RECORD OF DECISION

Operable Unit 2 (Area 3)

Cayuga County Groundwater Contamination Superfund Site

Cayuga County, New York

United States Environmental Protection Agency

Region 2

New York, New York

September 2019

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Cayuga County Groundwater Contamination Superfund Site, Cayuga County, New York

Superfund Site Identification Number: NYN000204289

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the U.S. Environmental Protection Agency's (EPA's) selection of a groundwater remedy for Operable Unit 2 (OU2) of the Cayuga County Groundwater Contamination Site, which is chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. Sections 9601 - 9675, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision document explains the factual and legal basis for selecting a remedy to address the impacts associated with Area 3 (OU2) of the Site. The attached index (See Appendix III) identifies the items that comprise the Administrative Record for this action, upon which the selected remedy is based.

The New York State Department of Environmental Conservation (NYSDEC) was consulted on the proposed remedy in accordance with CERCLA Section 121(f), 42 U.S.C. Section 9621(f), and NYSDEC concurs with the selected remedy (See Appendix IV for the NYSDEC Concurrence letter). EPA also reached out to consult with the Cayuga Nation on the selection of the Area 3 groundwater remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health or welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

A previous ROD for Operable Unit 1 (OU1), signed in March 2013, selected a remedy to address contamination in drinking water and groundwater in two areas identified for remediation as Area 1 and Area 2 and drinking water only in Area 3 of the Site. For remedial planning purposes, Area 1 consists of the impacted area immediately south of a facility located at 2181 West Genesee Street, in the City of Auburn, New York (Powerex Facility or Facility, which is the major source of contamination) and extends approximately 700 to 900 feet south of West Genesee Street. Area 2 consists of the impacted area immediately south-southwest of Area 1 and extends southwest to the Town of Aurelius. Area 3 consists of the impacted area immediately southwest of Area 2 extending to and including the Village of Union Springs. Refer to Figure 1 in Appendix I for a Site Location Map.

The selected remedy described in this document addresses groundwater in Area 3 and is considered

a final action for this portion of the Site. Investigations and the risk assessments performed for surface water in Area 3 showed that surface water does not require remediation. The response action described in this document represents the second remedial phase for the Site, identified as OU2.

The major components of the selected remedy for OU2 of the Site include the following:

- Naturally occurring, in-situ processes (Monitored Natural Attenuation or MNA) to decrease the mass or concentration of contaminants in groundwater in Area 3 to achieve federal maximum contaminant levels (MCLs) or more stringent state standards;
- Implementation of a program for long-term monitoring of contaminants in the groundwater plume to track and monitor changes in the concentrations of contaminants and measure progress towards attainment of the Remedial Action Objectives (RAOs). The monitoring program will consist of periodic monitoring for parameters such as volatile organic compounds (VOCs), geochemical indicators and hydrogeologic parameters in the monitoring well network; and
- A Site Management Plan (SMP) that will provide for the proper management of the Site remedy post-construction. The SMP will include provisions for any operation and maintenance and long-term monitoring required for the remedy; as well as periodic certifications; and
- Institutional Controls in the form of any existing local laws that limit installation of drinking water wells and informational devices such as advisories published in newspapers and letters sent to local government authorities to limit exposure to contaminated groundwater.

The Facility continues to be a source of VOC contamination to groundwater at this Site. The source investigations and other response actions for the Facility are being addressed by the General Electric Company (GE) with NYSDEC oversight pursuant to New York State law. Remedial actions for the Facility are not the focus of this decision document, although successful remediation (i.e., source control or removal) of the source area(s) at the Facility, as well as the remediation of Area 1 and Area 2 pursuant to the OU1 ROD, are important to the full realization of the benefits of the remedy selected in this ROD. In the event that source control is not successfully implemented pursuant to New York State law, EPA may elect to evaluate additional options at the Facility pursuant to CERCLA to ensure the effectiveness of the selected remedy.

To potentially enhance the environmental benefits of the preferred remedy consideration will be given, during the design, to technologies and practices that are sustainable, in accordance with EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[1] This will include consideration of green remediation technologies and practices.

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy meets the requirements for remedial actions set forth in Section 121 of CERCLA, 42 U.S.C. § 9621, because it meets the following requirements: 1) it is protective of human health and the environment; 2) it meets a level or standard of control of the hazardous substances, pollutants, and contaminants which at least attains the legally applicable or relevant and appropriate

[1] See https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy, and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

requirements under the federal and state laws; 3) it is cost-effective; and 4) it utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. Although the selected remedy does not satisfy the preference for treatment as a principal element in Area 3, active treatment in Area 1 will reduce contaminants migrating to Area 3.

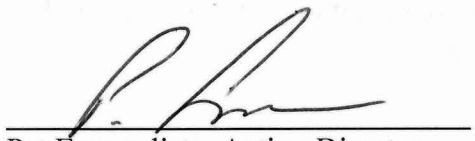
While the selected remedy will ultimately result in reduction of contaminants in groundwater to levels that will allow for unlimited use and unrestricted exposure, it is anticipated that it will take longer than five years to achieve these levels. As a result, in accordance with CERCLA, the Site remedy is to be reviewed at least once every five years until remediation goals are achieved and unrestricted use is achieved.

ROD DATA CERTIFICATION CHECKLIST

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this action.

- A discussion of the current nature and extent of contamination is included in the "Summary of Site Characteristics" section.
- Chemicals of concern and their respective concentrations may be found in the "Summary of Site Characteristics" section.
- Potential adverse effects associated with exposure to Site contaminants may be found in the "Summary of Site Risks" section.
- A discussion of groundwater remediation goals for chemicals of concern may be found in the "Remedial Action Objectives (RAOs)" section.
- A discussion of principal threat waste is contained in the "Principal Threat Waste" section.
- Current and reasonably anticipated future land use assumptions are discussed in the "Current and Potential Future Land and Groundwater Uses" section.
- RAOs to be achieved as a result of the selected remedy are discussed in the "RAOs" section.
- Estimated capital, annual operation and maintenance (O&M), and total present worth costs are discussed in the "Description of Alternatives" section.
- Key factors that led to selecting the remedies (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decisions) may be found in the "Comparative Analysis of Alternatives" and "Statutory Determinations" sections.

AUTHORIZING SIGNATURE



9/30/19

Pat Evangelista, Acting Director
Superfund & Emergency Management Division
EPA - Region 2

Date

DECISION SUMMARY

Operable Unit 2 (Area 3)

Cayuga County Groundwater Contamination Superfund Site

Cayuga County, New York

United States Environmental Protection Agency
Region 2
New York, New York
September 2019

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SITE NAME, LOCATION, AND DESCRIPTION

The Cayuga County Groundwater Contamination Site (Site) includes a groundwater plume located in Cayuga County, New York. Groundwater contaminated with volatile organic compounds (VOCs) extends from the City of Auburn to the Village of Union Springs, a distance of approximately of seven miles, and includes the Towns of Aurelius, Fleming, and Springport. A Site location map is provided as Figure 1 in Appendix I.

The area contains mostly residential properties intermingled with extensive farmland and patches of woodlands, as well as some commercial areas. Some of the contaminated groundwater plume underlies the ancestral lands of the Cayuga Nation as recognized by the 1794 Treaty of Canandaigua, including a property currently belonging to individuals of the Cayuga Nation (in the south western portion of the Site).

Two public water supply systems serve residences located within the Site. The Village of Union Springs, on the east shore of Cayuga Lake, operates two water supply wells. Groundwater from these two wells is treated using an air stripper to remove VOCs. The City of Auburn provides drinking water to the Cayuga County Water and Sewer Authority and the Town of Springport which distributes drinking water to the area south and west of Auburn. The City of Auburn draws its drinking water from Owasco Lake, which has not been impacted by the Site.

SITE HISTORY AND ENFORCEMENT ACTIVITIES

The major source of the groundwater contamination at the Site is a facility located at 2181 West Genesee Street, City of Auburn, New York (Powerex Facility or Facility). Between 1951 and 1986, the General Electric Company (GE) owned the Facility. GE manufactured a variety of electrical components at the Facility including radar equipment, printed circuit boards for high-fidelity equipment, and high-voltage semi-conductors. In January 1986, Powerex, Inc. (Powerex), a joint venture of GE, Westinghouse Electric Company and Mitsubishi Electric America Inc., purchased the Facility and continued to manufacture high voltage semi-conductors until May 1990, when the plant was closed. Solvents, including trichloroethene (TCE), were disposed of at the Facility during GE's and Powerex's operations. GE reacquired the Facility in 1990. No manufacturing operations are currently conducted at the Facility.

In 1988, routine testing of the Village of Union Springs' municipal drinking water supply conducted by the New York State Department of Health (NYSDOH) revealed low levels of two VOCs, *cis*-1,2-dichloroethene (*cis*-1,2-DCE) and TCE. In 1989, routine testing by NYSDOH of the drinking water supply at a private school, the Union Springs Academy also revealed low levels of *cis*-1,2-DCE and TCE. In 2000, NYSDEC conducted a potential VOC source area investigation, which included sampling residential water supplies. As a result of this investigation, 18 residential wells were found to be contaminated with VOCs. Distribution of the contamination indicated that the source(s) were located to the northeast of the Village of Union Springs toward the City of Auburn. In 2001, the Village of Union Springs installed an air stripper on the public water supply to remove the VOC contaminants. The Union Springs Academy well is no longer in service and drinking water for the school is now provided by the Village of Union Springs public

water supply.

Beginning in December 2000, EPA initiated a response action that included additional groundwater sampling and the installation of point-of-entry treatment systems (POETS) on private wells with contaminant levels above federal Maximum Contaminant Levels (MCLs). By April 2001, over 300 residential and private water supply wells were sampled in connection with investigations by EPA, NYSDEC, NYSDOH, and the Cayuga County Department of Health (CCDOH). As a result of these sampling events, EPA determined that 51 residential wells and three farm wells (54 total wells) were contaminated with VOCs, primarily TCE, *cis*-1,2-DCE, and vinyl chloride at concentrations above the federal MCLs. Additional residences' water supply wells were found with VOC contamination above state standards, but at concentrations less than the federal MCLs.

Beginning in the fall of 2001, the Cayuga County Water and Sewer Authority installed public water lines to reach almost all homes in the affected area within the Town of Aurelius. In 2006, the Towns of Springport and Fleming installed public water lines to the remainder of the affected area in their towns. Residences with POETS installed previously by EPA were connected to the public water supply. However, EPA continued to maintain treatment systems on four impacted properties with wells: three dual-use (agricultural/residential) wells and one residential well. The maintenance of these systems at the four properties had been conducted by EPA until this work was assumed by GE pursuant to an administrative order on consent entered into with EPA on September 10, 2012, Index No. CERCLA-02-2012-2023 (2012 Order). Currently, the dual-use (agricultural) wells are used only for agricultural purposes. The farm residents currently receive water for domestic use from public water supply system. The one residential property has since been connected to the public water supply. Maintenance at the three agricultural wells is currently being conducted by GE under a second administrative order issued by EPA on September 25, 2015 (Index No. Index No. CERCLA 02-2015-2036) (2015 Order). There are a limited number of residences with VOC contamination levels less than the federal MCLs and state standards that had POETS installed by the CCDOH with funding from the State of New York. These POETS are currently maintained by the homeowners. In addition, other residences that declined to have POETS installed were found with VOC contaminants above the state groundwater standard, but at levels below the federal MCLs.

From January 2001 through 2010, several hydrological investigations and groundwater sampling events have been conducted by EPA, NYSDEC and NYSDOH, the United States Geological Survey (USGS), and CCDOH. These investigations involved the installation, hydraulic and geophysical testing, and sampling of groundwater monitoring wells and private residential wells. EPA has also reviewed studies and sampling conducted by GE pursuant to NYSDEC orders issued since 1990s for the Facility. Under the NYSDEC orders, GE sampled wells installed at, and downgradient of, the Facility as part of the remedial investigation/feasibility study (RI/FS) for the Facility, which is listed on the State registry of inactive hazardous waste sites.

On September 13, 2001, EPA proposed the Site for inclusion on the National Priorities List (NPL) and on September 5, 2002, EPA placed the Site on the NPL.

EPA conducted a Remedial Investigation (RI) at the Site from 2001 through 2010. Multiple rounds of groundwater, surface water, and sediment samples were collected, resulting in an RI Report that

was issued in February 2012. The RI identified that groundwater contamination occurs primarily in deep zones of the bedrock aquifer system and is most concentrated in the gypsiferous upper portion of the Forge Hollow Unit (identified as the D3 zone in the 2012 RI Report). VOCs, primarily TCE, *cis*-1,2-DCE, *trans*-1,2-DCE, and vinyl chloride were identified as the Site-related chemicals of concern for the deep bedrock units (D1 through D6 zones).

In July 2012, EPA released for public comment a Proposed Plan to address the entire groundwater plume at the Site extending from the Facility to the Village of Union Springs. The July 2012 Proposed Plan identified the preferred remedial alternatives to address the entire Site. In March 2013, EPA issued a Record of Decision (ROD) selecting a remedy that actively addressed drinking water and groundwater in Area 1 and Area 2 and drinking water only in Area 3.[2] 1 As a result of comments received during the public comment period, a remedy addressing groundwater and surface water in Area 3 was deferred pending further investigation. Figure 2 in Appendix I of this ROD generally depicts Area 3.

The Facility is being addressed by GE with NYSDEC oversight under the State's superfund program. Cleanup of the Facility is not the focus of this decision document, although successful remediation (i.e., source control or removal) of the source area(s) at the Facility is important to the full realization of the benefits of the remedy selected in this ROD. EPA has identified GE as a potentially responsible party under CERCLA for the Site. The effectiveness of the federal remedies for this Site requires coordination between actions to address contaminant sources at the Facility by the State and the actions to address Areas 1, 2, and 3 under federal oversight. EPA and NYSDEC have been and will continue to coordinate on the remediation of the source areas at the Facility and Areas 1, 2, and 3. In the event that source control is not successfully implemented pursuant to New York State law, EPA may elect to evaluate additional options at the Facility pursuant to CERCLA to ensure the effectiveness of the selected alternative for OU2.

Subsequent to the issuance of the 2013 ROD, on September 30, 2013, an administrative order on consent (Index No. CERCLA 02-2013-2021) (2013 Consent Order) was entered between EPA and GE for performance of the remedial design related to Areas 1 and 2 and a supplemental investigation of Area 3 of the Site. Pursuant to the 2013 Consent Order, GE is currently performing the remedial design for Area 1 and 2. As part of the remedial design, an enhanced in-situ bioremediation treatment pilot test is underway in the deep bedrock zone along the southern boundary of the Facility (Area 1) to collect data needed to design the OU1 selected remedy. The 2015 Order issued to GE also required GE to design and implement a backup power and backup treatment system for the Village of Union Springs' public water supply. In addition, the terms of the 2012 Order pertaining to the POETs were included in the 2015 Order. The remedial action report for this work was completed by GE in September 2017.

In March 2016, NYSDEC selected a remedy under its State authorities to address groundwater contamination at the Facility. The remedy includes enhanced in-situ bioremediation in the

[2] For remedial planning purposes, Area 1 consists of the impacted area immediately south of the Facility and extends approximately 700 to 900 feet south of West Genesee Street. Area 2 consists of the impacted area immediately south-southwest of Area 1 and extends southwest to the Town of Aurelius. Area 3 consists of the impacted area immediately southwest of Area 2 extending to and including Union Springs.

overburden and shallow bedrock in the source areas and enhanced in-situ bioremediation in the deep bedrock upgradient (north-northeast) of the two main source areas. In October 2017, NYSDEC approved the remedial design/remedial action work plan prepared by GE. Pre-design investigation activities for the first phase of the NYSDEC remedy at the Facility were completed by GE in January 2019. GE has performed additional delineation of VOC contamination in the overburden soils, and preparation of a remedial action work plan for this phase is underway.

The results of the supplemental investigation of groundwater and surface water in Area 3 are discussed below.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

On July 29, 2019, EPA released the Proposed Plan for cleanup of Area 3 (OU2) of the Site to the public for comment. EPA made supporting documentation for the administrative record available to the public at the information repositories maintained at the Seymour Public Library in Auburn, New York; the EPA Region 2 Office in New York City; and EPA's website for the Site at https://www.epa.gov/superfund/cayuga-county-groundwater. The notice of a public comment period and the availability of the above-referenced documents were published in the *Auburn Citizen Newspaper* on July 28, 2019. The public comment period was scheduled for 30 days from July 29, 2019 – August 27, 2019. On August 8, 2012, EPA held a public meeting at the Union Springs High School to inform officials and interested citizens about the Superfund process, to present the Proposed Plan for Area 3 (OU2) of the Site, including the preferred remedial alternative, and to respond to questions and comments from the attendees. A copy of the public notice published in the *Auburn Citizen Newspaper* along with responses to the questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary. (See Appendix V)

CONSULTATION WITH THE CAYUGA NATION

In accordance with Section 126 of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9626, and pursuant to Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments, November 2000) and the EPA Policy on Consultation and Coordination with Indian Tribes (May 4, 2011), EPA is required to consult with Indian Nations when its actions or decisions may affect tribal interests. EPA attempted to commence government-to-government consultation with the Cayuga Nation prior to issuance of the Proposed Plan for Area 3 (OU2) at the Site, as the Site includes a portion of the Nation's ancestral lands, as recognized by the 1794 Treaty of Canandaigua. Consistent with EPA policy, EPA reached out to consult with the Cayuga Nation on the selection of the Area 3 groundwater remedy. While some consultation occurred between EPA and counsel for the Cayuga Nation, the Cayuga Nation did not raise concerns or provide comments.

SCOPE AND ROLE OF THE RESPONSE ACTION

Section 300.5 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.5, defines an Operable Unit or OU as a discrete action that comprises an incremental step toward comprehensively addressing a site's problems. A discrete portion of a remedial response eliminates or mitigates a release, a threat of release, or a pathway of exposure. The cleanup of a site can be separated into different phases, or OUs, so that a portion of the site remedy for technical or administrative purposes can be addressed separately. EPA has designated two OUs for the Cayuga County Groundwater Contamination Site. OU1 addresses drinking water and groundwater contamination in Area 1 and Area 2 of the Site, as well as drinking water in Area 3. In July 2012, EPA issued a Proposed Plan describing the remedial alternatives considered for the entire Site (Area 1, Area 2, and Area 3). On March 29, 2013, EPA signed a ROD for OU1, which called for, among other things, the in-situ treatment of contaminated groundwater in Area 1, monitored natural attenuation (MNA) of contaminated groundwater in Area 2, the implementation of measures to ensure that the Village of Union Springs public water supply treatment system in Area 3 is adequately equipped to protect users of its supply from Site-related contamination, maintenance of existing groundwater treatment systems at three dairy farms, and connection of impacted residences to municipal water for their future potable water needs. The 2013 ROD identified contingency remedies for Area 1 and Area 2 should the selected response action not achieve remedial goals in a reasonable timeframe. At this time, the contingencies for Area 1 and 2 have not needed to be implemented, as the OU1 remedy is still in the design stage. In response to public comments, the 2013 ROD deferred final remedy selection in Area 3, except for activities that ensure protection of drinking water, and called for further investigations of the groundwater and surface water in Area 3.

OU2, which is the subject of this ROD, is the final planned phase of response activities at the Site and addresses that portion of the contaminated groundwater identified as Area 3 of the Site.[3] The effectiveness of the remedy selected in this OU2 ROD presumes that this action, in conjunction with the OU1 remedy, will restore the aquifer to its most beneficial use (a source of drinking water).

The major source of the groundwater contamination at the Site is the Facility, which is being addressed under NYSDEC's State Superfund program. Remedial actions at the Facility are not the focus of this decision document, although successful completion (i.e., source control or remediation) of the source area(s) at the Facility is important to the full realization of the benefits of the selected remedy.

SUMMARY OF SITE CHARACTERISTICS

The Site includes a groundwater plume located in Cayuga County, New York. Groundwater contaminated with VOCs extends from the City of Auburn to the Village of Union Springs, approximately seven miles, and includes the Towns of Aurelius, Fleming, and Springport. A Site

[3] As discussed further below, the 2012 RI and the supplemental investigation showed that surface water in Area 3 does not require remediation.

location map is provided as Figure 1 and Area 3 is generally depicted in Figure 2. The conceptual site model regarding groundwater contamination at the Site indicates that contaminants entered the shallow hydrogeologic unit, identified as the overburden, at the Facility. Contaminants moved downward via vertical fractures or karst features, and then moved laterally from the Facility and downgradient via groundwater flow, primarily in the deep zone, a unit approximately 200 feet below ground surface. Much of the groundwater flow in this deep hydrogeologic unit at the Site migrates and flows to the streams, springs, and seeps located near and along Cayuga Lake, as well as to the lake bed itself.

EPA collected environmental data during the OU1 RI and obtained other sampling results from GE in order to determine Site characteristics as well as gain information to perform a risk assessment. RI-related sampling of groundwater, surface water, sediment, and vapor intrusion at the Site was conducted in several phases from 2001 to 2010. The supplemental investigation of Area 3 for OU2 collected additional characterization information.

Cultural Resources

A Stage IA cultural resources survey was conducted in 2005. The purpose of the Stage IA cultural resources survey was to identify previously recorded archaeological or historic sites and to evaluate the potential for the existence of previously unrecorded archaeological or historic resources within the area that may be affected by remediation activities.

The Stage IA survey identified numerous previously recorded Native American archeological sites and burial grounds located within the Site (and immediate vicinity), particularly in the areas near Cayuga and Owasco Lakes. This is consistent with the long history of occupation and use of this area by the Cayuga Nation and the spiritual and culture importance of Cayuga Lake and its associated lands and waters to the Cayuga people. Historic maps identify the locations of nineteenth-century farms located throughout the Site, as well as residences and commercial enterprises in Auburn and Union Springs. Based on the information collected during the Stage IA survey, the selected remedy is not anticipated to affect these properties. However, if the remedial design indicates a potential impact on cultural resources in Area 3, additional studies may be performed and an approach would be developed, incorporating monitoring during the remedial action, to further ensure that archeological sites within the Site would not be impacted by the remedial action.

Site Geology

The Site is located at the northern edge of the glaciated Allegheny Plateau Physiographic Province. The geology of the area is characterized by unconsolidated glacial deposits underlain by consolidated bedrock. The unconsolidated deposits consist of glaciolacustrine clay, silt, fine sand, and glacial till ranging from approximately 2 to 77 feet thick.

The bedrock units consist of a sequence of Devonian and Silurian limestone, dolostone, evaporite deposits, shale, and sandstone formations that dip gradually southward. The youngest rocks identified during borehole logging and rock coring are the lower formations of the Middle Devonian Hamilton Group (Skaneateles and Marcellus Formations) which are underlain, in descending order, by the Middle Devonian Onondaga Formation, the Lower Devonian Manlius

and Rondout Formations, the Upper Silurian Cobleskill Formation, Bertie Group, and Camillus Shale. The bedrock has little primary porosity; secondary porosity such as fractures and solution voids are common. In general, the deep bedrock is more fractured and more transmissive than the shallow and intermediate bedrock. In select areas throughout the study area, USGS identified repeated stratigraphic units in some boreholes within the Marcellus, Onondaga, and Manlius Formations, most likely due to localized thrust faulting (Anderson et al. 2004; Eckhardt et al. 2011). A specific example of this thrusting occurs in wells on Pinckney Road. Where not fractured or faulted, the limestones of the Lower Onondaga Formation and the grey, interbedded limestones, dolomites, and shales of the Manlius Formation act in concert as an aquitard across portions of the study area. The four members of the Onondaga Formation include some thin interbedded bentonites and argillaceous limestones. The Onondaga Formation overlies the limestone and dolostone of the Manlius Formation (Olney Member).

The Chrysler Member of the Rondout Formation, comprised of grey interbedded dolostone and shale, underlies the Manlius. The Upper Silurian limestones of the Cobleskill Formation underlie the Rondout and overlie the dolostones of the Upper Silurian Bertie Group, comprised locally of the Oxbow, Forge Hollow, and Fiddlers Green Members. The upper portion of the Forge Hollow, typically about 15 feet thick, is gypsiferous and argillaceous, and has well-developed solution voids. The Bertie Group, which forms the lowermost units of the carbonate rock sequence, overlies the Upper Silurian shales of the Camillus Formation. The Camillus is the deepest unit observed in geologic logs during this RI.

Site Hydrogeology and Conceptual Model

Groundwater investigations at the Site have documented the presence of four hydrogeologic units consisting of the overburden, shallow bedrock (identified as units S1 through S3), intermediate bedrock (identified as units I1 and I2), and deep bedrock (identified as units D1 through D6). Contamination in the shallow aquifer underlying the Facility is being addressed by the State of New York. Pursuant to an Order on Consent, a shallow groundwater extraction and treatment system at the Facility is operated by GE with oversight by NYSDEC.

The conceptual model regarding groundwater contamination at the Site indicates that contaminants entered the overburden at the Facility, moved downward from the shallow zone, through the intermediate zone via vertical fractures or karst features and into the deep zone, and then moved laterally from the Facility and downgradient via groundwater flow, primarily in the D3 zone. Depending on the location, the D3 zone ranges from 150 to 250 feet below ground surface, is 15 to 20 feet thick, and is highly transmissive due to the development of karst solutions features. The deep groundwater contaminant plume migrates south from the Facility towards Pinckney Road, below which contains a highly fractured fault zone. From Pinckney Road, the groundwater contamination flows south-southwest to the Village of Union Springs and Cayuga Lake.

The overburden hydrogeologic unit consists of glaciolacustrine deposits of clay, silt, fine sand, and glacial till. Where present, groundwater in the overburden flows towards local surface water bodies or provides recharge to underlying bedrock units. The shallow bedrock hydrogeologic units are composed of the Upper Onondaga/Marcellus Formation (S1), the Middle Onondaga (S2), and the Lower Onondaga (S3). The Marcellus is present in the southern area of the Site and is typically 50 feet thick. The nominal thickness of the Onondaga formation at the Site is 75 feet. Data

collected in the shallow bedrock shows that groundwater flow in the shallow bedrock does not flow in the same direction as the deep bedrock. Groundwater migration in the shallow bedrock is, generally, northward from the residential area south of the Facility towards the Owasco Outlet where the shallow groundwater system discharges. The shallow zones can become de-watered locally, suggesting that in some places vertical fracturing extends through the underlying intermediate zone, allowing water to drain into the deep zone. Near Overbrook Drive and Pinckney Road, the water levels from residential wells suggest that vertical fractures and low angle faults connect the shallow, intermediate and deep bedrock zones.

The intermediate bedrock zone consists of the Manlius Formation, which is typically divided into Upper Manlius (I1) and Lower Manlius (I2). At the Site, the Manlius often functions as an aquitard separating the shallow and deep aquifer units, unless it has been breached by vertical fractures. The nominal thickness of the Manlius formation at the Site is 36 feet. Groundwater flow in the Manlius Formation is to the south-southwest.

