FIRST FIVE-YEAR REVIEW REPORT FOR FULTON AVENUE SUPERFUND SITE GARDEN CITY PARK, NASSAU COUNTY, NEW YORK

Prepared by

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LIST OF ABBREVIATIONS & ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
Bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ERM	Environmental Resources Management
ft	feet
FS	Feasibility Study
FYR	Five-Year Review
GCCC	Garden City Community College
GCPIA	Garden City Park Industrial Area
HHRA	Human Health Risk Assessment
ICs	Institutional Controls
IRM	Interim Remedial Measure
ISCO	In-Situ Chemical Oxidation
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
PCE	Tetrachloroethene
PRP	Potentially Responsible Party
RAO	Remedial Action Objectives
RI	Remedial Investigation
ROD	Record of Decision
RODA	ROD Amendment
RPM	Remedial Project Manager
SMP	Site Management Plan
SSDS	Sub-Slab Depressurization System
SVE	Soil Vapor Extraction
TBC	To be Considered
TCE	Trichloroethene
µg/L	Micrograms per liter
UU/UE	Unlimited Use and Unrestricted Exposure
VGC	Village of Garden City
VI	Vapor Intrusion
VISL	Vapor Intrusion Screening Level
VOC	Volatile Organic Compounds

I. INTRODUCTION

The purpose of a five-year review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The U.S. Environmental Protection Agency (EPA) is preparing this FYR review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 121, consistent with the National Contingency Plan (NCP)(40 CFR Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the first FYR for the Fulton Avenue Superfund Site (Site). The triggering action for this statutory review is the on-site construction start date of the operable unit one (OU1) remedial action. The FYR has been prepared due to the fact that hazardous substances, pollutants or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of OU1 and OU2. OU1 will be discussed in this FYR and addresses the tetrachloroethylene (PCE)-dominant portion of the VOC plume. OU2 will not be discussed in this FYR, since it addresses the trichloroethylene (TCE)-dominant portion of the VOC plume.

The EPA Site FYR team was led by Josiah Johnson, remedial project manager, Paul Zarella, Hydrogeologist, Urszula Filipowicz, Human Health Risk Assessor, Abby DeBofsky, Ecological Risk Assessor, and Shereen Kandil, Community Information Coordinator. Steven Scharf, Project Manager from the New York State Department of Environmental Conservation (NYSDEC) also provided input. The Site's potentially responsible parties (PRPs) were notified of the initiation of the FYR which began on March 2, 2022.

Site Background

The Site is an 0.8 acre property (Fulton Property) located at 150 Fulton Avenue in Garden City Park in Nassau County, New York. In addition, the Site includes all locations impacted by contamination released at the Fulton Property, including contamination which has impacted the groundwater and indoor air in the vicinity.

The Fulton Property is owned by Gordon Atlantic Corporation and is located within the Garden City Park Industrial Area (GCPIA), Garden City Park, Town of North Hempstead, Nassau County, New York (see **Figure 1**). From January 1, 1965 through December 31, 1974, a fabric-cutting mill operated at the Fulton Property. The mill's operations included dry-cleaning of fabric with PCE which contaminated the soil and groundwater in the area. Currently, the Fulton Property is occupied by a business support company.

The Site also includes an overlapping groundwater contamination plume, primarily contaminated with TCE, in the Upper Glacial and Magothy aquifers. The origins of the TCE are not fully known and are being investigated by EPA under the OU2 activities at the Site.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION		
Site Name: Fulton Avenue		
EPA ID: NY0000110247		
Region: 2	**State:** NY	**City/County:** Garden City Park, Nassau County
SITE STATUS		
NPL Status: Final		
Multiple OUs? Yes	**Has the site achieved construction completion?** No	
REVIEW STATUS		
Lead agency: EPA *[If "Other Federal Agency", enter Agency name]*:		
Author name (Federal or State Project Manager): Josiah Johnson		
Author affiliation: EPA		
Review period: 9/19/2017 - 9/19/2022		
Date of site inspection: 7/20/2022		
Type of review: Statutory		
Review number: 1		
Triggering action date: 9/19/2017		
Due date *(five years after triggering action date)*: 9/19/2022		

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

As discussed above, operations at the Fulton Property included dry-cleaning of fabric with PCE which is a volatile organic compound (VOC). This release of PCE waste created a PCE-dominant groundwater plume which migrates in a southwesterly direction and has contaminated public supply drinking water wells, hydraulically downgradient of the site. The PCE-dominant portion of the contaminant plume overlies a larger TCE-dominant plume, which is the subject of investigation of OU2 of the Site.

A baseline Human Health Risk Assessment (HHRA) was conducted in 2005 to estimate current and future effects of contaminants on human health and the environment. Results of the risk

assessment showed unacceptable non-cancer and cancer risk to human health from exposure to groundwater though ingestion, inhalation and dermal contact.

Response Actions

On March 6, 1998, the EPA placed the Site on the National Priorities List (NPL). At that time, NYSDEC was the lead regulatory agency overseeing the implementation of the Remedial Investigation (RI), Feasibility Study (FS) and an Interim Remedial Measure (IRM).

Genesco Inc., a PRP for the Site, conducted the IRM from August 1998 to December 2001 to remove contaminants from a drywell on the Fulton Property in order to address a significant source of contamination that was impacting indoor air at the Fulton Property and the groundwater. During the IRM, contaminated soils were excavated, and a soil vapor extraction (SVE) system was installed to address residual soil contamination at the bottom of the drywell. The IRM was completed January 2, 2002, and the SVE was dismantled and removed. Following the IRM, Genesco installed a sub-slab depressurization system (SSDS) under the Fulton Property to protect occupants from exposure to VOC vapors that may enter from beneath the building. The SSDS remains in operation to protect the indoor air quality.

In 1999, under an Administrative Order with NYSDEC, the PRP contracted with an environmental consulting firm, Environmental Resources Management (ERM), to conduct an RI/FS under New York State (NYS) law. Between March 2000 and May 2003, 20 monitoring wells were installed and sampled in the RI/FS study area. The RI Report was approved by NYSDEC in November 2005, and an FS Report was approved by NYSDEC in February 2007. EPA also prepared an addendum to the FS Report in February 2007 and became the lead agency for administering the Site activities at that time.

