptance, is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary has been prepared that presents the all comments received and the manner in which the NYSDEC will address the concerns raised. When applicable, in instances where the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Option 1B is being selected because, as described above, it satisfies the threshold criteria and provides the best balance of all the balancing criteria.

FIGURES



N
W E
S

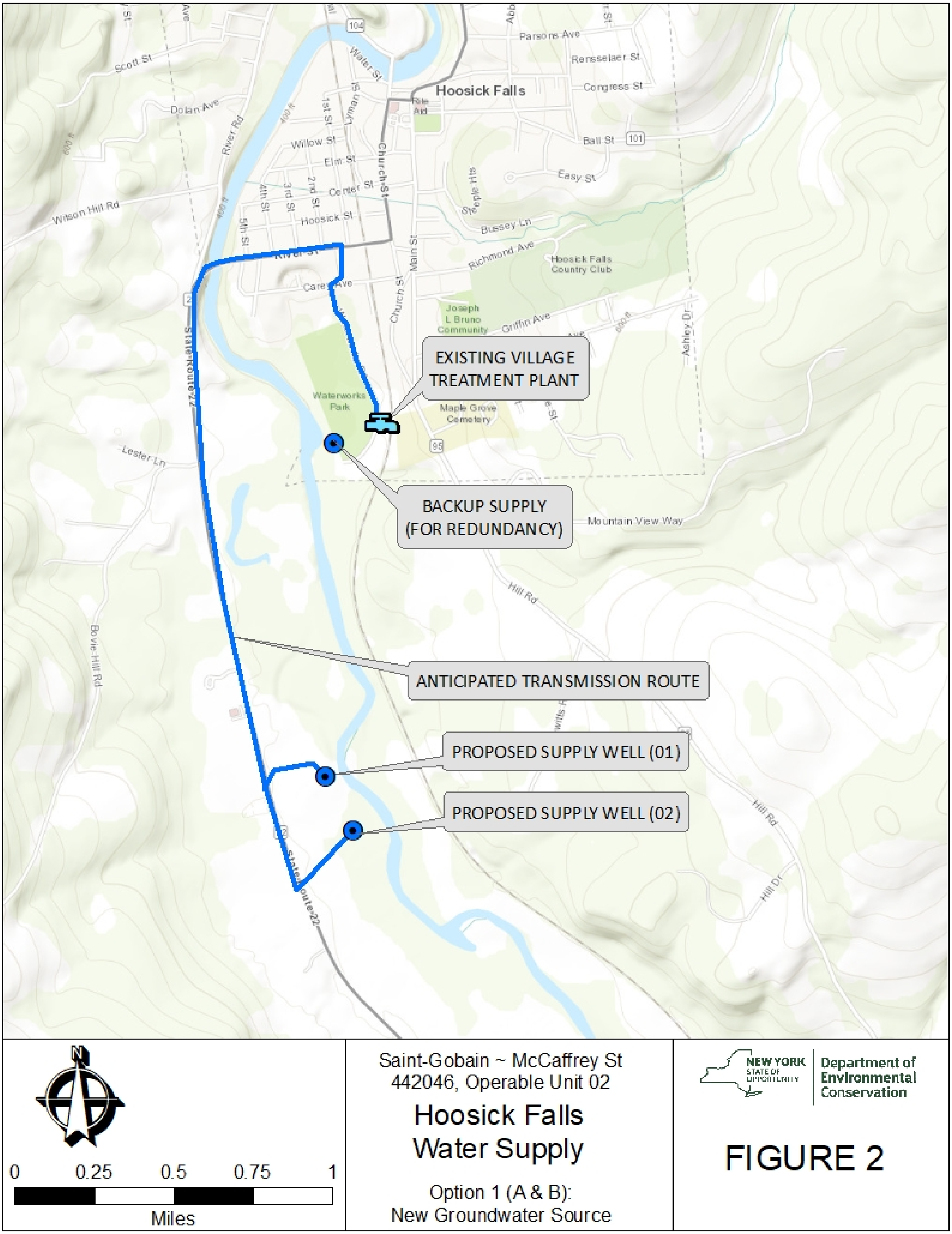
0 0.5 1 2
Miles

Figure 1

Site Location Map

Saint-Gobain ~ McCaffrey Street
Village of
Hoosick Falls, Rensselaer County
Site No. 442046

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation



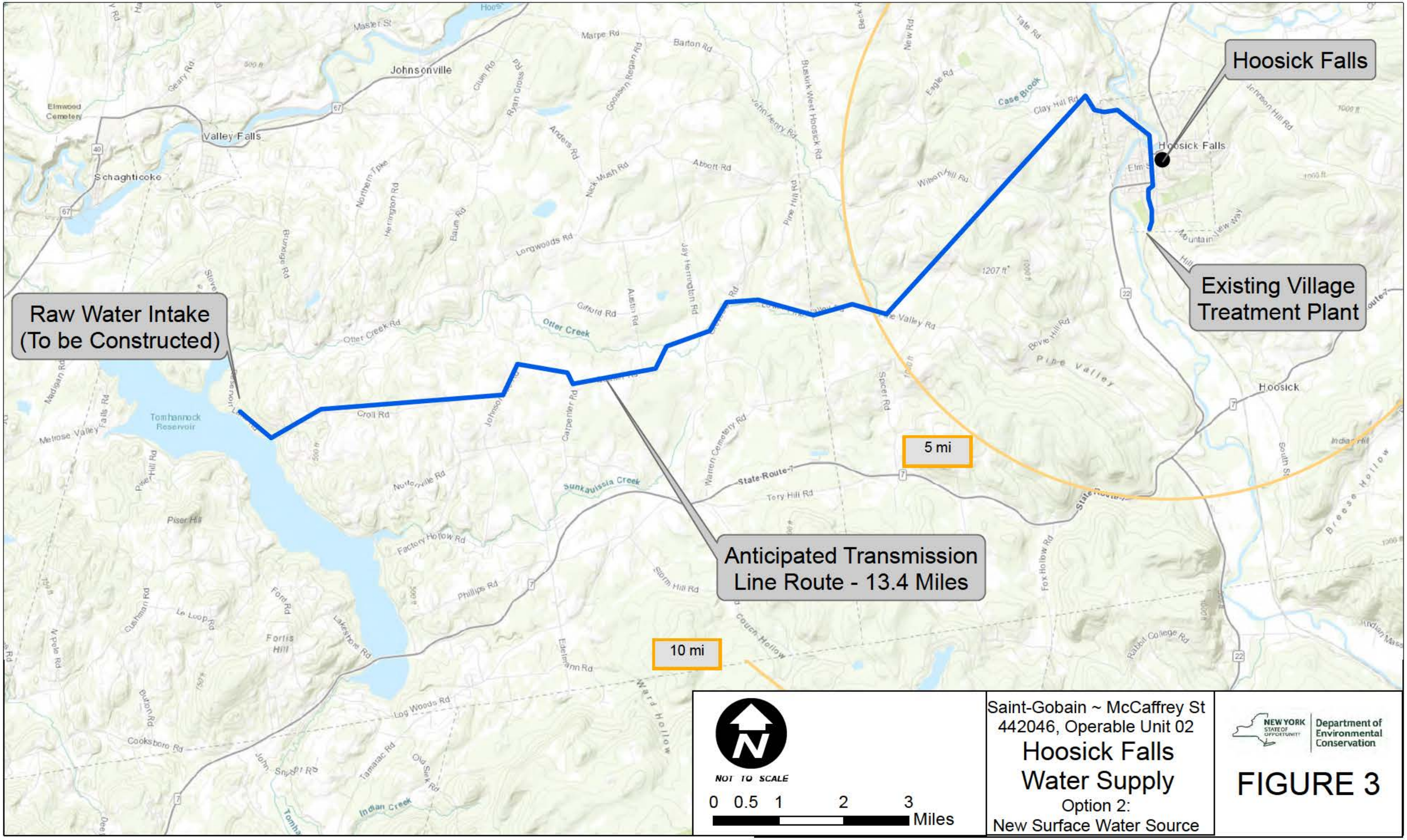
Saint-Gobain ~ McCaffrey St
442046, Operable Unit 02

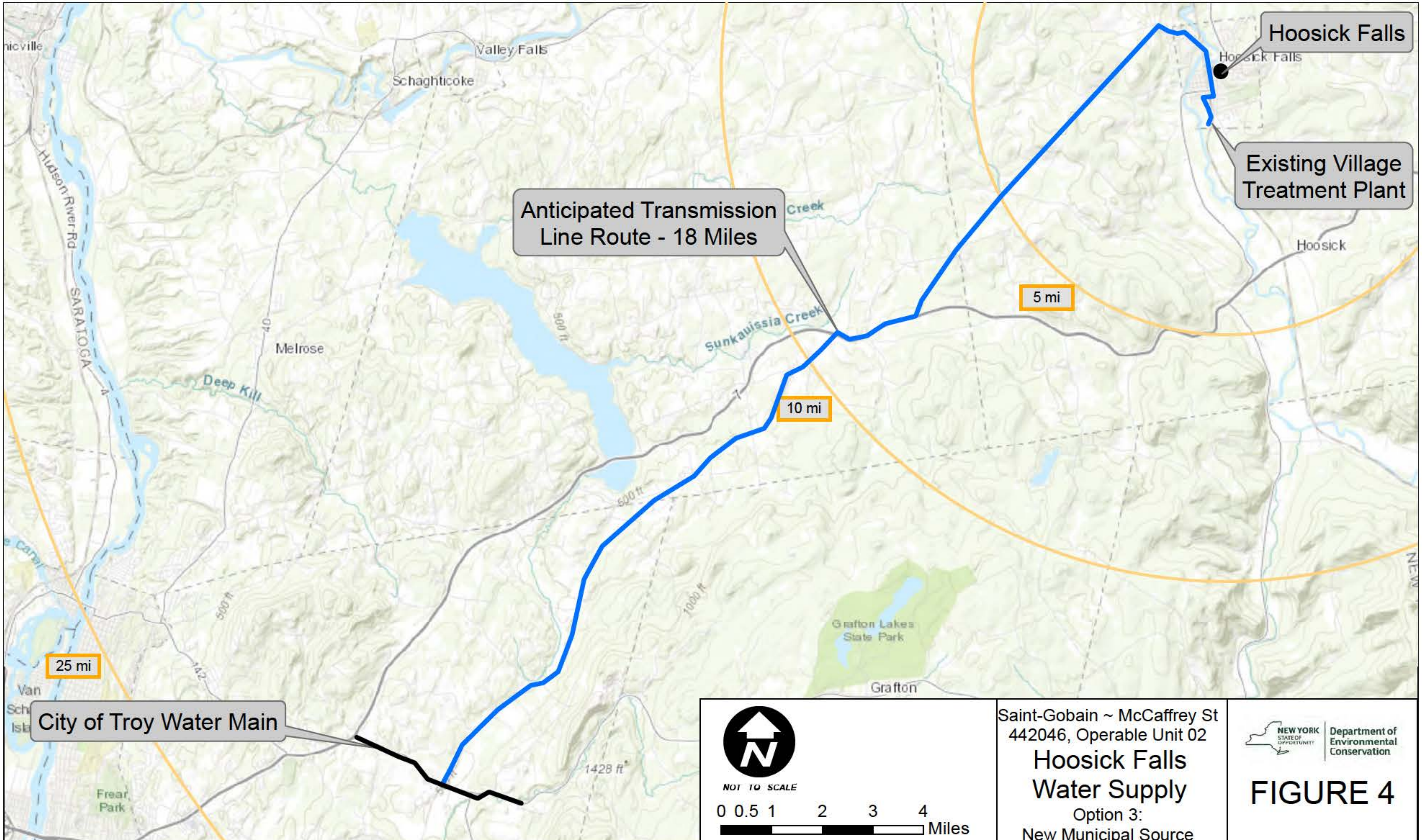
Hoosick Falls
Water Supply

Option 1 (A & B):
New Groundwater Source

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

FIGURE 2


Hoosick Falls
Existing Village Treatment Plant
Raw Water Intake (To be Constructed)
Anticipated Transmission Line Route - 13.4 Miles
5 mi
10 mi
Tomhannock Reservoir
Johnsonville
Valley Falls
Schaghticoke
Hoosick
NOT TO SCALE
0 0.5 1 2 3 Miles
Saint-Gobain ~ McCaffrey St
442046, Operable Unit 02
Hoosick Falls
Water Supply
Option 2:
New Surface Water Source
NEW YORK STATE OF OPPORTUNITY
Department of Environmental Conservation
FIGURE 3



