

# Fulton Avenue Superfund Site (OU1)

Garden City Park, Nassau County, New York



April 2015

## EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan describes the remedial alternatives considered for amending the interim remedial action selected in the U.S. Environmental Protection Agency's (EPA's) September 28, 2007, Record of Decision (ROD) for the first operable unit (OU1) of the Fulton Avenue Superfund Site. The Proposed Plan identifies the EPA's preferred amendment to the interim OU1 remedy for the Site and provides the rationale for this preference. The Proposed Plan was developed by the EPA in consultation with the New York State Department of Environmental Conservation (NYSDEC). The preferred interim remedial action described in this Plan addresses human and environmental risks associated with contaminants identified in the portions of the groundwater at the Site that are primarily contaminated with tetrachloroethylene (PCE).

In accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. § 9617(a), and Section 300.435(c)(2)(ii) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.435(c)(2)(ii), if the EPA decides to fundamentally alter a remedy selected in a ROD, the EPA's proposed changes must first be made available for public comment in a proposed plan before the EPA amends the ROD. The EPA is issuing this Proposed Plan as part of its public participation responsibilities under CERCLA Section 117(a) and Sections 300.430(f) and 300.435(c) of the NCP, 40 C.F.R. §§ 300.430(f) and 300.435(c).

The nature and extent of the contamination at the Site and the elements of the remedial alternatives summarized in this Proposed Plan are more fully described in the following documents: 1) Remedial Investigation Report (RI) dated August 14, 2005, 2) the Feasibility Study Report (FS) report dated July 13, 2006, 3) FS Addendum dated February 15, 2007, 4) the OU1 ROD, 5) March 18, 2014, presentation slides prepared on behalf of the Village of Garden City, N.Y. (Village) and Genesco Inc. (Genesco), a potentially responsible party for the Site that identify proposed modifications to the OU1 ROD, 6) November 18, 2014, updated remedial alternative cost estimate prepared by Genesco, 7) January 14, 2015, cost estimate prepared by the Village, and 8) other documents contained in the OU1 Administrative Record and the OU1 Administrative Record Update for the Site. The EPA encourages the public to review these documents to gain a more comprehensive understanding of the Site and the Superfund activities that have been conducted.

In this Proposed Plan, the EPA proposes to eliminate the separate groundwater extraction and treatment system component of the 2007 remedy as well as the use of *in-situ*

## Mark Your Calendar

### Public comment period:

**April 24, 2015 – May 26, 2015**

EPA will accept comments on the Proposed Plan during this public comment period.

### Public Meeting:

**May 12, 2015 at 7:00 p.m.**

EPA will hold a public meeting to explain the Proposed Plan. The meeting will be held at Garden City Village Hall, 351 Stewart Avenue, Garden City, New York.

**For more information, see the Administrative Record file, which is available at the following locations:**

Shelter Rock Public Library  
165 Seasingtown Road  
Albertson, New York 12548  
Tel. (516) 883-7331  
Hours: Monday - Friday 9:00am - 3:30pm

Garden City Public Library  
60 Seventh Street  
Garden City, New York 11530  
Tel. (516) 742-8405  
Hours: Monday and Friday 1:00pm - 6:00pm, Tuesday 1:00pm - 8:00pm, Wednesday and Thursday 10:00am - 8:00pm, Saturday 10:00am - 3:00pm

USEPA-Region 2  
Superfund Records Center  
290 Broadway, 18th Floor  
New York, NY 10007-1866  
(212) 637-4308  
Hours: Monday-Friday, 9:00 a.m. - 5:00 p.m.

Written comments on this Proposed Plan should be addressed to:

Kevin Willis, Project Manager  
United States Environmental Protection Agency  
290 Broadway, 20<sup>th</sup> Floor  
New York, NY 10007-1866  
Telephone: (212) 637-4252  
Fax: (212) 637-3966  
E-mail: [willis.kevin@epa.gov](mailto:willis.kevin@epa.gov)



319084

chemical oxidation (ISCO) in the shallow aquifer in the immediate vicinity of a facility located at 150 Fulton Avenue in Garden City Park, New York (the "Fulton Property"). The proposed remedy modification would



continue the operation and maintenance of the existing wellhead treatment systems for the Village potable water supply wells 13 and 14. The existing wellhead treatment systems consist of air strippers, which reduce concentrations of volatile organic compounds (VOCs) such as PCE in the treated drinking water to below the federal maximum contaminant levels (MCLs), followed by an activated carbon polishing step which further reduces VOC levels to below the detection limits of the required analytical method. Under this Proposed Plan, the air stripping systems will continue to be operated and maintained in order to protect the public from exposure to Site-related VOCs, including PCE, in groundwater entering those water supply wells, thereby providing a safe drinking water supply for the public. Vapor phase carbon treatment of the exhaust from the existing treatment systems will be added, if needed. The proposed remedy modification does not include maintenance of the activated carbon polishing step, which is separately implemented by the Village and which is not needed to maintain VOC levels below the MCLs. The proposed remedy modification also includes monitoring of groundwater entering wells 13 and 14 as well as monitoring groundwater upgradient, sidegradient and downgradient of wells 13 & 14.

The interim remedy described in this Proposed Plan is the *preferred* remedy for the Site. Changes to the preferred remedy or a change from the preferred remedy to another remedy may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected interim remedy will be made after the EPA has taken into consideration all public comments on this Proposed Plan.