The deep bedrock is divided into six zones. The Rondout comprises the D1 zone. The Cobleskill comprises the D2 zone. The Bertie formation is divided into three zones: the D3 zone which encompasses the gypsiferous unit at the top of the Forge Hollow Unit, the D4 zone, which is the middle of the Bertie Formation, and the D5 zone at the bottom of the Bertie Formation. The D6 zone is the Camillus Shale, which is the base unit in the hydrostratigraphic system investigated in the RI. Groundwater migration in the deep bedrock is to the south. The deep bedrock aquifer receives groundwater recharge through fractures or karst features connecting the shallow and deep bedrock units. As a result, water levels in the deep bedrock can rise rapidly in response to precipitation events. The rapid rise in hydraulic head in the D3 zone can cause upward flow along vertical fractures, faults, and/or dissolutions voids, resulting in vertical mixing of the deep and intermediate zones. The combined nominal thickness of the five deep bedrock zones above the Camillus at the Site is about 200 feet, with some variations throughout the Site. The deep groundwater contaminant plume migrates south from the Facility towards Pinckney Road, below which contains a highly fractured fault zone. From Pinckney Road, the groundwater contamination flows south-southwest to the Village of Union Springs and Cayuga Lake.

Groundwater Investigation

During the 2012 RI, EPA sampled eight existing unused residential wells and installed three multiport groundwater monitoring wells in Area 3. The 2012 RI data indicated that groundwater contamination occurs primarily in deep zones of the bedrock aquifer system and is most concentrated in the gypsiferous upper portion of the Forge Hollow (D3), which has a greater ability to transmit water. Sampling of the eight existing unused residential wells conducted during the 2012 RI revealed maximum concentrations of TCE, *cis*-1,2-DCE, and trans-1,2-DCE of 7.1 ppb, 96 ppb, and 1.3 ppb, respectively. Sampling of the three multiport groundwater monitoring wells installed during the 2012 RI did not reveal detectable concentrations of Site-related VOCs.

As part of the OU2 supplemental investigation, GE evaluated residential wells in Area 3 that were no longer in use, to determine if they were suitable for conversion to deep bedrock wells that could be used for long-term monitoring. GE divided Area 3 into geographic zones to assist in the identification of residential wells that were spatially distributed within Area 3. After conducting additional geophysical evaluations of existing unused residential wells, three of these former water

supply wells were converted into permanent groundwater monitoring wells. Prior to their conversion to permanent monitoring wells, two of the three wells were among the eight unused residential wells sampled as part of the 2012 RI. Semi-annual groundwater sampling was conducted from the fall of 2016 through the fall of 2018 from the three converted groundwater monitoring wells. Sampling results from the three converted groundwater monitoring wells revealed TCE concentrations ranging from non-detect to a maximum concentration of 0.89 parts per billion (ppb) and *cis*-1,2-DCE concentrations ranging from 1.3 ppb to 9.6 ppb. Since the three multiport groundwater monitoring wells installed by EPA did not reveal detectable concentrations of Site-related VOCs during the 2012 RI, these wells were not sampled during the OU2 supplemental investigation.

In addition, pursuant to the 2015 Order, untreated groundwater from agricultural wells and/or the inlets to the POETS installed at three dairy farms is sampled periodically. Sampling results from 2016 through 2019 of the untreated water at the influents to each POET system at the dairy farms revealed maximum concentrations of TCE, *cis*-1,2-DCE, trans-1,2-DCE, and vinyl chloride of 12.8 ppb, 414 ppb, 9.4 ppb, and 24 ppb, respectively. These results are comparable to the periodic sampling results collected as part of the OU1 2012 RI. Data collected of the treated water was evaluated as part of the supplemental investigation and demonstrates that each the POET systems is effectively treating the water to below federal and state drinking water standards prior to use at the properties.

Sampling results from 2014 through 2018 for the raw water from the two Village of Union Springs supply wells revealed maximum concentrations of TCE and *cis*-1,2-DCE at 4 ppb and 10 ppb, respectively. A review of Village of Union Springs water quality data indicates that the concentrations of TCE and *cis*-1,2-DCE have been decreasing in recent years and the existing treatment system, which was upgraded pursuant to the 2013 ROD, effectively treats groundwater prior to distribution.

The results of the supplemental groundwater investigation in Area 3 are consistent with the results collected as part of the 2012 RI. In some instances, the results show a decreasing trend in the concentrations of contaminants.

Specialty Analysis

Groundwater samples were also collected and analyzed for additional parameters to provide information on geochemical conditions, which can impact natural attenuation processes. Samples from select locations were analyzed for carbon isotopes (known as carbon-specific isotope analysis or CSIA), microbiological targets, and MNA parameters. Microbiological analyses were performed to evaluate the presence of microbes responsible for, and enzymes associated with, the reductive dechlorination and aerobic metabolic/co-metabolic degradation processes in groundwater at the Site. The results revealed the presence of several important enzymes for co-metabolic biodegradation, suggesting that the hydrogeologic conditions are generally supportive of bacterial growth.

During the fall 2016 groundwater and surface water sampling event, certain samples were analyzed for CSIA for the carbon isotopes associated with TCE, *cis*-1,2-DCE, and vinyl chloride. The

carbon isotopes associated with TCE, *cis*-1,2-DCE, and vinyl chloride were analyzed to assess the impact of biotic and/or abiotic degradation processes on Site-related contaminants. The analysis of the sampling results confirmed that biodegradation is occurring at the Site.

Surface Water Investigation

In July 2004, as part of the OU1 RI, dive members of EPA's Environmental Response Team conducted a reconnaissance survey of the Cayuga Lake bottom just offshore from Union Springs. The purpose of this survey was to evaluate whether groundwater discharges to the lake. As a result, dive team personnel located a significant spring discharge with visible outflow, just offshore from Union Springs in approximately 4 to 5 feet of water. A sample of water collected from the spring did not reveal any detectable concentrations of VOCs. In addition, the RI included sampling of surface water from Owasco Outlet, Crane Brook, and springs in the Village of Union Springs. Sediment samples were collected from springs and a stream in the Village of Union Springs. Contaminant concentrations were compared to screening criteria developed in the RI. No Site-related VOCs were detected in surface water collected from Owasco Outlet and Crane Brook. Several Site-related VOCs, including TCE, PCE, *cis*-1,2-DCE, and *trans*-1,2-DCE were detected in surface water samples collected from the Village of Union Springs. Concentrations of *cis*-1,2-DCE exceeded the screening criterion of 5 ppb in four of the nine surface water sampling locations, occurring at a maximum concentration of 18 ppb. None of the other VOCs detected exceeded their respective screening criterion. VOCs detected in the surface water samples were similar to the VOCs that exceeded MCLs in groundwater samples. The VOCs observed in the spring and stream in the Village of Union Springs suggest discharge of contaminated groundwater to the surface water bodies. No VOCs were detected in the surface water samples collected from Crane Brook and Owasco Outlet at the northern end of the Site.

As part of the supplemental investigation, from December 2014 through November 2018, surface water samples were collected from 18 stream and tributary locations flowing to Cayuga Lake. These include within and at the outlet of Howland Pond, the outlet of Mill Pond (a small spring fed pond that flows to Cayuga Lake), a stream that discharges to Cayuga Lake near Springport Cove, five locations within Cayuga Lake, and one unused, flowing artesian well. In addition, surface water samples were collected from four lakebed seeps that are exposed during periods of low lake level and one stream that was observed to be flowing into Springport Cove.

The supplemental investigation confirmed that groundwater flow in the deep bedrock hydrogeologic unit at the Site migrates and flows to the streams, springs, and seeps located near and along Cayuga Lake, including the lake bed itself. The surface water sampling results revealed low-level concentrations of Site-related VOCs (TCE, *cis*-1,2-DCE, and trans-1,2-DCE) in some locations. Three of the four lake bed seeps surface water sampling results from Cayuga Lake did not reveal detectable concentrations of Site-related contaminants. The fourth sample revealed a *cis*-1,2-DCE concentration of 0.27 ppb. Surface water samples from Cayuga Lake, streams, springs and tributaries revealed TCE concentrations ranging from non-detect to a maximum concentration of 0.94 ppb and *cis*-1,2-DCE concentrations ranging from non-detect to 11 ppb compared to maximum results of 1.9 and 18, respectively from the 2012 RI. The sampling results from the supplemental investigation were compared to the appropriate NYSDEC Technical and Operational Guidelines Series (TOGS) standards and guidance values; none of the surface water

samples collected from 2014 through 2018 contained concentrations of VOCs that exceeded their applicable TOGS values.

CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

The Site area reflects the generally rural character of Cayuga County, and consists of residential neighborhoods intermingled with extensive farmland and parcels of woodlands, as well as commercial/industrial land. Historically, private wells were used to meet domestic and agricultural water supply needs. Currently, the Auburn public water system extends to the Towns of Aurelius, Fleming, and Springport. The Village of Union Springs uses groundwater from two municipal wells to supply the domestic water needs of residents. Currently the Village of Union Springs treats groundwater from the municipal supply wells to remove VOCs before it is sent to the distribution systems. The majority of wells with VOC concentrations exceeding drinking water standards have been connected to the public water supply systems. Residences with POETS installed previously by EPA were connected to the public water supply. The maintenance of POETS on agricultural wells on three properties had been conducted by EPA until this work was assumed by GE in 2012. There are a limited number of residences with VOC contamination levels less than the federal and state MCLs that had POETS installed by the CCDOH with funding from the State of New York. These units are currently maintained by the homeowners. In addition, other residences that declined to have POETS installed have VOC contamination above the state groundwater standard, but at levels below the federal MCLs.

The Site includes a portion of the Cayuga Nation's ancestral lands, as recognized by the 1794 Treaty of Canandaigua. The Cayuga Lake has been and continues to be used for recreational purposes by individuals of the Cayuga Nation and it is considered a valuable resource by the Nation.

SUMMARY OF SITE RISKS

As part of the 2012 RI, EPA conducted a baseline human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA) to estimate the current and future effects of groundwater contaminants on human health and the environment. A qualitative risk assessment was performed in 2018 to assess potential risks based on the results of the supplemental investigation for OU2 (Area 3). The baseline risk assessment estimated the human health and ecological risk which could result from the groundwater contamination at the Site if no remedial actions were taken. Based on the data collected and evaluated as part of the supplemental investigation of Area 3, the results of the baseline risk assessment contained in the OU1 ROD have not substantially changed.

Human Health Risk Assessment

A Superfund baseline HHRA is an analysis of the potential adverse health effects caused by hazardous substance exposure from a site in the absence of any actions to control or mitigate the release 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 potential concern (COPCs) at the Site in various media (i.e., soil, groundwater, surface water, sediment, 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 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 ingestion of and dermal contact with contaminated groundwater and inhalation of vapor released from groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations to which people may be exposed and the potential frequency and duration of exposure. Using these factors, a reasonable maximum exposure scenario, which reflects 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 contaminant exposures and the relationship between magnitude of exposure and severity of adverse health effects are determined. Potential health effects are contaminant-specific and may include the risks of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (e.g., changes in the effectiveness of immune system). Some contaminants are capable of causing both cancer and noncancer 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 noncancer health hazards. The likelihood of an individual developing cancer is expressed as probability. For example, an excess lifetime cancer risk of 1×10^{-4} means an individual having a 1 in 10,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer the individual faces from other causes. Current Superfund guidelines for acceptable risks are an individual lifetime site-related excess cancer risk in the range of 1×10^{-4} to 1×10^{-6} (corresponding to a one-in-ten-thousand to one-in-a-million excess cancer risk) with 1×10^{-6} (or a 1 in 1,000,000 chance of developing cancer) being the point of departure. For noncancer health effects, a hazard index (HI) is calculated. An HI represents the sum of the hazard quotients compared to their corresponding reference doses or reference concentrations. The key concept for noncancer HI is that a "threshold level" (measured as an HI of less than or equal to 1) exists below which noncancer health effects are not expected to occur.

The cancer risk and noncancer health hazard estimates in the HHRA are based on reasonable maximum exposure scenarios and were developed by taking into account various health protective

estimates about the frequency and duration of an individual's exposure to chemicals selected as COPCs, as well as the toxicity of the contaminants.

The OU1 baseline risk assessment began by selecting COPCs in the various media that would be representative of Site risks. The media evaluated as part of the HHRA included groundwater, surface water and sediment. Groundwater at the Site is designated by NYSDEC as a potable water supply. The HHRA conducted as part of the 2012 RI identified *cis*-1,2-DCE, *trans*-1,2-DCE, TCE, and vinyl chloride as COPCs for groundwater at the Site. Bromodichloromethane, *cis*-1,2-DCE, and PCE were identified as COPCs for surface water. No COPCs were identified for sediment.

The baseline risk assessment conducted as part of the 2012 RI evaluated health effects that could result from exposure to contaminated groundwater and surface water through use of groundwater for potable purposes and wading in Site waterways (i.e. Owasco Outlet and Crane Brook). Exposure pathways included ingestion of and dermal contact with groundwater, inhalation of vapors in the bathroom during bathing or showering, and incidental ingestion of and dermal contact with surface water and sediment during wading. In addition, the potential for vapor intrusion was also evaluated. Based on the current zoning and anticipated future use, the risk assessment focused on a variety of possible receptors, including current and future recreational users, future residents, and future commercial workers. However, consistent with the anticipated future use of the Site, the receptors most likely to be in contact with media impacted by site-related contamination, e.g., groundwater, were primarily considered when weighing possible remedies for the Site.

Groundwater sampling conducted for the entire Site (Area 1, Area 2, and Area 3) as part of the 2012 RI revealed maximum concentrations of TCE, *cis*-1,2-DCE, *trans*-1,2-DCE, and vinyl chloride of 329 ppb, 47,900 ppb, 1,200 ppb, and 2,790 ppb, respectively. The results of the baseline risk assessment performed as part of the OU1 ROD indicated that ingestion of and dermal contact with untreated groundwater at the Site poses unacceptable risks to human health. The HHRA documented that these concentrations are associated with an excess lifetime cancer risk of 2×10^{-4} for the future Site worker, 5×10^{-4} for the future adult resident, and 4×10^{-3} for the future child resident. The calculated non-carcinogenic hazard 6 quotients (HQs) are: future Site worker HQ=7, future adult resident HQ=21, and future child resident HQ=51. These cancer risks and noncancer health hazards indicate that there is significant potential risk to potentially exposed future populations from direct exposure to groundwater. For these receptors, exposure to groundwater results in either an excess lifetime cancer risk that exceeds EPA's target risk range of 10^{-4} to 10^{-6} or an HI above the acceptable level of 1, or both. For further details regarding the human health risk assessment conducted as part of the 2012 RI, refer to the *Human Health Risk Assessment*, dated May 10, 2011, in the Administrative Record.

The supplemental investigation conducted in Area 3 subsequent to the OU1 ROD revealed maximum concentrations of TCE, *cis*-1,2-DCE, and vinyl chloride in the three converted monitoring wells of 0.89 ppb, 9.6 ppb and non-detect, respectively. These concentrations are comparable, but lower, to the concentrations detected in the eight unused residential wells and the three groundwater monitoring wells sampled in Area 3 during the 2012 RI.

In addition, an evaluation was conducted to determine whether any new EPA risk assessment guidance, exposure factors, and/or toxicity values which became available subsequent to the 2013 ROD would impact the results of the previously completed human health risk assessment. EPA's

evaluation found that the human health risks associated with potential exposures to VOCs in groundwater would be similar and therefore, the results of the 2012 baseline human health risk assessment remain valid.

A summary of the COCs and groundwater exposure point concentrations is listed in Appendix II, Table 1. Table 2 in Appendix II describes the selection of exposure pathways, potential receptors, and exposure scenarios. The noncancer and cancer toxicity data summaries for the groundwater COCs are presented in Appendix II, Tables 3 and 4. Noncancer and cancer risk characterization summaries for the groundwater COCs are presented in Appendix II, Tables 5 and 6. While *trans*-1,2-DCE did not pose unacceptable risks to human health, it is a degradation product of TCE and exceeded federal MCLs or more stringent state standards in the groundwater; therefore *trans*-1,2-DCE is identified as a COC.

Vapors from VOCs in groundwater can move through the soil and potentially enter structures at the surface, resulting in occupants being exposed to the vapors in indoor air. The 2013 ROD addressed the vapor intrusion pathway. As described in the 2013 ROD, VOCs at the Site generally are in the deep bedrock units at depths greater than 100 feet below ground surface and there are confining bedrock units and uncontaminated groundwater between the VOCs in the deep bedrock and the ground surface. These conditions tend to limit the potential for vapor migration to the surface buildings. In April and November 2009 EPA collected air samples from below building slabs (sub-slab samples) and from indoor spaces of residences in areas where groundwater is present at depths less than 100 feet. Results of the sampling indicate that sub-slab and indoor air concentrations were well below EPA action levels and below NYS Department of Health screening and action levels at the time of the 2013 ROD, as well as those currently in place. Therefore, the vapor intrusion pathway is not a concern under current or future use scenarios.

Uncertainties in the Risk Assessment

The procedures and inputs used to assess risks in this evaluation, as in all such assessments, are subject to a wide variety of uncertainties. In general, the main sources of uncertainty include the following: environmental chemistry sampling and analysis; environmental parameter measurement; fate and transport modeling; exposure parameter estimation; and toxicology data. Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals as to the actual levels present. Environmental chemistry-analysis error can stem from several sources, including the errors inherent in the analytical methods and characteristics of the matrix being analyzed.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the COPCs, the period of time over which such exposure would occur, and the fate and transport models used to estimate the concentrations of the COCs at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposures, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. As of the time the HHRA was prepared, EPA had not finalized toxicity values for TCE. Therefore, toxicity values from California/EPA were used in the HHRA.

All of the uncertainties identified above are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the risk assessment provides upper-bound estimates of the risks to potentially exposed populations, and it is highly unlikely to underestimate actual risks related to the Site. An estimate of central tendency risk can be obtained by substituting average or median values for upper bound values. This is most useful for the exposure pathway which results in the highest estimated carcinogenic risk, i.e., groundwater ingestion.

More specific information concerning risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in the both risk assessment reports.

Ecological Risk Assessment

EPA also evaluated whether the conclusions of the ecological risk assessment in the 2013 ROD remain valid. The ecological risk assessment found that the contaminants in surface water and sediment did not pose unacceptable risk to aquatic or terrestrial ecological receptors. In 2018, EPA evaluated the new Site data collected as part of the supplemental investigation that became available after the 2011 ecological risk assessment was complete and reviewed whether changes in published ecological screening levels (ESLs) would result in any significant change in the conclusions of the 2011 ecological risk assessment. EPA's evaluation found that the conclusions of the 2011 ecological risk assessment remained valid. For further details regarding the 2011 ecological risk assessment, refer to the *Final Screening Level Ecological Risk Assessment*, dated March 25, 2011, in the Administrative Record.

Basis for Action

Based upon the results of the OU1 RI, the OU2 supplemental investigation, and the risk assessment analyses, EPA has determined that a response action is necessary and that the response action selected in this ROD is necessary to be protective of public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

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 applicable or relevant and appropriate requirements (ARARs), non-promulgated to-be-considered (TBC) criteria, advisories, and guidance, and other guidelines, and Site-specific risk-based levels.

The following RAOs for contaminated groundwater, developed for OU1 of the Site, will address the human health risks and environmental concerns in Area 3 (OU2):

- Reduce or eliminate exposure (via ingestion and dermal contact) to VOCs in groundwater at concentrations in excess of federal MCLs and state standards;

- Restore the impacted aquifer to its most beneficial use as a source of drinking water by reducing contaminant levels to the federal MCLs and state standards; and,

- Reduce or eliminate the potential for continued migration of contaminants towards the Village of Union Springs public water supply wells.

The remediation goals for the groundwater COCs and their basis are presented in Appendix II, Table 7.

DESCRIPTION OF REMEDIAL ALTERNATIVES

Section 121(b)(1) of CERCLA, 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. Section 121(d) further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to Section 121(d)(4) CERCLA, 42 U.S.C. §9621(d)(4).

Since the supplemental investigation revealed comparable results to the data collected as part of the 2012 OU1 RI in Area 3, the conceptual site model has not changed. As a result, this OU2 ROD relies on the 2012 OU1 FS Report for the screening and evaluation of the MNA alternative to address groundwater contamination in Area 3, as amended to reflect updated cost estimate information for the MNA alternative (identified as Alternative 2 below). A detailed description of the MNA remedial alternative presented in this ROD can be found in the Feasibility Study (FS) Report, dated July 12, 2012. Additional information about the MNA mechanisms taking place in Area 3 can also be found in the supplemental investigation report. The No Action Alternative is considered in accordance with the NCP requirements and provides a baseline for comparison with the MNA alternative.

The construction time for each alternative reflects only the time required to construct or implement the remedy and does not include the time required to design the remedy, negotiate the performance of the remedy with any potentially responsible parties, or procure contracts for design and construction.

Alternative 1: No Action

The NCP requires that a "No Action" alternative be developed as a baseline for comparing other remedial alternatives. Under this alternative, there would be no remedial action conducted at the Site to control or remove groundwater contaminants. This alternative also does not include monitoring or institutional controls.

Capital Cost:	*$0*
Annual Operation and maintenance Costs:	*$0*
Present-Worth Cost:	*$0*
Construction Time:	Not Applicable

Alternative 2: Monitored Natural Attenuation

This remedial alternative relies on monitored natural attenuation to address the groundwater contamination. Natural attenuation is the process by which contaminant concentrations are reduced by various naturally occurring physical, chemical, and biological processes. The main processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of contaminants. These processes occur naturally, in-situ, and act to decrease the mass or concentration of contaminants in the subsurface. Only non-augmented natural processes are relied upon under this alternative. Augmentation through addition of electron acceptors or nutrients is considered an in-situ technology. Since this alternative does not involve active remediation, the effectiveness of this alternative in Area 3 depends on the effectiveness of selected remedy in Areas 1 and 2 and remediation at the Facility in preventing migration of contamination downgradient from these areas. Implementation of this alternative includes the periodic sample collection and analysis, data evaluation, and contaminant concentration trend analysis. While there are some uncertainties, it is expected to take approximately 30 years to meet groundwater RAOs in Area 3.

Specialty analyses conducted as part of the supplemental investigation assessed the impact of biotic and/or abiotic degradation processes on the Site-related contaminants. The results confirmed the hydrogeologic conditions are generally supportive of bacterial growth. Microbes responsible for, and enzymes associated with, the reductive dechlorination and aerobic metabolic/co-metabolic degradation processes are present and biodegradation is occurring at the Site. Daughter or break-down products of TCE degradation such as *cis*-1,2-dichlorethene, *trans*-1,2-DCE, vinyl chloride, and ethane have been observed.

A site management plan would be developed to provide for the proper management of the Area 3 remedy, including the monitoring of institutional controls, until RAOs are met, and will also include long-term groundwater monitoring, periodic reviews and certifications. Institutional controls are anticipated to include any existing governmental controls, such as well permit requirements, and informational devices, such as publishing advisories in local newspapers and issuing advisory letters to local governmental agencies, regarding the need to refrain from untreated groundwater use in the impacted area.

Area 3	
Capital Cost:	$25,000
Annual O&M Costs:	$131,900
Present-Worth Cost:	$1,776,800
Construction Time:	3 months

COMPARATIVE ANALYSIS OF ALTERNATIVES

In selecting a remedy for a site, EPA considers the factors set out in Section 121 of CERCLA, 42 U.S.C. § 9621, and conducts a detailed analysis of the viable remedial alternatives in accordance with the NCP, 40 C.F.R. Section 300.430(e)(9), the EPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies*, OSWER Directive 9355.3-01, and the EPA's *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision*

Documents, OSWER 9200.1-23.P. The detailed analysis consists of an assessment of the individual alternatives set forth in the FS against each of the nine evaluation criteria set forth at Section 300.430(e)(9)(iii) of the NCP and a comparative analysis focusing upon the relative performance of each alternative against those criteria. A comparative analysis of these alternatives, based upon the nine evaluation criteria noted below, follows.

The following "threshold" criteria are the most important and must be satisfied by any alternative in order to be eligible for selection:

1. *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.
2. *Compliance with 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. Other federal or state advisories, criteria, or guidance are TBCs. TBCs, while not required by the NCP, may be incorporated into a remedy to determine what is protective of a site or how to carry out certain actions or requirements.

The following "primary balancing" criteria are used to make comparisons and to identify the major tradeoffs between alternatives:

3. *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 remediation 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.

4. *Reduction of toxicity, mobility, or volume through treatment* is the anticipated performance of the treatment technologies, with respect to these parameters, a remedy may employ.

5. *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 remediation goals are achieved.

6. *Implementability* is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

7. *Cost* includes estimated capital, O&M, and present worth costs.

The following "modifying" criteria are used in the final evaluation of the remedial alternatives after the formal comment period, and may prompt modification of the preferred remedy that was presented in the Proposed Plan:

8. *State acceptance* indicates whether, based on its review of the RI/FS report, Human Health and Ecological Risk Assessment, and Proposed Plan, the State concurs with, opposes, or has no comments on the selected remedy.

9. *Community acceptance* refers to the public's general response to the alternatives described in the RI/FS report, Human Health and Ecological Risk Assessment, and Proposed Plan.

A comparative analysis of the alternatives considered in this ROD, based upon the evaluation criteria noted above, follows.

1. Overall Protection of Human Health and the Environment

Alternative 1 (No Action) is not protective of human health and the environment because it would not meet RAOs in Area 3 within a reasonable timeframe. It does not include active monitoring of the groundwater in Area 3. Alternative 2 would provide protectiveness of human health and the environment by relying on certain natural processes to restore groundwater to below MCLs in a reasonable timeframe. Alternative 2 would achieve protectiveness through a combination of reducing contaminant concentrations in groundwater via naturally occurring processes and limiting exposure to residual contaminants through the implementation of governmental and informational institutional controls. Institutional controls would help limit exposure by restricting the use of, and access to, contaminated groundwater. Alternative 2 also assumes the control of contaminant migration from the Facility and remediation of Area 1 and Area 2.

A long-term monitoring program for groundwater would monitor the migration and fate of the contaminants and ensure that human health is protected. Combined with long-term monitoring and institutional controls, Alternative 2 would meet the RAOs.

2. Compliance with applicable or relevant and appropriate requirements (ARARs)

EPA and NYSDOH have promulgated health-based, protective MCLs and state standards (40 CFR Part 141, and 10 NYCRR § 5-1.51 Chapter 1, respectively), which are enforceable standards for various drinking water contaminants (chemical-specific ARARs). If more than one such requirement applies to a contaminant, compliance with the more stringent ARAR is required. The aquifer is classified by NYSDEC as Class GA (6 NYCRR 701.18), meaning that it is designated as a potable water supply. Because area groundwater is a source of drinking water, the federal MCLs and more stringent state standards for the groundwater are ARARs.