EPA published a Record of Decision (ROD) in September 2007 which stated the following elements of the selected remedy:

- In-Situ Chemical Oxidation (ISCO) treatment of source contamination in groundwater at and near 150 Fulton Avenue.
- Construction and operation of a groundwater extraction and treatment system midway along the spine of the PCE-dominant portion of the contaminant plume.
- Evaluation of the Village of Garden City's (Village's) 2007 upgrade to treatment systems on supply wells #13 and #14 to determine whether the upgrade was fully protective.
- Investigation and remediation, if necessary, of vapor intrusion (VI) into structures within the vicinity of the Fulton Property; and
- Institutional controls to restrict future use of groundwater at the Site.

The 2007 ROD also called for the application of ISCO technology, in which an oxidant such as potassium permanganate would be injected underground near the former drywell at the Fulton Property, which was a major source of the OU1 PCE groundwater contamination. The purpose of the ISCO injections was to convert organic contamination into nonhazardous compounds, thereby accelerating restoration of the groundwater to the MCLs. Investigations performed during the OU1 remedial design, however, did not identify the location of any PCE source material in the shallow aquifer in the immediate vicinity of the Fulton Property. Therefore, it was

determined by EPA that ISCO would not be applied to the shallow aquifer at that location. As part of OU2, EPA continues to investigate additional areas for possible source material that may need to be addressed (by ISCO or another remedial approach), including source(s) of elevated PCE observed in nearby monitoring well GCP-01 located southwest and downgradient of the Fulton Property.

As it relates to the groundwater extraction and treatment system in the OU1 ROD, PCE levels in groundwater reaching the intakes of wells 13 and 14, which had been increasing in 2007, were declining since the summer of 2007. The lower PCE levels in groundwater suggested that the extraction well system contemplated in the 2007 ROD was not needed to help prevent more highly elevated levels of contamination from reaching wells 13 and 14, because such high levels of contamination were unlikely to be present in the future. The Village and Genesco proposed modifications to the 2007 ROD that would, among other things, eliminate the interim groundwater extraction and treatment system while ensuring the continued operation of the wellhead treatment systems on Village water supply wells #13 and #14. EPA and NYSDEC agreed to the remedy change and issued a ROD Amendment (RODA) in September 2015 which identified the OU1 remedy as an interim remedy and called for the following as the modified selected interim remedy:

- Continued operation, maintenance and monitoring (O&M) of the air stripping treatment systems, currently installed on Village wells #13 and #14, in order to protect the public from exposure to site-related VOCs, including PCE, found in those wells. These treatment systems will be maintained and replaced or upgraded as necessary in order to ensure that water distributed to the public from Village wells #13 and #14 complies with applicable or relevant and appropriate requirements (ARARs), including Maximum Contaminant Levels (MCLs) under the federal Safe Drinking Water Act or, if more stringent, NYS drinking water standards at 10 NYCRR Part 5, Subpart 5-1. If necessary, a vapor-phase carbon unit will be added to capture and treat VOCs being discharged from the air stripper treatment units. The pumping of Village wells #13 and #14 provides an incidental benefit of helping to reduce the mobility of contaminants in the OU1 portion of the plume. The RODA assumes the continued operation of Village wells #13 and #14 until those wells are no longer impacted by contaminants above the MCLs for PCE and TCE.

- A groundwater monitoring program is in place for 1) the Village wells #13 and #14 and 2) the monitoring wells located upgradient, side-gradient and down-gradient of the supply wells. Graphic depictions of the data results are also to be provided as part of the monitoring program. Some additional monitoring wells are expected to be installed in order to expand the existing monitoring network.

- Institutional controls in the form of local laws that restrict future use of groundwater at the Site and limit exposure at the commercial facility located at 150 Fulton Avenue in Garden City Park, New York (the Fulton Property), a source of the groundwater contamination at the Site. Specifically, the Nassau County Sanitary Code regulates installation of private potable water supply wells in Nassau County, *i.e.*, prevents installation of any private drinking water wells. In addition, the commercial facility at the Fulton Property is zoned for industrial use, and the EPA does not anticipate any changes

to the land use in the foreseeable future. If a change in land use is proposed, additional investigation of soils may be necessary to determine whether the change in land use could affect exposure risks at the Fulton Property.

- A VI evaluation of structures that are in the vicinity of the Fulton Property and that could potentially be affected by the OU1 portion of the groundwater contamination plume. An appropriate response action (such as sub-slab ventilation systems) may be implemented based on the results of the investigation. The O&M of the existing sub-slab ventilation system at the Fulton Property will continue to be operated and maintained.

- A site management plan (SMP) that will provide for the proper management of all OU1 remedy components, including compliance with institutional controls. The SMP will include: (a) O&M of the treatment systems on Village wells #13 and #14 as well as, monitoring of Site groundwater upgradient, side-gradient and downgradient of Village wells #13 and #14; (b) conducting an evaluation of the potential for VI, and an appropriate response action, if necessary, in the event of future construction at the Fulton Property; and (c) periodic certifications by the party(ies) implementing the remedy that any institutional and engineering controls are in place and being complied with.

The RAOs for the interim remedy are:

- Minimize and/or eliminate the potential for future human exposure to Site contaminants via contact with contaminated drinking water.
- Help reduce migration of contaminated groundwater.

The final goals of the OU1 Site remediation have not been determined and will be established following the findings of the OU2 RI/FS in a final ROD for OU1 and OU2.

Status of Implementation

The current ongoing actions at the Site are the continued operation, maintenance and monitoring of the existing treatment systems on Village wells #13 and #14, a comprehensive groundwater monitoring plan and institutional controls to restrict future installation of private potable wells and/or redevelopment of the Site into anything other than industrial use.

An SSDS is currently operating at the 150 Fulton Avenue property and will continue to operate. EPA is proceeding with the RI/FS for OU2 which will codify the OU1 interim remedy in a final ROD for OU1 and OU2.

IC Summary Table

Summary of Planned and/or Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Groundwater	Yes	Yes	Entire site	Restrict installation of groundwater wells and groundwater use.	ICs in the form of existing state and local regulations restrict future groundwater use at the Site. Specifically, the NYSDOH State Sanitary Code 10 NYCRR Part 5, Subpart 5-2 regulates and prevents the installation of wells at a hazardous waste site in the state.