#### **COMMUNITY ROLE IN SELECTION PROCESS**

The EPA relies on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, this Proposed Plan and the documents supporting this Proposed Plan are being made available to the public for a public comment period which begins on April 24, 2015 and concludes on May 26, 2015. See above for document repositories.

A public meeting will be held during the public comment period at the Garden City Village Hall, Garden City, New York on May 12, 2015, at 7:00 P.M. to further discuss with the public the reasons for this Proposed Plan, and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the responsiveness summary section of an amendment to the OU1 ROD, which will be the document that formalizes the EPA's selection of the modified interim remedy for OU1.

#### **SCOPE AND ROLE OF ACTION**

Site remediation activities are sometimes segregated into different phases, or operable units, so that remediation of different aspects of a site can proceed separately, resulting in a more expeditious cleanup of the entire site. The EPA also uses interim actions to address areas or contaminated media, such as groundwater, that ultimately may be

included in the final Record of Decision for a site. Interim actions are used, for example, to institute temporary measures to stabilize a site or operable unit and/or prevent further migration of contaminants or further environmental degradation.

The Site is being addressed by the EPA in two operable units. This Proposed Plan describes the EPA's preferred interim action to address the portions of the groundwater at the Site that are primarily contaminated with PCE. The EPA has designated this action as OU1 of the Site remediation. The Fulton Avenue Site also includes trichloroethylene (TCE) contamination in groundwater surrounding the PCE-dominant portion of the groundwater contamination which is being addressed in OU1. The EPA currently is investigating the TCE contamination as well as possible sources of PCE and TCE as part of a second operable unit (OU2) for the Site. The EPA currently is performing an RI/FS for OU2, and expects to issue a ROD for OU2 that will constitute the final groundwater remedy for the Site and that will serve as a final decision for OU1. This OU1 interim remedial action will assure the provision of a safe drinking water supply from Village potable supply wells 13 and 14 while the Site-wide groundwater investigation continues.

With this Proposed Plan, the EPA is modifying the scope and role of the response action identified in the 2007 ROD, which included a groundwater extraction and treatment system that was intended to work towards restoring the groundwater to its beneficial use. (See 2007 ROD at p.4.) The ROD (p.23) indicated that the groundwater extraction system was expected to "more expeditiously meet chemical-specific ARARs [applicable or relevant and appropriate requirements] (e.g., MCLs) for the groundwater." Data collected since 2007, however, show that PCE levels are declining in the OU1 portion of the groundwater plume, and the treatment systems currently installed on wells 13 and 14 are effectively removing PCE and other VOCs from groundwater entering the wells. Further, modeling analyses conducted in 2012 by Genesco raised uncertainties as to whether the groundwater extraction system would significantly shorten the time to achieve the MCL for PCE in groundwater. Because of such uncertainty, and the fact that the groundwater extraction system is not needed to protect the potable water supply obtained from Village wells 13 and 14, the EPA is proposing to eliminate the extraction and treatment system from the OU1 interim remedy. Rather than implement the groundwater extraction system as part of this interim remedy, EPA proposes instead to address restoration of the groundwater in conjunction with its evaluation of a final remedial approach for 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 is 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 PCE source material in the shallow aquifer in the immediate vicinity of the Fulton Property. Therefore, ISCO will not be applied to the shallow aquifer at that location. The EPA will continue 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.

In the 2007 ROD, the EPA indicated that the OU1 portion of the contamination plume would be restored to its beneficial use when the TCE-dominant contamination is addressed in OU2. Because all sources of contamination present in the OU1 and OU2 portions of the plume – including sources of TCE - have not yet been identified, the EPA does not have sufficient information at this time to determine whether groundwater at the Site can be fully restored, and will conduct additional investigations as part of OU2. Currently, groundwater restoration is one of EPA's goals for the final Site remedy. The OU1 interim remedy will neither be inconsistent with, nor preclude, implementation of a final remedy for the Site.

## **SITE BACKGROUND**

### **Site Description**

The Site includes the 0.8-acre Fulton Property, all contamination emanating from the Fulton Property, and other contamination impacting the groundwater in the vicinity and downgradient of the Fulton Property including an overlapping TCE-dominant portion of the plume in the Upper Glacial and Magothy aquifers, and sources of TCE contamination impacting public supply wells in the Village and Franklin Square. EPA's OU2 RI/FS includes an investigation of TCE and other PCE sources.

The Fulton Property is owned by Gordon Atlantic Corporation, a potentially responsible party for the Site. It is located within the Garden City Park Industrial Area (GCPIA) in the Hamlet of Garden City Park, Town of North Hempstead, Nassau County, New York. A fabric-cutting mill operated at the Fulton Property from approximately January 1, 1965, through December 31, 1974, which involved dry-cleaning of fabrics with PCE. Currently, the Fulton Property is occupied by a digital imaging/business support company. EPA believes that a significant portion of the PCE groundwater contamination at the Site was caused by the disposal of PCE into a drywell on the Fulton Property.

There are about 20,000 people living within a mile of the Fulton Property. Residents within the area obtain their drinking water from public supply wells. The GCPIA is immediately adjacent to residential areas.

### **Site Geology/Hydrogeology**

The Site is situated in the outwash plain on Long Island, New York. Approximately 500 feet of interbedded sands and limited clay lenses overlay Precambrian bedrock. There are three aquifers that exist beneath the Site, two of which are affected. The Upper Glacial aquifer is the surficial unit which overlies the Magothy aquifer. The Magothy is the

primary source for public water in the area. No substantive clays have been observed between the Upper Glacial and Magothy aquifers within the areas studied to date.