In Area 3, chemical-specific ARARs are expected to be attained through certain natural processes. As part of the OU1 RI, a matrix diffusion study was conducted, which assessed the potential for contamination to diffuse into the rock matrix and to diffuse back out of the rock into soluble form in groundwater. This phenomenon is called matrix diffusion. Due to some uncertainty in the contaminant mass diffused in the bedrock matrix, the remediation timeframe is estimated. However, results of modeling of the matrix diffusion process support a 30-year remediation time frame.

Alternative 1 (No Action) would not comply with chemical-specific ARARs in a reasonable timeframe, and no monitoring would occur. Alternative 2 would comply with chemical-, location- and action-specific ARARs.

3. Long-Term Effectiveness and Permanence

Alternative 1 would not provide long-term effectiveness and permanence since no action would be taken. Specialty analyses conducted as part of the supplemental investigation assessed the impact of biotic and/or abiotic degradation processes on the Site-related contaminants. The results confirmed the hydrogeologic conditions are generally supportive of bacterial growth. Microbes responsible for, and enzymes associated with, the reductive dechlorination and aerobic metabolic/co-metabolic degradation processes are present and biodegradation is occurring at the Site. Daughter or break-down products of TCE degradation such as *cis*-1,2-dichlorethene, *trans*-1,2-DCE, vinyl chloride, and ethane have been observed. Therefore, MNA (Alternative 2) would be a permanent solution and achieve long-term effectiveness.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternative 1 would provide no reduction in toxicity, mobility or volume. Alternative 2 relies on natural processes to degrade contaminants and, hence, the reduction in toxicity, mobility, and volume could vary within Area 3. In the 2013 ROD, it was noted that in Area 1, TCE and *cis*-1,2-DCE could be transformed into the more toxic vinyl chloride under anaerobic conditions in the subsurface, prior to degradation to the less toxic ethane. Such a transformation, which also applies to Area 3, would be monitored and managed. Such management would include the institutional controls that are a component of Alternative 2.

5. Short-Term Effectiveness

There are no short-term effectiveness issues associated with the No Action Alternative. The short-term impacts due to Alternative 2 are minimal as it does not involve active remediation. Alternative 2 includes monitoring that would provide the data needed for proper management of the remedial processes and measures to address any potential impacts to the community remediation workers, and the environment. Groundwater monitoring will have minimal impact on workers responsible for periodic sampling. The time frame to meet groundwater RAOs in Area 3 is somewhat uncertain but is expected to be approximately 30 years. The effectiveness of source control at the Facility and remediation in Areas 1 and 2 will reduce contaminants entering Area 3.

6. Implementability

There are no implementability issues associated with the No Action Alternative. Alternative 2 is an easy alternative to implement since no active remediation would be performed. Alternative 2 would require O&M for the life of the remedy including routine groundwater quality, performance, administrative and institutional controls monitoring, as well as CERCLA five-year reviews for the life of the remedy.

7. Cost

The cost estimates are based on the best available information. Alternative 1: No Action has no cost because no activities are implemented. The estimated capital, O&M and present worth cost for Alternative 2 are $25,000, $131,900, and $1,776,800, respectively.

8a. State Acceptance

NYSDEC concurs with the selected remedy. A letter of concurrence is attached in Appendix IV.

8b. Tribal Acceptance

EPA reached out to consult with the Cayuga Nation on the selection of the Area 3 groundwater remedy. While some consultation occurred between EPA and counsel for the Cayuga Nation, comments or concerns regarding the Area 3 remedy were not provided by the Cayuga Nation.

9. Community Acceptance

EPA solicited input from the community on the remedial alternatives proposed for Area 3 of the Site and received oral and written comments. The attached Responsiveness Summary addresses the comments received during the public comment period (See Appendix V). Based on the totality of the comments received, the community supports the remedial alternative for Area 3 selected in this ROD.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a Site whenever practicable (NCP Section 300.430(a)(1)(iii)(A)). The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of alternatives, using the remedy selection criteria which are described above. The manner in which principal threat wastes are addressed provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

Contaminated groundwater is generally not considered to be source material. However, non-aqueous phase liquids (NAPLs) in groundwater may be viewed as source material. Analytical results from the 2012 RI and the supplemental RI did not reveal concentrations of contaminants in groundwater in Area 3 indicative of the presence of NAPL. EPA's 2013 ROD addresses NAPL present within the groundwater in Area 1.

SELECTED REMEDY

Description of the Selected Remedy

The selected remedy for Area 3 (OU2) is Alternative 2, Monitored Natural Attenuation. Investigations and the risk assessments performed for surface water in Area 3 showed that surface water does not require remediation. The major components of the selected remedy include the following:

- Naturally occurring, in-situ processes (MNA) to decrease the mass or concentration of contaminants in groundwater in Area 3 to achieve MCLs or more stringent state standards;
- Implementation of a program for long-term monitoring of contaminants in the groundwater plume to track and monitor changes in the concentrations of contaminants and measure progress towards attainment of the RAOs. The monitoring program will consist of periodic monitoring for parameters such as VOCs, geochemical indicators and hydrogeologic parameters in the monitoring well network; and
- An SMP that will provide for the proper management of the Site remedy post-construction. The SMP will include provisions for any operation and maintenance and long-term monitoring required for the remedy; as well as periodic certifications; and
- Institutional Controls in the form of any existing local laws that limit installation of drinking water wells and informational devices such as advisories published in newspapers and letters sent to local government authorities to limit exposure to contaminated groundwater.

The Facility continues to be a source of VOC contamination to groundwater at this Site. The source investigations and other response actions for the Facility are being addressed by GE with NYSDEC oversight pursuant to New York State law. Remedial actions for the Facility are not the focus of this decision document, although successful remediation (i.e., source control or removal) of the source area(s) at the Facility, as well as the remediation of Area 1 and Area 2 pursuant to the OU1 ROD, are important to the full realization of the benefits of the remedy selected in this ROD. In the event that source control is not successfully implemented pursuant to New York State law, EPA may elect to evaluate additional options at the Facility pursuant to CERCLA to ensure the effectiveness of the selected remedy.

To potentially enhance the environmental benefits of the preferred remedy consideration will be given, during the design, to technologies and practices that are sustainable, in accordance with EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy[4]. This will include consideration of green remediation technologies and practices.

[4] See https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy, and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

Summary of the Rationale for the Selected Remedy

Based upon the requirements of CERCLA, the results of the 2012 RI, the supplemental investigation for OU2, the detailed analysis of the alternatives, and public comments, EPA has determined that Alternative 2 (Monitored Natural Attenuation) for Area 3 (OU2) satisfies the requirements of Section 121 of CERCLA, 42 U.S.C. § 9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, as set forth in Section 300.430(e)(9) of the NCP.

Alternative 1 (No Action) was not selected because it would not achieve protection of human health and the environment in a reasonable timeframe because it does not include active monitoring of the groundwater in Area 3. Alternative 2 (MNA) relies on reduced contaminant migration from upgradient areas and natural processes to achieve MCLs in the groundwater. Source control or remediation at the Facility, active treatment in Area 1, and MNA in Area 2 are important to the full realization of the benefits of the remedy selected in this ROD. The supplemental investigation of groundwater and surface water contamination in Area 3 provided additional data supporting MNA for Area 3. Although the precise timeframe to achieve federal MCLs or more stringent state standards in the groundwater is somewhat uncertain due to the continuing source to groundwater contamination at the Facility and given the impact of the contaminant mass diffused in the bedrock matrix, long-term groundwater monitoring will ensure that RAOs are achieved at the Site.

Summary of the Estimated Selected Remedy Costs

The estimated capital, annual O&M, and total present-worth costs for the selected remedy are $25,000, $131,900, and $1,776,800, respectively. The costs estimates are based on available information and are order-of-magnitude engineering cost estimates that are expected between +50 to -30 percent of the actual project cost. Changes to the cost estimate can occur as a result of new information and data collected during the design of the remedy. A cost estimate summary for the selected remedy is presented in Appendix II, Table 11.

Expected Outcomes of the Selected Remedy

The selected remedy addresses VOC contamination in the groundwater in Area 3 (OU2) of the Site. The results of the risk assessment indicate excess cancer risk and noncancer health hazards associated with future human ingestion of groundwater above acceptable levels under baseline conditions. The response action selected in this ROD will eliminate risks associated with this pathway. The selected remedy, in conjunction with the OU1 remedy, will restore the impacted aquifer at the Site to its most beneficial use as a source of drinking water. Groundwater remediation goals for the chemicals of concern (COCs) in Area 3 (OU2) of the Site are presented in Appendix II, Table 7.

STATUTORY DETERMINATIONS

EPA has determined that the selected remedy complies with the CERCLA and NCP provisions for remedy selection, meets the threshold criteria, and provides the best balance of tradeoffs among

the alternatives with respect to the balancing and modifying criteria. These provisions require the selection of remedies that are protective of human health and the environment, comply with ARARs (or justify a waiver of such requirements), are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the toxicity, mobility and volume of hazardous substances as a principal element (or justifies not satisfying the preference). The following sections discuss how the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The selected remedy, in conjunction with the OU1 remedy, will protect human health and the environment because it will over the long-term restore groundwater at the Site to drinking-water standards. Institutional controls will also assist in protecting human health over both the short and long-term by helping to control and limit exposure to hazardous substances until RAOs are achieved.

Compliance with ARARs

The selected remedy for OU2 is expected to achieve federal MCLs or more stringent state standards for the COCs in the groundwater. The COCs and the relevant MCLs are provided in Table 7, which can be found in Appendix II.

A full list of the ARARs, TBCs and other guidelines related to implementation of the selected remedy is presented at Tables 8, 9, and 10, which can be found in Appendix II.

Cost-Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP Section 300.430(f)(1)(ii)(D). Overall, effectiveness is based on the evaluations of long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. EPA evaluated the "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume though treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness.

The action alternative evaluated for OU2 underwent a detailed cost analysis. In that analysis, capital and annual O&M costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, annual O&M costs were calculated for the estimated life of the alternative. The total estimated present worth cost for implementing the selected remedy in Area 3 is $1,776,800.

Based on the comparison of overall effectiveness to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost effective (NCP Section 300.430(f)(1)(ii)(D)) in that it is the least-cost action which will achieve groundwater standards within a reasonable timeframe. The results of the matrix diffusion analysis support the use of 30-year timeframe for planning and

estimating purposes to remediate groundwater, although remediation timeframes could exceed this estimate.

Preference for Treatment as a Principal Element

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or justify not satisfying the preference). Although the selected remedy does not satisfy the preference for treatment as a principal element in Area 3, active treatment in Area 1 will reduce contaminants migrating to Area 3.

Five-Year Review Requirements

While the selected remedy will ultimately result in reduction of contaminants in groundwater to levels that will allow for unlimited use and unrestricted exposure, it is anticipated that it would take longer than five years to achieve these levels. As a result, in accordance with CERCLA, the Site remedy is to be reviewed at least once every five years until remediation goals are achieved and unrestricted use is achieved.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan for OU2 of the Site was released on July 29, 2019. The Proposed Plan identified Alternative 2, MNA, as the preferred alternative for remediating the contaminated groundwater in Area 3. EPA considered all comments made at the public meeting on August 8, 2019, and reviewed all written comments made (including electronic formats, such as e-mail) during the public comment period, and has determined that no significant changes to the remedy, as originally identified in the Proposed Plan, are necessary or appropriate.

APPENDIX I

FIGURES

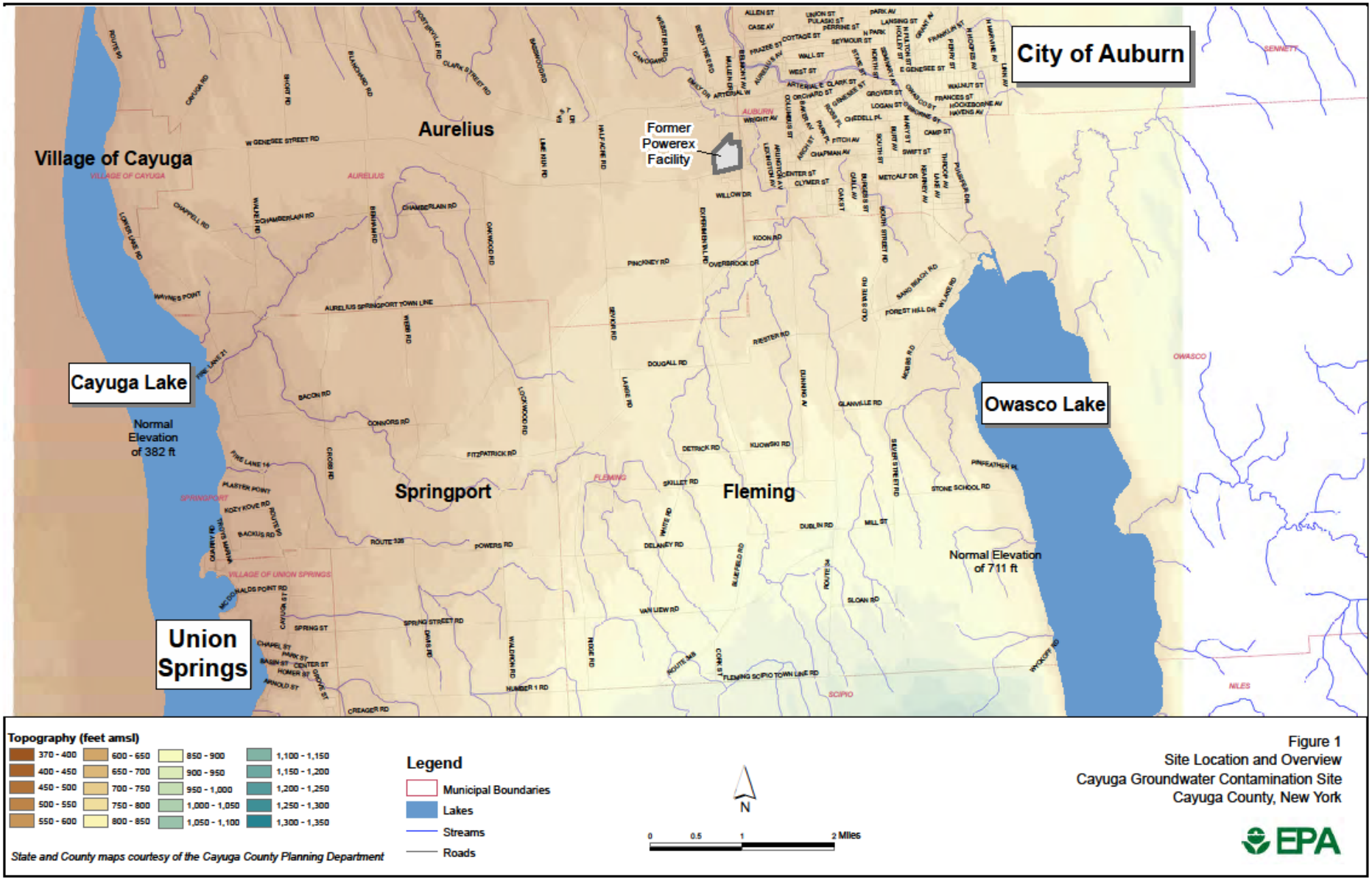
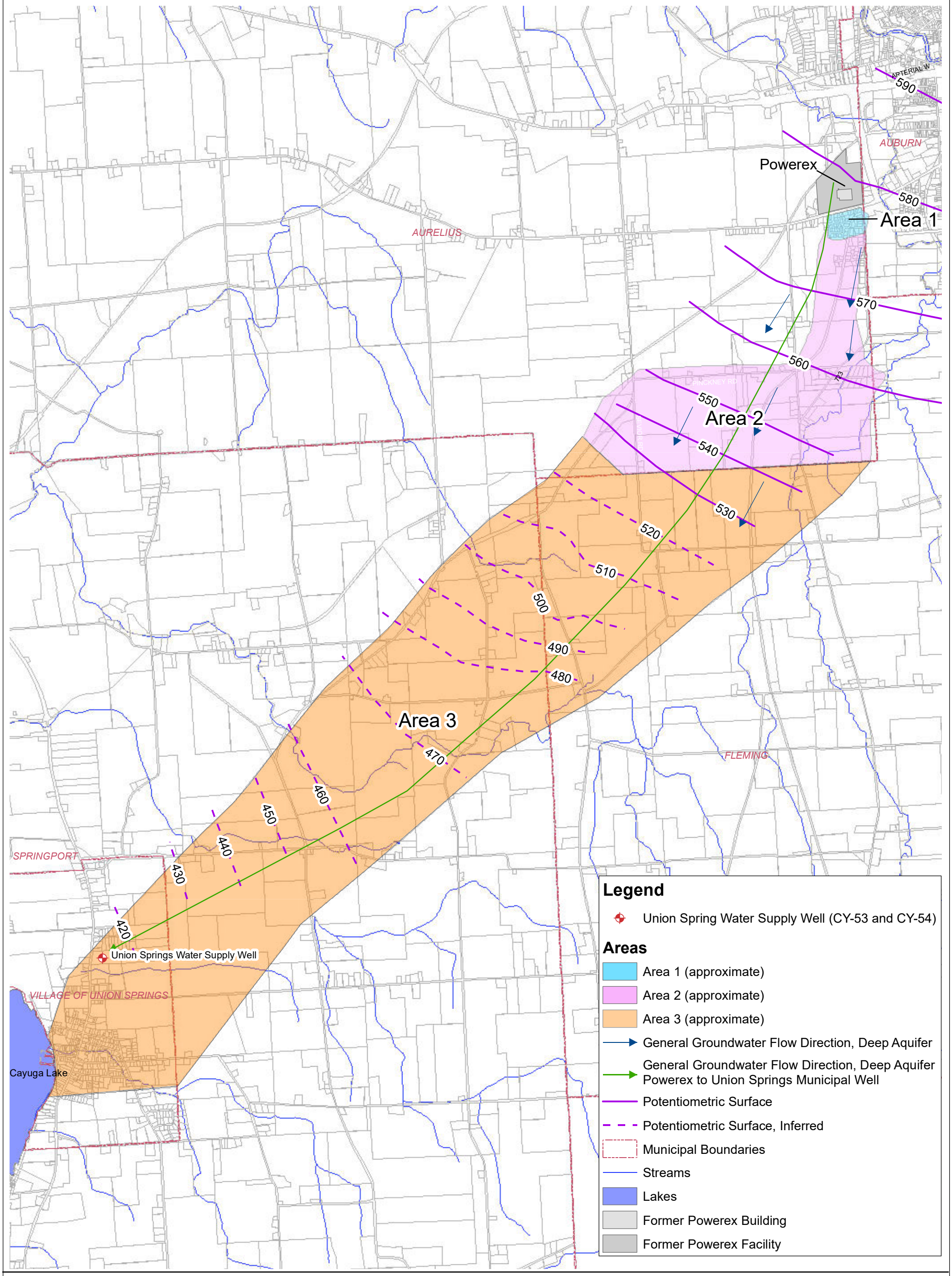


Figure 1
Site Location and Overview
Cayuga Groundwater Contamination Site
Cayuga County, New York

EPA



Notes:
1. Area 1, 2, and 3 are as shown on the figure.
2. Area 3 extends up to Cayuga Lake, but does not include Cayuga Lake.

N

0 1,500 3,000 6,000 Feet

Figure 2
Approximate Extent of Impacts – Areas 1, 2 & 3
Cayuga County Groundwater Contamination Site
Cayuga County, New York

EPA

APPENDIX II

TABLES

TABLE 1
Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater (potable/residential well)

Exposure Point	Chemical of Concern	Concentration Detected		Concentration Units	Frequency of Detection	Exposure Point Concentration (EPC)	EPC Units	Statistical Measure
		Min	Max					
Tap Water	*cis*-1,2-dichloroethene	0.26	47,900	ug/l	101/251	1,459	ug/l	95% Cheb. (Mean,Sd)
	Trichloroethene	0.13	329	ug/l	71/251	11.2	ug/l	95% Cheb. (Mean,Sd)
	Vinyl chloride	0.2	2,790	ug/l	26/251	70.93	ug/l	95% Cheb. (Mean,Sd)

Summary of Chemicals of Concern and Medium-Specific Exposure Point Concentrations

This table presents the chemicals of concern (COCs) and exposure point concentrations (EPCs) for each of the COCs in groundwater. The table includes the range of concentrations detected for each COC, as well as the frequency of detection (i.e., the number of times the chemical was detected in the samples collected at the site), the EPC and how it was derived. Cheb=Chebyshev

Area 3 Supplemental Investigation Summary

Maximum concentrations of *cis*-1,2-dichloroethene, trichloroethene and vinyl chloride were 9.6 ug/l, 0.89 ug/l and non-detect, respectively, for groundwater in Area 3.

TABLE 2: Selection of Exposure Scenarios

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Groundwater	Groundwater	Tap Water	Residents	Adult	Dermal	On-site	None	Residents in the area use municipal water or have treatment systems.
						Ingestion	On-site	None	
					Child (0-6 yrs)	Dermal	On-site	None	
						Ingestion	On-site	None	
				Site Workers	Adult	Ingestion	On-site	None	Workers use municipal water or wells that have treatment systems.
				Farmers	Adult	Dermal	On-site	None	The impacted dual use (agricultural/residential) wells are equipped with treatment systems.
						Ingestion	On-site	None	
		Air	Water Vapors at Showerhead	Residents	Adult	Inhalation	On-site	None	Residents in the area use municipal water or have treatment systems.
					Child (0-6 yrs)	Inhalation	On-site	None	
			Indoor Air - Vapors from Subsurface	Residents	Adult	Inhalation	On-site	Qual	VOCs are present in shallow groundwater in the area along and to the south of West Genesee Street, in the vicinity of Pinckney Road, and at potential groundwater discharge areas in Union Springs. VOCs could potentially migrate from groundwater to indoor air in these areas.
					Child (0-6 yrs)	Inhalation	On-site	Qual	
				Site Workers	Adult	Inhalation	On-site	Qual	
				Farmers	Adult	Inhalation	On-site	None	Potential exposure to farmers through vapor intrusion is expected to be similar to that of the resident. Thus, farmers are not addressed separately as a receptor population.
Current / Future	Surface Water	Surface Water	Surface Water Union Springs Owasco Outlet	Recreational User	Adult	Dermal	On-site	Quant	Current and future recreational visitors may come into contact with surface water.
						Ingestion	On-site	Quant	
					Adolescent (12-18 yrs)	Dermal	On-site	Quant	
						Ingestion	On-site	Quant	
					Child (6-11 yrs)	Dermal	On-site	Quant	
						Ingestion	On-site	Quant	
			Surface Water Crane Brook	Recreational User	Adult	Dermal	On-site	Qual	Recreational users may be potentially exposed to surface water. Concentrations detected in surface water did not exceed screening levels. Therefore, no COPCs are identified
						Ingestion	On-site	Qual	
					Adolescent (12-18 yrs)	Dermal	On-site	Qual	
						Ingestion	On-site	Qual	
					Child (6-11 yrs)	Dermal	On-site	Qual	
						Ingestion	On-site	Qual	
	Sediment	Sediment	Sediment Union Springs	Recreational User	Adult	Dermal	On-site	Qual	Recreational users may be potentially exposed to sediment. Concentrations detected in sediment did not exceed screening levels. Therefore, no COPCs are identified.
						Ingestion	On-site	Qual	
					Adolescent (12-18 yrs)	Dermal	On-site	Qual	
						Ingestion	On-site	Qual	
					Child (6-11 yrs)	Dermal	On-site	Qual	
						Ingestion	On-site	Qual	

Quant = Quantitative risk analysis performed

Qual = Qualitative risk analysis performed

Summary of Selection of Exposure Pathways

The table describes the exposure pathways that were evaluated for the risk assessment, and the rationale for the inclusion of each pathway. Exposure media, exposure points, and characteristics of receptor populations are included.

TABLE 3

Non-Cancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Absorp. Efficiency (Dermal)	Adjusted RfD (Dermal)	Adj. Dermal RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD: Target Organ	Dates of RfD:
cis-1,2-dichloroethene	Chronic	2E-03	mg/kg-day	1	2E-03	mg/kg-day	Kidney	3000	IRIS	04/05/11
Trichloroethene	Chronic	-----	mg/kg-day	-----	------	mg/kg-day	-----	-----	-----	-----
Vinyl chloride	Chronic	3E-03	mg/kg-day	1	3E-03	mg/kg-day	Liver	30	IRIS	04/05/11

Pathway: Inhalation

Chemical of Concern	Chronic/ Subchronic	Inhalation RfC	Inhalation RfC Units	Inhalation RfD	Inhalation RfD Units	Primary Target Organ	Combined Uncertainty /Modifying Factors	Sources of RfD: Target Organ	Dates:
cis-1,2-dichloroethene	-----	-----	-----	-----	-----	-----	-----	-----	-----
Trichloroethene	-----	-----	-----	-----	-----	-----	-----	-----	-----
Vinyl chloride	Chronic	1E-01	mg/m^3	2.9E-02	mg/kg/day	Liver	30	IRIS	04/05/11

Key

-----: No information available
IRIS: Integrated Risk Information System, U.S. EPA

Summary of Toxicity Assessment

This table provides non-carcinogenic risk information which is relevant to the contaminants of concern in groundwater. When available, the chronic toxicity data have been used to develop oral reference doses (RfDs) and inhalation reference doses (RfDi).

TABLE 4

Cancer Toxicity Data Summary

Pathway: Oral/Dermal

Chemical of Concern	Oral Cancer Slope Factor	Units	Adjusted Cancer Slope Factor (for Dermal)	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
cis-1,2-dichloroethene	-----	$(mg/kg/day)^{-1}$	-----	$(mg/kg/day)^{-1}$	-----	-----	-----
Trichloroethene	5.9E-03	$(mg/kg/day)^{-1}$	5.9E-03	$(mg/kg/day)^{-1}$	B1	IRIS	07/21/09
Vinyl chloride	7.2E-01	$(mg/kg/day)^{-1}$	7.2E-01	$(mg/kg/day)^{-1}$	A	IRIS	04/05/11

Pathway: Inhalation

Chemical of Concern	Unit Risk	Units	Inhalation Slope Factor	Slope Factor Units	Weight of Evidence/ Cancer Guideline Description	Source	Date
cis-1,2-dichloroethene	-----	-----	-----	-----	-----	-----	-----
Trichloroethene	2E-06	$1(ug/m^3)$	-----	-----	B1	CalEPA	07/21/09
Vinyl chloride	4.4E-06	$1(ug/m^3)$	-----	-----	A	IRIS	04/05/11

Key:

IRIS: Integrated Risk Information System. U.S. EPA
CalEPA: California EPA
-----: No information available

EPA Weight of Evidence:

A – Known human carcinogen
B1 – Probable human carcinogen-indicates limited evidence in humans

Summary of Toxicity Assessment

This table provides carcinogenic risk information which is relevant to the contaminants of concern in groundwater. Toxicity data are provided for both the oral and inhalation routes of exposure.