Systems Operations/Operation & Maintenance

The Village of Garden City (VGC) continued operations and maintenance (O&M), monitoring and treatment via air stripping of the primary Village water supply wells #13 and #14. There is one air stripper for both wells. VGC also has another supply well #9 a little farther away from #13 and #14 and is also treated with an air stripper. Recently, Village well #9 has been used more frequently and also is connected to an air stripper. Since January 2021, Village well #13 is currently the primary Village supply well and was used as the primary supply well from January 2021 to June 2022. Village well #14 operated little during that same period. Nearby Village well #9 has operated regularly during April – June 2022. The Data Review section below provides more information about the VGC supply wells.

Periodic inspections and monitoring of the SSDS at the Fulton property show that it continues to operate effectively.

As discussed above, the current action is being conducted under an Interim ROD. Any future remedial actions will be determined by the remedy chosen once EPA has determined the final sitewide ROD which will include OU2.

Potential site impacts from climate change have been assessed, and the performance of the remedy is currently not at risk due to the expected effects of climate change in the region and near the site.

III. PROGRESS SINCE THE LAST REVIEW

This is the first FYR for the Fulton Avenue Superfund site.

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

On Friday, August 6, 2021, EPA Region 2 posted a notice on its website indicating that it would be reviewing site cleanups and remedies at Superfund sites in New York, New Jersey, Puerto Rico and the U.S. Virgin Islands, including the Fulton Avenue Superfund site. The announcement can be found at the following web address: https://www.epa.gov/superfund/R2-fiveyearreviews.

In addition to this notification, Shereen Kandil, EPA's CIC for the Site, posted a public notice on the EPA site webpage www.epa.gov/superfund/fulton-avenue and provided the public notice to the Village by email in August 2022 with a request that the notice be posted in municipal offices and on the village webpages. This notice indicated that a FYR would be conducted at the Fulton Avenue Superfund site to ensure that the cleanup at the Site continues to be protective of human health and the environment.

Once the FYR is completed, the results will be made available at the following repositories: U.S. Environmental Protection Agency 290 Broadway – 18th floor, New York, NY 10007, Garden City Public Library 60 Seventh St. Garden City, NY 11530, Shelter Rock Public Library 165 Shelter Rock Road Albertson, NY 11507. In addition, the final FYR report will be posted on the following website: www.epa.gov/superfund/fulton-avenue. Efforts will be made to reach out to local public officials to inform them of the results.

Data Review

Groundwater

The long-term groundwater monitoring program commenced in September 2017 following approval of the OU1 RD Work Plan. Long-term groundwater monitoring well network locations are shown on **Figure 1**. Wells sampled for the long-term groundwater monitoring program are separated into 3 groups and each group is sampled at a different frequency:

Group 1 includes eight wells in the northern, upgradient portion of the OU1 PCE dominated plume: GCP-01 S/D, GCP 08, GCP-18 S/D, GCP-15S, and MW15 A-B; three wells south-southwest of the OU2 TCE dominated plume: MW20 A-C; three wells east-southeast of the of the historic extent of the OU1 plume; and four wells in the southern, downgradient portion of the OU2 plume just west of the Garden City Community College (GCCC): MW23 A-D. Group 1 wells are sampled every 24 months.

Group 2 includes 4 wells, MW 21 A-D, just north and upgradient of the GCCC within the historical extent of the OU1 PCE dominant plume. Group 2 wells were sampled quarterly in year 1 and semi-annually in years two and three. The wells were not sampled in year four and will be sampled once in year five and every 24 months thereafter.

Group 3 includes the following 3 multi-channel wells with eight sampling intervals at each location (24 total sampling intervals): MW26 A-H, MW27 A-H, and MW28 A-H. These wells are located in the southern portion of the GCCC due south of the OU1 and OU2 plumes. All Group 3 wells were sampled quarterly in year one and none of 24 sampling intervals were sampled semi-annually in years two and three. The wells were not sampled in year four but will be sampled once in year five and every 24 months thereafter.

The data table below shows the sampling events completed to date under the long-term monitoring sampling plan:

LTM Year	Event #	Date	Groups Sampled
Year 1	Event 1	8-14 September 2017	1,2 & 3
	Event 2	15-21 December 2017	2 & 3
	Event 3	5-12 March 2018	2 & 3
	Event 4	11-15 June 2018	2 & 3
Year 2	Event 5	10-17 September 2018	2 & 3
	Event 6	4-7 & 14 March 2019	2 & 3
	Event 7	12-23 August 2019	1,2 & 3
Year 3	Event 8	24 February 2020	2 & 3
	Event 9	31 August-3 September 2020	2 & 3
Year 4	Event 10	30 August-2 September 2021	1

The most recent groundwater sampling event for Group 1, Event 10, took place between August 30 and September 2, 2021. Only Group 1 wells were sampled during Event 10. PCE was detected in 7 of the 18 wells sampled with the maximum PCE concentration of 442 micrograms per liter (µg/L) detected in GCP01. GCP01 is located near the northern boundary of OU01 and screened 49 to 59 feet below ground surface (ft bgs). Over the last 20 years, PCE concentrations in GCP01 have been elevated and fluctuated between approximately 200 and 2,000 µg/L (**Figure 2**).

During Event 10, PCE detections ranged from 2.2 to 20.5 µg/L in wells farther down gradient in the central portion of OU1. PCE was not detected in GCP-15S, 18D/S, 20A-C, 22A-C, and 23A-B. PCE in MW15A was 20.5 µg/L during sampling Event 10, down from a maximum of 2,390 µg/L in 2006 (**Figure 3**). MW15A is located approximately 2,000 ft downgradient of GCP01 and screened 140 to 150 ft bgs. PCE in MW23D, southwest of OU1 and screened 442 to 452 ft bgs, was 8.9 µg/L, slightly higher than the non-detects observed in the early 2000's (**Figure 4**).