Saint-Gobain ~ McCaffrey St
442046, Operable Unit 02

Hoosick Falls Water Supply

Option 3:
New Municipal Source

FIGURE 4

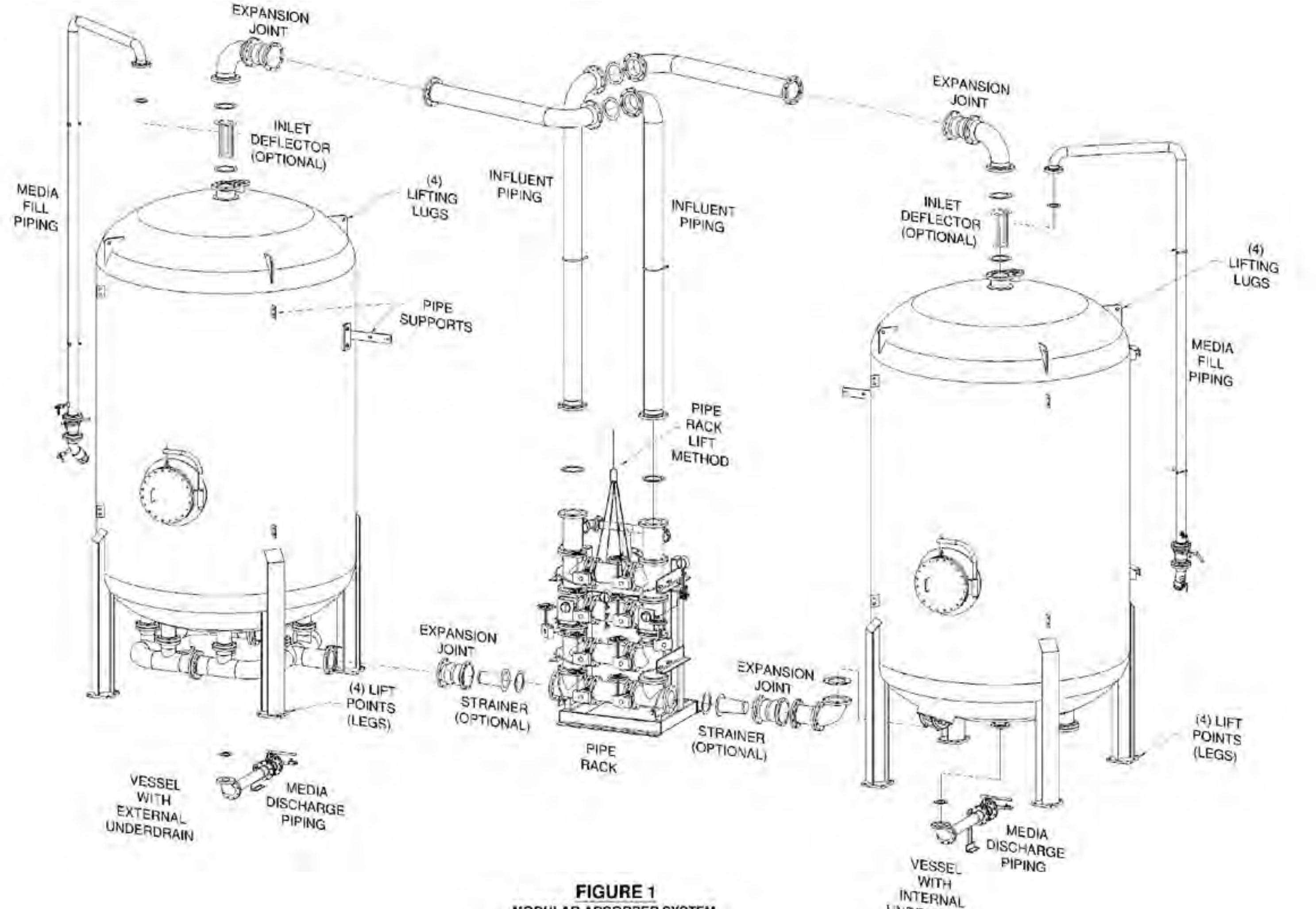


FIGURE 5: Granular Activated Carbon Vessel Configuration

NOT TO SCALE

0 500 1,000 Feet

Saint-Gobain ~ McCaffrey St
442046, Operable Unit 02

Interim Remedial Measure
Groundwater Extraction

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

FIGURE 6

APPENDIX A

Responsiveness Summary

Saint-Gobain ~ McCaffrey Street
Operable Unit No. OU-02: Municipal Water Supply
State Superfund Project
Hoosick Falls, Rensselaer County New York
Site No. 442046

The Proposed Remedial Action Plan (PRAP) for the **Saint-Gobain ~ McCaffrey Street** site was prepared by the New York State Department of Environmental Conservation (the NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on April 21, 2021. The PRAP outlined the remedial measure proposed for the contaminated water supply at the Saint-Gobain ~ McCaffrey Street site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on May 13, 2021, which included a presentation of the on-going site remedial investigation (RI) and the Municipal Water Supply Study (MWSS) for the Saint-Gobain ~ McCaffrey Street site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The initial public comment period through June 4, 2021 was extended until June 25, 2021 at the request of the public.

This Responsiveness Summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the NYSDEC responses:

Comments 1-7 were received from members of the Hoosick Community.

COMMENT 1: Has there been any research to determine if Mr. Wysocki has used Glyphosate on his crops and has the water from the well been tested for glyphosate?

RESPONSE 1: Samples of the groundwater were analyzed for glyphosate during the assessment of both test wells. Four samples were analyzed for glyphosate using the certified method for drinking water, EPA Method 547. The samples were collected from the two test wells and two perimeter observation wells to determine whether water quality in the targeted aquifer is acceptable as a supply of raw water. No glyphosate was detected in any of the water samples. Independent research has not been conducted into whether the chemical was used during the operational history of either the Wysocki farm or the LaCroix farm (the location of the second test well). The broad chemical analysis performed on the water within the aquifer provides a better understanding of the actual conditions of the aquifer than a historical review of chemical usage that is often based on anecdotal information. Such direct analysis also detects presence of contaminants regardless of the source, including those that may have originated from sources beyond the immediate vicinity.

COMMENT 2: Stating that Mike Hickey is an environmental advocate is an understatement.

RESPONSE 2: Comment noted.

A resident submitted the following three comments (3 thru 5) via email on June 22, 2021.

COMMENT 3: I am a town resident in favor of alternative 2 - development of a new surface water source, namely Tomhannock Reservoir as a source for water because the water from the reservoir will be safer in the long run. Currently, the wells proposed in alternative 1 are safe, but I understand the PFOA contaminated the entire valley and that PFOA will move with the groundwater. To me, the leads to a potential future contamination while water from the reservoir appears to be safe from PFOA and would remain so for the foreseeable future.

RESPONSE 3: The plume of contaminated groundwater is sufficiently downgradient (opposite the direction of natural flow) as to pose no impact to test well locations. A comprehensive hydrogeologic investigation has been conducted (initiated by the NYSDEC and ultimately completed by the responsible parties, with oversight by NYSDEC) that included the installation of multiple soil borings and monitoring wells, collection of groundwater samples, pump tests, and modeling to determine the capacity of the aquifer proposed to supply the village with drinking water. The data generated from this investigation have been evaluated by the NYSDEC and NYSDOH and those agencies have determined the aquifer is sufficiently well-protected from local surface impacts to soil and shallow groundwater, as well as being sufficiently distant and upgradient from the source of contamination to the current Village wellfield as to not be impacted by the contaminated groundwater from the site.

COMMENT 4: Also, potential flow capacity appears to be an issue. While estimates from alternative 1 show enough supply, future demand would require the use of a 3^{rd} well. If these estimates are off -for supply, or considering recent real estate market - future demand, then alternative 1 would not be sufficient. Drawing water from the Tomhannock would also ensure an adequate future supply for the village.

RESPONSE 4: All Options were evaluated based on the same "future demand" and determined to have sufficient supply to meet future demand requirements. The value used for the future demand discussed here was calculated in the "Engineering Report for the Village of Hoosick Falls Water System Expansion" (August 2016) commissioned by the Village of Hoosick Falls to determine potentially feasible areas of public water system expansion and treatment system improvements to supply additional residents in the Town of Hoosick with public water; meeting the "future demand" capacity does not require additional capacity supplied by a 3rd well. Reference to an additional well in the PRAP is related to the need to satisfy existing regulatory requirements for redundancy (not future demand), should one of the primary wells need to be temporarily taken out of service. See also RESPONSE 39 below.

COMMENT 5: A surface water source should be utilized by the Village of Hoosick Falls because there is potential for contamination of groundwater sources by the existing contaminant plume from the site.

RESPONSE 5: See RESPONSE 3 above.

COMMENT 6: In my opinion, an independent groundwater source is a more reliable, long term option than a surface water option where reliability and permanence are concerned (pulling from the Tomhannock not only puts us in a position of relying on a surface water source, but also ties our well-being directly to two or more other communities who already use it, limiting our ability to manage our use). The likelihood of a groundwater source changing over time is much less than the likelihood of a surface source becoming contaminated or overused - particularly in light of increasing levels of environmental contamination in the world today, combined with rising temperatures and other climate change factors.

Our priority should be to find the most practical groundwater source and use it. In the absence of a safe groundwater option, surface water should be considered next, in conjunction with GAC and other treatment options. Although having three wells treated with a GAC filter has been a good emergency measure, it is not an acceptable solution to the problem, nor is relying on those contaminated wells for any routine purpose.

RESPONSE 6: Comment noted. NYSDEC's selected remedy is a practical and safe groundwater option. Also refer to RESPONSE 3 and RESPONSE 23.

COMMENT 7: In light of these factors (See previous COMMENT 6), I believe the best available option for our community is currently the Wysocki/LaCroix site for our permanent wells, with a new secondary site for backup wells to be found. However, upon looking over the data and reports it seems there is a question of whether we have enough information at this point, to definitively determine that this source is indeed safe. There is a sizable "data gap area" that has not been studied. Unfavorable testing results in those areas could determine this option to be unfit. Before asking to blindly pursue this option, I request the department to do more study to definitively prove with real data that, indeed, what currently "seems" to be safe, is, and if so, move in that direction. I would also request that we keep GACs on all wells for monitoring purposes and in case of unforeseen future contamination (or current contamination which we are not aware of yet).