TABLE 5

Risk Characterization Summary - Noncarcinogens

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Risk			
					Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water	*cis*-1,2-dichloroethene	Kidney	7.1	-----	-----	7.1
			Trichloroethene	-----	-----	-----	-----	-----
			Vinyl chloride	Liver	0.23	-----	-----	0.23
							Hazard Index Total=	7.4

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Risk			
					Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water	*cis*-1,2-dichloroethene	Kidney	20	0.021	-----	20
			Trichloroethene	-----	-----	-----	-----	-----
			Vinyl chloride	Liver	0.65	0.00034	0.032	0.96
							Hazard Index Total=	21

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Risk			
					Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water	*cis*-1,2-dichloroethene	Kidney	47	1.5	-----	48
			Trichloroethene	-----	-----	-----	-----	-----
			Vinyl chloride	Liver	1.5	0.025	0.97	2.5
							Hazard Index Total=	51
							Adult/Child Combined Hazard Index=	72

----- – not available at this time due to no reference dose being available – non-cancer hazards are underestimated

Summary of Risk Characterization - Non-Carcinogens

The table presents hazard quotients (HQs) for each route of exposure and the hazard index (sum of hazard quotients) for exposure to groundwater. The Risk Assessment Guidance for Superfund states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse non-cancer effects.

TABLE 6

Risk Characterization Summary - Carcinogens

Scenario Timeframe: Future
Receptor Population: Site Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water	*cis*-1,2-dichloroethene	-----	-----	-----	-----
			Trichloroethene	-----	-----	-----	-----
			Vinyl chloride	1.8E-04	-----	-----	1.8E-04
						Total Risk =	2E-04

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water	*cis*-1,2-dichloroethene	-----	-----	-----	-----
			Trichloroethene	6.2E-07	7.0E-10	3.1E-06	3.7E-06
			Vinyl chloride	4.8E-04	2.5E-07	4.8E-05	5.3E-04
						Total Risk =	5E-04

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child (0-6 yrs)

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
				Ingestion	Dermal	Inhalation	Exposure Routes Total
Groundwater	Groundwater	Tap water	*cis*-1,2-dichloroethene	-----	-----	-----	-----
			Trichloroethene	3.6E-07	1.3E-08	2.3E-06	2.7E-06
			Vinyl chloride	3.7E-03	4.7E-06	3.6E-05	3.7E-03
						Total Risk =	4E-03
						Adult/Child Combined Risk=	4.5E-03

Summary of Risk Characterization – Carcinogens

The table presents cancer risks for groundwater exposure. As stated in the National Contingency Plan, the point of departure is 10^{-6} and the acceptable risk range for site-related exposure is 10^{-6} to 10^{-4}.

TABLE 7
Remediation Goals for Groundwater

Contaminants of Concern	National Primary Drinking Water Standards[1] (ppb)[4]	NYS Groundwater Quality Standards[2] (ppb)	NYSDOH Drinking Water Quality Standards[3] (ppb)	Remediation Goals (ppb)
Volatile Organic Compounds				
cis-1,2-Dichloroethene	70	5	5	5
trans-1,2- Dichloroethene	100	5	5	5
Trichloroethene	5	5	5	5
Vinyl Chloride	2	2	2	2

Notes:
1. EPA National Primary Drinking Water Standards (40 CFR Part 141)
2. New York Surface Water and Ground Water Quality Standards (6 NYCRR Part 703)
3. New York State Department of Health Drinking Water Standards (10 NYCRR Part 5)
4. ppb = parts per billion

TABLE 8
Chemical-Specific ARARs, TBCs, and Other Guidelines

Regulation/Authority	Citation	Requirement Synopsis
National Primary Drinking Water Standards	40 CFR Part 141	Establishes Maximum Contaminant Levels (MCLs) that are health-based standards for public drinking water systems. Also establishes drinking water quality goals set at levels at which no adverse health effects are anticipated, with an adequate margin of safety.
New York Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations	6 New York Code of Rules and Regulations (NYCRR) Part 703	Establishes numerical standards for groundwater and surface water.
New York State Department of Health Drinking Water Standards	10 NYCRR Part 5	Sets MCLs for public drinking water supplies.

ARARs = Applicable or Relevant and Appropriate Requirements
TBC = To-be-Considered Criteria, Advisories, and Guidance

TABLE 9 Location-Specific ARARs, TBCs, and Other Guidelines		
Regulation/Authority	**Citation**	**Requirement Synopsis**
No Location-Specific ARARs, TBC, and Other Guidelines Identified		
N/A	N/A	N/A

TABLE 10
Action-Specific ARARs, TBCs, and Other Guidelines

Regulation/Authority	Citation	Requirement Synopsis
General Requirements for Site Remediation		
Resource Conservation and Recovery Act (RCRA) Identification and Listing of Hazardous Wastes	40 CFR Part 261	Describes methods for identifying hazardous wastes and lists known hazardous wastes
RCRA Standards Applicable to Generators of Hazardous Wastes	40 CFR Part 262	Describes standards applicable to generators of hazardous wastes.
New York Identification and Listing of Hazardous Waste	New York State Environmental Conservation Law (ECL) Article 27; 6 NYCRR Parts 371-376	Outlines criteria for determining if a solid waste is a hazardous waste and is subject to regulation.
Waste Transportation		
Hazardous Materials Transportation Regulations	49 CFR Parts 107, 171, 172, 177-179	This regulation outlines procedures for the packaging, labeling, manifesting, and transporting hazardous materials.
RCRA Standards Applicable to Transporters of Hazardous Waste	40 CFR Part 263	Establishes the responsibility of off-site transporters of hazardous waste in the handling, transportation and management of the waste. Requires manifesting, recordkeeping and immediate action in the event of a discharge.
New York Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities	6 NYCRR Part 372	Establishes record keeping requirements and standards related to the manifest system for hazardous wastes.
New York Waste Transporter Permit Program	6 NYCRR Part 364	Establishes permit requirements for transportations of regulated waste.
Waste Disposal		
RCRA Land Disposal Restrictions	40 CFR 268	This regulation identifies hazardous wastes restricted for land disposal and provides treatment standards for land disposal.
New York Standards for Universal Waste (6 NYCRR Part 374-3) and Land Disposal Restrictions (6 NYCRR Part 376)	ECL, Article 27; 6 NYCRR Part 374-3 6 NYCRR Part 376	These regulations establish standards for treatment and disposal of hazardous wastes.

TABLE 11
Cost Summary Table for Selected Remedy

CAPITAL COSTS	
Work Plan/QAPP/HASP	$25,000.00
Total Capital Costs	**$25,000.00**
OPERATION, MAINTENANCE & MONITORING COSTS	
Groundwater Sampling Events	
Sampling Project Planning	$11,040.00
Field Sampling Labor	$25,920.00
Travel Expense and Per Diem	$7,760.00
Sampling Equipment, Shipping, Consumable Supplies	$12,000.00
Sample Analysis and Data Validation	$19,119.00
Data Evaluation and Reporting	$56,100.00
Total Annual O&M Costs (30 years)	**$131,939.00**
PRESENT WORTH	
Total Capital Costs	$25,000.00
Total Operation, Maintenance & Monitoring Costs (30 years)	$1,751,793.68
TOTAL PRESENT WORTH OF 30 YEAR COSTS	**$1,776,793.68**

Notes:

1. Present worth calculation assumes 7% discount rate after inflation is considered.
2. It should be noted that these cost estimates are order-of-magnitude engineering cost estimates that are expected to be within +50 to -30 percent of the actual project cost.

APPENDIX III

ADMINISTRATIVE RECORD INDEX

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/27/2019 **REGION ID: 02**

Site Name: CAYUGA GROUNDWATER CONTAMINATION SITE
CERCLIS ID: NYN000204289
OUID: 02
SSID: 02QQ
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
564984	09/27/2019	ADMINISTRATIVE RECORD INDEX FOR OU2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	13	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)
117166	Undated	IMAGERY FIGURE 1-1, SITE LOCATION AND OVERVIEW, REMEDIAL INVESTIGATION/FEASIBILITY STUDY, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
122004	01/12/2001	POLLUTION REPORT NO. 1 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	4	Report	CASPE,RICHARD,L (US ENVIRONMENTAL PROTECTION AGENCY)|FOX,JEANNE (US ENVIRONMENTAL PROTECTION AGENCY)|MCCABE,WILLIAM (US ENVIRONMENTAL PROTECTION AGENCY)	HARMON,JACK (US ENVIRONMENTAL PROTECTION AGENCY)
122005	02/09/2001	POLLUTION REPORT NO. 2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	4	Report	CASPE,RICHARD,L (US ENVIRONMENTAL PROTECTION AGENCY)|FOX,JEANNE (US ENVIRONMENTAL PROTECTION AGENCY)|MCCABE,WILLIAM (US ENVIRONMENTAL PROTECTION AGENCY)	HARMON,JACK (US ENVIRONMENTAL PROTECTION AGENCY)
116828	03/29/2001	CASE NARRATIVE STL LAB NO. 226807 VOLATILE ORGANICS FOR CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	148	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116823	04/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 227922 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	148	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)

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116824	04/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 227414 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	13	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116825	04/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 227993 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	34	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116826	04/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 227862 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	145	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116827	04/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 227992 MATRIX: WATER 1 OF 1 FOR CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	91	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116822	05/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 229466 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	406	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116830	05/14/2001	WORK PLAN FOR WORK ASSIGNMENT NO. 0-212 FOR CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	4	Work Plan	(US ENVIRONMENTAL PROTECTION AGENCY)	(LOCKHEED MARTIN/REAC)
117112	06/07/2001	LETTER REGARDING THE NOMINATION TO THE NATIONAL PRIORITIES LIST FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	1	Letter	MUSZYNSKI,WILLIAM,J (US ENVIRONMENTAL PROTECTION AGENCY)	CROTTY,ERIN (NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION)

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116818	07/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 200857 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	19	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116819	07/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 200790 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	164	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116820	07/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 200725 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	142	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
116821	07/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 200668 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	114	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
118598	08/01/2001	HAZARD RANKING SYSTEM DOCUMENTATION PACKAGE FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	907	Report		(US ENVIRONMENTAL PROTECTION AGENCY)
116829	08/29/2001	WORK PLAN FOR AMENDED WORK ASSIGNMENT NO. 0-212 AMENDMENTS 1 AND 2 FOR CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	14	Work Plan	(US ENVIRONMENTAL PROTECTION AGENCY)	(LOCKHEED MARTIN/REAC)
116816	11/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 205322 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	248	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)

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116817	11/01/2001	SAMPLE DATA SUMMARY PACKAGE STL LAB NO. 205289 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	166	Report	(EARTH TECH INCORPORATED)	(SEVERN TRENT SERVICES)
117110	11/16/2001	LETTER ON BEHALF OF THE RESIDENTS OF THE TOWN OF SPRINGPORT URGING TO DESIGNATE THE CAYUGA GROUNDWATER CONTAMINATION SITE AS AN EPA SUPERFUND SITE	2	Letter	(US ENVIRONMENTAL PROTECTION AGENCY)	BOWER,ROBERT,J (SPRINGPORT, TOWN OF)
117111	11/16/2001	LETTER ON BEHALF OF THE RESIDENTS OF THE VILLAGE OF UNION SPRINGS NEW YORK URGING TO DESIGNATE THE CAYUGA GROUNDWATER CONTAMINATION SITE AS EPA SUPERFUND SITE	2	Letter	(US ENVIRONMENTAL PROTECTION AGENCY)	TRUFANT,EDWARD,C (UNION SPRINGS, VILLAGE OF)
116814	01/29/2002	ANALYTICAL REPORT EPA WORK ASSIGNMENT NO. 0-212 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	29	Report	HUMPHREY,ALAN (US ENVIRONMENTAL PROTECTION AGENCY)	(LOCKHEED MARTIN/REAC)
116813	02/21/2002	ANALYTICAL REPORT EPA WORK ASSIGNMENT NO. 0-212 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	42	Report	HUMPHREY,ALAN (US ENVIRONMENTAL PROTECTION AGENCY)	(LOCKHEED MARTIN/REAC)
116812	02/25/2002	TRANSMITTAL FOR ANALYTICAL REPORT EPA WORK ASSIGNMENT NO. 0-212 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	1	Other	SINGHVI,RAJESHMAL (US ENVIRONMENTAL PROTECTION AGENCY)	MILLER,DENNIS,A (LOCKHEED MARTIN/REAC)
123346	06/06/2002	US EPA 104E REQUEST FOR INFORMATION SENT TO BOMBARDIER INCORPORATED FOR THE CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	20	Letter	BROWN,ROBERT,E (BOMBARDIER INCORPORATED)	LYNCH,KEVIN (US ENVIRONMENTAL PROTECTION AGENCY)

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123347	06/06/2002	US EPA 104E REQUEST FOR INFORMATION SENT TO COLUMBIAN ROPE COMPANY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	21	Letter	(COLUMBIAN ROPE COMPANY)	LYNCH,KEVIN (US ENVIRONMENTAL PROTECTION AGENCY)
123349	06/06/2002	US EPA 104E REQUEST FOR INFORMATION AND ACCESS TO FACILITY TO OBTAIN SAMPLES SENT TO THE GENERAL ELECTRIC COMPANY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	21	Letter	(GENERAL ELECTRIC (GE) COMPANY)	LYNCH,KEVIN (US ENVIRONMENTAL PROTECTION AGENCY)
113272	08/07/2002	GENERAL ELECTRIC INITIAL RESPONSE TO US EPA 104E REQUEST FOR INFORMATION FOR CAYUGA GROUNDWATER CONTAMINATION SITE	9	Letter	SHANAHAN,GEORGE,A (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
113273	08/12/2002	COLUMBIAN ROPE COMPANY RESPONSE TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	903	Letter	DIMARTINO,JOHN (US ENVIRONMENTAL PROTECTION AGENCY)	FUCILLO,THOMAS,J (MENTER, RUDIN, TRIVELPIECE, P.C.)
123356	09/05/2002	FEDERAL REGISTER NOTICE OF ADDING THE CAYUGA GROUNDWATER CONTAMINATION SITE TO THE NATIONAL PRIORITIES LIST (NPL)	9	Other		
117117	09/09/2002	AUBURN TECHNOLOGY, INC. AND BOMBARDIER, INC. RESPONSE (PART 1) TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	2309	Report	DEMARTINO,JOHN (US ENVIRONMENTAL PROTECTION AGENCY)	PENNINGTON,MARK,C (MORGAN, LEWIS & BOCKIUS)
117118	09/09/2002	AUBURN TECHNOLOGY, INC. AND BOMBARDIER, INC. RESPONSE (PART 2) TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	1743	Report	DEMARTINO,JOHN (US ENVIRONMENTAL PROTECTION AGENCY)	PENNINGTON,MARK,C (MORGAN, LEWIS & BOCKIUS)

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110325	04/14/2003	REMOVAL ADMINISTRATIVE RECORD INDEX AND DOCUMENTS FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	829	List/Index		(US ENVIRONMENTAL PROTECTION AGENCY)
113266	11/30/2003	FINAL SCOPE OF WORK, REMEDIAL INVESTIGATION / FEASIBILITY STUDY WORK PLAN ADDENDUM NO. 3, CAYUGA GROUNDWATER CONTAMINATION SITE	46	Work Plan	(GENERAL ELECTRIC (GE) COMPANY)	(O'BRIEN & GERE ENGINEERS INCORPORTED)
116811	12/01/2003	FINAL REPORT VOLATILE ORGANIC COMPOUND SOURCE AREA ASSESSMENT FOR CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	141	Report	BUSSEY,DON (US ENVIRONMENTAL PROTECTION AGENCY)|HUMPHREY,ALAN (US ENVIRONMENTAL PROTECTION AGENCY)	MILLER,DENNIS,A (LOCKHEED MARTIN/REAC)|WOODRUFF,KEN (LOCKHEED MARTIN TECHNOLOGY SERVICES)
113270	07/01/2004	EXPANDED SITE INSPECTION / REMEDIAL INVESTIGATION (ESI/RI) SUMMARY, VOLUME 1 OF 3, CAYUGA GROUNDWATER CONTAMINATION SITE	1497	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(WESTON SOLUTIONS, INC.)
113271	07/01/2004	EXPANDED SITE INSPECTION / REMEDIAL INVESTIGATION (ESI/RI) SUMMARY, VOLUME 2 OF 3, CAYUGA GROUNDWATER CONTAMINATION SITE	1442	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(WESTON SOLUTIONS, INC.)
117113	07/01/2004	EXPANDED SITE INSPECTION/REMEDIAL INVESTIGATION (ESI/RI) SUMMARY VOLUME 3 OF 3 REFERENCES 25 THROUGH 47 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	415	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(WESTON SOLUTIONS, INC.)
117116	07/21/2004	AMENDMENT NO.1 TO THE RI/FS WORK PLAN ADDENDUM NO. 3 FOR THE FORMER POWEREX, INC. FACILITY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	12	Work Plan	Hare,Paul,W (General Electric Company)	MORSE,RALPH,E (O'BRIEN & GERE)

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126094	08/01/2004	FORMER POWEREX FACILITY AUBURN, NY INITIAL RESPONSE OF GE TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE ATTACHMENT PART 1 OF 5 BATES NUMBER RANGE EPA 2129 - 2235 TO EPA 1862 -2108	2990	Letter	SHANAHAN,GEORGE,A (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
126095	08/01/2004	FORMER POWEREX FACILITY AUBURN, NY INITIAL RESPONSE OF GE TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE ATTACHMENT PART 2 OF 5 BATES NUMBER RANGE EPA 2109 - 2128 TO EPA 4267 - 4317	1945	Letter	SHANAHAN,GEORGE,A (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
126096	08/01/2004	FORMER POWEREX FACILITY AUBURN, NY INITIAL RESPONSE OF GE TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE ATTACHMENT PART 3 OF 5 BATES NUMBER RANGE EPA 7698 - 7893 TO EPA 4933 - 5321	2966	Letter	SHANAHAN,GEORGE,A (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
126097	08/01/2004	FORMER POWEREX FACILITY AUBURN, NY INITIAL RESPONSE OF GE TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE ATTACHMENT PART 4 OF 5 BATES NUMBER RANGE EPA 7894 - 8039 TO EPA 8649 -8659	1235	Letter	SHANAHAN,GEORGE,A (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
126098	08/01/2004	FORMER POWEREX FACILITY AUBURN, NY INITIAL RESPONSE OF GE TO US EPA 104E REQUEST FOR INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE ATTACHMENT PART 5 OF 5 BATES NUMBER RANGE EPA 9129 - 9222 TO EPA 11702 - 11959	2831	Letter	SHANAHAN,GEORGE,A (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)

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113267	07/21/2004	AMENDMENT NO.1 TO RI/FS WORK PLAN ADDENDUM NO. 3, FORMER POWEREX, INC. FACILITY, CAYUGA GROUNDWATER CONTAMINATION SITE	10	Work Plan	HARE,PAUL,W (General Electric Company)	MORSE,RALPH,E (O'BRIEN & GERE)
113261	08/24/2004	REMEDIAL SITE ASSESSMENT DECISION - EPA REGION II, CAYUGA GROUNDWATER CONTAMINATION SITE	2	Form		ACOSTA,ILDEFONSO (US ENVIRONMENTAL PROTECTION AGENCY)
117114	09/10/2004	TRANSMITTAL OF THE AMENDMENT NO.1 TO THE RI/FS WORK PLAN ADDENDUM NO. 3 FOR THE FORMER POWEREX INC. FACILITY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	2	Letter	KELLY,KEVIN (US ENVIRONMENTAL PROTECTION AGENCY)	HARE,PAUL,W (General Electric Company)
117168	12/01/2004	MAP FIGURE 3-9, DEEP AQUIFER, ZONE D-3, DECEMBER 2004 POTENTIOMETRIC SURFACE, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
116724	01/21/2005	FINAL WORK PLAN FOR THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE VOLUME 1 OF 1	156	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM FEDERAL PROGRAMS CORPORATION)
116731	01/21/2005	TRANSMITTAL OF THE FINAL WORK PLAN VOLUME 1 FOR THE REMEDIAL INVESTIGATION / FEASIBILITY STUDY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	1	Letter	ROSADO,FERNANDO (US ENVIRONMENTAL PROTECTION AGENCY)	GOLTZ,ROBERT,D (CDM FEDERAL PROGRAMS CORPORATION)
123353	03/30/2005	ACTION MEMORANDUM: REQUEST FOR A 12 MONTH EXEMPTION AND CEILING INCREASE FOR THE REMOVAL ACTION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	15	Memorandum	MCCABE,WILLIAM (US ENVIRONMENTAL PROTECTION AGENCY)	HARMON,JACK (US ENVIRONMENTAL PROTECTION AGENCY)

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127805	06/21/2005	CORRESPONDENCE REGARDING POWEREX REVISED WORK PLAN ADDENDUM NO. 3 AMENDMENT NO. 2 TO WORK PLAN ADDENDUM NO. 3 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	1	Letter	HARE,PAUL,W (General Electric Company)	KELLY,KEVIN (NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION)
117173	08/01/2005	MAP FIGURE 4-2, SUMMARY OF SAMPLING RESULTS FOR EXISTING MONITORING WELLS, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
117174	10/18/2005	IMAGERY FIGURE 4-13, UNION SPRINGS SURFACE WATER SAMPLE RESULTS FOR EXISTING MONITORING WELLS, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
127806	12/16/2005	REVISED AMENDMENT NO. 2 FOR RI/FS WORK PLAN ADDENDUM NO. 3 FORMER POWEREX, INC. FOR CAYUGA GROUNDWATER CONTAMINATION SITE	5	Letter	HARE,PAUL,W (General Electric Company)	MORSE,RALPH,E (O'BRIEN & GERE)
127807	12/16/2005	CORRESPONDENCE REGARDING AMENDMENT NO. 2 TO RI/FS WORK PLAN ADDENDUM NO. 3 FORMER POWEREX, INC. FACILITY FOR CAYUGA GROUNDWATER CONTAMINATION SITE	2	Letter	KELLY,KEVIN (NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION)	HARE,PAUL,W (General Electric Company)
113269	01/30/2006	FINAL STAGE 1A CULTURAL RESOURCES SURVEY, CAYUGA GROUNDWATER CONTAMINATION SITE	45	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM FEDERAL PROGRAMS CORPORATION)
116815	03/30/2006	SUMMARY REPORT GROUNDWATER SAMPLING RESULTS WORK ASSIGNMENT NO. 0-024.2 FOR CAYUGA GROUNDWATER CONTAMINATION SITE	198	Report	BUSSEY,DON (US ENVIRONMENTAL PROTECTION AGENCY)	WOODRUFF,KEN (LOCKHEED MARTIN TECHNOLOGY SERVICES)

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117167	07/01/2007	MAP FIGURE 3-6, REGIONAL DEEP AQUIFER, ZONE D-3, JULY 207 POTENTIOMETRIC SURFACE, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
117170	07/23/2007	MAP OF WELL SAMPLE LOCATIONS - SOUTH, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
117171	07/24/2007	MAP OF WELL SAMPLE LOCATIONS - SOUTH, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
117172	07/24/2007	MAP FIGURE 4-6, MONITORING WELL SAMPLE RESULTS - SOUTH DEEP ZONE, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
117169	07/26/2007	MAP FIGURE 4-4, MONITORING WELL SAMPLE RESULTS - NORTH DEEP ZONE, CAYUGA GROUNDWATER CONTAMINATION SITE	1	Figure/Map/ Drawing		(CDM)
118275	03/25/2011	FINAL SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT FOR THE REMEDIAL INVESTIGATION / FEASIBILITY STUDY FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	93	Report		(CDM FEDERAL PROGRAMS CORPORATION)
123354	04/01/2011	US EPA NOTICE OF POTENTIAL LIABILITY AND DEMAND FOR COSTS SENT TO GENERAL ELECTRIC COMPANY AND POWEREX INCORPORATED FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	4	Letter	KLEE,ANN (General Electric Company)|SIBENAC,JOSEPH,A (POWEREX INCORPORATED)	MUGDAN,WALTER,E (US ENVIRONMENTAL PROTECTION AGENCY)

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123348	05/04/2011	CORRESPONDENCE REGARDING ADDITIONAL POTENTIALLY RESPONSIBLE PARTIES AND OTHER POTENTIAL SOURCE INFORMATION FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	7	Letter	BERNS,CAROL (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
116721	05/10/2011	FINAL HUMAN HEALTH RISK ASSESSMENT REPORT FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	231	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM FEDERAL PROGRAMS CORPORATION)
123355	07/14/2011	SUMMARY OF POTENTIAL RESPONSIBLE PARTIES AND ADDITIONAL CONTAINMENT SOURCES FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	26	Letter	BERNS,CAROL (US ENVIRONMENTAL PROTECTION AGENCY)	SOMMER,DEAN,S (YOUNG, SOMMER, WARD, RITZENBERG, WOOLEY, BAKER & MOORE, LLC)
123878	07/27/2011	FINAL AQUATRAK PHASE II GEOPHYSICAL INVESTIGATION OF FORMER POWEREX, INC. FOR CAYUGA GROUNDWATER CONTAMINATION SITE	88	Report	(O'BRIEN & GERE ENGINEERS INCORPORTED)	(WILLOWSTICK TECHNOLOGIES)
123457	09/01/2011	MICROCOSM STUDY REPORT FOR ABIOTIC DEGRADATION IN THE GYPSUM RICH BEDROCK UNIT AT FORMER POWEREX INC. AUBURN, NY SITE FOR CAYUGA GROUNDWATER CONTAMINATION SITE	58	Report		HARKNESS,MARK (NONE)
116722	02/24/2012	FINAL REMEDIAL INVESTIGATION REPORT FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	1629	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM FEDERAL PROGRAMS CORPORATION)
116723	02/28/2012	FINAL TECHNICAL MEMORANDUM - MATRIX DIFFUSION MODELING RESULTS FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	121	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM FEDERAL PROGRAMS CORPORATION)

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123458	07/12/2012	FINAL FEASIBILITY STUDY FOR THE CAYUGA CONTAMINATION SITE	261	Report	(US ENVIRONMENTAL PROTECTION AGENCY)	(CDM SMITH)
123460	07/13/2012	PROPOSED PLAN FOR OU1 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	19	Work Plan		(US ENVIRONMENTAL PROTECTION AGENCY)
145061	01/11/2013	MEETING MINUTES FOR THE VILLAGE OF UNION SPRINGS MRB MEETING HELD ON 12/11/2012 TO DISCUSS VILLAGE WATER SUPPLY CONTAMINATION FOR THE CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	15	Report		
145060	02/05/2013	MEETING SUMMARY - CAYUGA NATION CONSULTATION REGARDING THE PROPOSED PLAN FOR THE CAYUGA COUNTY GROUNDWATER CONTAMINATION SITE	31	Report		
145209	03/29/2013	RECORD OF DECISION FOR OU1 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	340	Report		(US ENVIRONMENTAL PROTECTION AGENCY)
115069	04/03/2013	ADMINISTRATIVE RECORD INDEX FOR OU1 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	32	List/Index		(US ENVIRONMENTAL PROTECTION AGENCY)
372929	11/17/2015	COMPREHENSIVE ADMINISTRATIVE RECORD INDEX FOR OU1 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	12	Administrative Record Index		(US ENVIRONMENTAL PROTECTION AGENCY)

ADMINISTRATIVE RECORD INDEX OF DOCUMENTS

FINAL

09/27/2019 **REGION ID: 02**

Site Name: CAYUGA GROUNDWATER CONTAMINATION SITE
CERCLIS ID: NYN000204289
OUID: 02
SSID: 02QQ
Action:

DocID:	Doc Date:	Title:	Image Count:	Doc Type:	Addressee Name/Organization:	Author Name/Organization:
565453	07/31/2018	COMPARISON OF INVESTIGATION STUDY RESULTS TO THE RESULTS USED FOR THE BASELINE HUMAN HEALTH RISK ASSESSMENT FOR OU2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	12	Memorandum	Fredricks,Isabel (US ENVIRONMENTAL PROTECTION AGENCY)	(O'BRIEN & GERE ENGINEERS INCORPORTED)
565454	01/01/2019	UPDATED COST ESTIMATE SUMMARY FOR OU2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	1	Chart/Table	(US ENVIRONMENTAL PROTECTION AGENCY)	
565451	04/02/2019	INVESTIGATION STUDY REPORT FOR OU2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	90	Report		(O'BRIEN & GERE ENGINEERS INCORPORTED)
565452	05/09/2019	OBG AREA 3 GROUNDWATER PRESENTATION FOR OU2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	47	Publication		(O'BRIEN & GERE ENGINEERS INCORPORTED)
568945	07/26/2019	PROPOSED PLAN FOR OU2 - AREA 3 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	14	Publication		(US ENVIRONMENTAL PROTECTION AGENCY)
541237	06/20/2014	FINAL REVISED INVESTIGATION STUDY WORK PLAN FOR OU2 FOR THE CAYUGA GROUNDWATER CONTAMINATION SITE	33	Work Plan		(O'BRIEN & GERE)

APPENDIX IV

STATE LETTER OF CONCURRENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Office of the Director
625 Broadway, 12th Floor, Albany, New York 12233-7011
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www.dec.ny.gov

SEP 27 2019

Mr. Pat Evangelista
Acting Division Director
Superfund and Emergency Management Division
USEPA Region II
290 Broadway, 19th Floor
New York, NY 10007-1866

Re: Record of Decision
Cayuga County Groundwater Contamination
NYSDEC Site No. 706012
EPA ID#: NYN000204289
Townships of Aurelius, Fleming, and Springport, Cayuga County

Dear Mr. Evangelista:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health (NYSDOH), collectively referred to as the State, have reviewed the United States Environmental Protection Agency's (EPA) September 2019 Superfund Record of Decision (ROD) for remediation of Operable Unit 2 (OU2). OU2 is also referred to as Area 3 of the Cayuga County Groundwater Contamination Superfund Site, which is located across the townships of Aurelius, Fleming and Springport in Cayuga County.