Well Groups 2 and 3 were last sampled during Event 9 between August 31 and September 3, 2020. PCE was detected in 8 of 27 wells sampled. The maximum PCE concentration of 314 µg/L was observed in MW21B in the southern portion of OU2 approximately 1,200 ft north of Village

supply wells 13 and 14. MW21B is screened 330 to 340 ft bgs. PCE concentrations in MW21B have fluctuated over the last 10 years but are generally lower than the maximum of 2,570 µg/L identified in 2010 (**Figure 5**). The three multi-channel wells (MW26 A-H, MW27 A-H, and MW28 A-H) that are located downgradient of Village supply wells 9, 13 and 14 were last sampled during Event 9. Concentrations PCE, TCE, and 1,2-DCE were generally non-detect or low-level detections in the majority of the sampled intervals. In MW-26 PCE ranged up to 18.6 µg/L (channel D 235-355 ft bgs), TCE ranged up to 17.3 µg/L (in channel G 438-448 ft bgs), and 1,2-DCE ranged up to 8.9 µg/L (in channel D). In MW-27 VOCs were only detected in channel G (438-448 ft bgs). PCE was detected at 21.1 µg/L, TCE was detected at 4.8 µg/L, and 1,2-DCE was detected at µg/L. An estimated concentration of 1,2-DCE (0.99 µg/L) was detected in channel H (472-482 ft bgs). All MW-28 channels were non-detect for PCE, TCE, and 1,2-DCE.

The relatively low concentrations of VOCs detected in the multi-channel wells directly down-gradient of the Village public supply wells indicate that the pumping of the Village wells is helping control the migration of VOCs farther down-gradient.

Village of Garden City (VGC) Water Supply Well Monitoring

VGC supply wells #9, #13 and #14 are sampled for PCE and TCE monthly. The contaminant information and the pumping information for Village wells #9, #13, and #14 are shown in **Figures 6 and 7**. Depending on the water demands of the community, the VGC supply wells supplement each other. Usually, all three wells are not operating at the same times. Recently, nearby Village well #9 has been operating more frequently. Concentrations of PCE have fluctuated over time since the FS approval in 2007, but both maximum observed and annual average concentrations of PCE have been declining over time in Village wells #13 and #14. Concentrations of TCE have also been declining in Village well #13 and have been stable in Village well #14.

The most recent groundwater progress report (Second Quarter 2022) indicated that Village supply well #13 was used as the primary supply well from January 2021 to June 2022, while in contrast Village well #14 was operated little during the same period. Village well #9 operated very little between June 2017 and May 2020, intermittently from June 2020 to November 2020, and little from December 2020 to April 2021. As indicated above, nearby Village well #9 has operated regularly during April – June 2022. The VGC uses air stripping as the primary treatment system for the influent groundwater in all its supply wells, and the finished water that is distributed meets federal and state drinking water standards.

Vapor Intrusion Sampling

EPA initiated an investigation of subsurface VI into structures at and within the vicinity of the Fulton Property source area (150 Fulton Avenue) starting in March 2016. In addition to sampling indoor air and sub-slab at 150 Fulton Ave, several other commercial/industrial buildings located immediately downgradient from the Fulton Property were also investigated. These structures, primarily located on nearby Atlantic and Fulton Avenues were sampled in the 2016-2019 timeframe and continue to be monitored today. Additionally, the sub-slab at two residential properties located farther downgradient from the source area were sampled.

Current results of the VI sampling collected beneath 150 Fulton indicate elevated sub-slab levels of TCE and PCE still exist. During the most recent VI sampling round (April 2019), the maximum sub-slab TCE and PCE concentrations of 310 ug/m^3 and 120,000 ug/m^3, respectively, were noted. Indoor air detections of both constituents were also noted although none exceeded their respective risk-based noncancer VISL values set at a hazard quotient of 1. In 2018, based on the sampling results, the SSDS system at 150 Fulton which was initially installed as a passive system (driven by wind) was upgraded to an active system with the installation of a continuously operating electrically powered fan. Indoor air data collected post system upgrade continue to indicate detectable levels of TCE and PCE remain at similar concentrations to pre-upgrade conditions. In 2019 TCE concentrations in indoor air ranged from 0.72 to 3.4 ug/m^3, while PCE concentrations ranged from 4.4 to 13 ug/m^3. Regular O&M of the system at 150 Fulton is needed to ensure indoor air levels do not exceed risk-based action levels.

In addition, the sub-slab in two residential properties located farther downgradient from the source area were also investigated in February 2018. Result of this sampling found non-detect to very low levels (concentrations not exceeding 3.5 ug/m^3) of TCE and PCE underneath the slab of the residential structures. Based on these results, EPA concluded further sampling or investigation at these two homes is not necessary at this time.

Site Inspection

The inspection of the Site was conducted on July 20, 2022. In attendance were Kevin Willis and Josiah Johnson from EPA. The purpose of the inspection was to assess the protectiveness of the remedy. The existing remedial systems are operating, as designed. The Site inspection involved a drive around the entire Site, an examination of the SSDS at 150 Fulton Avenue, and an examination of the air stripping treatment systems installed on Village wells #13 and #14. No issues affecting protectiveness were observed.

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

As stated in the 2015 RODA for the Site, the EPA's interim selected remedy, which amends the 2007 interim ROD, calls for, among other things, the continued operation, maintenance and monitoring of the existing treatment systems on Village wells #13 and #14, a comprehensive groundwater monitoring plan and institutional controls to restrict future installation of private potable wells or redevelopment of the site into anything other than industrial (the current zoning). These measures ensure that current and future exposure to groundwater contamination is not occurring at the Site. As indicated in the data review section above, the non-detect results and relatively low detections of PCE, TCE, and 1,2-DCE in the multi-channel wells directly down-gradient of the Village supply wells show that the pumping of the supply wells is accomplishing the RAO of reducing migration.

The RODA also called for an evaluation of structures in the vicinity of the source area building (150 Fulton) for VI and, if necessary, the installation of appropriate response actions, such as

SSDSs. The VI investigation was initiated in 2016 and continues today. Lastly, an SMP, called for in the RODA, was prepared for OU1 in August 2018 and will provide for the proper management of all OU1 remedy components. These components of the interim selected remedy ensure exposure to contaminated sitewide groundwater or vapors is not occurring at the Site. Based on these considerations, the selected interim remedy is functioning as intended.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

There have been no physical changes to the Site that would adversely affect the protectiveness of the remedy. Land use assumptions, pathways, and cleanup levels considered in the decision document followed the Risk Assessment Guidance for Superfund used by the Agency at that time and remain valid. Although specific parameters may have changed since the time the risk assessment was completed, the process that was used remains valid.