RESPONSE 7: As discussed in RESPONSE 3, a comprehensive hydrogeologic study has been completed that includes a detailed analysis focused on water quality assessment and geologic characterization in the data gap area, the area between the current water supply and the proposed groundwater supply. Specifically, surficial geophysical surveys were completed to estimate groundwater, soil, and bedrock conditions. Subsurface investigation work included the construction of monitoring well pairs, collection of soil and groundwater samples, analysis of the samples for PFAS and other contaminants, and water level gauging events. Boring logs were compiled and assessed to document subsurface conditions. The conditions revealed by these data (provided in the Municipal Water Supply Study) support the NYSDEC's conclusion that the lower aquifer is overlain by a low permeability layer throughout the majority of the valley. As expected, there are documented PFAS impacts in the upper aquifer because of its physical contact and interaction with surface water. Also, there are sporadic, but low detections in the lower aquifer. Also see RESPONSE 16.b.

The commenter's request for additional wells to serve as a redundant source of raw water is addressed in RESPONSE 39.

The following comment was submitted by Bruce Patire, Rensselaer County Legislator, District 5 via email on June 3, 2021.

COMMENT 8: I am in support of retaining the existing GAC treatment system and the continued operation of the treatment plant to ensure continuity and compliance with drinking water values and the remedial action plan. Further, I am supportive of the maintaining one existing well to provide for redundancy in the event of primary well outage, along with the conversion of existing test wells to production wells.

To protect the residents currently and in the future, the Site Management Plan must be precise in its compliance to consistent and comprehensive testing protocol. In addition, The New York State Department of Environmental Conservation must make certain, within the Site Management Plan, that the Responsible Parties continue to be financially obligated to the remedy.

RESPONSE 8: The water supply and treatment plant operation will be required to adhere to all NYSDOH requirements for operation, including testing, of a public water supply. As mentioned in Section 7 of the PRAP, additional monitoring will be required forsentinel wells located around the production wells as contemplated in the ROD.

Financial assurance (e.g., letters-of-credit, surety bonds, insurance, trusts, or other means acceptable to the NYSDEC) will be a required component of site management by any responsible party agreeing to implement this remedy.

The following comment was submitted by the Hoosick Area Community Participation Working Group (CPWG) on June 4, 2021.

COMMENT 9: We agree on the proposal of the two new production wells on the Lacroix and

Wysocki properties, as well as keeping the municipal GAC filtration in place, as recommended by NYS DEC. Additionally, we agree with the requests from Mayor Allen and Hoosick Falls Village Board for additional testing between the two properties that they outlined (almost a one-mile stretch), as well as investigating the potential of a third new well. We agree with their assessment that the existing Village wells are not acceptable back-up to our community's new water supply.

RESPONSE 9: See RESPONSE 3 & RESPONSE 39.

COMMENTS 10 - 15 were submitted by the New York Public InterestResearch Group (NYPIRG) on behalf of NYPIRG via letter emailed on June 25, 2021.

COMMENT 10: Why did the Municipal Water Supply Study (MWSS) never include a new surface water source with a permanent GAC system? We feel that this is an egregious exclusion and would have been the best option available for Hoosick Falls. As we discuss further in section 2 of these comments, the groundwater in the Hoosick Falls area is highly contaminated with PFAS chemicals, and the pollution plume has not been fully uncovered. There are deep concerns that, given the highly mobile and persistent nature of PFAS chemicals, the pollution could migrate to other groundwater wells in proximity.

RESPONSE 10: The MWSS process screened potential water supply options within five categories. The most feasible option in each category was further researched and presented in the MWSS. Option 2, a surface water source utilizing the Tomhannock Reservoir, was considered and was not selected for reasons other than lack of suitable final treatment. Factors including distance from source to user, overall relative complexity of operation and maintenance, and administrative obstacles towards implementation, and cost effectiveness as described in Exhibit D of the PRAP, all weigh against the surface water option. Additionally, comments on the PRAP indicate a lack of support from the community for this option. Including a GAC filter with this option (Option 2) would not alleviate the relative deficiencies of Option 2 compared to Options 1B, 4 & 5. Exhibit D presents the comparison of the options in detail and RESPONSE 23 outlines a summary of the evaluation process. Also see RESPONSE 3.

COMMENT 11: Page 4 of the Technical Memorandum from ERM Consulting and Engineering states, "Only one groundwater sample from shallow well GWI/MW09A screened above the confining unit was found to contain PFOA or PFOS in excess of the recently adopted maximum contaminant level (MCL) of 10 ng/L. The PFOA concentration at GWI/MW-09A is 530 ng/L. The groundwater samples from the deeper wells screened below the observed confining unit and in the unit that could be the source of drinking water, exhibited a PFOA concentration of ND and 2.5 ng/l."

This well is approximately halfway between the existing contaminated wells and the proposed new wells, which fosters concerns that contamination could spread to the new wells.

RESPONSE 11: See RESPONSE 3.

COMMENT 12: Surface water sources, coupled with a GAC system, far away from the contaminated area would offer the best solution to Hoosick Falls, but this was never presented as an option. Additionally, many residents remain concerned about groundwater sources. From a June 25th, 2021 news story from WAMC: "Some local residents are not convinced, however. During a recent town hall with Congressman Antonio Delgado in Hoosick Falls, the Democrat was approached afterward with some concerns over using groundwater." The voices of these residents deserved to be heard.

Of course, all costs associated with a surface water source, including any possible increased fees, and permanent maintenance of a GAC system should be covered entirely by the responsible parties, Saint-Gobain and Honeywell.

RESPONSE 12: NYSDEC has solicited direct input from community residents regarding the proposed water supply before the issuance of the PRAP on several occasions, including CPWG meetings to answer questions on the Municipal Water Supply Study. Formal comments were also solicited via the extended public comment period associated with the PRAP. Also see RESPONSE 8 regarding financial assurance and RESPONSE 10 regarding the surface water option.

COMMENT 13: Of the Options Presented, 1B is Only Acceptable with the Development of a Backup Well

Page 4 of the Technical Memorandum from ERM Consulting and Engineering states (emphasis added): "Only one groundwater sample from shallow well GWI/MW09A screened above the confining unit was found to contain PFOA or PFOS in excess of the recently adopted maximum contaminant level (MCL) of 10 ng/L. **The PFOA concentration at GWI/MW-09A is 530 ng/L.** The groundwater samples from the deeper wells screened below the observed confining unit and in the unit that could be the source of drinking water, exhibited a PFOA concentration of ND and 2.5 ng/l."

This well is approximately halfway between the existing contaminated wells and the proposed new wells. According to information from Sterling Environmental Engineering, P.C., the geologic zones separating these sources may not be as impermeable as presented and could jeopardize the underlying aquifer (Lower Aquifer).

Before moving forward with this option, the Department must:

1. Undertake further actions to identify a location for development of an additional (backup) supply source for the Village in the uncontaminated area south and upgradient of the current Village wellfield. The Village should not have to rely upon a heavily contaminated water source under any circumstances.
2. Prior to placing the LaCroix/Wysocki test wells in service, undertake routine rigorous testing of sentry or sentinel wells to determine if any possibility exists that PFAS contamination is migrating towards the new water supply wells.
3. Ensure that the GAC system remains in place.
4. Create a Public Website That Provides Real-Time Data of Any New Water Source for Hoosick Falls.

RESPONSE 13: Monitoring of the sentinel wells will be performed during design and will be an ongoing requirement of operation of the production wells. Sufficient baseline data are available to enter the design phase. The GAC system remains in place under the selected remedy. See also RESPONSE 3, RESPONSE 14 and RESPONSE 39.

COMMENT 14: To ensure that public trust is restored in government in Hoosick Falls, the Department should require the maintenance of a public website that shows real-time information about water testing of the Hoosick Falls water source, no matter which water source that is.

RESPONSE 14: Public dissemination of data, including the method and frequency of such notice/publication, is a requirement of the NYSDOH for operation of a public water supply. At their discretion, the operators of a public water supply may choose to enhance access to information beyond these requirements.

COMMENT 15: And, finally, under no circumstances would it be acceptable for Hoosick Falls to remain on their current groundwater supply.

RESPONSE 15: Comment noted. NYSDEC is not selecting Option 4, the existing groundwater supply.

COMMENTS 16 - 22 were submitted by Rich Elder, Environmental Health Director, Rensselaer County Department of Health, via letter dated May 11, 2021

COMMENT 16: Option 1. This option(s) relies on the use of contaminated wells both at the new site which are currently lower in concentration than the current wells in use, but also the need to keep current well #7 (which is highly contaminated) for redundancy purposes. The report also lacks vital information concerning the new sources that are important to the long-term operation of the current WTP:

RESPONSE 16: Exhibit A of the PRAP notes that PFOA concentrations in the lower aquifer at this location are documented between non-detect levels and 5.5 ppt. PFOS is detected in some samples but the results are estimated values that are below the laboratory reporting limit.

PFOA is not detected in the LaCroix test well and is detected at an estimated value of 1.3 ppt in the Wysocki test well. No other contaminants detected were confirmed to be present above regulatory limits in the test wells.

COMMENT 16a: Water quality data. The report contains no water quality data (lab reports) of the samples collected. What has been tested for? There is concern that several wells to the south of the village have been identified as having high concentrations of arsenic in them. Several of the water systems had to have additional treatment installed to address the arsenic. What are the arsenic levels of the proposed wells? Also, given the sensitivity of the Pall filter system and what was seen after the rehab of well #3, water quality plays a significant role in the operation and lifespan of the filters. This should be evaluated to determine if the use of these wells will have a significant impact on filter life and filter run time. Shorter run times will increase the maintenance of the filters and in turn the amount of chemicals needed to maintain the system, further driving up the cost to maintain the system in good working order.

RESPONSE 16a: The PRAP is intended as a summary document and as such, does not include a presentation of all the water quality data generated by the Municipal Water Supply Study but instead refers the reader to the study report and previous reports (all available publicly through the document repositories and the NYSDEC website since the draft MWSS was released in fall of 2019). The findings of the MWSS were presented during the widely-advertised October 2019 CPWG meeting. The final reports provide all analytical reports and data summaries of the water quality parameters required for water supplies, as well as analytes targeted routinely for analysis under the New York State Superfund Program. Arsenic was not detected on the LaCroix property test well and was detected at 0.65 parts per billion (ppb) in the Wysocki property test well. For context, the national and state allowable arsenic concentration in drinking water is 10.0 ppb.

Water quality was evaluated in the context of water supply requirements in the MWSS. Effects of the water quality parameters on specific treatment operations employed in the existing public water supply treatment plant are more appropriately addressed in the design phase. However, water quality parameter values from the test wells are not significantly different than those from existing supply wells, as documented in the Village water department's annual drinking water quality reports and tend to fall in the range of parameter values exhibited by well nos. 3 and 7.

COMMENT 16b: Long term concerns. The new wells are between three known sources of contamination (St. Gobain site, Pownal Site, and Petersburgh site). The Village's current pump rate is 300,000 to 400,000 gallons daily with the ability to increase this to 1.1 million gallons per day. The long-term effects of this daily draw "pulling" additional contamination from one of these three sites over time should be evaluated (especially during times of differing water tables). A 72 hour pump test was conducted (which is the industry standard) but does that reflect the actual impact that these wells will have on the aquifer?