The EPA's ROD selected Monitored Natural Attenuation (MNA) as the remedy Area 3 of the site. The selected remedial alternative for Area 3 of the site remains the same as the preferred remedial alternative identified in the 2012 Proposed Plan. The 2013 Record of Decision (ROD) deferred final remedy selection in Area 3, except for activities that ensured protection of drinking water, and called for further investigations of the groundwater and surface water in Area 3. The supplemental investigation of groundwater and surface water contamination in Area 3 provided the additional data to support MNA for Area 3. This remedy includes a long-term monitoring program, periodic reviews and certifications.

The former Powerex facility continues to be a source of VOC contamination to groundwater at this Site. The source investigation and response actions for the former Powerex facility are being addressed by GE with Department oversight. Remedial actions for the former Powerex facility are not the focus of this decision document, although successful completion (i.e., source control or remediation) of the source area(s) remediation at the former Powerex facility is important to the full realization of the benefits of the proposed remedy. In the event that source control is not successfully implemented pursuant to New York State law, EPA may elect to evaluate additional

options at the former Powerex facility pursuant to CERCLA to ensure the effectiveness of the Selected Alternative.

Based on this information, the State hereby concurs with the EPA's September 2019 ROD for remediation of OU2 - Area 3 of the Cayuga County Groundwater Contamination Superfund Site, located across the townships of Aurelius, Fleming and Springport, Cayuga County.

Sincerely,

Michael J. Ryan, P.E.
Director
Division of Environmental Remediation

ec: D. Garbarini, EPA
P. Mannino, EPA
I. Fredricks, EPA
S. Edwards, NYSDEC
J. LaClair, NYSDEC
H. Warner, NYSDEC
M. Schuck, NYSDOH
S. Bogardus, NYSDOH

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR THE
RECORD OF DECISION
OPERABLE UNIT 2 (AREA 3)
CAYUGA COUNTY GROUNDWATER CONTAMINATION SUPERFUND SITE
CAYUGA COUNTY, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of the significant comments and concerns submitted by the public on the U.S. Environmental Protection Agency's July 2019 Proposed Plan for Operable Unit 2 (Area 3) of the Cayuga County Groundwater Contamination Superfund Site (Site) and the U.S. Environmental Protection Agency's responses to those comments and concerns. All comments and concerns summarized in this document have been considered in EPA's final decision in the selection of a remedy that addresses groundwater contamination in Area 3 of the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

The Proposed Plan for Area 3 of the Site, including the supplemental investigation report as well as other documents contained in the Administrative Record, were released to the public on July 29, 2019. These documents were made available to the public at information repositories maintained at the Seymour Public Library in Auburn, New York, the EPA Region 2 office in New York City, and on EPA's website for the Cayuga County Groundwater Contamination Site at https://www.epa.gov/superfund/cayuga-county-groundwater. The notice of availability for the above-referenced documents was published in the *Auburn Citizen* newspaper on July 28, 2019. The public comment period ran from July 29, 2019 to August 27, 2019.

On August 8, 2019, EPA held a public meeting at the Union Springs High School to inform officials and interested citizens about the Superfund process, to present the Proposed Plan for Area 3 of the Site, including the preferred remedial alternative, and to respond to questions and comments from the attendees. Responses to questions and comments received at the public meeting and in writing during the public comment period are included in the Responsiveness Summary.

SUMMARY OF COMMENTS AND RESPONSES

Comments and/or questions were received at the public meeting and in writing via e-mail. A summary of the comments provided at the public meeting and via e-mail, as well as EPA's responses to them, are provided below.

The transcript from the public meeting and written comments submitted during the public comment period can be found in Appendix V.

Nature and Extent of Contamination

Comment #1: Several commenters asked questions related to the transformation or breakdown of trichloroethylene (TCE), whether the transformation products could be harmful, and whether a formation that is rich in anhydrite, gypsum, and sulphur could affect the transformation.

Response to Comment #1: The transformation products of TCE can be harmful. The typical degradation process of TCE is from TCE to *cis*-1,2-dichloroethene (*cis*-1,2-DCE), trans-1.2-DCE, and then vinyl chloride, which can be quite harmful. Under appropriate conditions, vinyl chloride can be further degraded to ethene, which is much less harmful; there is evidence that such conditions exist in some portions of the Site. Vinyl chloride, while not found in most areas of the Site, and only detected infrequently in groundwater samples, is considered to be a Site-related contaminant because it is a breakdown product of TCE and was therefore included in the Site risk assessment. Vinyl chloride contributes most significantly to the cancer and non-cancer hazard at this Site. The presence of anhydrite (CaSO4), gypsum ($CaSO4 \cdot 2H_2O$) and sulphur would not change the transformations. However, the rate of the transformation process could potentially be affected (e.g., slowed or inhibited or no effect on the rate) due to their presence but this would only occur if sulfate is reduced and sulfide builds up, which could cause an inhibitory effect on microbes performing the transformation reaction due to sulfides toxicity to the microbes.

As a result of the biodegradation of TCE, *cis*-1,2-DCE is the dominant chlorinated solvent in Site groundwater. It is important to note that concentrations of *cis*-1,2-DCE are low throughout most of Area 3, including in and near the Village of Union Springs. The highest concentration of *cis*-1,2-DCE was in a sample from the Point of Entry Treatment (POET) system influent at "Property 2", which is located very close to the boundary between Areas 2 and 3. If the data from the three POET systems is excluded, the highest groundwater concentrations found in Area 3 during the OU2 supplemental investigation were 9.6 ppb for *cis*-1,2-DCE, 0.89 ppb for TCE and analytical results for vinyl chloride were non-detect. Refer to Response to Comment #11 below for additional information regarding the decreasing trend in concentration of contaminants for the raw water from the two Village of Union Springs supply wells.

Comment #2: A commenter asked if Site contaminants flow or sink in water.

Response to Comment #2: The primary contaminants of concern at the Site are TCE and DCE and to a lesser extent vinyl chloride. TCE and DCE are heavier than water and therefore, when present as free products (not dissolved), would sink in water. Vinyl chloride is lighter than water and as a free product would float on water but has not been observed in Area 3. If in a dissolved phase the contaminants would flow with the groundwater.

Comment #3: A commenter asked if contamination is sinking how do you know it is not going to Owasco Lake and whether Owasco Lake or the groundwater tributary to Owasco lake have been sampled?

Response to Comment #3: Owasco Lake (Owasco outlet) was sampled as part of the remedial investigation/feasibility study for Operable Unit 1 (OU1), for Areas 1, 2, and drinking water in Area 3 of the Site. It has not been sampled since but based upon the conceptual site model, further sampling of the Owasco Lake is not warranted as part of the Site remedial activities. EPA and New York State Department of Environmental Conservation (NYSDEC) have evaluated extensive data resulting from the investigation of this Site and the Powerex Facility (Facility), as well as results from work performed in the area by the U.S. Geological Survey. There is no indication of a hydraulic connection between the Site and Owasco Lake. Owasco Lake and its tributaries are in a different drainage basin than the Facility and the groundwater contamination at the Site. The transport of contaminants occurs primarily in what is geologically called the Forge Hollow unit of the Bertie Formation, also referred to as the D3 zone, which contain gypsum beds that are highly

soluble. Studies have indicated that groundwater is moving from the Facility towards the southwest in the direction of Union Springs.

Comment #4: A commenter asked if Owasco Lake drains into Cayuga Lake.

Response to Comment #4: Owasco Lake drains into the Seneca River. There is no topographic evidence that Owasco Lake flows into Cayuga Lake.

Comment #5: A commenter noted that the Site contaminants could be "glomming" on in pockets underground and suggested that while they may currently be isolated, they may be released if conditions change.

Response to Comment #5: As part of the OU1 remedial investigation, a matrix diffusion study was conducted, which assessed the potential for contamination to diffuse into the rock matrix and to diffuse back out of the rock into soluble form in groundwater. This phenomenon is called matrix diffusion. The concern is that as conditions change over time, and when a downward trend of groundwater contamination exists, the potential exists that contaminant concentrations could increase as contaminants back-diffuse out of the bedrock fractures and into groundwater. EPA considered matrix diffusion in developing remedial alternatives for OU1 and OU2 and determined this will not be a significant issue. EPA's selected remedies will address the contamination that might diffuse out of the fractures in the rock and into the groundwater through a combination of active treatment and naturally occurring processes.

Comment #6: A commenter asked if there had been any evaluation of uncased gas wells that are located in the area and whether they have accelerated the movement of Site contaminants.

Response to Comment #6: There are several gas wells between Auburn and the Village of Union Springs. These wells are roughly between 1,800 and 2,000 feet beneath the Auburn gas field. The steel casing on the gas wells typically extends at least 1,000 feet into bedrock. The steel casing isolates the drilling brine and the gas from the shallow groundwater. For comparison, the contaminants in Area 3 groundwater extend to approximately 200 feet below the ground surface. As a result, it is unlikely that these wells could serve as a conduit for transport of Site related contaminants. The installation of gas wells in the area is overseen by NYSDEC. Further information on the construction of gas wells in the area may be obtained by contacting the New York State Division of Mineral Resources at (585) 226-5376.

Remedy Implementation and Reviews

Comment #7: Commenters asked how EPA would monitor and review the effectiveness of the remedy and potential changed conditions, as well as the process that would be used to inform the community of monitoring results and reviews.

Response to Comment #7: The selected remedy for Area 3 calls for a long-term monitoring program that would include periodic sample collection and analysis, data evaluation, and contaminant concentration trend analysis. Sampling will be performed periodically (subject to change based upon monitoring results), with a monitoring report prepared annually. The effectiveness of the selected remedy in Area 3 is dependent upon the effectiveness of the selected remedies for Areas 1 and 2, as well as the remedy selected in 2016 by NYSDEC under its State authority for the Powerex Facility, in limiting the migration of contamination downgradient from

these areas. While there are some uncertainties, it is expected to take approximately 30 years to meet groundwater remedial action objectives in Area 3.

Although the selected remedy is expected to ultimately result in reduction of contaminants in groundwater to levels that will allow for unlimited use and unrestricted exposure, it is anticipated that it would take longer than five years to achieve these levels. As a result, in accordance with CERCLA, the Site remedy is to be reviewed at least once every five years until remediation goals are achieved. This review is called a five-year review (FYR). The purpose of a 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 FYR addresses three key questions: (1) Is the remedy functioning as intended by the decision documents? (2) Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid? (3) Has any other information come to light that could call into question the protectiveness of the remedy? The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

EPA will inform the community when it initiates the Site FYR. EPA intends to work with the Village to post a notice of the initiation of the FYR at the Village Hall and/or through posting on the Village website. The notice will invite the public to submit any comments to EPA regarding the Site. Upon completion of the FYR, the results of the review and the report will be made available on EPA's website.

In addition to the FYRs, the monitoring program will also require that annual monitoring reports be prepared which will summarize sampling performed during the previous year and will also be made available on EPA's website.

Comment #8: A commenter asked about the remedies selected in the ROD for Areas 1 and 2, and whether EPA's review of the groundwater monitoring data might result in EPA revisiting the remedies for Area 1, 2, and 3.

Response to Comment #8: The timeframe to reach the remedial objectives for groundwater at the Site is currently estimated to be approximately 30 years, but it could be longer. The goal is for the aquifer to be restored to the most beneficial use, as a source of drinking water, by reducing levels of contaminants to below federal and state drinking water and groundwater standards.

On March 29, 2013, EPA signed a ROD for OU1, which called for, among other things, the in-situ treatment of contaminated groundwater in Area 1, monitored natural attenuation (MNA) of contaminated groundwater in Area 2, the implementation of measures to ensure that the Village of Union Springs public water supply treatment system in Area 3 is adequately equipped to protect users of its supply from Site-related contamination, maintenance of existing groundwater treatment systems at three dairy farms, and connection of impacted residences to municipal water for their future potable water needs. The 2013 ROD identified contingency remedies for Area 1 and Area 2 should the selected response action not achieve remedial goals in a reasonable timeframe. At this time, the contingencies for Area 1 and 2 have not needed to be implemented. Pursuant to a 2013 administrative order on consent issued by EPA, GE is currently performing the remedial design for Area 1 and 2. As part of the remedial design, an enhanced in-situ bioremediation treatment pilot test is underway in the deep bedrock zone along the southern boundary of the Facility (Area

1) to collect data needed to design the OU1 selected remedy. Based upon the information collected thus far, the remedy for Area 1 and Area 2 continues to be appropriate.

Similar to the discussion in Response to Comment #7 above regarding FYRs for OU2, EPA will also perform FYRs for OU1. As part of the FYRs, EPA will evaluate data to determine whether the remedial action is sufficient. Based on data collected from 2002 to the present, certain trends in groundwater contamination levels are occurring. Generally, there is evidence that the TCE in the source area is being transformed into other chemicals (e.g., *cis*-1,2-DCE), and that contaminant concentrations in groundwater decrease significantly (orders of magnitude) from Area 1 to Area 3, from concentrations of TCE up to approximately 490,000 parts per billion near the Powerex Facility boundary to 50 to 70 parts per *cis*-1,2-DCE in most of Area 3. In most instances, concentrations of contaminants in groundwater have been stable or decreasing over time.

Unlike OU2, OU1 identified contingency remedies that would be implemented if the OU1 remedy for Area 1 or 2 is not expected to meet objectives. The 2013 ROD included specific criteria that would trigger the contingency remedy for either Area 1 or Area 2 or both.

The contingency remedy for Area 1 and/or Area 2 will be implemented if EPA determines that one or more of the following circumstances occur:

1. Enhanced in-situ biological and abiotic remediation in Area 1 and/or monitored natural attenuation in Area 2, in conjunction with the source control at the Facility, is unlikely to achieve MCLs in a reasonable timeframe based on data collected and thus is not protective of human health or the environment; or
2. Long-term monitoring of groundwater and surface water in the vicinity of the Village of Union Springs reveals that the VOC contamination is increasing and creating an unacceptable risk to receptors, such that the actions undertaken in Area 1 or Area 2 are not protective of human health and environment; or
3. Long-term monitoring reveals "stalling" or incomplete reductive dechlorination of the contaminants of concern at the Site, despite efforts to modify the treatment regime; or
4. The Area 1 pilot study for enhanced in-situ biological and abiotic remediation called for in the ROD demonstrates that the RAOs are unlikely to be met in a reasonable timeframe.

Current and Future Project Related Costs

Comment #9: Can you explain how to calculate the current worth of the remedy?

Response to Comment #9: Present worth cost estimating is a method of evaluation of expenditures that occur over different time periods. By discounting all costs to a common base year, the costs for different remedial alternatives can be compared on the basis of a single figure for each alternative. The present-worth costs include two cost components, capital costs and operation and maintenance (O&M) costs. The capital costs are fixed, one-time expenses incurred during the initiation of the work, which include work plan development and any other cost occurred during the construction of the remedial action. In addition, there are annual costs associated with O&M. These costs are discounted at a seven percent discount rate. Alternative 1: No Action has no cost because no activities are implemented. The estimated capital, O&M, and present worth costs for Alternative 2 are $25,000, $131,900 (primarily associated with monitoring), and $1,776,800, respectively. The present worth cost provides the total cost of an alternative over the course of 30 years in terms of today's dollar value.

Comment #10: To date what has been the cost of the work being performed at the Site?

Response to Comment #10: The Site has been divided into two operable units. The estimated cost of the OU1 ROD remedy is $5,300,000 and the estimated cost of the OU2 ROD remedy is $1,776,800. For OU1, General Electric Company (GE), a potentially responsible party (PRP), has been performing and thus has paid for the design of the OU1 remedy, pilot studies, and the provision of the backup generator and air stripper at the Village of Union Springs. For OU2, GE conducted the supplemental investigation. EPA does not know the extent of GE's expenses.

As of March 31, 2019, EPA has expended approximately $10.2 million in response costs at the Site, of which EPA has recovered from GE approximately $3.2 million, about one third of which is the cost of overseeing the PRP's work. The oversight costs have been periodically billed to GE under a 2013 settlement. Remaining unrecovered responses costs are expected to be resolved in future negotiations concerning remedial action at the Site.

Public Water Supplies

Comment #11: Has EPA considered extending the water line from the City of Auburn to Union Springs?

Response to Comment #11: EPA has not considered extending the Auburn water line from the City of Auburn to Union Springs because the Village of Union Springs supply wells are equipped to protect users from Site-related contamination as is evident from samples of finished water that is distributed to residents. As part of the 2013 ROD, EPA determined that treatment plant upgrades implemented by the Village of Union Springs in 2001 were effectively treating Site-related contamination that was impacting the wells. However, in order to ensure that the system is capable of continuously distributing water that does not exceed drinking water standards for Site-related contaminants, the OU1 ROD included the provision of a backup generator to power the air stripper during power outages, and a second air stripper so that operations are not interrupted during maintenance of the existing air stripper. It should also be noted that sampling results from 2014 through 2018 for the raw water from the two Village of Union Springs supply wells revealed maximum concentrations of TCE at 4 ppb (below state and federal drinking water standard of 5 ppb) and *cis*-1,2-DCE at 10 ppb (below the federal drinking water standard of 70 ppb and slightly above the state drinking water standard of 5 ppb). Vinyl chloride has never been detected at the two wells. A review of Village of Union Springs water quality data indicates that the concentrations of TCE and *cis*-1,2-DCE have been decreasing in recent years and the existing treatment system, which was upgraded pursuant to the 2013 ROD, effectively treats groundwater prior to distribution.

Comment # 12: Will the Federal government reimburse the Village of Union Springs for the costs spent by the Village associated with impacts to it supply wells?

Response to Comment #12: EPA is not permitted under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300, to reimburse these costs. However, as noted above, EPA's 2013 ROD called for providing a backup generator and a second air stripper, and GE has undertaken that work under an administrative order EPA issued to GE in 2015. Furthermore, it is EPA's understanding that GE finalized an agreement with the Village

of Union Springs on May 9, 2014 concerning costs incurred by the Village. Please contact the Village of Union Springs for any additional information concerning the agreement.

Comment #13: Does the Village of Union Springs have one or two air-strippers and generators?

Response to Comment #13: The Village of Union Springs has two air strippers and one generator. The first air stripper was installed in 2001; the second air stripper and a new emergency backup generator were installed in 2017 pursuant to the 2013 ROD and an EPA administrative order issued to GE in 2015. Since the new emergency backup generator is capable of providing power to all of the equipment at the structure, the original backup generator, having limited capabilities, was removed from service.

Comment #14: A commenter expressed concern that municipal wells weren't tested until 1985 and that people utilizing the municipal water or contaminated private well waters may have been exposed to these chemicals. The commenter was concerned about health impacts from exposure and wanted to know if anyone was tracking or following up with these people over the years to see how they were faring from a medical perspective?

Response to Comment #14: EPA is not a health agency and does not maintain the expertise to perform epidemiological studies. EPA did complete a risk assessment for the Site. Consistent with EPA's risk assessment guidance and policies, the baseline human health risk assessment (BHHRA) conducted for the Site evaluated risks under current and future land uses in the absence of active measures or institutional controls. EPA's BHHRA evaluated whether current or future contact with contaminated groundwater might result in unacceptable exposures, but it does not entail epidemiological studies of nearby residents to evaluate actual exposures or resultant health effects. The BHHRA included an evaluation of the toxicity for each of the chemicals detected at the Site and calculated the reasonable maximum exposure (RME) for each population potentially exposed at the Site. The toxicity and exposure information is presented in the BHHRA and summarized in the ROD. The BHHRA concluded that conditions at the Site, if unaddressed, pose unacceptable risks to human health and the environment from drinking or other exposure to groundwater.

The New York State Department of Health (NYSDOH) conducted a health consultation under a Cooperative Agreement with the U.S. Department of Health and Human Services Agency for Toxic Substances and Disease Registry. The consultation was not a survey of historical exposure. However, it was a health consultation in which the current conditions were assessed. The recommendations at the time included actions to mitigate exposure to contaminated drinking water. This was accomplished by installing POET systems and through the use of air strippers on supply wells.

Additionally, in 2001, NYSDOH VOC Exposure Registry enrollment questionnaires were mailed to 70 eligible households in the Cayuga Groundwater Contamination Site area. Twenty-eight households returned the questionnaire, yielding a 40% response rate. The questionnaire asked individuals about various health symptoms and conditions ranging from rash, headaches and anxiety to diabetes, asthma and cancer, among others. When the health information was reviewed, nothing appeared unusual about the occurrence of any specific symptom or health condition. Since it is difficult to do anything more than a qualitative review with a small number of exposed individuals and low response rate, the VOC Exposure Registry has changed its approach from questionnaire-based to "Health Outcomes Reviews". Several small VOC sites with similar exposures will be combined to look at cancer and adverse birth outcomes. The Cayuga

Groundwater Contamination Site is the first of the small sites to be part of this effort. The health outcome reviews used previously existing data sets (Cancer Registry, Congenital Malformation Registry, and birth certificates) to evaluate health outcomes at the sites and look for unusual patterns. The report on the 10 small sites is currently under NYSDOH review and is expected to be released in 2020.

Comment #15: A commenter asked if all the studies performed by GE of the groundwater seeps in Cayuga Lake, including their methodology and results, will be available at the Seymour Library.

Response to Comment #15: All those reports are available in the administrative record for the OU2 ROD. The Seymour Public Library is the local repository for the Site and includes a copy of the administrative records for OU1 and OU2. The OU2 administrative record includes documents that were considered or relied upon by EPA in its decision making process to select the OU2, including the *Investigation Study Work Plan,* dated 2014, and the *Investigation Study Report*, dated April 2019, which provide the methodology and results, respectively, for sampling and analysis performed by GE of the groundwater seeps in Cayuga Lake.

Comment #16: A commenter questioned whether the numerous gas wells present in the area might have been tested to see whether the brine being used may be presenting a problem.

Response to Comment #16: NYSDEC is the agency responsible for overseeing the installation of gas wells. For questions concerning gas wells in the Cayuga County area, please contact the New York State Division of Mineral Resources at (585) 226-5376. For questions regarding the transportation of brine, please contact the New York State Division of Materials Management – Waste Transporters Section at (518) 402-8792.

Letter from General Electric Company
(see ROD Appendix V-a)

Comment #17: General Electric Company (GE) indicated that it supports monitored natural attenuation (MNA) for the groundwater in Area 3.

Response to Comment #17: Comment noted.

Comment #18: GE advised that EPA's presentation states that field work for the supplemental investigation extended from October 2014 through November 2017 (see page 16 of the powerpoint presentation) and noted that, at EPA's request, the supplemental investigation was extended to include two additional semi-annual monitoring events, such that the field work for the supplemental investigation was actually completed in November 2018.

Response to Comment #18: The clarification is noted.

Comment #19: GE suggested that while the present worth estimate for the preferred alternative in the Proposed Plan is appropriate during the initial period of implementation, given the expected decline in contaminant concentrations, it is likely that the frequency of sampling for some locations could be reduced in the future based on review of the monitoring results.

Response to Comment #19: EPA made assumptions regarding the scope of the monitoring program which it believes are appropriate. However, EPA has indicated that the scope of the program will be developed during the design phase of the program. EPA acknowledges that the

scope of the monitoring programs is not necessarily static, but can be modified based upon the review of monitoring data or other information that becomes available once the program is underway.