### **Site History**

Beginning in 1986, numerous investigations were conducted by the Nassau County Departments of Health and Public Works to identify the source(s) of VOCs impacting numerous public supply wells in Nassau County located downgradient of the GCPIA. Based on the results of these investigations, NYSDEC placed the Fulton Property on the Registry of Inactive Hazardous Waste Disposal Sites.

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

Genesco conducted the IRM from August 1998 to December 2001 to remove contaminants from a drywell on the Fulton Property in order to prevent further contaminant migration into the groundwater and into the indoor air at the facility. During the IRM, contaminated soils were excavated, after which a soil vapor extraction (SVE) system was installed to address residual soil contamination from the bottom of the drywell. The system was operated until NYSDEC Technical and Administrative Guidance Memorandum soil cleanup levels were achieved. Over 10,000 pounds of PCE were estimated to have been removed from the source area during the operation of the SVE system. This action was approved by NYSDEC and the dismantling of the SVE system was authorized on January 2, 2002.

Following this action, Genesco installed a sub-slab ventilation system under the Fulton Property to protect occupants from exposure to VOC vapors that may enter the Fulton Property from beneath the building. This system remains in operation to protect the indoor air quality.

In 1999, under an Administrative Order with NYSDEC, Genesco contracted with an environmental consulting firm, Environmental Resources Management (ERM), to conduct an RI/FS. 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. An FS Report was approved by NYSDEC on February 15, 2007. The EPA prepared an addendum to the FS Report in February 2007, and became the lead agency for the Site at the conclusion of the OU1 RI/FS process.

The Proposed Plan for OU1 at the Site was released by the EPA for public comment on February 23, 2007, and the public comment period ran from that date through March 31, 2007. The EPA selected the OU1 interim remedy in the 2007 ROD. The selected remedy included the following elements:



- ISCO treatment of source contamination 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 Village of Garden City's 2007 upgrade to treatment systems on wells 13 and 14 to determine whether the upgrade is fully protective;
- Investigation and remediation, if necessary, of vapor intrusion into structures within the vicinity of the Fulton Property; and
- Institutional controls to restrict future use of groundwater at the Site.

On September 10, 2009, the United States filed for public comment, in the United States District Court for the Eastern District of New York, a consent judgment in which Genesco agreed to implement the remedy selected in the 2007 ROD. Genesco began the remedial design of that remedy after the consent judgment was filed. The Village, which had filed its own lawsuit against Genesco and Gordon Atlantic Corporation, criticized the settlement in comments filed with the court and the consent judgment remains filed with the court but not entered. Discussions between and among EPA, Genesco, and the Village ensued.

In March of 2012, while the remedial design was underway, the Village and Genesco proposed modifications to the 2007 ROD that would, among other things, eliminate the separate groundwater extraction and treatment system while ensuring the continued operation of the wellhead treatment systems on Village water supply wells 13 and 14.

The EPA concluded that eliminating the separate groundwater extraction and treatment system from the OU1 remedy would be appropriate because PCE levels in groundwater reaching the intakes of wells 13 and 14, which had been increasing at the time of the ROD, instead have been declining since the summer of 2007. The lower PCE levels in groundwater suggest that the extraction well system contemplated in the 2007 ROD is not needed to help prevent more highly elevated levels of contamination from reaching wells 13 and 14, because such high levels of contamination are unlikely to be present in the future. The existing treatment systems at water supply wells 13 and 14 have been and are expected to continue to effectively provide a safe drinking water supply. The attenuating nature of the PCE-dominant portion of the groundwater plume indicates that the source of the PCE in the PCE-dominant portion of the plume may be depleting and that the highest levels of contamination may have already passed through the well head treatment systems at supply wells 13 and 14.

In addition, remedial design sampling conducted by Genesco's contractor in the area around 150 Fulton Avenue did not identify PCE source material in the shallow aquifer in the immediate vicinity of the former drywell into which the EPA believes PCE was historically disposed. The EPA has, however, identified fluctuating high levels of PCE (as high as approximately 50,000 parts per billion, or "ppb," in 1986) in groundwater in monitoring well GCP-01; this monitoring well is located on Atlantic Avenue approximately 400 feet southwest of the Fulton Property and monitors the shallow

#### WHAT IS RISK AND HOW IS IT CALCULATED?

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

*Hazard Identification:* In this step, the contaminants of concern (COC) at a site in various media (i.e., soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

*Exposure Assessment:* In this step, the different exposure pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil. Factors relating to the exposure assessment include, but are not limited to, the concentrations that people might be exposed to and the potential frequency and duration of exposure. Using these factors, a reasonable maximum exposure scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

*Toxicity Assessment:* In this step, the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure and severity of adverse effects are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other non-cancer health effects, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of the immune system). Some chemicals are capable of causing both cancer and non-cancer health effects.

*Risk Characterization:* This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a  $10^{-4}$  cancer risk means a one-in-ten-thousand excess cancer risk; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions explained in the Exposure Assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of  $10^{-4}$  to  $10^{-6}$  (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk) with  $10^{-5}$  being the point of departure. For non-cancer health effects, a hazard index (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding reference doses. The key concept for a non-cancer HI is that a threshold level (measured as an HI of less than 1) exists below which non-cancer health effects are not expected to occur.

aquifer. While concentrations have fluctuated significantly over the sampling period, concentrations are generally declining. A sample collected in March 2015 contained 210 ppb PCE. High PCE levels detected in GCP-01



suggest the existence of PCE source material in that vicinity. The EPA expects to continue the investigation of potential source material.