RESPONSE 16b: As mentioned in RESPONSE 3, migration from the McCaffrey Street Site is highly unlikely and contrary to the current understanding of chemical fate and transport mechanisms. Sentinel wells will be monitored to determine if there is migration of contamination toward the new wells from within the valley. Pownal and Petersburgh are far removed from the Hoosick area and there is no evidence of potential impacts of that groundwater contamination on the Hoosick valley aquifer via groundwater movement across such distances. Pumping from the existing test well locations only produces water from the wells' radius of influence. The movement of contaminants from other regions is dependent on factors local to those areas such as the geology, sources of withdrawal, and surface-groundwater interaction. Furthermore, during design, additional testing will be performed to document the appropriate pumping rates and to minimize impacts to the aquifer.

COMMENT 17: Option 2. This option utilizes a source that has consistently over the past two years tested non detect (below 2.0 PPT) utilizing the drinking water standard. However, the use of the raw water would require the existing treatment plant to be maintained and also further study would be necessary to determine the impact of the raw water on the existing Pall filter system and what if any additional costs would be associated.

RESPONSE 17: Option 2 utilizes the Tomhannock Reservoir to supply raw water to the Village WTP. NYSDEC sampled both surface water and sediment from multiple depths at three locations in the reservoir during 2019. A summary report is provided in the MWSS as Appendix D. The data presented in the report include detections of PFAS, including PFOA (up to 2.5 ppt) and PFOS (estimated up to 1.1 ppt) using USEPA Method 537 (modified) performed by a NYSDOH ELAP-certified laboratory. NYSDEC notes here that the finished water (treated water supplied by the Tomhannock Reservoir) proposed for use in Option 3 has consistently remained non-detect for PFAS.

Design-level analysis of raw water from the transmission main to the WTP may be necessary to refine WTP operating parameters. Establishing specific values at this time is not necessary to perform the comparative analysis.

COMMENT 18: Option 3. This option would put the treatment for any drinking water contaminates (including those that may be identified in the future) on the wholesaler, ultimately reducing the need for any treatment plant operation in the village. This would show as an operational cost savings as the plant could be converted into a chlorination station and booster pump station (both existing in the current plant). The report indicates that the operational costs for this option to be twice as much in the first years and 4 times as much in the subsequent years. Does the report's operational cost evaluation consider this cost savings? The report does not provide a break down as to how this cost factor has been developed. The report refers this estimated cost breakdown to another report but I was unable to locate the MWSS report. For transparency this report or at least the cost estimate sections referenced should be attached or included with this report. This option is the only one that eliminates the need for water treatment (both the Pall filters as well as the GAC system).

RESPONSE 18: The cost estimates are based upon the full cost of supplying water to the Village, not just the cost for treatment within the village. These full costs include the cost for withdrawing and treating the additional supply at the city of Troy treatment plant, transmission line placement and maintenance along with end-point treatment at the Village treatment plant. All these costs are taken into consideration when evaluating the estimated cost for this option. The detailed cost estimates are contained in Appendix D of the MWSS Report, which is publicly available and a summary of which is presented in the PRAP.

COMMENT 19: If the purpose of this operable unit is to provide for a PFAS free water supply to the Village then the only two realistic options should be options two and three. That being said, option 3 is the one that provides for a complete solution that will not rely on the Village water plant to provide additional treatment beyond booster chlorination. While the report indicates the potential for Disinfection By Product production (and the RCDOH does not disagree) it has also been shown in other systems to be easily resolved with aeration in the storage tank which is a relatively low cost option.

RESPONSE 19: As stated in the PRAP, the objective of the remedy selection process for OU-02 is to determine a feasible alternative to provide an acceptable source of drinking water that will adequately supply the Village demand under sustainable operation and maintenance requirements. The remedial action objectives (RAOs) identified in the PRAP are:

- Prevent ingestion of drinking water with contaminant levels exceeding drinking water standards (maximum contaminant levels).
- Minimize the body burden of PFAS within the population by providing drinking water that that does not exceed analytical reporting limits for site-related contaminants.

Exhibit D of the PRAP contains the comparative analysis of the options developed in the MWSS. The analysis was performed using established criteria to determine which option best achieves the overall objective and resulted in Option 1B as the recommended option.

COMMENT 20: Options 1, 4, & 5 rely on the continued use of the GAC system and the concern would be that this is a forever cost associated back to the responsible party and what if this party where to no longer to exist? Also, with the GAC system there is always the potential premature breakthrough. An example of this was the recent false positive sample that created concern for the system and was eventually proven by additional sampling. This will be a continued risk in the future and all of these options rely on the responsible party playing a major role and incurring significant costs with no end.

RESPONSE 20: The comment is understood to raise the following -

> *How should the financial risk associated with continued need for the GAC specified in Options 1, 4, & 5 be addressed assuming that the current responsible parties become non-viable in the future?*

There are permanent future costs to all options. The concern raised in this comment is not unique to Options 1, 4, & 5 and is greater for Options 2 & 3 due to the higher operation and maintenance costs. See also RESPONSE 8 regarding financial assurance.

Sampling of the treated drinking water is conducted monthly to monitor for signs of breakthrough. The selected option also includes a monitoring requirement to ensure that site COCs remain below detection limits.

COMMENT 21: By utilizing options 2 or 3 it would seem the responsible parties will have fulfilled their obligation as it related to the potable water system.

RESPONSE 21: The comparative analysis of the options presented in the PRAP, and specifically the evaluation process of the various options in Exhibit D, (and in RESPONSE 23 for convenience) has resulted in the NYSDEC's selection of Option 1B, development of a new groundwater source. This option meets the threshold criteria and best achieves the remedial action objectives outlined in the PRAP/ROD.

COMMENT 22: By utilizing option #3 the Village would not have to worry about costs associated with increased treatment/sampling for future contaminants as this would be the responsibility of the wholesaler (City of Troy).

RESPONSE 22: Comment noted.

COMMENTS 23 - 33 were submitted by Christopher R. Gibson, Archer Attorneys at Law, on behalf of Saint-Gobain Performance Plastics Corporation, via letter dated June 25, 2021

COMMENT 23: Pursuant to Section 4.3(a) of DER-10, NYSDEC is required to conduct a comparative analysis of each of the potential remedial options identified in the Municipal Water Supply Study ("MWSS"), dated November 2020, prior to selecting a proposed remedy. In performing that comparative analysis, NYSDEC is required to evaluate the options against each other based upon the remedy selection criteria set forth in Sections 4.2(b)-(i) of DER-10. Id.

While Exhibit D of the PRAP purports to provide NYSDEC's basis for selecting Option 1B and generally discusses the remedy selection criteria, the PRAP does not include an actual comparative analysis of the remedial options. For example, the PRAP does not indicate how NYSDEC weighed the remedial options against each other, balanced the selection criteria, or ultimately determined that Option 1B best meets the selection criteria. In fact, the PRAP acknowledges that Option 4 will have fewer short-term impacts, be more easily implemented and have lower future costs than Option 1B, yet selects Option 1B over Option 4. When Options 4 and 1B are actually compared to each other, it is clear that Option 4 best meets the selection criteria and that the balancing factors weigh in favor of Option 4.

RESPONSE 23: In the Saint-Gobain ~ McCaffrey Street Site OU-02 (OU-02) PRAP, Exhibit D, the NYSDEC provides a comparative analysis based on applicable standards, criteria, and guidance of the options presented in the Municipal Water Supply Study report (November 2020) for OU-02, consistent with New York State's remedial program as prescribed in statute, policy, and guidance.

Remedial options are weighed qualitatively in the PRAP for each of the specified criteria based on the results of the study, OU-02 lines of evidence, and generally accepted engineering, design, and construction principles. The primary strength(s) and weakness(es) of each option relative to the others are identified and clearly stated within each criterion.

The author's comment (Comment 23) references only short-term impacts, implementability and cost. It ignores the other balancing criteria for the author's conclusion that Option 4 is superior. A complete analysis includes the remaining balancing criteria of long-term effectiveness, reduction in toxicity, mobility and/or volume, along, ultimately, with public acceptance.

For the convenience of the reader, an option is more permanent and effective in the long term if:

1) the magnitude of remaining risks is lower,
2) engineering and/or institutional controls (ECs/ICs) to limit remaining risk are superior, and

3) the reliability of the ECs/ICs more robust[1].

Option 4 relies entirely on engineering controls (treatment) and frequent O&M activities (including replacement of 40,000 pounds of carbon media and monthly monitoring for PFAS compounds) to provide drinking water that attains MCLs. It does not address inherent risks posed by the COCs remaining in environmental media at unacceptable levels pertinent to the ingestion of contaminated groundwater. Factors 2) and 3) (EC/IC components of the options) are similar between Options 1B and 4 in that GAC remains in place as a required treatment unit of the water supply. Factor 1), the magnitude of the "remaining risks" makes Option 1B more permanent and effective in the long term than Option 4.

Option 1B employs a water source that is not impacted by COCs identified during the Saint-Gobain ~ McCaffrey Street OU-01 (OU-01) remedial investigation and, therefore, does not rely solely on the permanent EC/ICs required by Option 4 to meet MCLs for site COCs.

NYSDEC clearly stated in Exhibit D that it determined Option 1B to be a more precautionary and technically conservative approach to long-term effectiveness.

NYSDEC used the same straight-forward process to compare all options using the remaining criteria of "Reduction of Toxicity, Mobility, or Volume," "Short-term Impacts and Effectiveness," "Implementability," "Cost-Effectiveness," and "Land Use" given the following criteria to determine relative preference:

- The Option(s) that reduce the toxicity, mobility and/or volume of wastes are preferred;
- The Option(s) that present fewer or less significant impacts to the community and/or environment and/or are more effective in the short term are preferred;
- The Option(s) with fewer obstacles, both technical and administrative, to implementation are preferred;
- The Option(s) that achieve all criteria to the same degree, but at a lower cost are more cost effective; and
- Cleanups that do not achieve pre-disposal conditions may be assessed based on reasonably anticipated use of the site. Contaminant levels and potential exposures that do not impact proposed use are more acceptable.

While neither the first nor fifth criteria referenced above applies to OU-02, the second, third, and fourth criteria are fully evaluated in Exhibit D in the PRAP.

- Short-term effectiveness is determined to be balanced for all the options due to the currently-operating GAC treatment while short-term impacts range from none to moderate.
- Implementability is found to range from easily implementable to challenging with

[1] NYSDEC Proposed Remedial Action Plan for the Saint-Gobain ~ McCaffrey Street Site, Operable Unit 02, April 2021, (NYSDEC PRAP, 2021) Exhibit D, Page 17.

Options 1A, 1B, 4, & 5 all easily implementable

- All options vary slightly in the degree to which the above criteria are achieved. Therefore, comparing the option costs (both capital and annual) is not a strict reflection of the cost effectiveness but provides an analysis of the technical approach and the financial obligations for each to provide the public with an overall cost for each option. Therefore, because the options have varying degrees of success, the least expensive option is not necessarily the most cost effective.

The following summarizes the comparative analysis performed in the PRAP for the remaining criteria for the convenience of the reader:

SHORT-TERM IMPACTS & EFFECTIVENESS

The evaluation of short-term impacts & effectiveness is intended to elevate clean up options that reduce or eliminate exposure to site COCs in the very near term. It is also used to raise awareness of negative impacts to the community through construction activities or increased exposure to contaminants or site-related nuisances so the community can make more informed judgments regarding the significance of the potential impacts of clean up implementation. The short-term effectiveness, e.g., benefits quickly realized by the community, was determined to have been met similarly across all options in the NYSDEC analysis due to the ongoing operation of the GAC filtration system to remove PFAS from the water supply.