As part of the OU1 remedial investigation, a baseline HHRA was conducted in 2005 to estimate current and future effects of contaminants on human health and the environment. Results of the risk assessment showed unacceptable non-cancer and cancer risk to human health from exposure to groundwater though ingestion, inhalation and dermal contact. In August 2015, in support of the RODA for the Site, EPA conducted a Supplemental Risk Evaluation using updated exposure parameters and toxicity information for PCE and TCE. Conclusions of the Supplemental Risk Evaluation were consistent with those reached in the original HHRA and showed unacceptable cancer risk and noncancer hazard from exposure to groundwater.

The following RAOs were established for OU1 in the 2007 interim ROD: 1) reduce contaminant levels in the drinking aquifer to ARARs and 2) prevent further migration of contaminated groundwater. The 2015 RODA, however, updated the RAOs for the interim remedy to the following: 1) minimize and/or eliminate the potential for future human exposure to Site contaminants via contact with contaminated drinking water and 2) help reduce migration of contaminated groundwater. These interim RAOs remain valid for the Site. Final cleanup goals and RAOs will be selected in the forthcoming comprehensive decision document for the site.

As called for in the RODA, EPA initiated an investigation of subsurface VI into structures within the vicinity of the Fulton Property initiated in March 2016. Since that time, multiple rounds of VI sampling consisting of concurrent sub-slab and indoor air samples were collected from varying structures overlying the area. A SSDS was installed beneath the source area building at 150 Fulton Avenue after the soil interim remedial measure was completed at the former drywell. The SSDS was initially installed as a passive system driven by wind but was upgraded to an active system by the installation of continuously operating electrically powered fan in 2018. The system was last sampled in 2019 and indicates that the indoor air levels of TCE and PCE are below EPA's risk-based Vapor Intrusion Screening Levels (VISLs) set at a cancer risk equal to $1x10^{-6}$ and a noncancer hazard equal to 1. To ensure protectiveness, EPA recommends that the SSDS continues to operate, that ongoing monitoring of the system be continued and that potential upgrades to the system be considered.

Commercial properties located immediately downgradient from the source area building on Fulton and Atlantic Avenue were also sampled and continue to be monitored/investigated based

on analytical results. In addition, during the February 2017 VI sampling round, sub-slab samples from two residential properties located downgradient from the source area were also collected. Results of the sampling did not find site-related contaminants above levels of concern and further evaluation at these homes was deemed not to be necessary. To ensure protectiveness, continual VI sampling and monitoring continues to be recommended for the commercial properties located in close proximity to the source area.

The potential risk to ecological receptors was evaluated in the baseline risk assessment in support of the 2007 ROD. For there to be an exposure, there must be a pathway through which a receptor *(e.g.*, animal) comes into contact with one or more of the COCs. Without a complete pathway or receptor, there is no exposure and hence, no risk. Based on a review of existing data, there were no potential exposure pathways for ecological receptors at the Site. The Fulton Property is less than one acre in size, is located within a highly developed area, and is entirely paved or covered with buildings. Furthermore, the depth to groundwater at the site (the medium of concern) is approximately 50 feet and groundwater is unlikely to affect any surface water bodies. Given that there are no complete exposure pathways to ecological receptors at the Site, exposure assumptions and RAOs used at the time of the remedy remain valid and are protective of ecological receptors.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No.

VI. ISSUES/RECOMMENDATIONS

Issues/Recommendations
OU(s) without Issues/Recommendations Identified in the Five-Year Review: OU1
OU1

Other findings

This interim remedy for OU1 will be finalized as part of the upcoming OU2/OU1 final ROD for the Site.

VII. PROTECTIVENESS STATEMENT

Protectiveness Statement(s)		
Operable Unit: OU1	*Protectiveness Determination:* Protective	Click here to enter a date
Protectiveness Statement: The interim remedy for Fulton Avenue OU1 is protective of human health and the environment.		

VIII. NEXT REVIEW

The next FYR report for the Fulton Ave OU1 Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

Record of Decision – Fulton Avenue Superfund Site, EPA, September 2007
Record of Decision Amendment – Fulton Avenue Superfund Site – Operable Unit One, EPA, September 2015
Operable Unit 1 – Remedial Action Report – Fulton Avenue Superfund Site, ERM, November 2020
Quarterly Progress Reports, ERM, August 2016 – June 2022
Sub-Slab Soil Gas Sampling/Indoor Air Sampling Trip Reports, Leidos Innovations Corporation, October 2016 – August 2019