## **SUMMARY OF SOIL AND GROUNDWATER SAMPLING**

### **Soil**

A focused RI, conducted in the 1990s by NYSDEC, identified a drywell immediately adjacent to the Fulton Property building as the primary source of the PCE-dominant contamination plume migrating from the Fulton Property. This drywell was connected to a pipe which received dry-cleaning waste from inside the building. The primary contaminant identified in drywell sediments, adjacent soil, and shallow groundwater beneath the drywell was PCE. TCE was also detected in soil at the Fulton Property at lower concentrations.

A sampling effort was performed in 2010 by Genesco's consultant, ERM, to identify PCE source materials in the vicinity of the Fulton Property that would be amenable to treatment with ISCO. However, source material was not found in the shallow (Upper Glacial) aquifer in that area. The EPA intends to investigate the potential existence of possible source material in the deeper Magothy aquifer below the Garden City Park Industrial Area as part of future investigations at the Site. The investigation of whether a deeper source of Site-related PCE contamination is present in the Magothy aquifer is beyond the scope of this Proposed Plan.

Genesco conducted additional investigatory work in order to identify a source or sources responsible for the high PCE concentrations seen in monitoring well GCP-01. The investigation, however, did not identify sources of that contamination. The EPA is continuing to investigate additional areas for possible sources that may need to be addressed.

### **Groundwater**

The OU1 groundwater sampling program prior to the 2007 ROD included sampling of 20 groundwater monitoring wells located at the Site and analysis of samples for organic and inorganic compounds. The highest PCE concentration observed in monitoring well (MW) 21 prior to the ROD was 3,330 ppb detected in MW 21C in 2006. MW 21 is located approximately 1200 feet upgradient of Village wells 13 and 14.

Since the 2007 ROD, sampling of the monitoring wells along the OU1 portion of the plume, as well as data gathered by the Village during its operation of Village supply wells 13 and 14, show that concentrations of PCE have steadily diminished in the OU1 portion of the contaminant plume. For example, PCE concentrations in MW 21C have trended downward from the pre-ROD peak of 3,330 ppb in 2006 to 6.1 ppb PCE detected by EPA in June of 2013. More recently, sampling conducted by Genesco in March 2015 identified 1.5 ppb PCE in MW 21B and 1.3 ppb PCE in MW 21C, which are the lowest PCE levels detected in those well intervals since MW 21 was

constructed in 2001. TCE concentrations in MW 21B and MW 21C have similarly experienced a decline, from 80.7 ppb in 2011 to 1.1 ppb in 2015 in MW 21B, and from 48.4 ppb in 2011 to 0.0 ppb (non-detect) in 2015 in MW 21C.

A downward trend has also been observed in Village wells 13 and 14 where the concentration of PCE decreased from a high of 1,020 ppb in June 2007 in well 13 to a low concentration of 170 ppb in May and November 2014 in well 14. Samples collected in April 2015 detected 436 ppb PCE in groundwater entering well 13, and 250 ppb PCE in groundwater entering well 14. It should be noted that there are fluctuations in the PCE levels entering wells 13 and 14, though a downward trend is clearly evident over the broader sampling period since 2007.

In MW 15A, located approximately midway between MW 21 and the Fulton Property, PCE levels declined from 1,120 ppb PCE in November 2011 to 243 ppb in March 2015. These and any future data will be utilized in the evaluation of a final groundwater remedy for the Site.

With respect to the current extent of the PCE-dominant groundwater contamination being addressed in OU1, sampling conducted since 2004 at MW 26, located generally between Village supply wells 13 and 14 and Franklin Square Water District wells 1 and 2, has sporadically shown low levels of PCE-dominant contamination (in 9 of 101 samples). The majority of the contamination in MW 26 generally has been TCE. When compared to 2011 analytical results, the March 2015 samples collected from MW 26 show higher PCE concentrations relative to TCE concentrations in several of the MW 26 screening levels (MW 26D at 350.5 feet, 26E at 377 feet and 26F at 410.5 feet), with a maximum 2015 PCE concentration of 42 ppb detected in MW 26F. PCE-dominant contamination has not been detected in MW 27, located south of MW 26 and between Village supply wells 13 and 14 and the Franklin Square supply wells, nor has PCE been detected in Franklin Square supply wells 1 and 2. These data suggest that Village wells 13 and 14 are helping to reduce the migration of the OU1 portion of the groundwater plume.

## **SUMMARY OF SITE RISKS**

### **Human Health Risk Assessment**

The purpose of the risk assessment is to identify potential cancer risks and noncancer health hazards at the Site assuming that no further remedial action is taken. A baseline human health risk assessment was performed during the OU1 RI to evaluate current and future cancer risks and noncancer health hazards and is summarized below. Data collected since the 2007 ROD do not change the conclusions of the OU1 risk assessment.

A four-step risk assessment process was used for assessing Site-related cancer risks and non-cancer health hazards. The process included: Hazard Identification of Chemicals of Potential Concern (COPCs), Exposure Assessment, Toxicity Assessment, and Risk Characterization.