The short-term impacts to the community, e.g. through construction activities or increased exposure to contaminants or site-related nuisances, range from none to moderate. Options 4 and 5 do not create short term impacts. Impacts related to Option 1A and 1B are limited to construction activities including excavation, installation, and backfill of a new waterline along the state highway, a route of approximately two miles that already accommodates large vehicles and commercial traffic, and approximately 0.7 miles of additional disturbance outside normal public thoroughfares. Options 2 and 3 also present construction- related impacts, but over a much greater distance affecting several additional communities. None of the options presents significant exposure to odors, contaminants, or other serious conditions.

IMPLEMENTABILITY

Evaluation of an option's implementability versus other options is intended to provide context regarding an expectation that the option will ultimately be completed and the requirements of the ROD fulfilled. Clean up options that are very complex may require long periods for design, construction and optimization. The complex implementation may override the benefits apparent in the other criteria such as a reduction in toxicity or long-term effectiveness.

In the NYSDEC's analysis[2], all options were judged to be implementable because the principles and techniques applicable to the options' technologies that were evaluated are generally similar and standardized. In the evaluation, NYSDEC judged Options 1A, 1B, 4, & 5 to be nearly identical because the challenges around implementing either Option 1A or 1B are relatively

[2] NYSDEC PRAP, 2021, Exhibit D, Pages 20-21.

minor, consistent with water supply regulations and guidance. Options 2 & 3 were determined to be less implementable because of the distance from the village of Hoosick Falls and administrative challenges likely to be encountered during the review and approval process required by other authorizing entities.

COST EFFECTIVENESS:

Cost effectiveness is included to provide a measure of how effectively the remedial objectives are achieved by each option compared to the total overall cost for that option. Because the options evaluated in the PRAP achieve the criteria to varying degrees, the least expensive option is not necessarily the most cost-effective option. NYSDEC has determined that Option 1B is superior in its ability to achieve long-term effectiveness while Options 4 and 5 are less reliable in the long term. Therefore, although options 4 & 5 are less expensive than Option 1B, they are not more cost effective.

PUBLIC ACCEPTANCE

In addition to the criteria used in the PRAP to evaluate the water supply options by the NYSDEC, public acceptance of the proposed remedy becomes an additional criterion applicable to the final remedy selection process. The comments from the public in response to the NYSDEC PRAP weigh heavily away from Option 4 and towards utilizing a local source of groundwater that is not directly impacted by the source of OU-01 COCs, the Saint-Gobain McCaffrey Street site.

Evaluation Criteria	1A	1B	2	3	4	5
Overall Protection (Threshold)	X	X	X	X	X	X
Regulatory Compliance (Threshold)	X	X	X	X	X	X
Effectiveness (Long-Term)	X	^	X	X	X	X
Treatment of Contaminants at Source	-	-	-	-	-	^
Effectiveness (Short-Term)	X	X	X	X	^	X
Implementability	^	^	<	<	^	^
Cost Effectiveness	X	^	X	X	^	^
Land Use	-	-	-	-	-	-
Community Acceptance	O	X	O	O	O	O

“X” : achieves
“^” : optimally achieves
“-“ : Not Applicable
“<” : minimally achieves
“O” : does not achieve

COMMENT 24: Options 4 and 1B Both Meet the Threshold Criteria.
As the PRAP recognizes, both Options 4 and 1B would provide safe, clean drinking water that is protective of human health and the environment and that meets all applicable standards, criteria, and guidance (“SCGs”). See Ex. D to PRAP at 15-16. In fact, Option 1B depends upon continued operation of the existing GAC system to guarantee that drinking water from a new groundwater source is safe to drink. Thus, both options rely upon the same technology to meet

the threshold remedy selection criteria set forth in Sections 4.2(b) and (c) of DER-10. The selection of the final remedy for the municipal water supply, therefore, should be based upon a balancing of the remaining selection criteria set forth in Sections 4.2(d)-(i).

RESPONSE 24: Based on the applicable standards, criteria, and guidance identified for OU-02, the primary source of drinking water identified in Options 1A & 1B does not require GAC to meet the threshold of protection of public health at this time as determined by comparing water quality data to MCLs. However, as noted, Option 1B relies on an existing municipal supply well as a redundant source of water. That supply well will need treatment to meet MCLs. Further, the continued use of GAC will better ensure the water supply attains the remedial action objectives identified in Section 6.5 of the PRAP, specifically to minimize the body burden of a population documented to be impacted by the long-term ingestion of PFOA in the public drinking water supply.

The NYSDEC agrees the technology identified for the removal of PFOA and PFOS in raw water for both options is identical and that the balancing criteria are appropriate for comparing the MWSS options. Also see RESPONSE 23.

COMMENT 25: Options 4 and 1B Will Be Equally Effective in the Long-Term.
The PRAP incorrectly concludes that Option 1B carries the highest level of long-term effectiveness. Options 4 and 1B rely upon the same proven treatment technology and would be equally effective in the long-term. GAC is widely accepted for the treatment of PFOA, and the Village GAC system has been reliably operating for approximately 5 years. See PRAP at 10 (noting that the finished drinking water from the existing water supply has been routinely sampled and demonstrated to be clean); see also Ex. D at 18 (acknowledging that “GAC systems are the Best Available Technology (BAT) for treating organic compounds in water”).

Moreover, NYSDEC’s determination that Option 1B will be more effective in the long- term because Option 4 may require more frequent replacement of the carbon in the GAC system is flawed for several reasons. First, as NYSDEC acknowledges in the PRAP, carbon is “readily available” in the market. Ex. D at 18. Accordingly, the frequency with which the carbon needs to be changed relates more to the cost-effectiveness of the remedial options than it does to the permanence or long-term effectiveness of those options.

Second, it is not even clear that Option 4 will require significantly more carbon replacement than Option 1B over the long-term. The groundwater pump-and-treat system at the McCaffrey Street facility is effectively intercepting groundwater and preventing migration to the municipal well-field. PRAP at 12. Accordingly, it is expected that PFOA concentrations in the wellfield will continue to decrease over time, which would reduce the frequency of carbon replacement in the future under Option 4. Id. Further, the frequency with which carbon will need to be replaced in the future under Option 1B will depend upon the condition of groundwater in the new well-field in the future. In fact, the PRAP indicates that a new well-field will require the installation of sentry wells and long-term monitoring of groundwater conditions but does not account for such additional monitoring requirements in evaluating the long-term effectiveness of Option 1B. See PRAP at 6. Ultimately, both Options 4 and 1B rely on the continued operation of the existing GAC system, which has proven effective and remains a viable long-term option. The possibility that carbon will have to be replaced under one option more than the other does not impact the permanence or long-term effectiveness of either option.

Third, unlike Option 4, the long-term effectiveness of Option 1B will also depend upon the long-term operation and maintenance of significant additional infrastructure. See MWSS at 45-46. The new wells would require sanitary caps, pumps, motors, piping, and electrical service to power the various equipment. Id. Likewise, the proximity of the wells to the Hoosic River would require mitigation efforts and long-term monitoring and maintenance to ensure that the River does not impact the wells in the future. Id. at 47. Further, while the PRAP indicates that Option 1B carries the highest level of long-term effectiveness due, in part, to "its close proximity to end users," the new groundwater source actually would be several miles further away from the end users than the current municipal water supply and would require 2.7 miles of additional water main. Ex. D at 18. The need to maintain this additional infrastructure and the potential for disruptions in water service associated with the need to transport water over several additional miles weighs against the long-term effectiveness of Option 1B in comparison to Option 4.

Ultimately, therefore, contrary to NYSDEC's conclusion, Option 1B would not be more effective in the long-term than Option 4.

RESPONSE 25: The NYSDEC agrees that the GAC has been operating effectively for the removal of PFOA from raw water to non-detect concentrations since the system came on-line in 2016.

Even with operation of the on-site OU-01 IRM (IRM OU-01A), the goal of which is to minimize the migration of highly contaminated groundwater off site from McCaffrey Street, OU-01, to the existing Village wellfield, significant decreases in PFAS concentrations are not expected to be imminent. See RESPONSE 23.

The NYSDEC recognizes that new infrastructure and associated operation and maintenance of the infrastructure is necessary. However, the components needed to construct the new water supply are typical for municipal water supplies and would not require special operating capacities or expertise and new wells would simply replace much of the existing well infrastructure, adding no additional O&M to the overall supply system.

While it is not clear how the monitoring requirements associated with Option 1B impacts the long-term effectiveness as the comment indicates, additional long-term monitoring costs for 1B are offset by elimination of certain GAC system monitoring needs required due to the high concentrations of PFAS, including PFOA in the existing water supply that has been contaminated by releases from the site. Those monitoring needs relate to determining when the carbon media needs to be replaced and would carry over to Option 4 if that option was to be implemented.

The NYSDEC maintains that the proposed well field is in close proximity to the treatment plant with reasonable access for installation and the water main. The length of pipe, pumps needed to extract raw water, and other service requirements identified for Option 1B are additional to those required in Options 4 & 5 but do not negatively impact the long-term effectiveness because they are engineered systems employed in all public water supplies and are based on well-understood principles and conditions. State of the practice construction will optimize life expectancy of the system and require minimum maintenance.

GAC changeouts currently are based on monthly sampling results due to highly contaminated raw water and are scheduled "on-demand." Utilizing the new groundwater location, GAC change outs would require less frequent O&M requirements and can be scheduled based on industry standards for utilization of carbon media thus increasing the degree of long-term effectiveness. The concern expressed regarding the proximity of the wells to the Hoosic River in Option 1B was addressed in the MWSS and the PRAP. Stabilization of the riverbank is anticipated.

COMMENT 26: Option 4 Will Have Fewer Short-Term Impacts Than Option 1B.
Whereas Options 4 and 1B will be equally effective in the long-term, the short-term effectiveness criteria clearly weighs in favor of Option 4 over Option 1B. As NYSDEC concedes in the PRAP, Option 4 is already constructed and fully operational and would have no short-term impacts on the community or the environment. Ex. D at 20. In contrast, Option 1B would have various negative short-term impacts. It is estimated that it will take 2 – 3 years to complete the construction of Option 1B. During those 2-3 years, there would be noise and traffic disruptions associated with the construction of the required water main. Id. at 19-20. Likewise, there would be "truck trips," "odors," "vapors," and "dust." See DER-10, Section 4.2(f)(1).

Development of the wells and construction of the water main would also result in land disturbance, including potential habitat disturbance, and would create the potential for stormwater pollution. Id. In order to mitigate these impacts, additional maintenance would be required, including construction of weirs and bank stabilization within the Hoosic River and implementation of erosion and sediment controls to limit stormwater pollution. Ex. D at 19-20.

While NYSDEC acknowledges the negative short-term impacts of Option 1B in the PRAP, it does not then balance those negative impacts against the lack of any similar impacts from Option 4. DER-10 requires it to do so.

RESPONSE 26: As the comment asserts, NYSDEC agrees there will be short term disturbances related to construction of a new transmission line and necessary infrastructure. Construction-related impacts can be minimized through best practices for dust and erosion control along with project planning and communication. No additional exposure to contaminants would be expected due to the location and manner of the construction to be undertaken.