APPENDIX B – FIGURES

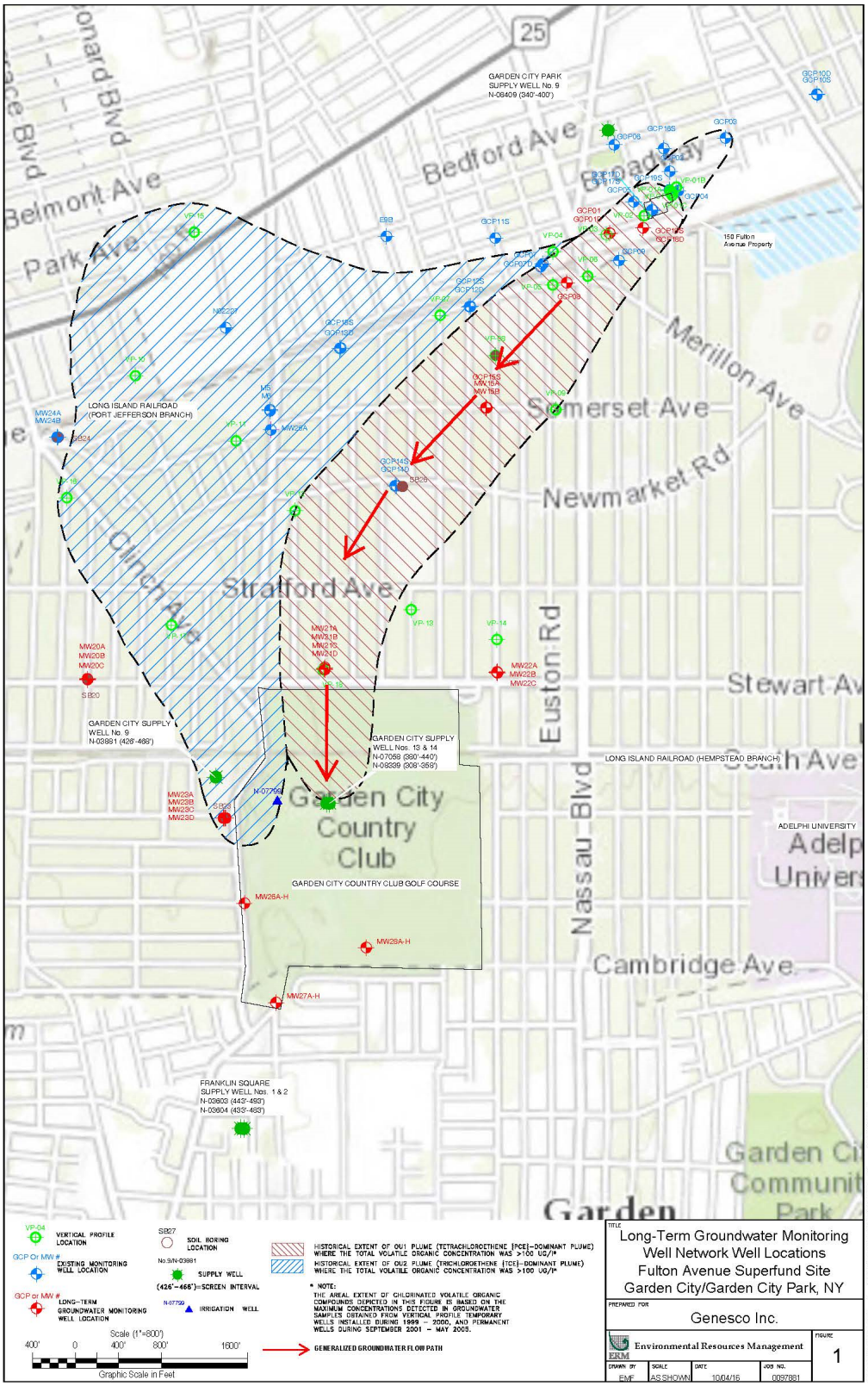

Figure 1: Long-Term Groundwater Monitoring Well Network Locations.

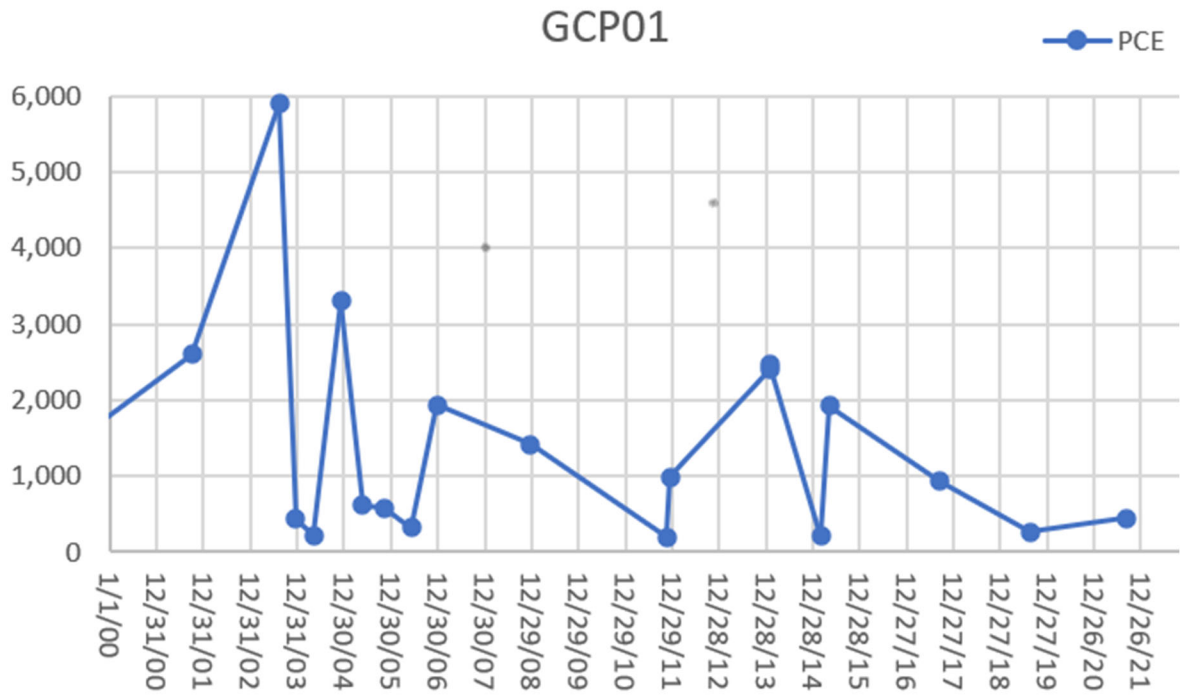

Figure 2: Historic PCE concentrations in GCP01.