A baseline risk assessment is an analysis of the potential adverse human health effects caused by hazardous-substance exposure in the absence of any actions to control or mitigate such exposure under current and future land uses.

The human-health risk estimates summarized below are based on reasonable maximum exposure scenarios and were developed by taking into account various conservative estimates about the frequency and duration of an individual's exposure to the COPCs for adults and children, as well as the toxicity of these contaminants. PCE and TCE are the COPCs for OU1.

The baseline risk assessment began with selecting COPCs in media that would be representative of Site risks. Since the area is served by municipal water, it is not likely that the groundwater underlying the Site will be used for potable purposes in the foreseeable future without proper treatment. However, since the aquifer system is designated as a sole-source aquifer, and the Site groundwater is being used as a source of drinking water, exposure to untreated groundwater through ingestion, inhalation and dermal contact was evaluated.

Based on this analysis, carcinogenic risk and/or noncarcinogenic hazards were above the acceptable carcinogenic risk (CR) range of  $10^{-6}$  to  $10^{-4}$  and the noncarcinogenic hazard index (HI) of 1 for the following chemicals and exposure pathways.

Population	Pathway	CR	HI
Adult resident – TCE and PCE	Ingestion/dermal absorption	$3 \times 10^{-3}$	8
	Inhalation from shower	$6 \times 10^{-4}$	NA
	<b>Total</b>	<b><math>4 \times 10^{-3}</math></b>	<b>8</b>
Child resident – TCE and PCE	Ingestion/dermal absorption	$2 \times 10^{-3}$	22
	Inhalation from shower	$2 \times 10^{-4}$	NA
	<b>Total</b>	<b><math>2 \times 10^{-3}</math></b>	<b>22</b>
Commercial Worker – TCE and PCE	Ingestion	$7 \times 10^{-4}$	2.4

NA – Noncarcinogenic hazards were not estimated due to the lack of inhalation toxicity values for the COPCs.

These calculated risks to human health indicate that remedial action is warranted to reduce the risks associated with the observed contamination. The potential for vapor intrusion as an exposure pathway will be further evaluated.

The toxicity data and exposure assumptions that were used to estimate the potential risks and hazards to human health followed the Risk Assessment Guidance for Superfund used by the EPA. Although specific toxicity values and exposure assumptions may have changed since the time

the risk assessment was completed, the risk assessment process that was used is consistent with current methodology and the need to take action is still warranted.

### Ecological Risk Assessment

The potential risk to ecological receptors also was evaluated. For there to be an exposure, there must be a pathway through which a receptor (e.g., person, animal) comes into contact with one or more of the COPCs. Without a complete pathway or receptor, there is no exposure and, hence, no risk.

Based on a review of existing data, there are no potential exposure pathways for ecological receptors at the Site. As noted above, the Fulton Property itself is less than one acre in size and is located in the GCPIA within a highly developed area. The entire Fulton Property is paved or covered with buildings. The depth to groundwater (the medium of concern) is approximately 50 feet and is unlikely to affect any surface water bodies.

### **REMEDIAL ACTION OBJECTIVES**

Remedial action objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards such as ARARs for drinking water and groundwater, Site-specific risk-based levels, and the reasonably anticipated future land use for the Site (e.g., commercial/industrial or residential).

The following RAOs were established for OU1 in the 2007 ROD:

- Reduce contaminant levels in the drinking water aquifer to ARARs.
- Prevent further migration of contaminated groundwater.

The proposed change to the 2007 ROD is not inconsistent with the RAOs identified in the 2007 ROD, because the continued pumping and treatment of Village wells 13 and 14 will ensure a potable water supply, and this pumping and treatment provides the incidental benefit of helping to reduce migration of contaminated groundwater. While the proposed modification also will have the incidental benefit of reducing contaminant levels in drinking water, the primary purposes of this proposed modification are to prevent exposure to contaminated groundwater and to help reduce migration of contaminated groundwater.

The RAOs for this proposed change to the interim remedy are as follows:

- 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.

### **SUMMARY OF ALTERNATIVES**



**Common Elements for All Alternatives**

Under the two alternatives presented in this Proposed Plan, the existing treatment systems on Village wells 13 and 14 would continue to operate and protect the public from contamination in the OU1 portion of the groundwater plume. Each alternative requires and includes the operation, monitoring and maintenance (O&M) of the existing treatment systems until wells 13 and 14 no longer are impacted by contaminants above the MCLs. Neither alternative requires any modification to the current pumping rates or volumes of water pumped by Village wells 13 and 14.

In addition, both alternatives include institutional controls that restrict future use of groundwater at the Site. Specifically, the Nassau County Sanitary Code regulates installation of private potable water supply wells in Nassau County.

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 at the Fulton Property may be necessary to determine whether the change in land use could affect exposure risks at the property.

For each alternative, a Site management plan (SMP) would provide for the proper management of all OU1 remedy components, including institutional controls. The SMP would include: (a) O&M of Village wells 13 and 14 as well as monitoring of Site groundwater upgradient, sidegradient and downgradient of wells 13 and 14; (b) conducting an evaluation of the potential for vapor intrusion, and 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.

Each alternative also includes a vapor intrusion 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 operation, maintenance and monitoring of the existing sub-slab ventilation system at 150 Fulton Avenue would continue under both alternatives.

Below is a brief description of the two alternatives considered in this Proposed Plan.