NYSDEC does not agree with the comment that "Options 4 and 1B will be equally effective in the long-term…" The short-term impacts expected from Option 1B are outweighed by the greater long-term effectiveness of Option 1B as compared to Option 4. See NYSDEC RESPONSE 23 (long-term effectiveness and comparative analysis).

Additionally, the public has expressed through comments from the Village and residents that construction-related impacts associated with the selected remedy are not significant or noteworthy, and that long-term benefits are of higher priority.

COMMENT 27: Option 4 May Be More Easily Implemented Than Option 1B.
The implementability criteria also weighs in favor of Option 4 over Option 1B. Option 4 has already been implemented and poses no additional administrative or technical challenges. In contrast, Option 1B would require agreements with private parties, numerous regulatory approvals, further design and testing, and construction challenges that impact its ability to be implemented.

For example, in order to implement Option 1B, permanent easements for the supply wells would be required from the owners of the LaCroix and Wysocki properties. Likewise, easements would be required from private landowners along the proposed water main route. In addition, several administrative reviews would be required, including reviews by the New York State Department of Agriculture and Markets, the United States Army Corps of Engineers, NYSDEC, New York State Department of Health ("NYSDOH"), New York State Department of Transportation, the Village of Hoosick Falls, and the Town of Hoosick. See MWSS at 47.
Further, while development of the new wells and installation of the water main is technically feasible, additional engineering design, pump testing, sampling, and survey work would be required to implement this work.

The PRAP fails to fully account for the differences in the implementability of Options 4 and 1B. NYSDEC notes that "options in closer proximity to the Village (Options 1, 4, and 5) have fewer administrative challenges, such as permitting and jurisdictional review, that require less effort to ensure appropriate approvals are in place," but then lumps Options 4 and 1B together without acknowledging that Option 4 involves the use of wells located within the Village on property owned by the Village and poses no additional implementation hurdles whereas Option 1B involves the use of wells on private property nearly three miles away from the Village and does still present several administrative, technical and logistical challenges. Again, this remedy selection criteria clearly weighs in favor of Option 4.

RESPONSE 27: As stated in RESPONSE 23, Implementability refers to whether a remedy can be implemented, considering the technical and administrative challenges of constructing a remedy to achieve the remedial action objectives with preference to those options that have fewer significant challenges. While Option 4 is already constructed, the issues around implementation of 1B are common in the construction industry. While administrative reviews require time to complete, no significant challenges to implementability have been identified for Option 1B.

COMMENT 28: Option 4 Will Have a Smaller Environmental Footprint Than Option 1B.
Although "green remediation" is not a separate remedy selection criteria, DER-10 and DER-31 require NYSDEC to consider the environmental footprint of a remedial action in the remedy selection process. For example, pursuant to Section 1.14 of DER-10, "green remediation concepts will be applied to the cleanup of contaminated properties such that the remedies are protective of public health and the environment, economically sound, and as sustainable as possible." Likewise, consistent with DER-31, NYSDEC should seek to select remedies that "minimiz[e] energy consumption, reduc[e] GHG emissions… and conserv[e] natural resources such as soil, water and habitat." DER-31 at II. Accordingly, NYSDEC is required to describe thegreen remediation principles considered in the evaluation and/or selection of the remedy. Id. at
V.C. The PRAP does not include a comparison of the relative environmental footprints of

Options 4 and 1B.

Option 1B would create a much larger environmental footprint than Option 4. Construction would take 2-3 years and involve truck and vehicular traffic that produces GHG. Likewise, large construction equipment such as backhoes would also produce GHG during trenching and installation of the waterlines. Moreover, power sources would be needed to operate the new wells and pump water through the additional 2.7 miles of water main. In order to prevent the River from impacting the wells in the future, weirs also would have to be constructed to alter the River's flow. Likewise, soils would have to be excavated to install the waterlines.

In comparison, Option 4 would not produce any additional GHG, involve any additional energy consumption, or result in any new land or habitat disturbances. Thus, Option 4 also better meets the "green remediation" goals set forth in DER-10 and DER-31 than does Option 1B.

RESPONSE 28: DER-31 does not modify or replace existing remedial program goals. It is also not intended to encourage, and does not justify, implementation of a "no action" or lesser remedy when a more comprehensive remedy is called for, appropriate, and feasible. The priority remains implementing remedies that are protective of public health and the environment.

As stated on Page 13 of the PRAP, "Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. NYSDEC agrees there are environmental impacts associated with Option 1B related to the use of materials and the operation of construction equipment, and that Option 4 would not require additional construction.

However, the high frequency of GAC filter changeouts under Option 4 carries potentially significant environmental impacts in the form of materials and energy consumption. Use of carbon filter media generally requires the mining and use of coal (an energy and resource-intensive practice) which is then mechanically and thermally processed (again energy-intensive) to produce an efficient filtration medium. As noted on Page 10 of the PRAP, each of the two GAC vessels is loaded with 40,000 pounds of virgin coal-based GAC. Minimizing the frequency and overall quantity of carbon media needed, such as through Option 1B, reduces the environmental impacts associated with GAC treatment of the Village's drinking water.

COMMENT 29: There is No Sound Scientific Basis to Select Option 1B Over Option 4. Ultimately, a full balancing of the remedy selection criteria clearly favors Option 4 over Option 1B. Both options meet the threshold criteria and would be effective in the long-term, but Option 4 would be more effective in the short-term, more easily implemented, more cost- effective, and result in fewer GHG and a smaller environmental footprint. There is no scientific or technical basis to select Option 1B over Option 4.

RESPONSE 29: NYSDEC finds that a full balancing of the remedy selection criteria supports the selection of Option 1B, as described in RESPONSE 23.

COMMENT 30: The PRAP Correctly Rejects Remedial Option 2 (Development of a New

Surface Water Source) and Remedial Option 3 (Interconnection with an Existing Water Supply Source).
SGPP agrees with NYSDEC's determination that Remedial Options 2 and 3 least satisfy the remedy selection criteria. Each of these options would require extensive new infrastructure that would take years to construct, pose numerous long-term and short-term challenges, and cost tens of millions dollars more than Option 4, with no additional benefits. (See, e.g., MWSS at 62- 67.) For the reasons set forth in the MWSS and the PRAP, neither option represents a reasonable alternative.

RESPONSE 30: Comment noted.

COMMENT 31: The Identification of Operable Units in the PRAP is Not Supported By the Record.
The PRAP generally describes for the first time three separate operable units ("OUs") that NYSDEC associates with the McCaffrey Street Site and indicates that a separate record of decision will be issued for OUs 01 and OU 03 in the future. However, no OUs were ever defined prior to issuance of the PRAP. Nor are OU 01 or OU 03 fully defined in the PRAP. Neither of those purported OUs has been delineated, and the PRAP for the Municipal Water Supply is not the appropriate place to begin characterizing or defining unrelated operable units. Accordingly, SGPP reserves all rights it may have with respect to OU 01 and OU 03, including the right to dispute the designation of such OUs.

RESPONSE 31: See RESPONSE 19.

An operable unit, as defined in NYCRR Part 375, is a portion of the remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

Operable units for the site are designated in the PRAP based on the conceptual site model as it is currently understood, and site-specific administrative considerations that will eventually lead to Records of Decision for all on and off-site COCs for each OU.

NYSDEC is willing to consider alternative OUs that may be suggested by the commenter or others, but the ultimate selection of OUs remains within NYSDEC's discretion.

COMMENT 32: There Is No Basis for the Inclusion of a Biomonitoring Plan in the PRAP.
Section 7 of the PRAP indicates that the remedy shall include, among other things, a monitoring plan that involves continuation of the NYSDOH biomonitoring program and collection of blood samples and analysis for PFAS. There is no basis or need to continue the NYSDOH biomonitoring program or to otherwise collect blood samples of Village residents.
Pursuant to Section 6.2.2 of DER-10, the purpose of a monitoring plan is to "confirm that the remedy continues to be effective for continued protection of human health and the environment." Sampling of the finished water being distributed to the public is sufficient to determine whether the selected remedy is providing safe drinking water that meets all applicable SCGs. Indeed, NYSDEC has already approved an operations and maintenance plan

for the GAC system to ensure that it is operating effectively and meeting remediation goals. Pursuant to that plan, the GAC system is routinely sampled. Routine sampling for the past approximately 5 years has demonstrated that both the temporary and full-size GAC systems have been effective and that the Village's finished water is safe for consumption. Continued sampling of the GAC system is all that is required to confirm the effectiveness of the remedy.

Moreover, the two rounds of blood sampling that NYSDOH has already performed demonstrate that the implementation of the GAC system has contributed to a reduction in PFOA levels in the blood of Village residents and that levels are decreasing in proportion to the expected half-life for PFOA. See PRAP at 12. In the absence of any indication or guidance from NYSDOH (or any other regulatory entity) that additional remedial measures or health steps are necessary based upon the blood levels previously measured in 2016 and again between 2018 and 2019, there is no utility in just collecting more blood samples. Such sampling is certainly not necessary to confirm the effectiveness of the selected remedy in providing safe drinking water that meets SCGs.

The continuation of NYSDOH's biomonitoring program was not addressed in the MWSS, has not been previously raised by NYSDEC or NYSDOH, and does not belong in a PRAP for the municipal water supply.

RESPONSE 32: See RESPONSE 19 related to OU-02 RAOs.

NYSDEC requires that the selected remedy achieve the RAOs. In addition to engineering and institutional controls, continued monitoring of groundwater and drinking water, and biomonitoring are required to demonstrate that the RAOs are achieved. Monitoring of the Village's drinking water is required in Section 7 (Site Monitoring Plan) of the ROD.

COMMENT 33: The Village is Responsible for Meeting Any Water Redundancy Requirements and Satisfying Any Future Increases in Water Demand.
Several items discussed in the PRAP constitute capital improvements for the Village that are not necessary from a remedial perspective and should not be considered as part of the final remedial action for the municipal water supply. For example, Option 1B provides for continued operation of Village Well #7 so that the Village has a backup source of water as required by law. See Ex. B to PRAP. However, the Village does not currently have a backup water source, and neither CERCLA, the NY Environmental Conservation Law, nor any other applicable law or regulation requires a party conducting remedial activities to provide a municipality with a backup water source that never previously existed. The proposed remedy should not provide a basis for the Village to shift its municipal obligations to other parties. While the Village is free to continue operating Well #7 as a water source, the costs of doing so should not be a component of the final remedy.

Similarly, the cost estimate for Option 4 includes approximately $900,000 in future costs for upgrades to the existing water treatment plant if the Village elects to expand its water distribution system in the future. See Ex. E to PRAP. In the event that the Village does make the decision to expand its customer base, however, the costs of any necessary upgrades to the GAC system to facilitate the Village's decision should be borne by the Village and should not be included as part of the current remedy.

RESPONSE 33: NYSDEC requires that any remedial actions that are implemented to address site-related contamination ensure compliance with all applicable state and federal laws and regulations, including NYSDOH Part 5, Subpart 5-1 for Public Water Systems and Recommended Standards for Water Works.

COMMENTS 34 - 38 were submitted by Honeywell via letter dated June 25, 2021.