Comment #20: GE provided its perspective on the "[a]dditional modeling to evaluate the attenuation processes" that was referenced on page 10 of the Proposed Plan: "There are many different types of modeling. For clarity, the modeling that was performed during the Investigation Study was statistical, including Mann-Kendall trend testing; no other type of modeling was performed during the Investigation Study. GE envisions that the MNA program will include periodic use of statistical tools to help evaluate the monitoring data. As discussed with USEPA, the periodic analysis of carbon isotopes to evaluate the natural attenuation progress is expected, as the results of these analyses during the Investigation Study were very useful."

Response to Comment #20: EPA will work with GE in the development of the monitoring and modelling program for OU2.

Comment #21: GE stated that the Proposed Plan calls for that a Site Management Plan (SMP) required by the 2013 ROD to be expanded to include Area 3, and that an Institutional Controls Implementation and Assurance Plan (ICIAP) has already been prepared and approved by EPA for Areas 1, 2, and 3 under the existing design order. GE suggested that this ICIAP could be an appendix to the SMP.

Response to Comment #21: The existing ICIAP was intended to address institutional controls as they relate to drinking water in Area 3. However, EPA will have further discussions with GE about the institutional controls as they relate to the Area 3 groundwater remedy and the SMP during future discussions on work to be performed pursuant to the OU2 ROD.

Comment #22: GE indicated that the Investigation Study Work Plan includes "interim monitoring" to ensure that the routine monitoring of groundwater and surface water would continue after completion of the supplemental investigation and before implementation of the remedy selected by EPA, that the interim monitoring program that is currently being performed allows flexibility in the schedule for implementing the new ROD, and that GE is willing to include the periodic use of contaminant specific isotope analysis or CSIA during this pre- to post-ROD transition phase.

Response to Comment #22: EPA agrees that it would be beneficial to continue with the interim monitoring while EPA and GE work towards an agreement on the implementation of the Area 3 OU2 ROD (including the long-term monitoring).

ATTACHMENT A

PROPOSED PLAN

Cayuga County Groundwater Contamination Superfund Site Operable Unit 2 – Area 3 Cayuga County, New York

July 2019

EPA ANNOUNCES PROPOSED PLAN

This Proposed Plan addresses groundwater contamination in Area 3, an area that was previously delineated in a July 2012 Proposed Plan for the Cayuga County Groundwater Superfund Site (the Site). The July 2012 Proposed Plan identified the preferred remedial alternatives to address the entire groundwater plume at the Site extending from a facility formerly operated by Powerex, Inc, (Facility), located at 2181 West Genessee Street in the City of Auburn, New York to the Village of Union Springs, a distance of approximately seven miles. The March 2013 Record of Decision (ROD) selected a remedy that actively addressed drinking water and groundwater in two other areas identified for remediation as Area 1 and Area 2 and drinking water only in Area 3.[1] As a result of comments received during the public comment period, a remedy for groundwater in Area 3 was deferred pending further investigation. This Proposed Plan describes the results of the supplemental investigation conducted of surface water and groundwater in Area 3 and identifies the preferred remedial alternative for Area 3 of the Site with the rationale for this preference.

This Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), the lead agency for the Site, in consultation with the New York State Department of Environmental Conservation (NYSDEC). EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), and Sections 300.430(f) and 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The results of the supplemental investigation in Area 3 of the Site summarized in this Proposed Plan are described in the *Investigation Study Report*, dated June 2019. The nature and extent of contamination at the Site, including the results of previous investigations, and the remedial alternatives summarized in this Proposed Plan are described in the *Remedial Investigation (RI) Report* and the *Feasibility Study (FS) Report*, both issued in 2012, as well as other documents contained in the Administrative Record for the March 2013 ROD. 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.

This Proposed Plan informs the public of the supplemental investigation results and solicits public comments on EPA's preferred remedy for groundwater in Area 3 of the Site. The preferred remedial alternative in this Proposed Plan for Area 3 of the Site remains the same as the preferred remedial alternative identified in the 2012 Proposed Plan: monitored natural attenuation (MNA) of groundwater. Changes to the preferred 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 remedy will be made after EPA has taken into consideration all public comments.

1 For remedial planning purposes, Area 1 consists of the impacted area immediately south of the Facility and extends approximately 700 to 900 feet south of West Genesee Street. Area 2 consists of the impacted area immediately south-southwest of Area 1 and extends southwest to the Town of Aurelius. Area 3 consists of the impacted area immediately southwest of Area 2

extending to and including Union Springs. Refer to Figure 1 for a Site Location Map.

MARK YOUR CALENDAR

PUBLIC COMMENT PERIOD:
July 29, 2019 – August 27, 2019
EPA will accept written comments on the Proposed Plan during the public comment period.

PUBLIC MEETING: August 8, 2019 at 6:30 pm
EPA will hold a public meeting to explain the Proposed Plan. Oral and written comments will also be accepted at the meeting. The meeting will be held at the Union Springs High School, located at 239 Cayuga Street, Union Springs, New York.

COMMUNITY ROLE IN SELECTION PROCESS

EPA and NYSDEC rely 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, the supplemental *Investigation Study Report* and this Proposed Plan have been made available to the public for a public comment period which begins on July 29, 2019 and concludes on August 27, 2019.

A public meeting will be held during the public comment period at the Union Springs High School on August 8, 2019 at 6:30 p.m. to present the conclusions of the supplemental *Investigation Study Report*, to elaborate further on the reasons for recommending the preferred alternative, 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 the ROD, the document which formalizes the selection of the remedy.

Written comments on the Proposed Plan should be addressed to:

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INFORMATION REPOSITORIES

Copies of the Proposed Plan and supporting documentation are available at the following information repositories:

Seymour Public Library
Auburn, New York
Telephone: (315) 252-2571
Hours of operation:
Mon. - Wed.: 10 AM to 9 PM
Thurs., Fri.: 10 AM to 6 PM
Sat.: 10 AM to 4 PM

USEPA – Region II
Superfund Records Center
290 Broadway, 18th Floor
New York, New York 10007-1866
(212) 637-4308
Hours: Monday – Friday: 9:00 AM to 5:00 PM

EPA's website for the Cayuga County Groundwater Contamination Site:
https://www.epa.gov/superfund/cayuga-county-groundwater

SCOPE AND ROLE OF ACTION

Site remediation activities are sometimes separated into different phases, or Operable Units (OUs), so that a portion of the site remedy for technical or administrative purposes can be addressed separately. EPA has designated two OUs for the Cayuga County Groundwater Contamination Site. OU1 addresses drinking water and groundwater contamination in Area 1 and Area 2 of the Site, as well as drinking water in Area 3. In July 2012, EPA issued a Proposed Plan describing the remedial alternatives considered for the entire Site (Area 1, Area 2, and Area 3). On March 29, 2013, EPA signed a ROD for OU1, which called for, among other things, the in-situ treatment of contaminated groundwater in Area 1, monitored natural attenuation of contaminated groundwater in Area 2, the implementation of measures to ensure that the Village of Union Springs public water supply treatment system in Area 3 is adequately equipped to protect users of its supply from Site-related contamination, maintenance of existing groundwater treatment systems at three dairy farms, and connection of impacted residences to municipal water for their future potable water needs. The 2013 ROD identified contingency remedies for Area 1 and Area 2 should the selected response action not achieve remedial goals in a reasonable timeframe. At this time, the contingencies for Area 1 and 2 have not

needed to be implemented. In response to public comments, the 2013 ROD deferred final remedy selection in Area 3, except for activities that ensure protection of drinking water, and called for further investigations of the groundwater and surface water in Area 3.

This Proposed Plan addresses OU2, the final planned phase of response activities at the Site. The primary objectives of this action are to minimize any potential future health and environmental impacts from the groundwater contamination in Area 3.

The major source of the groundwater contamination at the Site is the Facility, formerly operated by Powerex, Inc., located at 2181 West Genessee Street, in the City of Auburn, New York. Remediation of the Facility is being addressed under the NYSDEC Superfund program. Remedial actions at the Facility are not the focus of this decision document, although successful completion (i.e., source control or remediation) of the source area(s) at the Facility is important to the full realization of the benefits of the preferred alternative in this Proposed Plan. The source investigation and response actions for the Facility are being addressed by General Electric Company (GE) with NYSDEC oversight. EPA has identified GE as a potentially responsible party under CERCLA for the Site. The effectiveness of the remedy in this Proposed Plan requires coordination between actions to address contaminant sources at the Facility, the remedial actions selected in EPA's 2013 ROD for Area 1 and Area 2, and the proposed remedy for Area 3. EPA is coordinating with NYSDEC on the remediation of the source area at the Facility, the implementation of EPA's 2013 ROD for Area 1 and Area 2, and the remedy proposed in this Proposed Plan. In the event that source control is not successfully implemented pursuant to New York State law, EPA may elect to evaluate additional options at the Facility pursuant to CERCLA to ensure the effectiveness of the preferred alternative.

SITE BACKGROUND

The Site includes a groundwater plume located in Cayuga County, New York. Groundwater contaminated with volatile organic compounds (VOCs) extends from the City of Auburn to the Village of Union Springs, a distance of approximately seven miles, and includes the Towns of Aurelius, Fleming, and Springport. A Site location map is provided as Figure 1 and an overview of Area 3 is provided as Figure 2. The conceptual site model regarding groundwater contamination at the Site indicates that contaminants entered the shallow hydrogeologic unit, identified as the overburden, at the Facility. Contaminants moved downward via vertical fractures or karst features, and then moved laterally from the Facility and downgradient via groundwater flow, primarily in the deep zone, a unit approximately 200 feet below ground surface. Much of the groundwater flow in this deep hydrogeologic unit at the Site migrates and flows to the streams, springs, and seeps located near and along Cayuga Lake, as well as to the lake bed itself. For additional information on the Site background, history, hydrogeology, conceptual model, results of the OU1 remedial investigation, and the investigation of the soil vapor intrusion pathway, refer to EPA's 2012 Proposed Plan.

Subsequent to the issuance of the 2013 ROD, on September 30, 2013, an administrative order on consent (Index No. CERCLA 02-2013-2021) (September 30, 2013) (2013 Consent Order) was entered into between EPA and GE for performance of the remedial design related to Areas 1 and 2 and the supplemental investigation of Area 3 of the Site. Pursuant to the 2013 Consent Order, GE is currently performing the remedial design for Area 1 and 2. As part of the remedial design, an enhanced in-situ bioremediation treatment pilot test is underway in the deep bedrock zone along the southern boundary of the Facility (Area 1) to collect data needed to design the selected remedy. On September 25. 2015, EPA issued an administrative order (Index No. CERCLA 02-2015-2036) (2015 Order) to GE to design and implement a backup power and backup treatment system for the Village of Union Springs' public water supply. The remedial action report for this work was completed by GE in September 2017.

In March 2016, NYSDEC selected a remedy under its State authorities to address groundwater contamination at the Facility. The remedy includes enhanced in-situ bioremediation in the overburden and shallow bedrock in the source areas and enhanced in-situ bioremediation in the deep bedrock upgradient (north-northeast) of the two main source areas. In

October 2017, NYSDEC approved the remedial design/remedial action work plan prepared by GE. Pre-design investigation activities for the first phase of the NYSDEC remedy at the Facility were completed by GE in January 2019. GE has performed additional delineation of VOC contamination in the overburden soils, and preparation of a remedial action work plan for this phase is underway.

RESULTS OF THE SUPPLEMENTAL INVESTIGATION IN AREA 3

Groundwater Investigation

As part of the OU2 supplemental investigation, GE evaluated residential wells in Area 3 that were no longer in use, to determine if they were suitable for conversion to deep bedrock wells that could be used for long-term monitoring. GE divided Area 3 into geographic zones to assist in the identification of residential wells that were spatially distributed within Area 3. After conducting additional geophysical evaluations of existing unused residential wells three of these former water supply wells were converted into groundwater monitoring wells. Semi-annual groundwater sampling was conducted from the fall 2016 through the fall 2018 from the three converted groundwater monitoring wells. In addition, pursuant to the 2015 Order groundwater from the inlets to three of the agricultural Point of Entry Treatment (POET) systems are sampled on a quarterly basis and wells at one of the dairy farms are sampled on a semi-annual basis.

Sampling results from the three converted groundwater monitoring wells revealed trichloroethene (TCE) concentrations ranging from non-detect to a maximum concentration of 0.89 parts per billion (ppb) and *cis*-1,2-dichloroethene (*cis*-1,2-DCE) concentrations ranging from 1.3 ppb to 9.6 ppb.

Prior to their conversion to permanent monitoring wells, two of the three wells were among the eight unused residential wells sampled as part of the 2012 RI. Sample results in 2006 for those eight unused residential wells revealed TCE and *cis*-1,2-DCE concentrations ranging from non-detect to 7.1 ppb to 96 ppb, respectively.

During the 2012 RI, EPA sampled eight existing unused residential wells and installed three groundwater monitoring wells in Area 3. Sampling of the eight existing unused residential wells conducted during the 2012 RI revealed maximum concentrations of TCE, *cis*-1,2-DCE, and trans-1,2-DCE of 7.1 ppb, 96 ppb, and 1.3 ppb, respectively. Sampling of the three groundwater monitoring wells installed during the 2012 RI did not reveal detectable concentrations of Site-related VOCs. As result these wells were not sampled during the supplemental investigation.

Sampling results from 2016 through 2019 of the untreated water at the influents to each POET system at the dairy farms revealed maximum concentrations of TCE, *cis*-1,2-DCE, trans-1,2-DCE, and vinyl chloride of 12.8 ppb, 414 ppb, 9.4 ppb, and 24 ppb, respectively. These results are comparable to the periodic sampling results evaluated collected during the timeframe of the 2012 RI. Data collected of the treated water demonstrates that each the POET systems is effectively treating the water to below federal and state drinking water standards prior to use at the properties.

Sampling results from 2014 through 2018 for the raw water from the two Village of Union Springs supply wells revealed maximum concentrations of TCE and *cis*-1,2-DCE at 4 ppb and 10 ppb, respectively. A review of Village of Union Springs water quality data indicates that the concentrations of TCE and *cis*-1,2-DCE have been decreasing in recent years and the existing treatment system, which was upgraded pursuant to the 2013 ROD, effectively treats groundwater prior to distribution.

The results of the supplemental groundwater investigation in Area 3 are consistent with the results collected as part of the 2012 RI and in some instances show a decreasing trend in the concentrations of contaminants.

Specialty Analysis

Groundwater samples were also collected and analyzed for additional parameters to provide information on geochemical conditions, which can impact natural attenuation processes. Samples from select locations were analyzed for carbon isotopes (known as carbon-specific isotope analysis or CSIA), microbiological targets, and MNA parameters. Microbiological analyses were performed to evaluate

the presence of microbes responsible for, and enzymes associated with, the reductive dechlorination and aerobic metabolic/co-metabolic degradation processes in groundwater at the Site. The results revealed the presence of several important enzymes for co-metabolic biodegradation, suggesting that the hydrogeologic conditions are generally supportive of bacterial growth.

During the fall 2016 groundwater and surface water sampling event, certain samples were analyzed for CSIA for the carbon isotopes associated with TCE, *cis*-1,2-DCE, and vinyl chloride. The carbon isotopes on TCE, *cis*-1,2-DCE, and vinyl chloride were analyzed to assess the impact of biotic and/or abiotic degradation processes on Site-related contaminants. The analysis of the sampling results confirmed that biodegradation is occurring at the Site.

Surface Water Investigation

As part of the supplemental investigation, from December 2014 through November 2018, surface water samples were collected from 18 stream and tributary locations flowing to Cayuga Lake. These include within and at the outlet of Howland Pond, the outlet of Mill Pond (a small spring fed pond that flows to Cayuga Lake), a stream that discharges to Cayuga Lake near Springport Cove, five locations within Cayuga Lake, and one unused, flowing artesian well. In addition, surface water samples were collected from four lakebed seeps that are exposed during periods of low lake level and one stream that was observed to be flowing into Springport Cove.

The supplemental investigation confirmed that groundwater flow in the deep bedrock hydrogeologic unit at the Site migrates and flows to the streams, springs, and seeps located near and along Cayuga Lake, including the lake bed itself. The surface water sampling results revealed low-level concentrations of Site-related VOCs (TCE, *cis*-1,2-DCE, and trans-1,2-DCE) in some locations. Three of the four lake bed seeps surface water sampling results from Cayuga Lake did not reveal detectable concentrations of Site-related contaminants. The fourth sample revealed a *cis*-1,2-DCE concentration of 0.27 ppb. Surface water samples from Cayuga Lake, streams, springs and tributaries revealed trichloroethene (TCE) concentrations ranging from non-detect to a maximum concentration of 0.94 ppb and *cis*-1,2-DCE concentrations ranging from non-detect to 11 ppb compared to maximum results of 1.9 and 18, respectively from the 2012 RI. The sampling results from the supplemental investigation were compared to the appropriate NYSDEC Technical and Operational Guidelines Series (TOGS) standards and guidance values. One of the surface water samples collected from 2014 through 2018 contained concentrations of VOCs that exceeded their applicable TOGS.

RISK SUMMARY

As part of the OU1 ROD, EPA conducted a baseline human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA) to estimate the current and future effects of contaminants on human health and the environment. The baseline risk assessment estimated the human health and ecological risk which could result from the contamination at the Site if no remedial actions were taken.

Human Health Risk Assessment

Based on the data collected and evaluated as part of the supplemental investigation of Area 3, the results of the baseline risk assessment contained in the OU1 ROD have not substantially changed. The baseline risk assessment evaluated the health effects which would result from exposure to groundwater contamination through three pathways, namely, ingestion, dermal contact and inhalation of volatilized contaminants during showering. Groundwater sampling conducted for the entire Site (Area 1, Area 2, and Area 3) as part of the 2012 RI revealed maximum concentrations of TCE, *cis*-1,2-DCE, and vinyl chloride of 329 ppb, 47,900 ppb, and 2,790 ppb, respectively. The results of the baseline risk assessment performed as part of the OU1 ROD indicated that ingestion of and dermal contact with untreated groundwater at the Site poses unacceptable risks to human health.

The HHRA documented that these concentrations are associated with an excess lifetime cancer risk of 2×10^{-4} for the future Site worker, 5×10^{-4} for the future adult resident, and 4×10^{-3} for the future child resident. The calculated non-carcinogenic hazard

quotients (HQs) are: future Site worker HQ=7, future adult resident HQ=21, and future child resident HQ=51.

The supplemental investigation conducted in Area 3 subsequent to the OU1 ROD revealed maximum concentrations of TCE, *cis*-1,2-DCE, and vinyl chloride in the three converted monitoring wells of 0.89 ppb, 9.6 ppb and non-detect, respectively. These concentrations are comparable to the concentrations detected in the eight unused residential wells and the three groundwater monitoring wells sampled in Area 3 during the 2012 RI.

In addition, an evaluation was conducted to determine whether any new EPA risk assessment guidance, exposure factors, and/or toxicity values which became available subsequent to the 2013 ROD would impact the results of the previously completed human health risk assessment. EPA's evaluation found that the elevated human health risks associated with potential exposures to VOCs in groundwater would be similar and therefore, the results of the baseline human health risk assessment remain valid.

Vapors from VOCs in groundwater can move through the bedrock and potentially enter structures at the surface, resulting in occupants being exposed to the vapors. The 2012 Proposed Plan and 2013 ROD addressed the vapor intrusion pathway. As described in those documents, VOCs at the Site generally are in the deep bedrock units at depths greater than 100 feet below ground surface and there are some confining bedrock units and uncontaminated groundwater between the VOCs in the deep bedrock and the ground surface. These conditions tend to limit the potential for vapor migration to any surface buildings. In April and November 2009 EPA collected air samples from below building slabs (subslab samples) and from indoor spaces of residences in areas where groundwater is present at depths less than 100 feet. Results of the sampling indicate that subslab and indoor air concentrations were well below EPA screening levels and below NYS Department of Health screening and action levels at the time of the 2013 ROD as well as those currently in place. Therefore, the vapor intrusion pathway is not a concern under current or future use scenarios.

Ecological Risk Assessment

EPA also evaluated whether the conclusions of the ecological risk assessment in the 2013 ROD remain valid. The ecological risk assessment found that the contaminants in surface water and sediment did not pose unacceptable risk to aquatic or terrestrial ecological receptors. In 2018, EPA evaluated the new Site data collected as part of the supplemental investigation that became available after the 2011 ecological risk assessment was complete and reviewed whether changes in published ecological screening levels (ESLs) would result in any significant change in the conclusions of the 2011 ecological risk assessment. EPA's evaluation found that the conclusions of the 2011 ecological risk assessment remained valid.

For further details regarding the 2011 human health and ecological risk assessments, refer to the Human Health Risk Assessment Report and the Screening Level Ecological Risk Assessment Report in the Administrative Record.

Summary of Human Health and Ecological Risks

The results of the HHRA indicate that the contaminated groundwater presents an unacceptable human health exposure risk. The SLERA indicated that the Site does not pose any unacceptable risks to aquatic or terrestrial ecological receptors.

Based upon the results of the RI and the risk assessment, EPA has determined that actual or threatened releases of hazardous substances from Area 3 of the Site, if not addressed by the preferred remedy, may present a current or potential threat to human health or welfare or the environment. EPA has determined that the Preferred Alternative identified in the Proposed Plan is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

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

WHAT IS RISK AND HOW IS IT CALCULATED?

Human Health Risk Assessment: 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 chemicals of potential concern (COPCs) at the 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 in air, water, soil, etc. identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that 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 hazards, 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 hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. 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 identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk. For non-cancer health effects, a "hazard index" (HI) is calculated. The key concept for a non-cancer HI is that a "threshold" (measured as an HI of less than or equal to 1) exists below which non-cancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a non-cancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at the Site and are referred to as Chemicals of Concern or COCs in the final remedial decision or Record of Decision.

standards, such as applicable or relevant and appropriate requirements (ARARs), to-be-considered (TBC) guidance, and Site-specific risk-based levels. The following RAOs for contaminated groundwater, developed for OU1 of the Site, will also address the human health risks and environmental concerns at Area 3 for OU2:

- Reduce or eliminate exposure (via ingestion and dermal contact) to VOCs in groundwater at concentrations in excess of federal maximum contaminant levels (MCLs) and State standards;

- Restore the impacted aquifer to its most beneficial use as a source of drinking water by reducing contaminant levels to the more stringent of federal MCLs and State standards; and,

- Reduce or eliminate the potential for migration of contaminants towards the Village of Union Springs public water supply wells.

To satisfy these RAOs, preliminary remediation goals for groundwater in Area 3 are identified in Table 1:

Table 1: Groundwater Preliminary Remediation Goals for Area 3

Contaminants of Concern	National Primary Drinking Water Standards (ppb)	NYS Groundwater Quality Standards (ppb)	NYSDOH Drinking Water Quality Standards (ppb)	Preliminary Remediation Goals (ppb)
cis-1,2-Dichloroethene	70	5	5	5
trans-1,2-Dichloroethene	100	5	5	5
Trichloroethene	5	5	5	5
Vinyl Chloride	2	2	2	2

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA §121(b)(1), 42 U.S.C. §9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, comply with ARARs, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA §121(d), 42 U.S.C. §9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at

least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA §121(d)(4), 42 U.S.C. §9621(d)(4).

Since the supplemental investigation revealed comparable results to the data collected as part of the 2012 RI in Area 3, the conceptual site model did not change. As a result, this Proposed Plan relies on the 2012 FS Report for the screening and evaluation of alternatives to address groundwater contamination in Area 3, as amended to provide updated cost estimate information for the MNA alternative (Alternative 4 in the 2012 Proposed Plan and identified as Alternative 2 below).

Alternative 1: No Action

The NCP requires that a "No Action" alternative be developed as a baseline for comparing other remedial alternatives. Under this alternative, there would be no remedial actions conducted at the Site to control or remove groundwater contaminants. This alternative does not include monitoring or informational institutional controls.

Capital Cost:	$0
Annual Operations & Maintenance (O&M) Costs:	$0
Present-Worth Cost:	$0
Construction Time:	Not Applicable

Alternative 2: Monitored Natural Attenuation (MNA) (Identified as Alternative 4 in the 2012 Proposed Plan)

This remedial alternative relies on monitored natural attenuation to address the groundwater contamination. Natural attenuation is the process by which contaminant concentrations are reduced by various naturally occurring physical, chemical, and biological processes. The main processes include biodegradation, dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of contaminants. These processes occur naturally, in-situ, and act to decrease the mass or concentration of contaminants in the subsurface. Only non-augmented natural processes are relied upon under this alternative. Augmentation through addition of electron acceptors or nutrients is considered an in-situ technology. Since this alternative does not involve active remediation, the effectiveness of this alternative in Area 3 depends on the effectiveness of the selected remedy in Area 1 and Area 2 and remediation at the Facility in preventing migration of contamination downgradient from these areas. Implementation of this alternative includes the periodic sample collection and analysis, data evaluation, and contaminant concentration trend analysis. While there are some uncertainties, it is expected to take approximately 30 years to meet groundwater RAOs in Area 3.

A site management plan would be developed to provide for the proper management of the Site remedy, including the use of institutional controls, until RAOs are met, and will also include long-term groundwater monitoring, periodic reviews and certifications. Institutional controls are anticipated to include existing governmental controls, such as well permit requirements, and informational devices, such as publishing advisories in local newspapers and issuing advisory letters to local governmental agencies, regarding the need to refrain from untreated groundwater use in the impacted area.

Area 3

Capital Cost:	$ 25,000
Annual O&M Costs:	$ 131,900
Present-Worth Cost:	*$* 1,776,800
Construction Time:	3 months

EVALUATION OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely overall protection of human health and the environment, compliance with ARARs, long-term effectiveness and permanence, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, cost, and state and community acceptance.

Refer to the table on the next page for a description of the evaluation criteria.

This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how each compare to the other options under consideration. A detailed analysis of the action

alternative can be found in the 2012 Feasibility Study (FS) Report.

Overall Protection of Human Health and the Environment

Alternative 1 (No Action) is not protective of human health and the environment since it does not include active monitoring of the groundwater contamination in Area 3. Alternative 2 would provide protectiveness of human health and the environment by relying on certain natural processes to restore groundwater to below MCLs over the long term. Alternative 2 would achieve protectiveness through a combination of reducing contaminant concentrations in groundwater via naturally occurring processes and limiting exposure to residual contaminants through the implementation of governmental and informational institutional controls. Institutional controls would help limit exposure by restricting the use of, and access to, contaminated groundwater. Alternative 2 also assumes the control of contaminant migration from the Facility.

A long-term monitoring program for groundwater would monitor the migration and fate of the contaminants and ensure that human health is protected. Combined with long-term monitoring and institutional controls, Alternative 2 would meet the RAOs.