**GW-1: Continued Operation of Existing Treatment Systems on Village Wells 13 and 14.**

Capital Cost	\$1,118,578 <sup>1</sup>
O & M Cost	\$2,920,610

<sup>1</sup> The cost estimates in the 2007 ROD were refined during the

Present Worth Cost	\$4,039,188
Construction Time	N/A
Duration	30 years

This alternative relies upon the continued operation and maintenance of the existing air stripper treatment units on Village wells 13 and 14 in order to protect the public from exposure to hazardous substances in groundwater, and to provide a safe drinking water supply. The costs associated with this alternative include the costs of replacing existing air strippers as the equipment wears out. This alternative includes the addition of a vapor phase carbon unit if needed to capture VOCs being discharged from the air stripper treatment units. This alternative also includes monitoring of contamination in groundwater entering wells 13 and 14.

For cost estimating purposes, a 30-year time frame was assumed as the duration of this alternative. The EPA expects, however, that PCE and TCE levels in the groundwater will exceed their respective MCLs for greater than 30 years and, as a result, the treatment systems on Village wells 13 and 14 will need to be operated for greater than 30 years.

Because this alternative would result in contaminants remaining on Site above levels that would allow for unlimited use and unrestricted exposure, CERCLA requires that the Site be reviewed at least once every five years.

**GW-2: Continued Operation of Existing Treatment Systems on Village wells 13 and 14, and Groundwater Extraction and Treatment**

Capital Cost	\$6,296,578
O & M Cost	\$7,415,610
Present Worth Cost	\$13,712,188
Construction Time	10 months
Duration	30 years

Alternative GW-2 was the remedy chosen in the 2007 ROD. This alternative includes a separate groundwater extraction and treatment system that would be constructed in the OU1 portion of the groundwater plume, upgradient of Village wells 13 and 14. In the ROD, the EPA anticipated that the system would be constructed in the "Estate" area of the Village, and would pump and treat groundwater for discharge into the existing infiltration

design of the 2007 remedy.



basin at the Garden City Bird Sanctuary for recharge to groundwater.

The 2007 ROD included the application of ISCO technology to address potential PCE source material in the shallow aquifer in the vicinity of the Fulton Property. As explained above, however, during the remedial design, source material amenable to treatment with ISCO was not identified in the immediate vicinity of the Fulton Property. The cost estimate for GW-2, therefore, does not include the cost of the ISCO injections that were included in the ROD remedy.

For cost estimating purposes, a 30-year time frame was assumed as the duration of this alternative. The EPA expects, however, that PCE and TCE levels in the groundwater will exceed their respective MCLs for greater than 30 years and, as a result, the treatment systems on Village wells 13 and 14 and the separate groundwater extraction and treatment system will need to be operated for greater than 30 years.

Because this alternative would result in contaminants remaining on Site above levels that would allow for unlimited use and unrestricted exposure, CERCLA requires that the Site be reviewed at least once every five years.

### EVALUATION OF ALTERNATIVES

In selecting a remedy for a site, the EPA considers the factors set forth in CERCLA § 121, 42 U.S.C. § 9621, by conducting a detailed analysis of the viable remedial alternatives pursuant to the NCP, 40 CFR § 300.430(e)(9) the EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (OSWER Directive 9355.3-01), and the EPA's *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (OSWER Directive 9200.1-23P) (July 1999). The detailed analysis consists of an assessment of the individual alternatives against each of nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria, as follows:

- X Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
- X Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether or not a remedy would meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and regulations or provide grounds for invoking a waiver.
- X Long-Term effectiveness and permanence refers to

the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met. It also addresses the magnitude and effectiveness of the measures that may be required to manage the risk posed by treatment residuals and/or untreated wastes.

- X Reduction of toxicity, mobility, or volume through treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
- X Short-Term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.
- X Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
- X Cost includes estimated capital and operation and maintenance costs, and net present-worth costs. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
- X State acceptance. Considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.
- X Community acceptance will be assessed in the ROD, and considers whether the local community agrees with the EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

The first two criteria above (overall protection of human health and the environment and compliance with ARARs) are known as "threshold criteria" because they are the minimum requirements that each response measure must meet in order to be eligible for selection as a remedy. The next five Superfund criteria (long-term protectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability and cost) are known as "primary balancing criteria" and are factors with which tradeoffs between response measures are assessed so that the best option will be chosen, given site-specific data and conditions. The final two evaluation criteria (state acceptance and community acceptance) are called "modifying criteria" because new information or comments from the state or the community on the Proposed Plan may cause the EPA to modify the



preferred response measure or cause another response measure to be considered.

In accordance with EPA guidance, this modification of the OU1 remedial action is an interim remedy that will be protective of human health and the environment in the short term and is intended to provide adequate protection until a final remedy for the Site is implemented.

This section of the Proposed Plan evaluates the relative performance of each of the two remedial alternatives discussed above against the nine criteria.

### **Overall Protection of Human Health and the Environment**

Both alternatives include the continued operation and maintenance of the existing treatment systems installed on Village wells 13 and 14 as an interim remedy, and as such overall protection would not be achieved until the final remedy for the Site is selected. Nevertheless, the treatment systems will continue to protect the public from exposure to PCE and other VOCs in the OU1 portion of the groundwater contamination plume by providing a safe drinking water supply for the Village. The institutional controls will further restrict exposure to contaminants in groundwater.