COMMENT 34: Remedial alternatives are evaluated pursuant to the criteria set forth in Title 6, Subpart 375-1.8(f) of the New York Codes, Rules, and Regulations (NYCRR) in conjunction with DER-10, Section 4. In addition, because the McCaffrey Street site is listed on the federal National Priorities List (NPL), the NCP (40 CFR Part 300.430) regulations are applicable. Of the nine criteria in both state and federal regulations, overall protectiveness of public health and the environment and SCGs are "threshold criteria and must be satisfied in order for an alternative to be considered for selection." These two threshold criteria are considered together before any of the other "primary balancing criteria" are used to compare alternatives (DER-10, Section 4.2(a)(1(ii) and 40 CFR § 300.430). A summary of relevant considerations for each of the threshold and balancing criteria are included in the following sections.

RESPONSE 34: NYSDEC agrees with this comment.

COMMENT 34a: Threshold Criteria: Protection of Human Health and the Environment and Compliance with New York State Standards, Criteria, and Guidance

Recent adoption of state-specific maximum contaminant levels for PFOA and PFOS establish the relevant criteria for selecting and measuring remedy performance.

In August 2020, maximum contaminant levels (MCLs) for PFOA and PFOS of 10 ppt, individually, were formally promulgated by New York State and are now codified in 10 NYCRR Subpart 5-1. The 2016 administrative order on consent (Order) required, among other things, an assessment of alternatives that would eliminate or reduce PFOA in the MWS.

RESPONSE 34a: NYSDEC agrees with this comment. However, the NYSDEC notes that the Threshold Criteria are attained only because of the OU designations, and specifically the fact that OU-02 is limited to the Village's drinking water.

COMMENT 34b: The PRAP recognizes that all options satisfy the threshold criteria ("Protection of Human Health and the Environment") and achieve compliance with SCGs, indicating that the two existing treatment systems previously completed as Interim Remedial Measures (IRMs) have met the goals of the remedial program.

RESPONSE 34b: NYSDEC disagrees with this comment and specifically that IRMs that have been implemented have met the goals of the remedial program.

The objective of the PRAP is to "determine a feasible source of drinking water that will adequately supply the Village demand under sustainable operation and maintenance requirements." (PRAP 2021 and RESPONSE 19). The remedial goals defined in the PRAP are to prevent ingestion of site-COCs and minimize the body burden of PFAS in the community by providing drinking water below applicable detection limits for site COCs. As discussed in RESPONSE 23, the goals of the remedial program for OU-02 are best met by Option 1B.

Additional remedial work is expected to be required to meet remedial goals for the other OUs.

COMMENT 34c: The IRMs implemented under NYSDEC and NYSDOH oversight pursuant to the Order included the design, construction, operation, maintenance, and long-term monitoring of a full-capacity treatment system utilizing GAC for the Village MWS wells. The GAC treatment system also provides both mass removal and containment source control (by extracting groundwater with elevated concentrations of PFOA in the vicinity of the McCaffrey Street site to prevent movement of contaminated groundwater to the Village well field). These IRMs are defined as Options 4 and 5 in the PRAP.

RESPONSE 34c: NYSDEC agrees with this comment.

COMMENT 34d: NYSDEC acknowledges that the existing GAC treatment system has been providing sustainable uninterrupted drinking water "below analytical reporting limits for organic compounds, including site- related COCs" since 2016. NYSDEC's conclusion that options that incorporate these two IRMs meet the threshold criteria also demonstrates that these options satisfy the goals of the remedial program as set forth in 6 NYCRR Subpart 375-2.8 (d).

The above analysis demonstrates that the IRM(s) have fully addressed site COCs in the Village's drinking water (6 NYCRR Subpart 375-2.8 (d) and DER-10, Section 4.4 (b) (3) (i)) and successfully achieved drinking water protection by meeting applicable SCGs (DER-10, Section 4.1(d) (4) (i) (2)).

RESPONSE 34d: NYSDEC agrees that the IRMs are addressing the threshold criteria, but as discussed in NYSDEC RESPONSE 23, Option 1B provides a better, long-term solution to the contamination identified in the existing supply, attributed to past operations at the McCaffrey Street facility, and is thus a better option.

COMMENT 35: Balancing Criteria: Long-Term Effectiveness and Permanence
The demonstrated effectiveness of GAC treatment since 2016 should factor significantly into NYSDEC's selection of a remedy.

As noted in Exhibit D, Page 16 of the PRAP, the existing GAC treatment system has been successfully providing drinking water "below analytical reporting limits for organic compounds,including site-related COCs" since 2016. Specifically, 5 years of routine chemical testing has proven the effectiveness of GAC at removing PFAS to non-detect levels significantly below the MCLs. This data provides strong evidence for the long-term effectiveness of those alternative remedies that include continued use of GAC.

As described in the MWSS, GAC is considered one of the three optimum available technologies under NYSDOH regulations (10 NYCRR Subpart 5-1.91 (d)) when public water systems are found to contain organic contaminants. GAC is frequently used as a treatment technology by groundwater-based public water systems throughout the state and has been recognized by the U.S. Environmental Protection Agency (USEPA) as one of the few treatment technologies to be effective at removing PFAS.

By including GAC in the proposed remedy, NYSDEC acknowledges it is a reliable and viable engineering control, which is a key factor in assessing this balancing criterion (DER-10, Section 4.3 (b) (2)). Hence, the existing IRM(s) (identified as Options 4 and 5 in the PRAP) should receive significant weight when comparing the various options in the MWSS. The PRAP's suggestion that Option 1B might provide "the highest level of long-term effectiveness due to a cleaner water source, its close proximity to end uses, and anticipated O&M" is incorrect (PRAP, Exhibit D, page 18). This NYSDEC statement misapplies the balancing criterion and is contradicted by the PRAP statement that immediately follows suggesting other options are just as effective in the long term: "Other options that include the GAC treatment are similar in their ability to ensure long-term effectiveness at achieving the remedial action objectives for the site" (PRAP, Exhibit D, page 18). In addition, the current GAC system is in close proximity to the end users; however, the proximity of the system is not relevant for this criterion and should be addressed under cost- effectiveness. Moreover, NYSDEC is incorrect on the anticipated operation and maintenance (O&M) of Option 1B due to the distance to the new supply well (approximately 1.5 miles away) and the required maintenance of the additional infrastructure that this distance would require.

RESPONSE 35: NYSDEC does not agree with the portions of this comment discussing the balancing of criteria such as long-term effectiveness. Refer to RESPONSE 23 and RESPONSE 36 regarding Options 2 & 3.

COMMENT 36: Long-term effectiveness and permanence, judged by the degree of certainty that it will prove successful in satisfying SCGs, should be considered when evaluating long-term effectiveness and permanence, including the magnitude of residual risk and adequacy and reliability of controls. The PRAP acknowledges, as supported by 5 years of data and operating history, that the existing GAC treatment system is effective at removing organic compounds, including PFOA, from the Village drinking water (PRAP, Section 6.2, page 10). Since March 2016, the treated water from the Village MWS has exhibited no detectable PFOA (with an analytical detection limit of 2 ppt, well below the MCL of 10 ppt [PRAP, Section 6.3, page 11]). The routine monitoring of the GAC at numerous sampling points, including influent, mid-point, and effluent as well as at multiple stages within each treatment vessel further demonstrates that options that include the current IRM and use GAC are adequate and reliable and eliminate any residual risks to human health or the environment from PFOA in the Village MWS.

In contrast, the long-term effectiveness of any option that would rely on the Tomhannock Reservoir (Options 2 and 3) is limited because these options would require maintenance of miles of transmission pipeline and lift stations to maintain suitable water quality before it is delivered to end users. In addition, as noted in the MWSS, the Tomhannock Reservoir exhibits low levels of PFAS compounds. NYSDEC independently tested surface water and sediment samples from the reservoir for 21 PFAS compounds in April 2019. Concentrations of PFOA up to 2.5 ppt were detected in four samples at various depths. Other PFAS detections included the following:

- Perfluorododecanoic acid (PFDoA) at 9.0 ppt;
- Perfluorotridecanoic acid (PFTriA) at 7.3 ppt;
- Perfluorononanoic acid (PFNA) at 5.9 ppt;
- Perfluoroundecanoic acid (FPUnA) at 5.7 ppt; and
- Perfluorodecanoic acid (PFDA) at 3.5 ppt.

These maintenance requirements and PFAS detections undermine the long-term effectiveness, sustainability, water production, and dependability for Options 2 and 3.

RESPONSE 36: NYSDEC agrees that detections of PFOA and other PFAS in potential source water is evident in the evaluation of long-term effectiveness and negatively impacts that criterion. NYSDEC makes this same point in RESPONSE 23.

COMMENT 37: Balancing Criteria: Cost Effectiveness
The PRAP incorrectly implies that because the "cost-effectiveness criterion is the last balancing criterion evaluated" and "where two or more options have met the requirements of the other criteria, it can be used as the basis for a final decision" (PRAP, Exhibit D, page 201).

Nowhere in New York State regulation (6 NYCRR Part 375), New York State guidance (DER-10), federal regulation (40 CFR § 300.430), or federal guidance (USEPA Publication 9200.3-23FS) is there any support for the statement that the cost-effectiveness criterion is not comparable to the other balancing criteria. DER-10 states that the six balancing criteria are "used to compare the positive and negative aspects of each remedial alternative" (DER-10, Section 4.2(a)(1) (ii)). Hence, cost effectiveness carries equal weight to all other balancing criteria.

In addition, cost effectiveness must consider both capital and annual maintenance costs (6 NYCRR Subpart 375-1.8 (e) (7)) and not simply the O&M costs implied in the PRAP evaluation.

Consistent with the NCP, DER-10 also acknowledges that cost-effectiveness is judged on the basis of whether costs are proportional to an alternatives' overall effectiveness, which, in turn, focuses on three of the balancing criteria: long-term effectiveness and permanence; reduction of toxicity, mobility, or volume of contamination through treatment; and short-term impact and effectiveness (DER-10, Section 4.2 (h) (1) (i) and 40 CFR § 300.430). A comparison of the overall effectiveness is then made to the cost of each option to assess whether its costs are proportional and cost effective (DER-10, Section 4.2 (h) (ii) (iii) and 40 CFR § 300.430).

When applied to the options in the PRAP, it is clear that Options 4 and 5, followed by Option 1B, are the most cost- effective (in that order) because of the cost differential and the equal effectiveness and result of PFAS free water. It is also clear, contrary to NYSDEC's statement in the PRAP, that Options 1B, 4, and 5 do not have similar O&M costs and capital costs and should not be considered similarly cost-effective (PRAP, page 21). There is a material difference in cost effectiveness between those three options and the other remaining options. Specifically, the total present worth of Option 1B is $9,692,000; Option 4 is $8,368,000; and Option 5 is $12,127,000. However, included in the costs for Options 4 and 5 are $2,414,000 already expended, whereas Option 1B is all new funding. Accordingly, Option 1B is 1.5 times more than Option 4, which equates to a difference of $3,738,000. The additional costs for Option 1B do not provide an incremental improvement of any of remaining balancing criteria; therefore, Option 4 best meets the cost- effectiveness criterion.

RESPONSE 37: NYSDEC agrees that cost effectiveness is an important consideration along with the other evaluation criteria and would note that it applies directly (i.e., costs are directly comparable), only when all clean up options satisfy the evaluation criteria equally. See RESPONSE 23.

Evaluation of the options in the PRAP, and as summarized in RESPONSE 23 and RESPONSE 36, demonstrates that there are clear benefits associated with a cleaner water source.