Compliance with Applicable or relevant and Appropriate Requirements (ARARs)

EPA and NYSDOH have promulgated health-based protective MCLs (40 CFR Part 141, and 10 NYCRR § 5-1.51 Chapter 1), which are enforceable standards for various drinking water contaminants (chemical-specific ARARs). If more than one such requirement applies to a contaminant, compliance with the more stringent ARAR is required.

The aquifer is classified as Class GA (6 NYCRR 701.18), meaning that it is designated as a potable water supply. Because area groundwater is a source of drinking water, achieving MCLs in the groundwater is an applicable or relevant and appropriate standard.

EVALUATION CRITERIA FOR SUPERFUND REMEDIALALTERNATIVES

Overall Protectiveness of Human Health and the Environment evaluates whether and how an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume (TMV) of Contaminants 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.

Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. 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.

State/Support Agency Acceptance considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan.

Community Acceptance considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

In Area 3, chemical-specific ARARs are expected to be attained through certain natural processes. Due to the uncertainty in the mass diffused in the bedrock matrix, the remediation timeframe is estimated. However, results of modeling of the matrix diffusion process support a 30-year remediation time frame.

Alternative 1 (No Action) would not comply with chemical-specific ARARs, as no monitoring would occur. Alternative 2 would comply with chemical-, location- and action-specific ARARs.

Long-Term Effectiveness and Permanence

Alternative 1 would not provide long-term effectiveness and permanence since no action would

be taken. Specialty analyses conducted as part of the supplemental investigation assessed the impact of biotic and/or abiotic degradation processes on the Site-related contaminants. The results confirmed the hydrogeologic conditions are generally supportive of bacterial growth and that microbes responsible for, and enzymes associated with, the reductive dechlorination and aerobic metabolic/co-metabolic degradation processes are present and biodegradation is occurring at the Site. Daughter or break-down products of TCE degradation such as *cis*-1,2-dichlorethene, vinyl chloride, and ethane have been observed. Therefore, MNA (Alternative 2) would be a permanent solution and achieve long-term effectiveness.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Alternative 1 would provide no reduction in toxicity, mobility or volume through treatment. Alternative 2 relies on natural processes to degrade contaminants and, hence, the reduction in toxicity, mobility, and volume could vary within Area 3. In the 2013 ROD, it was noted that in Area 1, TCE and *cis*-1,2-DCE could be transformed into the more toxic vinyl chloride under anaerobic conditions in the subsurface, prior to degradation to the less toxic ethane. Such a transformation, which also applies to Area 3, would be monitored and managed. Such management would include the institutional controls that are a component of Alternative 2.

Short-Term Effectiveness

There are no short-term effectiveness issues associated with the No Action Alternative. The short-term impacts due to Alternative 2 are minimal as it does not involve active remediation. Alternative 2 includes monitoring that would provide the data needed for proper management of the remedial processes and measures to address any potential impacts to the community, remediation workers, and the environment. Groundwater monitoring will have minimal impact on workers responsible for periodic sampling. The time frame to meet groundwater RAOs in Area 3 is difficult to predict but is expected to be approximately 30 years. The effectiveness of source control at the Facility and remediation in Areas 1 and 2 will reduce contaminants entering Area 3 and will affect the timeframe of the effectiveness remediation in Area 3.

Implementability

There are no implementability issues associated with the No Action Alternative. Alternative 2 is an easy alternative to implement since no active remediation would be performed. Alternative 2 would require routine groundwater quality, performance, administrative and institutional controls monitoring, as well as CERCLA five-year reviews for the life of the remedy.

Cost

The cost estimates are based on the best available information. Alternative 1: No Action has no cost because no activities are implemented. The estimated capital, operation and maintenance (O&M) and present worth cost for Alternative 2 are $25,000, $131,900, and $1,776,800, respectively.

State/Support Agency Acceptance

NYSDEC concurs with the preferred alternative.

Community Acceptance

Community acceptance of the Preferred Alternative will be evaluated after the public comment period ends and will be described in the ROD for OU2 of the Site. The ROD is the document that formalizes the selection of the remedy for a site.

PREFERRED REMEDY

EPA in consultation with NYSDEC, recommends Alternative 2: Monitored Natural Attenuation as the Preferred Alternative for Area 3. The total estimated present worth cost of Alternative 2 is $1,776,800. Alternative 2 has the following key components: monitoring of naturally occurring, in-situ processes, to decrease the concentration of contaminants in groundwater. Under this alternative, a monitoring program would consist of periodic monitoring for parameters such as VOCs, geochemical indicators and hydrogeologic parameters in the monitoring well network. Additional modeling to evaluate the attenuation processes would be performed and

institutional controls would be relied upon to limit exposure to contaminated groundwater.

The 2013 ROD calls for a site management plan to be developed to provide for the proper management of the Site remedy post-construction, including the use of institutional controls, until RAOs are met, and will also include long-term groundwater monitoring, periodic reviews and certifications. This site management plan would be expanded to include Area 3. Institutional controls are anticipated to include existing governmental controls, such as well permit requirements, and informational devices, such as publishing advisories in local newspapers and issuing advisory letters to local governmental agencies, regarding groundwater use in the impacted area.

The environmental benefits of the preferred remedy may be enhanced by giving consideration, during the design, to technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[2] This will include consideration of green remediation technologies and practices.

While this alternative will ultimately result in reduction of contaminant levels in groundwater to levels that would allow for unlimited use and unrestricted exposure, it will take longer than five years to achieve these levels. As a result, in accordance with EPA policy, the Site is to be reviewed at least once every five years.

The Facility continues to be a source of VOC contamination to groundwater at this Site. As mentioned previously, the response actions for the Facility are being addressed by GE with NYSDEC oversight. Remedial actions for the Facility are not the focus of this decision document, although successful completion (i.e., source control or remediation) of the source area(s) at the Facility is important to the full realization of the benefits of the Preferred Alternative for Area 3 in this Proposed Plan for OU2. The remedy for Area 1, which addresses the deep groundwater contamination, is not yet underway, but a pilot test is being conducted. Once the pilot test is complete the remedial design for the deep groundwater for the Site will begin. In the event that source control is not successfully implemented pursuant to New York State law, EPA may elect to evaluate additional options at the Facility pursuant to CERCLA to ensure the effectiveness of the Preferred Alternative.

Basis for the Remedy Preference

The 2012 Proposed Plan identified a combination of technologies to address groundwater contamination in Area 1, Area 2, and Area 3 of the Site recognizing the different characteristics of the three areas, the importance of source control or remediation at the Facility, and active treatment for Area 1 of the Site. MNA as proposed in the 2012 Proposed Plan in Area 2 and Area 3 of the Site relied on reduced contaminant migration from upgradient areas and natural processes to achieve MCLs in the groundwater. The supplemental investigation of groundwater and surface water contamination in Area 3, subsequent to the issuance of the 2013 ROD whereby remedy selection for groundwater contamination in Area 3 was deferred, provides additional data supporting MNA for Area 3, as proposed in this Proposed Plan for OU2 of the Site. Although the precise timeframe to achieve MCLs in the groundwater is somewhat uncertain due to the continuing source to groundwater contamination at the Facility and given the impact of the mass diffused in the bedrock matrix, long-term groundwater monitoring would ensure that RAOs are achieved at the Site. Therefore, EPA and NYSDEC believe that Alternative 2: Monitored Natural Attenuation in Area 3 of the Site as proposed for OU2 of the Site would be protective of human health and the environment by effectively reducing the toxicity and volume of contaminated groundwater at the Site, while providing the best balance of tradeoffs among the alternatives with respect to the evaluation criteria.

The Preferred Alternative satisfies the threshold criteria and achieves the best combination of the five balancing criteria of the comparative analysis. EPA expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA, section 121 (b): 1) be protective of human health and the environment; 2) comply with ARARs (or justify a waiver); 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or

[2] See https://www.epa.gov/greenercleanups/epa-region-2-clean-and-green-policy and http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.

resource recover technologies to the maximum extent practicable. Although the Preferred Alternative does not satisfy the preference for treatment as a principal element in Area 3, active treatment in Area 1 will reduce contaminants migrating to Area 3.

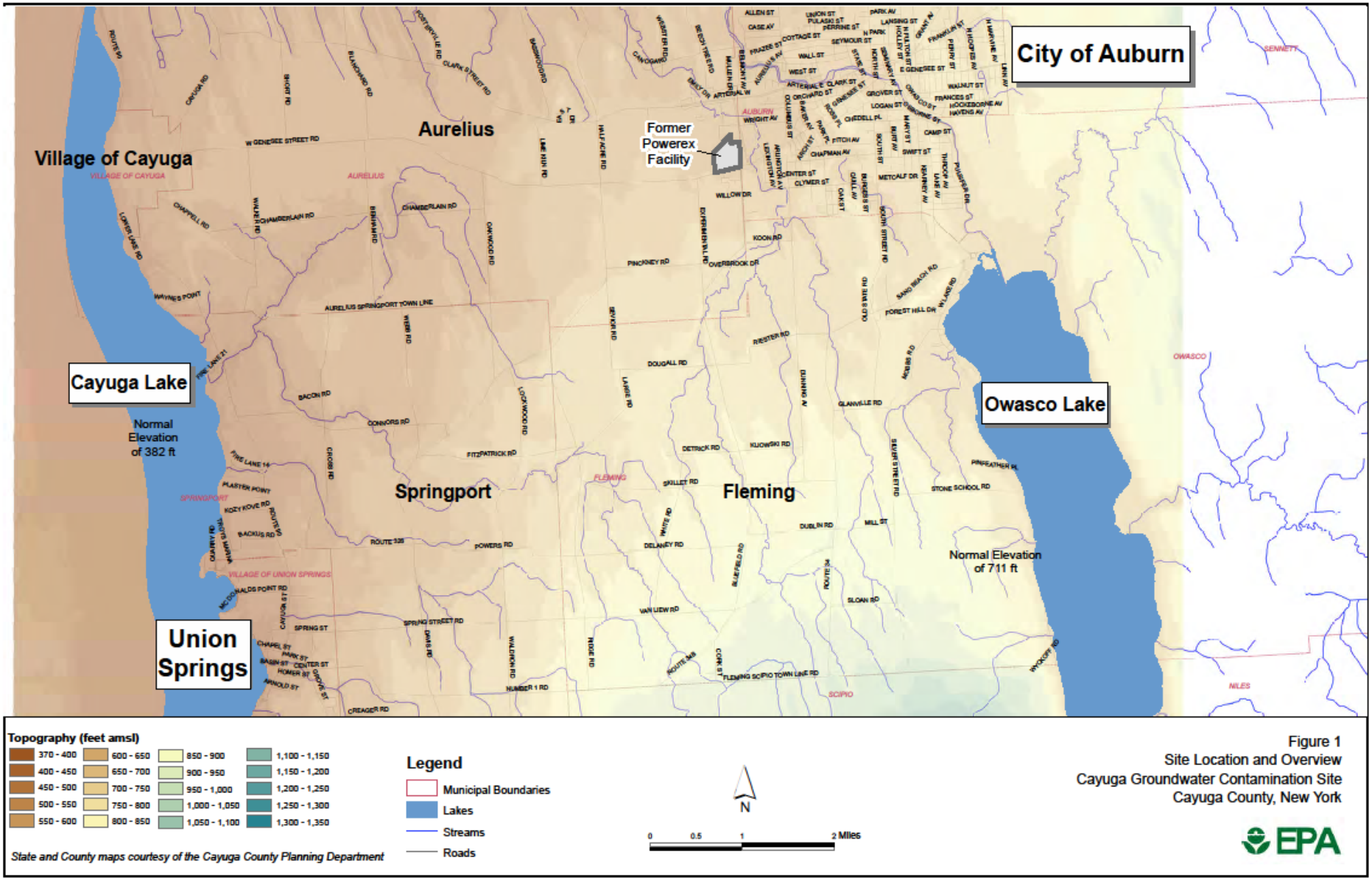
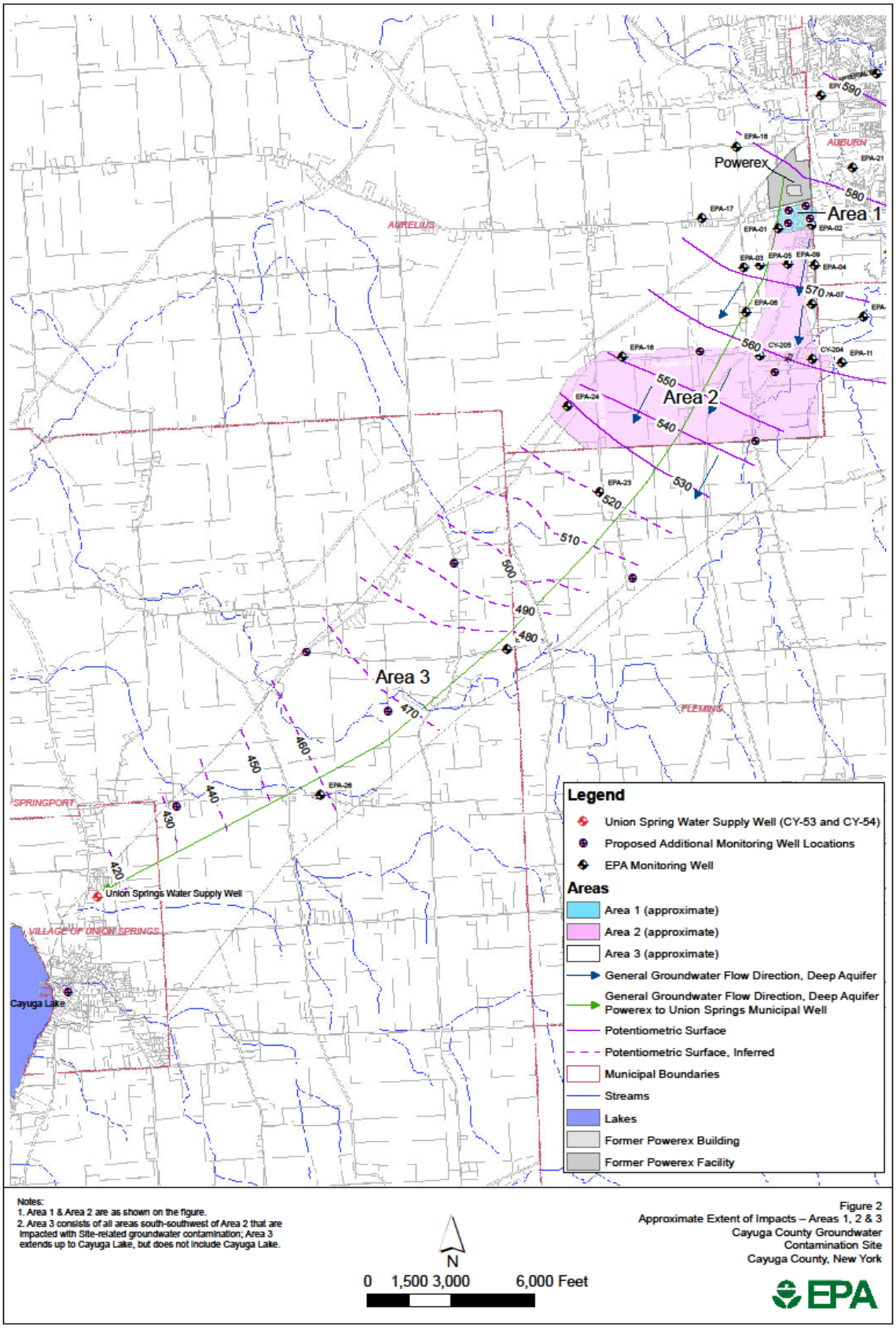


Figure 1
Site Location and Overview
Cayuga Groundwater Contamination Site
Cayuga County, New York

EPA



Notes:
1. Area 1 & Area 2 are as shown on the figure.
2. Area 3 consists of all areas south-southwest of Area 2 that are impacted with Site-related groundwater contamination; Area 3 extends up to Cayuga Lake, but does not include Cayuga Lake.

Figure 2
Approximate Extent of Impacts – Areas 1, 2 & 3
Cayuga County Groundwater Contamination Site
Cayuga County, New York

EPA

ATTACHMENT B

PUBLIC NOTICE

COMMUNITY

Finger lakes SPCA of CNY helped by motorcycle ride in honor of late detective

MARY CATALFAMO
mary.catalfamo@lee.net

MARY CATALFAMO, THE CITIZEN

Riders wait for "kickstands up" to mount their motorcycles and start the annual Hogs for Dogs ride of the Finger Lakes SPCA of CNY.

AUBURN — More than 200 motorcycles idled outside the Finger Lakes SPCA of Central New York on Sunday morning, waiting for the "kickstands up" command to begin the Auburn animal shelter's annual fundraiser ride.

Carol Russell, executive director of the shelter, said the ride has about a 17-year-history but has been held under the name "Hogs for Dogs" for the last 15 years.

"This year, it's kind of a special ride. One of our great supporters passed away a couple weeks ago, Doug Parker," she said, referring to the longtime Auburn Police Department detective who frequently rode in Hogs for Dogs and adopted from the shelter. "So we're dedicating the ride to him this year."

Motorcycle riders in the community, including the organization ABATE, participated in Sunday's ride that began at the SPCA on York Street. Riders filled the SPCA's parking lot and spilled into the parking lot of the neighboring building.

This year, the route took them from Auburn to the route's mid-way point in Jack's Reef before turning around and ending at Tinkers Guild on Franklin Street.

"We're hoping that this ride is as successful as all the other ones. We have an awesome biker community in Auburn," Russell said at the SPCA while some of the riders were registering at a table outside. Tom Adessa, one of the ride's founders, said the approximate number of motorcycles exceeded 200.

Russell picked up a puppy named "Spice" from one of the kennels and talked about how the funds from the ride would go to help the financial support of the shelter and health care for the animals.

"It's going to support the shelter in every way shape and form," Russell said. "We have some special needs animals that require a little bit more medical care. Some of the proceeds will go toward that."

Thames Nolan was one of the ride's road captains, whose job it was to keep all the motorcyclists safe and on track. Nolan is also the legislative coordinator of the nonprofit ABATE, which promotes motorcycle safety and the interests of riders. ABATE also designed the Hogs for Dogs route this year.

Although Nolan has participated in the ride himself many times, this is the second year he helped to organize the ride with ABATE. "Whatever we can do to help them out, we're going to do," Nolan said.

Around 2 p.m., the riders returned to Auburn for the party at Tinkers Guild tavern on Franklin Street and parked their motorcycles along both sides of the street. The party was held behind Tinkers, where riders lined up for food from Downtown Deli and ate at tables under a tented area. There were also raffles and live music from the Ghost Town Ramblers.

"We're always very grateful to the riders who come out and support this," Russel said. "They're a big part of our everyday life and we really appreciate them very much."

Staff writer Mary Catalfamo can be reached at (315) 282-2244 or mary.catalfamo@lee.net. Find her on Twitter @mrycatalfamo.

COMMUNITY

Local Dunkin' Donuts to host 'Cops on Top'

THE CITIZEN STAFF

If you go to a Dunkin' Donuts in Auburn for your coffee fix this Friday, you'll find some cops on top — of the roof, that is.

Dunkin' Donuts will be bringing back an event called "Cops on Top" to several Central New York locations, including three in Auburn, the company announced in a press release on Monday.

Members of law enforcement will stand on the rooftops of the Dunkin' Donuts stores to raise funds for Special Olympics New York, according to the release. However, during the 2016 "Cops on Top" event at two Auburn locations, officers greeted people on the ground.

On Aug. 2, the athletes will collect donations for their training and competitions at the Dunkin' Donuts locations on 149 Grant Ave., 2 E Genesee St. and 160 State Street Rd. in Auburn. The stores will also give guests a coupon for a free doughnut with a donation to the Special Olympics, according to the release.

"We encourage all of our guests in Central New York to show their support for local law enforcement and our Special Olympics New York athletes," said Eric Stensland, integrated marketing manager for Dunkin' Donuts in the release.

U. S. Environmental Protection Agency to Hold Public Meeting for Cleanup of Groundwater at the Cayuga County Groundwater Contamination Superfund Site, Cayuga County, New York

The United States Environmental Protection Agency (EPA) announces the opening of a 30-day public comment period on the Proposed Plan to address the cleanup of contaminated groundwater in a portion of the Cayuga County Groundwater Contamination Superfund site in Cayuga County, New York. As part of the public comment period, EPA will hold a public meeting on August 8, 2019, at 6:30 p.m., at the Union Springs High School located at 239 Cayuga Street, Union Springs, New York. The meeting will address the proposed cleanup plan and will allow community members to comment on the proposed plan to EPA officials.

Based on the results of the supplemental Investigation Study Report, EPA recommends monitored natural attenuation as the preferred alternative in the Proposed Plan. The preferred alternative includes a long-term monitoring plan and implementation of institutional controls limiting groundwater use.

The proposed plan is available at www.epa.gov/region2/superfund/npl/cayuga and at the Seymour Public Library, 176 Genesee Street, Auburn, NY and the EPA Records Center, 290 Broadway, 18th floor, New York, NY.

Comments regarding EPA's preferred remedy must be submitted by August 27, 2019, to Isabel R. Fredricks, Remedial Project Manager, U.S. EPA, 290 Broadway, 20th Floor, New York, NY 10007-1866, rodrigues.isabel@epa.gov

NEW YORK STATE

NY reduces penalties for pot

RYAN TARINELLI
Associated Press

ASSOCIATED PRESS

New York Gov. Andrew Cuomo signed a bill Monday that softens penalties for possessing small amounts of marijuana and allows for the expungement of some past convictions.

ALBANY — New York's governor signed a bill Monday that softens penalties for possessing small amounts of marijuana and allows for the expungement of some past offenses.

The law changes an unlawful possession of marijuana statute into a violation that's similar to a traffic ticket, instead of a criminal charge.

Under the new law, the maximum penalty is $50 for possessing less than one ounce of pot and a maximum of $200 for between one and two ounces.

The law also requires that records tied to low-level marijuana cases be automatically sealed and creates a process for expungement. It will take effect in 30 days.

"Communities of color have been disproportionately impacted by laws governing marijuana for far too long, and today we are ending this injustice once and for all," Gov. Andrew Cuomo said in a statement.

Advocates for legal marijuana acknowledge the law is a step forward but also say it falls short of addressing a web of negative consequences that come with keeping marijuana illegal.

"Police have historically found a way to work around the decriminalization of marijuana," said Erin George, of Citizen Action of New York.

People can still face probation violations and immigration consequences under the decriminalization bill, George said.

Emma Goodman, a staff attorney at The Legal Aid Society, noted that the group's clients still risk being separated from their family by a child protective agency for basic marijuana possession.

"All of the collateral consequences of marijuana criminalization that harm communities of color will continue to exist," she said.

Melissa Moore, New York state deputy director for the Drug Policy Alliance, said the law will continue to allow authorities to target people of color and their communities for marijuana enforcement.

At least 24,400 people will no longer have a criminal record due to the bill, according to New York's Division of Criminal Justice Services.

The law will prompt the sealing of more than 200,000 convictions for low-level marijuana offenses, according to the agency.

From 1978 through last year, about 917,000 arrests were made under an old criminal penalty for possession, state data shows. Last year, about 13,500 arrests were made under the criminal statute.

State lawmakers considered legalizing marijuana for recreational use this year, but that legislation stalled after state leaders failed to reach an agreement on key details in the final days of the legislative session.

Cuomo and the top leaders in the Legislature are all Democrats.

The Citizen.

Published Tuesday through Sunday. A Lee Publications newspaper.
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ATTACHMENT C

PUBLIC MEETING TRANSCRIPT

STATE OF NEW YORK: U.S. EPA:

COUNTY OF CAYUGA: UNION SPRINGS:

- -

In the Matter of:

An opening of a 30-day Public Comment period held by the U.S. Environmental Protection Agency:

For <u>Comment on a Proposed Plan (July 2019) to address the Cleanup of contaminated groundwater in a portion of the Cayuga County Contamination Superfund site (Area 3) in Cayuga County, New York</u>,

Where, based on the results of the supplemental Investigation Study Report (June 2019), the EPA recommends monitored natural attenuation as the preferred alternative in the Proposed Plan for Area 3. The preferred alternative includes a long-term monitoring plan and implementation of institutional controls limiting groundwater use.

- -

A Public Hearing held in the above-matter conducted at the Union Springs High School, 239 Cayuga Street, Union Springs, New York, on **Thursday, August 8, 2019** at 6:30 p.m.

EPA Officials present:

Isabel R. Fredricks, Remedial Project Manager
US EPA, Western NY Remediation Section
290 Broadway, 20th Floor
New York, New York 10007

Mike Basile, EPA Community Involvement Coordinator
US EPA Region 2
186 Exchange Street
Buffalo, New York 14204

Peter Mannino: EPA Branch Chief

Other Officials present:

Maureen Schuck, NYS Department of Health, Albany, NY

Bud Shattuck, Mayor of Village of Union Springs

David A. Eckhardt, PhD, CDM Smith, Environmental Scientist

Aurora, NY

Reported By:
Patrick J. Reagan, CSR
Court Reporter

(At 6:30 p.m., the following occurred:)

MR. MIKE BASILE: Can you folks hear us? Okay, perfect.

Good evening. My name is Mike Basile. I am with the Environmental Protection Agency, Region 2. I used to work in the field office. I am a community development coordinator. I have the responsibility for 42 Superfund sites in western New York and the Finger Lakes, and one of them is your site, in your community: The Cayuga County Groundwater Contamination Site.

I wanted to welcome you to the public meeting this evening. We have a court reporter, and if you were able to pick up a copy of the agenda. We are going to go through a presentation. I have a few introductions first. And then, I would ask you to hold your questions until our original Remedial Project Manager has a chance to make the presentation. And then from there on, we will do Q's and A's.

We do have a microphone down here. The only thing I am going to ask you this evening, if you do have a question, to stand and/or maybe I am going to have you come down, depending on how far I can bring the microphone to you, ask you to spell your name, first name and last

name, and give us your address, just for the record. Okay? Very good.

This evening we are here to listen to EPA -- the agency I work for -- and the state, present a proposed remedial action plan for the Cayuga County Groundwater Contamination site.

We have some folks in the audience that I would like to recognize that are here, that support our activities. From the New York State DEC we have John Armitage. John? And Jessica LeClair. Jessica?

From New York State DOH, Maureen Schuck, right here, down in front.

And from our agency, we have some individuals that may be involved, with not presenting, but maybe answering some questions later on: Chuck Nace, our toxicologist; and Pete Mannino, from EPA Region 2.

We also have with us, two individuals from CDM Smith: Joe Mayo [ph]; and Dave Eckhardt, right down in front.

Okay. At this time I would like to turn the microphone over to Isabel Rodrigues Fredricks, who will make a presentation on the proposed remedial action plan. Thank you.

MS. ISABEL FREDRICKS: Good evening. My name is Isabel Fredricks and I am the project manager for the site.