The groundwater extraction and treatment system in GW-2 is also an interim remedy and would remove some VOC contamination from groundwater upgradient of Village wells 13 and 14. Analyses performed during the remedial design, however, raised uncertainties as to whether the extraction system selected in the 2007 ROD would significantly shorten the time needed to reach the MCL for PCE in the OU1 portion of the groundwater plume. The EPA will further study the effectiveness of an extraction and treatment system as part of its evaluation of a final remedial approach for the Site.

Although GW-1 is not intended to restore the groundwater aquifer, the pumping of Village wells 13 and 14 followed by treatment of the pumped water will continue to have the incidental benefit of removing contaminants from groundwater. Similarly, the pumping of Village wells 13 and 14 will continue to help prevent the OU1 portion of the groundwater plume from reaching the Franklin Square Water District wells.

### **Compliance with ARARs**

ARARs related to the Village wells 13 and 14 include the Safe Drinking Water Act, 42 U.S.C. §§ 300f - 300j-26 (SDWA) and New York State Sanitary Code at 10 NYCRR Subpart 5-1, which relates to public water supply systems. Under both alternatives, the wellhead treatment systems for Village wells 13 and 14 would continue to achieve ARARs which are the MCLs for PCE, TCE and other VOCs in treated water as required under the SDWA 10 NYCRR Subpart 5-1.

The effluent from the pump and treat system called for in GW-2 would also achieve the MCLs for PCE and TCE. Restoration of the groundwater to MCLs will be addressed as part of the final Site remedy in OU2, and is not within the

scope of this interim response action. This Proposed Plan, therefore, does not identify remediation goals for PCE and TCE in the groundwater for OU1.

### **Long-Term Effectiveness and Permanence**

As indicated above, interim remedies are intended to be protective of human health and the environment in the short term, and to provide adequate protection until a final ROD is issued. This interim remedy, therefore, is not intended to provide a permanent remedy for OU1.

For both alternatives, the O&M of the treatment systems on Village wells 13 and 14 will continue to protect the public from exposure to contaminants in groundwater entering those wells. The OU1 remedy will be consistent with, and not preclude, a final remedy for the Site.

### **Reduction of Toxicity, Mobility, or Volume through Treatment**

Because this action does not constitute the final remedy for the Site, the statutory preference for remedies that employ treatment that reduce toxicity, mobility or volume as a principal element will be fully addressed by the final response action.

The pumping of wells 13 and 14 provides an incidental benefit of helping to reduce the mobility of contaminants in the OU1 portion of the plume. The groundwater extraction and treatment system in Alternative GW-2 would provide additional reduction in the toxicity, mobility, and volume of volatile organic contaminants in groundwater through removal and treatment of VOCs from the OU1 portion of the plume.

### **Short -Term Effectiveness**

Alternative GW-1 would not result in short-term impacts to human health and the environment because no construction is involved with respect to the treatment systems on Village wells 13 and 14. The GW-1 groundwater treatment systems already are in place and are protecting the public from impacts to human health. Alternative GW-2 would potentially result in greater short-term exposure to workers who may come into contact with contamination during construction of the groundwater extraction and treatment system.

Installation of the extraction wells and associated piping for Alternative GW-2 would be completed in approximately 8-12 months. While efforts would be made to minimize the impacts, some disturbances would result from disruption of traffic, excavation activities on public and private land, noise, and fugitive dust emissions. Proper health and safety precautions and fugitive dust mitigation measures would help control these impacts.

### **Implementability**

The technologies presented in Alternatives GW-1 and GW-2 have been used at other Superfund sites and are considered technically feasible.



The goods and services needed to implement GW-1 and GW-2 are readily available. Both alternatives are administratively implementable as well. No permits would be required for on-Site work pursuant to the permit exemption at Section 121(e)(1) of CERCLA, 42 U.S.C. § 9621(e)(1), although substantive requirements of otherwise-needed permits would be met.

**Cost**

The estimated capital, annual O&M (including monitoring), and present-worth costs for each of the alternatives are presented below:

Alternative	Capital Cost	Annual O&M	Present Worth
GW-1	\$1,118,578	\$2,920,610	\$4,039,188
GW-2	\$6,296,578	\$7,415,610	\$13,712,188

GW-1 has lower capital and O&M present worth costs than GW-2. The cost estimate for GW-1 is based on the "No Further Action – Limited Action" alternative described in the 2007 ROD, as updated by Genesco on November 18, 2014 and by the Village on January 14, 2015. The cost estimate for GW-2 is based on the cost estimate for the corresponding groundwater extraction and treatment system presented in the 2007 ROD, as adjusted based on updated cost information provided by Genesco during the remedial design of the 2007 remedy.

The cost estimates are order-of-magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual cost of the project.

For cost estimating purposes, a 30-year time frame was assumed as the duration of each alternative. The EPA expects, however, that PCE and TCE levels in the aquifer will exceed their respective MCLs for greater than 30 years and, as a result, the treatment systems on Village wells 13 and 14 will need to be operated for greater than 30 years.

The GW-1 and GW-2 cost estimates do not include a separate cost item for the vapor intrusion response actions. Because the scope of the vapor intrusion-related work would be the same under both alternatives, the vapor intrusion response actions do not change the relative cost effectiveness of each of those alternatives. In addition, the costs of vapor intrusion response actions are relatively low, and the EPA does not expect the vapor intrusion response actions costs to affect whether the actual remedy costs are within +50% to -30% of the cost estimates.