The following comment was submitted by David Engle of Gilchrist Tingley P.C. on behalf of the Village of Hoosick Falls via letter of June 25, 2021.

COMMENT 38: Under the preferred remedy, additional water system-related costs will be inevitable. Incremental costs associated with the implementation of the remedy will occur on a regular and permanent basis. To be clear, all of the costs associated with the remedy, including all long-term costs associated with operation and maintenance of all new and existing infrastructure required to address PFAS contamination must be covered by the Companies. The costs that can be reasonably anticipated are as follows:

1. Maintenance and operation of the GAC system on a permanent basis. To date, operation of the existing GAC system has imposed approximately $70,000 in annual costs on the Village. These costs cover (a) the Village Personnel who attend to the GAC System on a daily basis, (b) heating the GAC building and (c) the electricity to operate the GAC system. As noted, the Village and the Companies have executed a series of agreements under which the Companies have reimbursed the costs incurred to date. Going forward, an arrangement must be established so that the Village is not permanently in the position of having to repeatedly seek relief from the Companies.

2. Carbon replacement and GAC system repair and/or replacement. To date, the Companies have borne the costs for changing out the carbon in the GAC system, as the carbon has been expended in the process of removing PFOA and other PFAS compounds. Implementation of the proposed remedy will likely reduce the frequency of carbon change out as the new water sources do not exhibit detectable levels of PFAS compounds. Nonetheless, permanent use of the GAC systems will require removal and replacement of spent carbon. Moreover, it can be reasonably anticipated that other components of the GAC systems will require repair and/or replacement, as the system will be in operation over a period of several decades. The use of any mechanical or technological system to address an environmental problem over a period of several decades inevitably entails risk and uncertainty as

to the adequacy, durability and longevity of the technology. All of the costs and expenses which may arise for repairing and/or replacing the GAC system must be borne by the Companies.

3. New wells and pipeline. Under the preferred remedy, new wells and a new pipeline will be required. The capital costs for those improvements will be borne by the Companies. In addition, all of the incremental operational and maintenance costs for those improvements must be identified, reasonably calculated, and borne by the Companies.

RESPONSE 38: Costs identified in this comment are presented in the cost estimates for each option included in MWSS Report, Appendix E and the summary of the cost evaluation in the PRAP. They are included in the O&M items for each option. It is understood that costs to address site COCs in drinking water (the medium of concern in the PRAP) will be sought from the responsible party(ies). Also see RESPONSE 8.

Comments 39 – 42 were submitted by Sterling Environmental Engineering P.C., on behalf of the Village of Hoosick Falls, via letter dated June 3, 2021 (received with Gilchrist Tingley letter of June 25, 2021)

COMMENT 39: While the design stage of the LaCroix/Wysocki test wells is being implemented, we strongly recommend that areas east, southeast, and south of the location of the primary new supply alternative be explored to identify additional new groundwater supply sources in the Lower Aquifer for the purpose of securing a safe and reliable local source to serve as the backup water supply. This approach is preferred to continued reliance on current supply wells #3 and #7 which have high levels of PFAS contaminants and will likely remain heavily contaminated for the foreseeable future. Given the resistance of PFOA to both biodegradation and chemical breakdown and the extent of the contamination in the vicinity of the current Village wellfield, wells #3 and #7 should be regarded as permanently contaminated.

RESPONSE 39: Options for a new backup well will not be explored at this time. Sufficient supply is available from the test wells for current and estimated future demand with redundancy normally provided by one of the production wells in the existing wellfield. NYSDEC anticipates that only for maintenance, or in an emergency, and on a short-term basis, would existing wells such as Well 3 or Well 7 need to be utilized.

The GAC system will remain fully operational as described in Option 1B and is capable of treating the raw water from the existing wellfield should it need to be put into temporary service as backup to the new wellfield in an emergency or maintenance-related outage.

COMMENT 40: Technical review of the aquifer testing presented in Appendix C (Hydrogeologic Report) reveals that the pumping tests were conducted with no hydrogeologic data collected between the southern limits of the current Village well field and the primary test well LaCroix. The distance between current supply wells and the LaCroix test well is approximately 3,700 feet (0. 7 mile). The closest observation points during pumping of the LaCroix test well was monitoring well EPA-GW-02, located east of the Hoosic River, and observation wells GWl-3 or GWl-4, located west of the Hoosic River (citation: ERM, Figure 7 - Aquifer Test Monitoring Wells, May 2019), we strongly recommend that NYSDEC require the installation of sentry or sentinel wells in the "Data Gap Area," besides well couplets GWI-B/MW-08B&C and GWI-B/MW-09A&B). Monitoring and sampling of the sentry wells will allow the development of an understanding of the (I) critical site stratigraphy, (2) evaluate drawdown effects (i.e., gradient levels in potentiometric surface), and (3) long-term groundwater quality impacts due to sustained pumping by the Lacroix and Wysocki wells.

RESPONSE 40: Additional data regarding the valley geologic stratigraphy are not needed to evaluate the influence on the aquifer the test wells withdraw water from. Well pairs were installed in the data gap area after the pump test and have provided data on the geology in this area between the site and the proposed water source. There are also boring logs and data from the monitoring wells around each of the test wells. The positive indicators from these data led the NYSDEC to conclude that the lower aquifer is overlain by a low permeability layer throughout the majority of the valley. As expected, there are documented PFAS impacts in the upper aquifer and few sporadic detections in the lower aquifer.

COMMENT 41: We strongly recommend that an additional 72-hour constant rate pumping test of the new production wells be performed once these additional observation points have been installed and evaluated. A monitoring program be undertaken to ensure that the new local groundwater supply source, as proposed, is secure, safe and reliable going forward.

RESPONSE 41: The DEC will require a monitoring plan that incorporates appropriate monitoring locations and frequencies. As test wells are converted to production wells and as part of facility design additional pump tests will be completed. The new system will be required to comply with applicable SCGs during start up and operation. See also RESPONSE 3.

COMMENT 42: With respect to the adequacy of the yield of the proposed new wells, the Lower Aquifer was mapped as being 30 feet thick yet it is less than 20 feet (approximately 28.5 feet bgs to 46 feet bgs) based on the submitted boring log for GWI-09A/B. An explanation as to this apparent discrepancy should be provided to calculate the affects to the storativity and transmissivity of the Lower Aquifer as it relates to the development of the proposed new groundwater supply source.

RESPONSE 42: The thickness of the lower aquifer is highly variable depending on the location within the valley where it is being measured generally due to the uneven surface of the bedrock.

In the vicinity of the current test wells, the overburden thickness easily exceeds 30 feet while further north, the bedrock is present at a higher elevation resulting in decreased thickness. The thickness of the aquifer in the boring mentioned above is significantly far north that the values have low significance relative to the production well capacity. NYSDEC has reviewed the conclusions in the MWSS report around this issue and is fully committed to this groundwater location.

The following comment was received by Mayor Allen of the Village of Hoosick Falls via Letter (sent by email) on June 25, 2021.

COMMENT 43: Due to the complexity and time related to PFAS contamination and remediation, we request that the Department require three measures to be undertaken immediately and concurrently:

1. The Wysocki/Lacroix wells should be declared the choice, and the design phases should commence.
2. At the same time, sentry wells should be installed in the "data gap area" (see Sterling comments, pages 2 and 3), and a new pump test should be implemented to complete the data that is needed and confirm the viability of the Wysocki/Lacroix wells.
3. Simultaneously, an immediate search should begin for a third well to develop (either as a new primary well or as a new back-up well), heading in the same direction away from the Village.

Additionally, the Record of Decision must endorse the Village's position that no detectable levels of PFAS chemicals will ever be allowed or tolerated in the Village's water system. Despite the recent adoption of the 10ppt MCLs for PFOA and PFOS, that value should not apply in Hoosick Falls. Our community has been subjected to extraordinary levels of PFAS contamination over an extended period of time. Zero exposure going forward is crucial; the concept of remediation applies not just to water and soil, but to Hoosick residents as well.

RESPONSE 43: The NYSDEC has selected Option 1B (the new groundwater source) consistent with the analysis presented in the PRAP and our responses to public comments that were received during the comment period. Previous RESPONSES (3 and 16.b.) further explain NYSDEC's analysis (found in the PRAP) of the data presented in the MWSS and how those data are understood by the NYSDEC to clearly indicate the hydrogeology between the new wellfield and the McCaffrey Street site is sufficiently understood to proceed with design of the supply and transmission system without the need for additional monitoring well installation and monitoring at this time. Additional pumping tests and monitoring optimization will be conducted as needed during overall supply system design and prior to start-up. See also RESPONSE 39 regarding additional investigations for alternate back up wells.

NYSDEC understands that there is strong community opposition to any presence of PFAS chemicals in the Village's water system and any use of wells containing PFAS. NYSDEC's selection of Option 1B considers the community's strong preference for an uncontaminated water source.

APPENDIX B

Administrative Record

Saint-Gobain ~ McCaffrey Street
Operable Unit No. OU-02: Municipal Water
Supply State Superfund Project
Hoosick Falls, Rensselaer County New York
Site No. 442046

1. "Proposed Remedial Action Plan for the Saint-Gobain ~ McCaffrey Street site, OperableUnit No. 02," dated April 2021 prepared by the NYSDEC.

2. Order on Consent, Index No. CO 4-20160212-18, between the Department and the Responsible Parties, Saint-Gobain Performance Plastics and Honeywell International, Inc., executed on June 3, 2016.

3. "Citizen Participation Plan for Saint - Gobain McCaffrey Street Site," NYSDEC, August 2016.

4. "Operation and Maintenance Manual, GAC WTP Addition Hoosick Falls Water Treatment Plant" prepared for Village of Hoosick Falls, prepared by C.T. Male Associates, dated July 2017.

5. "New York State of Environmental Conservation, Groundwater Source Aquifer Evaluation, Hoosick Falls Alternate Water Supply Study" Dated July 2017. Arcadis.

6. "Protocol Work Plan, GAC WTP Addition Hoosick Falls Water Treatment Plant" prepared for Village of Hoosick Falls, prepared by C.T. Male Associates, dated November 2016, Revised April 2019.

7. "Municipal Water Supply Study for the Village of Hoosick Falls" prepared for Saint-Gobain Performance Plastics and Honeywell, prepared by ERM and CHA, dated November 2020.

8. Email dated April 21, 2021 from Glen Guillaume

9. Letter dated May 12, 2021 from Rich Elder, Rensselaer County Health Department

10. Email dated May 26, 2021 from Laura Ferrari

11. Letter dated June 3, 2021 from Sterling Environmental representing the Village of Hoosick Falls

12. Email dated June 4, 2021 from Cathy Dawson

13. Letter dated June 4, 2021 from the Hoosick Area Community Participation Working Group

14. Email dated June 22, 2021 from Bruce Patire, County Legislature

15. Email dated June 22, 2021 from Jimmy Sutton

16. Email dated June 25, 2021 from Heather Allen

17. Letter dated June 25, 2021 from Honeywell

18. Letter dated June 25, 2021 from Christopher Gibson representing Saint-Gobain Performance Plastics

19. Letter dated June 25, 2021 from New York Public Interest Research Group

20. Letter dated June 25, 2021 from David Engle representing the Village of Hoosick Falls

21. Letter dated June 25, 2021 from the Village of Hoosick Falls mayor, Robert Allen