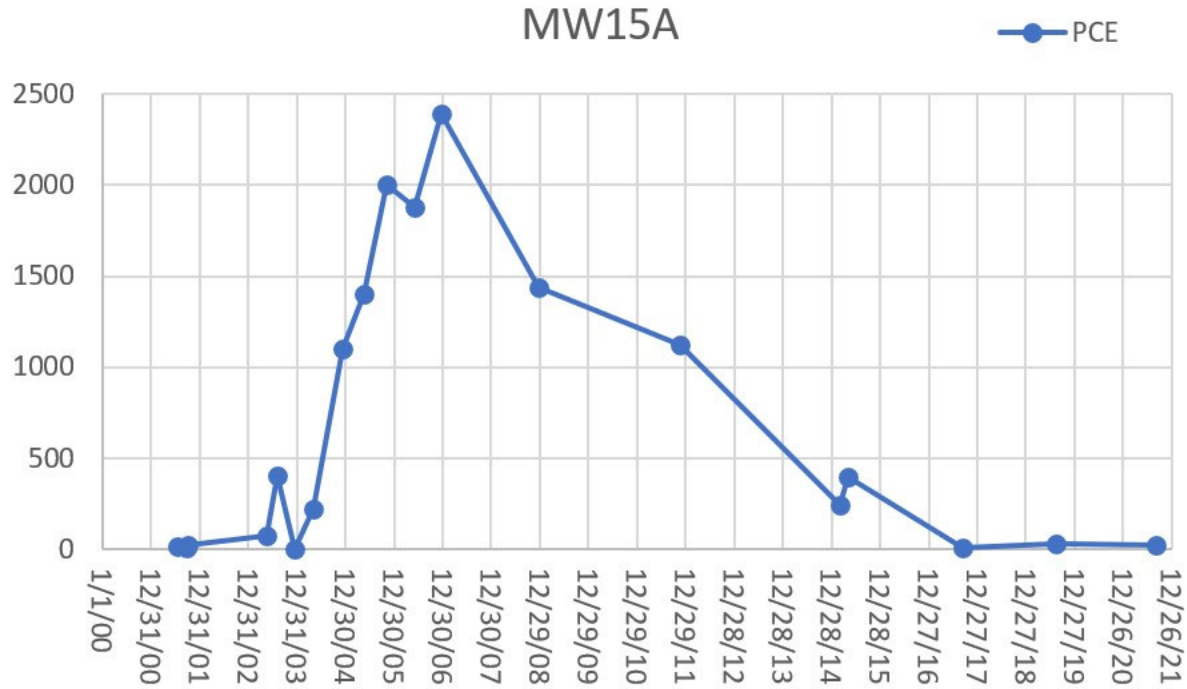

Figure 3: Historic PCE concentrations in MW15A.

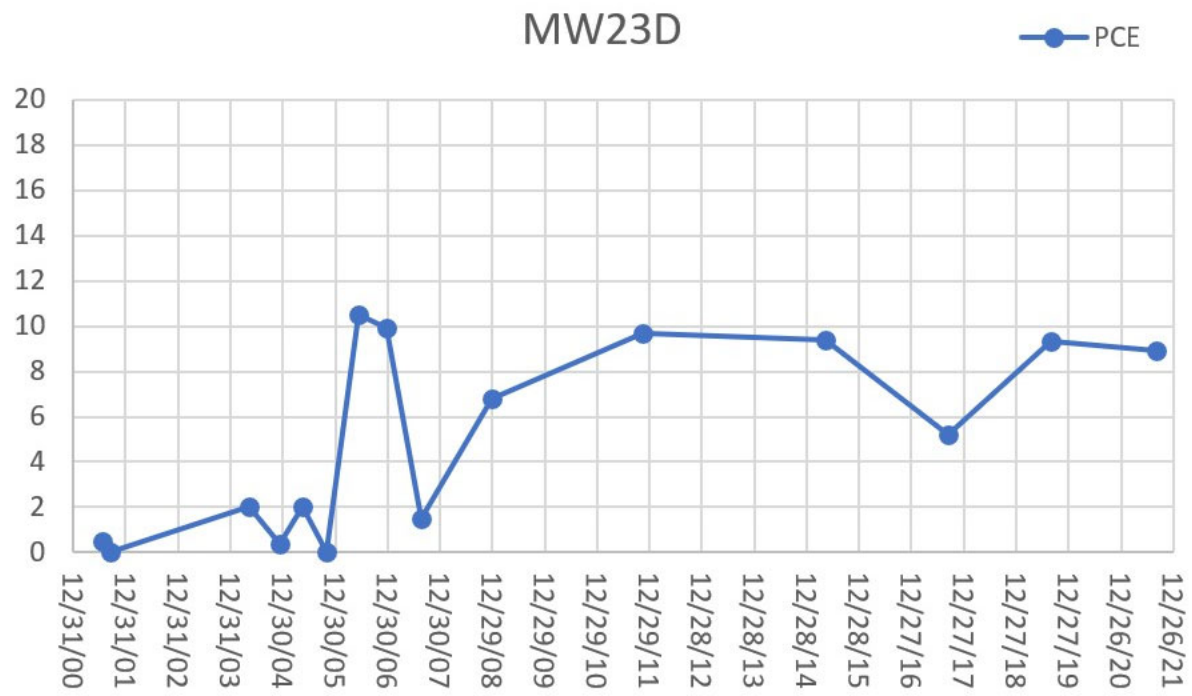

Figure 4: Historic PCE concentrations in MW23D.

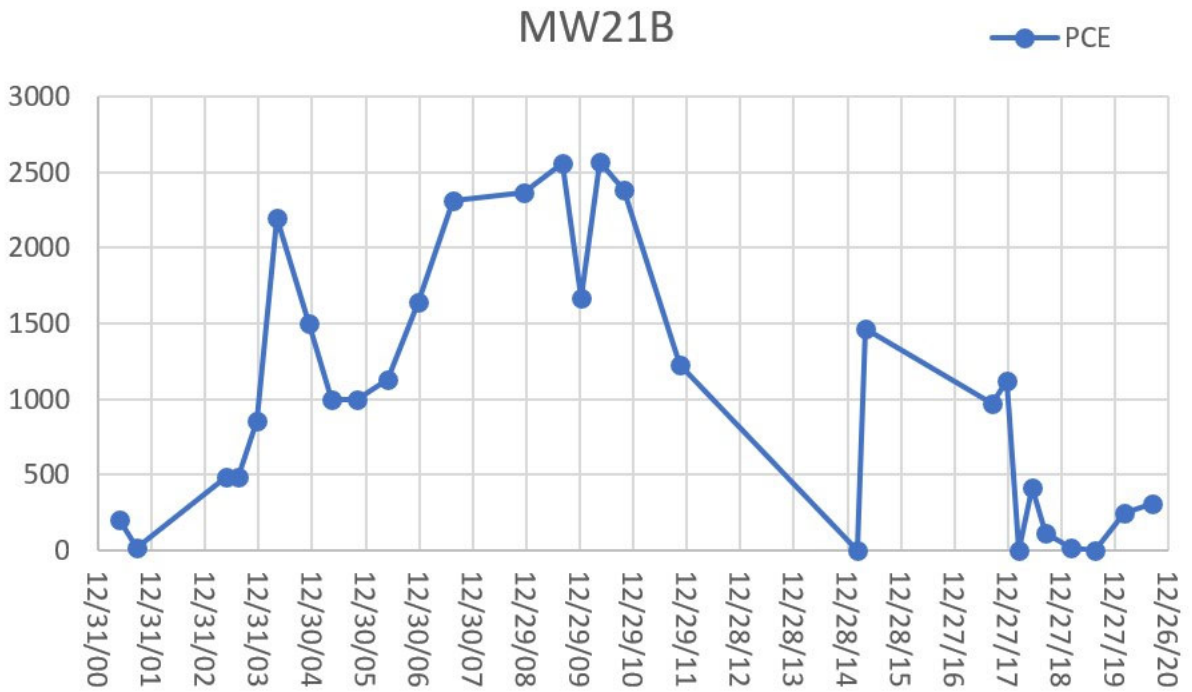

Figure 5: Historic PCE concentrations in MW21B.