**State Acceptance**

The State of New York supports the preferred remedy.

**Community Acceptance**

Community acceptance of the preferred remedy will be assessed in the ROD following review of the public comments received on this Proposed Plan.

***PREFERRED ALTERNATIVE***

The EPA's preferred alternative for amending the 2007 interim ROD is Alternative GW-1 (Continued Operation of Existing Treatment Systems on Village Wells 13 and 14). This alternative consists of the following:

- Continued O&M (including monitoring) of the treatment systems currently installed on Village wells 13 and 14 in order to protect the public from exposure to Site-related volatile organic compounds, including PCE, in groundwater entering those wells. The treatment systems will be maintained and replaced or upgraded as needed in order to ensure that water distributed to the public from wells 13 and 14 complies with ARARs (including SDWA and 10 NYCRR Subpart 5-1). Vapor phase carbon treatment of the exhaust from the existing treatment systems will be added, if needed. The proposed remedy modification does not include maintenance of the activated carbon polishing step, which is separately implemented by the Village and which is not needed to maintain VOC levels below the MCLs;
- A monitoring plan that will include groundwater sampling to monitor contaminant levels in groundwater at the Site, including monitoring of contamination that is entering wells 13 and 14, monitoring of groundwater upgradient, sidegradient and downgradient of wells 13 and 14, and graphic depictions of the results;
- Institutional controls that restrict future use of groundwater at the Site. Specifically, the Nassau County Sanitary Code regulates installation of private potable water supply wells in Nassau County. 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 at the Fulton Property may be necessary to determine whether the change in land use could affect exposure risks at the property;
- A vapor intrusion 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 operation, maintenance and monitoring of the existing sub-slab ventilation system at 150 Fulton Avenue would continue; and



- A site management plan (SMP) that would provide for the proper management of all OU1 remedy components, including institutional controls. The SMP would include: (a) O&M of Village wells 13 and 14 as well as monitoring of Site groundwater upgradient, sidegradient and downgradient of wells 13 and 14; (b) conducting an evaluation of the potential for vapor intrusion, 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.

The preferred alternative may change in response to public comments or new information.

### **RATIONALE FOR PREFERRED ALTERNATIVE**

Because this is an interim remedy, the GW-1 alternative would ensure the protection of the public water supply until a final remedy that addresses the groundwater is selected for the Site. Contamination levels in groundwater entering Village wells 13 and 14 will be monitored, and the treatment systems will be maintained and replaced or upgraded as needed in order to ensure that water distributed to the public from Village wells 13 and 14 complies with ARARs.

Alternative GW-1 provides the best balance of trade-offs between the two alternatives with respect to the balancing criteria discussed above. The EPA believes that the preferred alternative will be protective of human health and the environment until a final remedy is selected for the Site, will comply with the ARARs identified for this interim action, and is cost-effective. Although this interim action is not intended to address fully the statutory mandate for compliance with ARARs, overall protection, permanence, and treatment to the maximum extent practicable, this interim action does utilize treatment at the Village wells, and thus supports part of the statutory mandate.

The preferred alternative GW-1 is more cost-effective than GW-2. The GW-2 extraction and treatment system has a present-worth cost of approximately \$13.7 million, without fully restoring the aquifer. GW-1 also would have fewer short-term impacts to workers and the community, and is more readily implementable because it does not involve the construction of an extraction and treatment system. The well head treatment systems of Alternative GW-1 are in place and, therefore, are already protecting the public from drinking water impacts to human health. The EPA expects that before the ROD is issued the Village and Genesco will reach an agreement that will ensure the long-term O&M of the Village well 13 and 14 treatment systems.

The EPA expects that PCE and TCE levels in the aquifer will exceed their respective MCLs for greater than 30 years and, as a result, the treatment systems on Village wells 13 and 14 will need to be operated for greater than 30 years.

The continued operation of Village wells 13 and 14 will continue to help reduce migration of the OU1 portion of the

groundwater plume toward the Franklin Square Water District wells. The Village wells 13 and 14 treatment systems also will have the incidental benefit of removing and treating contaminants in groundwater that enters those wells, and thereby reducing the mass and mobility of VOCs in the OU1 part of the groundwater plume.

The environmental benefits of the preferred remedial alternative may be enhanced by employing design technologies and practices that are sustainable in accordance with the EPA Region 2's Clean and Green Energy Policy, available at: [http://epa.gov/region2/superfund/green\\_remediation](http://epa.gov/region2/superfund/green_remediation).

EPA expects the preferred alternative to satisfy the statutory requirements of CERCLA § 121(b), as follows: Based on information currently available, the preferred alternative, GW-1, is protective of human health and the environment in the short term and is intended to provide adequate protection until a final remedy is implemented for the Site, complies with those federal and state requirements that are applicable or relevant and appropriate for this limited-scope action, and is cost-effective. The preferred alternative, therefore, meets the threshold criteria, and provides a better balance of tradeoffs than alternative GW-2. Because this action does not constitute the final remedy for the Site, the statutory preference for remedies that employ treatment that reduce toxicity, mobility or volume as a principal element will be fully addressed by the final response action. Subsequent actions will be evaluated to address fully the threats posed by conditions at the Site. Because this remedy will result in hazardous substances remaining on-Site above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within five years after commencement of the remedial action. Because this is an interim action, review of this remedy and the Site will be ongoing as the EPA develops the final Site remedy.