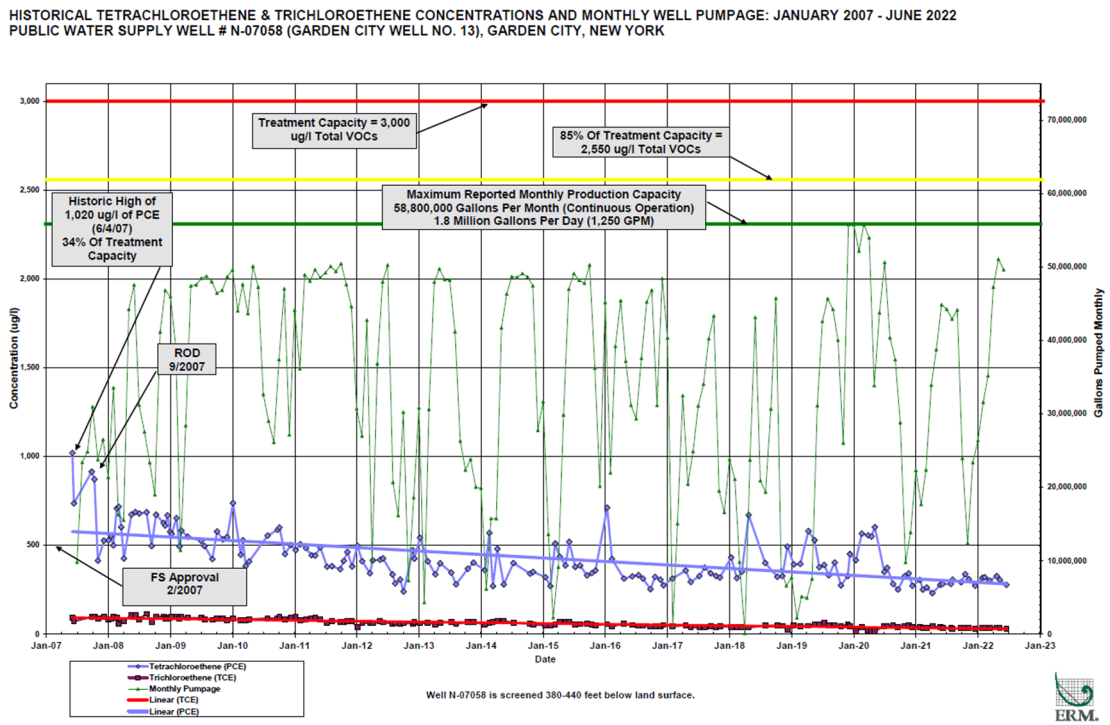

Figure 6: Historical PCE and TCE concentrations and monthly well pumping data for public water supply well 13 from Jan 2007 to June 2022.

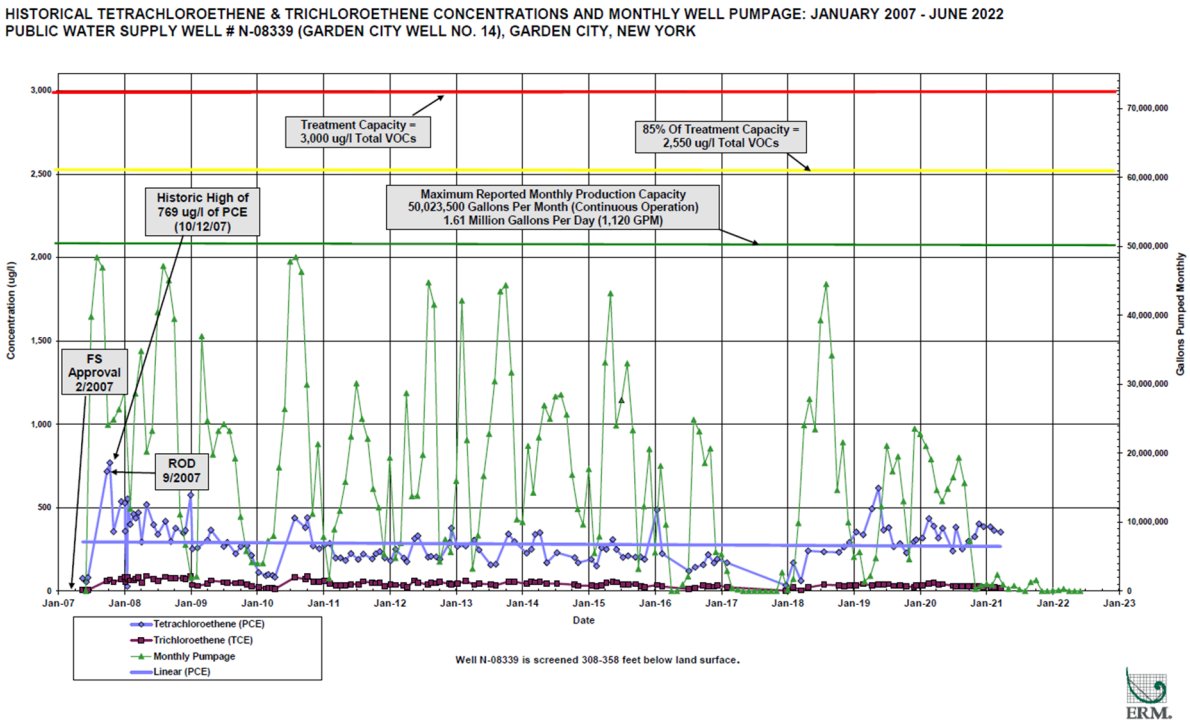

Figure 7: Historical PCE and TCE concentrations and monthly well pumping data for public water supply well 14 from Jan 2007 to June 2022