CERCLA or "Superfund" was passed by Congress in 1980. And the Superfund addresses the disposal of toxic waste, and provides funding to clean out the sites. And it also empowers EPA to ask the responsible parties to conduct necessary actions to clean up the site.

Under the Superfund, the National Priority List includes all sites that EPA will either clean up or oversee the cleanup by the responsible parties.

The Cayuga Groundwater Contamination Site was added to the NPL list in 2002. And we have a responsible party performing the cleanup of this site under EPA oversight.

The Superfund evaluates the site in two steps. We have the removal action, if an immediate action is necessary, to eliminate the threat to human health and ecological and the environmental. And we have the remedial action, which is the long-term action.

The site location, the Cayuga County Groundwater Contamination Site, is located in Cayuga County. And includes a groundwater plume that extends from the City of Auburn to the Village of Union Springs, at a distance of approximately of seven miles.

In 1988, while the health department was doing a routine inspection of the Village of Union Springs water supply wells, the results revealed the presence of volatiles in the groundwater, low levels.

In '99, the New York State Department of Environmental Conservation conducted a source

investigation including residential wells and identified several residential wells contaminated with volatiles.

In December 2000, a removal action was initiated by EPA. Over 300 residential and private water supply wells were sampled by EPA. Water from several wells, and three dairy farms, were contaminated with volatiles above the federal maximum concentration limits.

The EPA response action provided temporary water supplies, like bottled water. And they installed Point of Entry Treatments, the POET systems, on the wells. And the water supply was extended south and -- south of Auburn and available to the people.

In 2001, the Village of the Union Springs installed an air-stripper to treat the water for the two supply wells.

In 2001, EPA proposed the site for the National Priority List, and the site was added to the list in 2002.

From 2002 to 2004, EPA conducted source identification activities.

From 2000 to 2006, public water was extended in the area.

And from 2004 to 2012, EPA conducted a remedial investigation and completed feasibility study for this site.

During the remedial investigation, EPA determined the nature and the extent of the contamination, and potential threats to human health and the environment.

It was during the remedial investigation, EPA collected data. And based on the data collected, EPA initiated a feasibility study which evaluates the options for cleaning up the groundwater at the site.

The work done during the remedial investigation. EPA installed 23 wells, and collected over 600 groundwater samples. In addition, it sampled waters from the outlets, the brooks, and sediments and streams in the towns and Union Springs.

EPA also conducted a soil vapor intrusion in private homes from Auburn to the Village of Union Springs.

In addition, G.E. also installed 32 monitoring wells, and the data results are also included in the remedial investigation/ the feasibility study reports.

After the remediation was complete, and based on the level of contamination found in the groundwater, EPA divided the site into three areas. Area 1 is approximately 700 to 900 feet south of Genesee Street.

Area 2 is south, and southwest, to the Town of Aurelius.

And Area 3 is the orange, which is south of Area 2. And it also goes all the way to the Village of Union Springs, and includes the Village.

On March 29th 2013, EPA issued the first Record Of Decision. And the final actions for the Area 1, selected in the ROD, included In-Situ Biological Abiotic Remediation.

For Area 2, Monitored natural attenuation, with enhanced degradation.

And as part of the drinking water for the three areas, the water required installation of a back-up generator and air-stripper at the Village of Union Springs public water supply. We also required the maintenance of the existing groundwater treatment systems at the three dairy farms. And connection of the impacted residents to municipal water.

The ROD also included contingency remedies for Areas 1 and 2 in case the selected remedies did not achieve the remedial goals.

So for Area 1, we have the Groundwater pump and treat.

And for Area 2, Enhanced in-situ biological and abiotic remediation.

For Area 3, the Record Of Decision deferred the final remedy selection. While protecting drinking water,

the ROD called for further investigation of the groundwater and the surface water in Area 3.

Since the ROD was issued, several design activities were completed. Additional monitoring wells were installed in Areas 1 and 2, and sampling is ongoing. Several studies, microcosm and column studies, were completed.

And for the pilot phase testing, nine deep injection wells were installed. The long-term monitoring began, and will continue for several years.

For Area 3, the redesign and reconstruction of the systems in the dairy farms was also completed. And sampling and monitoring continues at those farm wells.

A new generator and air-stripper was installed in 2017 at the Village of Union Springs public water supply.

So the ROD required additional investigation of Area 3.

From October 2014 to November 2017, all field work related to the investigation was complete.

In April 2019, the report was submitted to EPA.

The groundwater investigation in Area 3 included the conversion of three unused supply wells for long-term monitoring. It included the sampling of the wells at the

three dairy farms. And all sampling included monitoring natural attenuation parameters.

The groundwater findings indicated that the dominant contaminant found is Cis-1,2-dichloroethene with a maximum concentration of 439 parts per billion. And this High concentrations were found in the POETs in the northeast area of Area 3.

The lower concentrations were in the downgradient of Area 3. And the detection of vinyl chloride was limited to the upgradient portion of Area 3. It narrows as we go southwest in the area.

And there were no vinyl chloride detected in the Village of Union Springs supply wells.

The investigation for the surface water in Area 3 -- the streams, the ponds, and the lakeshore -- was sampled from 2016 to 2018; and Cayuga Lake was in January 2015.

The Findings for the surface water during the baseline sampling: Cis-DCE and TCE were detected with maximum concentrations of 15 parts per billion.

In Cayuga Lake, the higher concentration was, for Cis, was 0.27 parts per billion.

And during the semi-annual sampling events, the higher concentration was 14 parts per billion for Cis.

Vinyl chloride was not detected in any of the surface water samples.

The Area 3's study findings show that bacteria is present in the groundwater and it's capable of degrading site-related contaminants. The decreased concentration of the site-related contaminants is occurring in the groundwater. And the concentrations are decreasing at the farm wells, and also at the supply wells in the Village of Union Springs.

The contaminants in the Union Springs surface water are also decreasing.

A Human Health Risk Assessment was conducted in 2013. And another evaluation was done based on this new data collected. Site-related contaminants were found in groundwater above the federal and the state drinking water standards, where Cis-1,2-dichloroethene, the trans-1,2-DCE, the trichloroethene and vinyl chloride.

The evaluation of the risk assessment from 2013, that remained valid. And based on the data, the groundwater poses unacceptable human exposure risks to future users.

Based on the data collected during the supplemental investigation, the evaluation of the ecological risk assessment from 2013 is still valid. Based on the results, site contaminants in the surface

water sediments did not pose unacceptable risk to ecological receptors.

Based on the data collected and the results of the Human Health and Ecological Risk Assessment, remedial goals were developed that would protect the public and the environment from exposure to contaminants of concern at the site.

The main goals are: To protect human health from exposure via injection and dermal contact, to volatiles in the groundwater at concentration in excess of federal and state maximum contaminant levels.

Restore the impacted aquifer to beneficial use as a source of drinking water by reducing contaminant level to the federal and the state maximum levels.

And reduce or eliminate the potential migration of contaminants towards the Village of Union Springs to the supply wells.

All remedial alternatives are assessed against the nine criteria evaluation: We have the Overall Protection of Human Health and Environment. That evaluates whether the alternative reduces or controls the threats to people in the environment.

We have Compliance with Applicable or Relevant Appropriate Requirements. It evaluates whether the

alternatives meet the federal and state environmental regulations.

The long-term Effectiveness and Permanence checks the ability of the alternatives to maintain protection of human health in the environment over time.

Reduction of Toxicity, Mobility and Volume. It evaluates if the alternative will reduce the contaminants' ability to move in the environment, and the amount of contamination present.

Short-term effectiveness. Considers the length of time needed to implement the remedy.

Implementability. Looks at if the alternatives can be implemented in considering the area and the availability of goods and services.

The Cost, includes estimated capital costs, annual operation and maintenance, as well the present-ward costs.

The State support agency Acceptance considers whether the state agrees with EPA recommendation. And the Community Acceptance considers whether the community agrees with EPA alternatives.

Two alternatives were developed to address the contamination in Area 3. The National Contingency Plan requires that the EPA develop a "No Action" alternative as a baseline for comparing with other alternatives. At the

end of this alternative, there will be no remedial action conducted at the site. No monitoring and no institutional controls.

The second alternative conceded was the natural attenuation by which contaminant concentrations are reduced by various naturally occurring physical, biological chemical processes. The main processes include biodegradation, dispersion, dilution, volatilization, chemical and biological stabilization, transformation, or destruction of contaminants.

EPA and the New York State Department of Environmental Conservation have selected the Monitored Natural Attenuation as the preferred remedy -- remedial alternative for Area 3 of this site. This alternative will be protective of human environment.

The Monitored Natural Attenuation was selected based on the historical data collected during the remedial investigation, and also during the supplemental investigation which indicated that natural attenuation processes, including biological degradation, is active in Area 3.

The preferred alternative relies on reduced contaminant migration from upgrading areas. As mentioned before, several activities are taking place in Area 1, and also at the Powerex site.

The cost of this alternative. The capital cost would be $25,000. The annual O & M, it's about $130,000. And the present worth, $1.7 million.

Most of the costs will be monitoring of the existing wells.

So the next step will be we solicit public comments on the Proposed Plan and the selected alternative.

We will be accepting comments until August 27, 2019.

The verbal comments received during this meeting will also be considered and included with the Record Of Decision.

The Record of Decision is the final document that describes the select remedy for Area 3. And includes all comments and response to all the public comments.

And the last one will be where you could send your comments. My email will be: Rodrigues.isabel -- and "rodrigues", please make sure it's an "s" -- at (@)EPA.gov. And or you can email them to 290 Broadway, 19th floor, New York, New York, 10007.

MR. BASILE: Thank you. In addition, the agenda indicates that we had, for years now, have an administrative record at the Seymour Public Library. And all the documents for public review can be looked at or

identified at the Seymour Public Library, as well as going online to our website.

There are two more individuals that have joined us that I would like to recognize: Kathleen Cuddy, from the Cayuga County Health Department. Kathleen?

And Bud Shattuck, the Union Springs mayor. I wanted to recognize those folks.

Questions? Does anyone have a question for us?

Yes, sir. Wait, I am going to have to ask you, because of the court reporter -- we kind of missed it -- we are going to ask you to identify yourself. Spell your first name and last name for the audience, okay, for the record?

BY MR. RYAN FRANKLIN:

Q. Hello, my name is Ryan Franklin, R-y-a-n, F-r-a-n-k-l-i-n. I am a reporter with the Citizen newspaper. I was asking if you could explain what the current worth figure means?

A. (Peter Mannino:) Hi, Ryan. I am Peter. As the capital costs, and annual O & M costs, and the present worth. The capital cost is the expenditures of the initiation of the work, which would include work plan development or any other costs occurred during the performance of the remedial action. From there, then, there is annual operation of maintenance costs. As Isabel explained, there will be periodic sampling of certain wells, and that will have a certain cost component to it.

What we do is take those two dollar amounts and apply a seven percent discount rate to them to indicate -- to determine what in today's dollars that would be at a 30-year timeframe. We use a 30-year timeframe consistently to insure that we are comparing alternatives along the same baseline. And a seven

percent discount is what we typically use when looking at NPL Superfund sites. Does that answer your question?

MR. FRANKLIN: Yes.

MR. BASILE: Okay. Any other questions, yes, sir?

BY MR. MIKE ONEILL:

Q. I am at the end of the rope here. My name is Mike Oneill, O-n-e-i-l-l, 26 Hockeborne Ave., Auburn, New York. I have a couple of questions. Do the contaminants flow or sink in water?

And the follow-up, if that is the case, float or sink, has Owasco Lake been investigated at all, or the groundwater tributary to Owasco Lake, which is closer than Cayuga Lake?

MR. MANNINO: Why don't you answer it?

MS. FREDRICKS: Yes, we did sample the Lake during the remedial investigation. The initial investigation, yes.

Q. They did investigate Owasco Lake?

MS. FREDRICKS: Yes.

Q. Is that in the record?

MS. FREDRICKS: Yes.

MR. MANNINO: As far as the Operable Unit 1?

MS. FREDRICKS: Yes. The first part.

MR. MANNINO: So the work leading up to our decision in 2012.

MS. FREDRICKS: Yes.

MR. ONEILL: Okay.

MS. FREDRICKS: And all the other ones. David?

DAVID ECKHARDT: David Eckhardt, E-c-k-h-a-r-d-t. I am a consultant, helping EPA since 2001 in the site. I reside in Aurora, New York. The Owasco Lake elevation typically is about 711 feet, 710 ten feet, depending on, sometimes higher, sometimes lower. But right around 710. The elevation of the Powerex site is lower than that. It's in a different drainage basin.

BY MR. ONEILL:

Q. That's why I asked?

A. (Mr. Eckhardt:) There is no hydraulic connection between --

Q. Does it flow or sink, was the original question? I am following up with the second question. If you would like me to?

MR. MANNINO: Sure.

A. (Mr. Eckhardt:) See, the initial contaminant at the Powerex site was TCE, trichloroethene. It has a specific gravity of approximately 1.5, meaning it's about one and-a-half times heavier than water. So it will sink in water, and in groundwater it will sink relative to.

Q. Then how do you know if it's not going to Owasco Lake if it sinks?

A. Because the elevation of the contaminant source at Powerex is at a lower elevation than Owasco Lake.

Q. If it floats, I agree. But if it sinks, the contaminants are sinking, not floating?

A. That's correct. But there is no hydraulic connection from the Powerex facility to Owasco Lake because Owasco Lake is at a higher elevation.

Q. Does Owasco Lake drain into Cayuga Lake?

A. No, it does not. Owasco Lake drains into Seneca River.

Q. I think historically that's inaccurate. It does.

A. There is no topographic evidence that Owasco Lake flows into Cayuga Lake.

Q. Owasco Lake is how much higher than Cayuga?

A. Cayuga Lake has an elevation of approximately 383 feet.

Q. So Owasco Lake is four hundred feet higher?

A. Yes, it is.

Q. You're saying it does not drain to Cayuga Lake?

A. It does not.

MR. MANNINO: So if I could just reemphasize, if I understood the statement that was made earlier, our initial efforts did include sampling of that Lake and we did not find cyclolate [ph] contaminants in that Lake?

Q. Was that 17 years ago? Have you done it within the past five years as remediation?

MR. MANNINO: As far as I am aware, we have not done additional sampling.

Q. In the last five years?

MR. MANNINO: No, not as part of this supplemental effort.

MS. FREDRICKS: It was part of the --

Q. I would recommend it would be a good idea to look at that, seeing how the contaminants sink.

MR. MANNINO: Okay. We will take another look at it.

MR. BASILE: Are there any other questions? Yes, Mr. Mayor?

BY MR. BUD SHATTUCK:

Q. I will come up. Bud Shattuck, S-h-a-t-t-u-c-k. So my question probably is to the experts: In the past meetings that I have been to, the biggest question that didn't seem to be answered was: What happens if there is a fracture to a lower plume. And so, if you're putting the vegetation in the plumes that you find, that you know that are draining towards Union Springs or whichever direction they are going, you're looking at bedrock, and sometimes there is fractures and there is a lower plume below there. So we know there is other waters. And so what happens, should -- is there any chance of that happening, and what would happen should one of those fractures happen? And your contaminants drop lower?

MS. FREDRICKS: Dave?

A. (Mr. Mannino:) So let me start by saying, there is a long set of data at this site. And I think your question, Mr. Mayor, alludes to -- well, what if there were to be a change in condition at some point in the future? Right? So, I would prefer Alternative, and the selected remedy from the March 2013 decision document, calls for a long-term monitoring program. All right?

So we have not set up the guidelines for that program yet. Those will be developed over time as we go through the remedial design and the remedial action process. So, as we collect additional data, as we do additional monitoring, if we see conditions that would warrant what we think is creating a change in conditions, we can modify that sampling and that monitoring program over time. And so we have the flexibility to make adjustments as the conditions change.

So one of the other things that we do as far as the Superfund process that was not highlighted in the presentation is what we call five-year review. Every five years, in implementation of a remedy, the agency will be reviewing the data to insure that the remedy is still protective of human health and the environment.

We also look to see whether or not there has been any change in conditions. Whether that may be related to climate change, potentially, or whether or not there is new information about toxicity of chemicals, or something else that we weren't aware about at the time of the remedy selection. We go through that process in evaluation to insure that the remedy continues to be protective. So there are measures in place to evaluate a change in conditions over time. I hope that answers your question.

MR. BASILE: Any other questions? Mike?

BY MR. ONEILL:

Q. I have one last question. Has there been any evaluation of numerous gas wells that are uncased? And have they accelerated the diffusion of the contaminants because of the presence of the gas wells? The leaching of the contaminants within the gas well drop down -- has that been evaluated?

A. (Mr. Mannino:) As to the best of my knowledge, that evaluation has not been conducted. And that would not be one that we would typically perform. I think the wells, the types of wells you're describing, would probably be drilled down to depth --

Q. There are hundreds of them.

A. Regardless of the quantity, I think you look at the depth, the depth at which they are drilled, wouldn't be impacting the aquifers that are being affected here. I am speaking out of turn, now. I am not sure what, which wells you're talking about?

Q. There are hundreds of wells between Union Springs and Auburn. Gas wells, not water wells?

A. Right.

Q. Gas wells are uncased. And they plume, possibly. Would come from a gas well, and drop down the gas well. I am just wondering if that was evaluated by EPA?

MS. FREDRICKS: How deep are those wells?

A. I think he is saying: Regardless of the wells, they are uncased throughout the aquifer. I personally don't have enough experience to answer your question with respect to the construction technology of those wells. I am not sure if Dave or Joe do?

MR. ECKHARDT: Yes, I can, in a general way. I am a geologist. I studied the local hydrogeology here for almost two decades. There are a number of gas wells that tap in, mainly the Queens [ph] formation, which is about two thousand, roughly two thousand feet beneath the Auburn gas field that you're talking about between here and Auburn. And many of those gas wells are still working. They produce brine, as they produce gas. And that brine is tucked away.

The gas wells are regulated by New York State DEC. So I think, and the first, your question should go to DEC.

But I will address your question about casings. The steel casing that comes to the surface typically

extends at least a thousand feet down into bedrock. And that does case off and isolates the brine and the gas from the shell, the ground water.

Q. Has the brine been tested?

A. No.

MR. MANNINO: So as they mentioned, we don't have the authority to oversee that program. We will raise your question with the State of New York, that has the authority to oversee that, and get back to you with an answer.

Q. It's not for me; it's for the community. I just think it's a potentially common-sense evaluation that it should be done, to rule it out, or state it's an issue. It's simple. Brine is everywhere.

MR. MANNINO: Yes. Mike, right? As Isabel mentioned, as part of this process, we are taking all the comments that we receive verbally here, and any written comments, and they will be addressed in the responsive summary of the decision documents. So, everyone in the community will know the answer to the question that you have asked. It just seems that New York State has a program that regulates the work that you're describing. And we will discuss with them and provide an answer on that question.

Q. Does the state typically gives us a 10-foot rope for a 20-foot well? That's kind of the story. That's a joke.

MR. MANNINO: The one thing I would add is that the wells, the contamination that we are looking at, in Area 3, is approximately at the 200 foot depth. Just to give folks some context in the room of where we are working in, below grade.

BY KATHLEEN CUDDY:

Q. I am Kathleen Cuddy. K-a-t-h-l-e-e-n, C-u-d-d-y. So I am going to try and summarize for me probably, simply, what the plan is, and then I had a couple questions?

MS. FREDRICKS: Okay.

Q. So if I understand it correctly, Zone 1 is being treated as with particular injections; and Zone 2 and Zone 3 are really, you're monitoring that? That's the treatment plan? This is a 30-year study, right, currently?

A. (Mr. Mannino:) The timeframe to, before we can reach the remedial objectives, which includes the drinking water standards, is currently estimated to be approximately 30 years. But can take longer than that.

Q. Okay. We will be watching it until whatever duration it comes into compliance with drinking water standards?

A. So for the aquifer to be restored to the most beneficial use. Currently, the water that's being distributed for drinking water purposes meets all federal and state standards.

Q. Right.

A. Okay?

Q. As you revisit this, with the data you collect every five years?

A. We collect data periodically, constantly.

Q. Constantly?

A. Go through this formal five-year review process every five years. We don't wait five years to look at the data.

Q. Sorry. I didn't mean to -- that makes sense.

A. That's okay. So we are all on the same page.

Q. So at those five-year marks, do you share the data, or prior to that, are you sharing some of the collection data, and should there be: Not a significant change in five years, would that be a time then to have another public meeting to say we want to try something different?

A. So, a good question. So, with respect to the five-year review process, when the time, when we start that cycle of conducting the first five-year review of the site and then five years after that, EPA publishes an announcement once a year and informs the community of all of the five-year reviews I will be conducting for the region: New York, New Jersey, Puerto Rico, and beyond. In this case, for the year. And then, we also post the results of the five-year review on our website that is listed there.

So the results of the review are available to the public. And the public's informed of the review process being underway.

Q. So depending on the results of that review, determinations are made and those determinations may be continued "as-is" or may be "let's revisit this"?

A. So, correct. Just keep in mind, that we are talking about a process that will take a considerable timeframe here. And so, we are already seeing, based on the data that's been collected from the 2002 timeframe, and with those supply wells, Union Springs supply wells, pre-dating that, certain trends are occurring. And those trends take time to plot out. And so, you know, I can't predict what will happen five years out. But I want the folks to be aware that this is a process that will take some time. And the data, to date, has not shown any significant changes to those trends that we are seeing, over time.

So, and you know, we are talking about Area 3. And just, I want to just give folks a little bit of perspective, if I could with respect to the concentrations that we are seeing. And please correct me if I am wrong with any of these numbers. I think when you look at historical data from what was called Line Zero, which was at the road at the Powerex facility. We had TCE concentrations there of 960,000 parts per billion. Then, once you move into Area 1, TCE no longer became the dominant contaminant. Its breakdown component, Cis 1-2-DCE, was the prevalent contaminant. There we dropped in concentrations to about one hundred to 180,000 parts per billion, to Cis, compared to TCE. Then once you get into Area 3, once you get past some of the northern-most dairy farms there, the maximum concentration of Cis is, 400 was at the

POET, subsequent to that, I think it's probably below 50 or between 50 to 70 parts per billion.

So over the seven-mile stretch, you can see the dramatic changes in the concentrations. And there is work currently ongoing, as far as the design activities, to actively treat both the Area 1, under the Federal Superfund program and work overseen by the State of New York at the Powerex facility. So it's a very long and elaborate answer to your question, I think, if I answered your question? But I wanted to give you a little context of how concentrations are significantly dropping off with this instance and with time, so.

Q. So really if we don't see changes, we are going to revisit it, is that it? So essentially, it's going to take years to really tell if there are --

A. It will take time to determine whether or not there will be the need for any change that are directly occurring?

MR. BASILE: Thank you, Kathleen. Any other questions? Do we have any other questions, yes, sir?

BY MR. BILL HECHT:

Q. I will sit down. My name is Bill Hecht, H-e-c-h-t. Springport. To date, how much -- what has been the cost of this whole thing, to date?

A. (Mr. Mannino:) We can -- I don't have an exact dollar amount. I believe EPA has, as part of its remedial investigation efforts and work done through the 2013 timeframe is probably around approximately ten million dollars.

The amount that has been work done by private parties, I could get you probably an estimate. So the Record Of Decision had an estimate for the work. But I don't know that, off the top of my head.

Q. Because?

A. Ten million dollars has been spent, I think.

Q. There have been costs associated for the town, village and county. Have they been reimbursed fully for all these costs so far?

MS. FREDRICKS: Yes.

A. (Mr. Mannino:) So let me start by saying, the federal government would not reimburse the village or any other municipality for the work. Whether or not any private parties have made any kind of payments to any of the municipalities or the local governments, I don't have that information for you right now. I could try to get you a better answer.

Q. Does the village have one or two air-strippers now?

MS. FREDRICKS: They have the one that was installed in 2001, I believe. And then in 2017, we installed the new one.

Q. Okay. So there are two?

A. (Mr. Mannino:) So there is a primary and a back-up.

MS. FREDRICKS: Yes, a back-up.

Q. And a generator?

MS. FREDRICKS: Yes, two.

Q. Is the primary strategy that this is going through the Forge Hollow?

A. (Mr. Mannino:) Correct.

Q. Years ago, one of the DEC people invited me to Albany to a meeting of the Albany Geologist Association. It was a presentation by General Electric of a site "unnamed" on the Hudson that was being cleaned up for TCE. Everybody knew what it was except me, at the meeting. And I went up to one of the presenters at the meeting afterwards and said that the way he was characterizing TCE was almost like a thick syrup. And that that could glom onto the rock formations. And he said that, in laymen's terms, would be okay to refer to it as like a molasses-type substance; but that it can change chemically under groundwater.

We are talking about a formation that is rich in anhydrite [ph], gypsum, and sulphur. I am wondering, what is TCE and some of these other chemicals transforming to?

And we are in an area of karst topography. Things are changing around here every year underground. And my concern then, and today, is that things can change underground. If

this stuff is glomming on in pockets underground, they could get isolated, and be sealed off for years. Something changes, and it's re-exposed. So I am concerned about that type of problem.

Another concern I have is my understanding is it wasn't until about, I think 1985, that our municipal wells were even being tested for inorganic chemicals. So, correct me if I am wrong, my understanding is we have very little knowledge of what the contamination levels were before that timeframe? Private wells are at the mercy of a landowner. So, who has been exposed to this stuff all these years? And are those people being followed up medically with a history, over the years? And will those people be compensated for just going to the doctors to be checked out? Let alone, any future health problems they may encounter?

A. (Mr. Mannino:) So, Bill, correct?

Q. Yes.

A. So let me start by answering I think what was the first part of your question regarding the TCE. So as part of the initial remedial investigation that Isabel was describing for OU1 that started that in the 2002 timeframe, one of the studies that was done was called a matrix diffusion, which looked at the potential for contamination to, in essence, what I call back the fuse out of porous rock matrix, back into the soluble form, right, back into the aqueous phase.

So the concern was, was that the potential, as we look at other sites with similar conditions, for conditions to change over time, and when you're seeing a downward trend of contamination, that gets the potential that it could spike back up this mass, it back-diffuses out of the fractures, right? So that study, I believe, concluded that that was not an issue at this site. And if you'd like to look at that, that's in the administrative record which is available on the website. Maybe if you look at the study and the work that was done there, that may be helpful to answer some of the questions that you have.

The second part, I think, to answer your question, is as I mentioned to the question earlier, is we will be continuing to monitor the site. We are not walking away from this site. We are going to continue to collect data, monitor the data. And if there is a change in condition, we will determine how best to address that change, in addition.

So I think you raise a legitimate question. And I think at this site, that there has been considerable amount of work done to evaluate the potential for matrix diffusion. And it was concluded that based on the information we have, that is not a significant issue or an issue that will be impacted by the remedies that we are proposing.

The second question dealt with the Village of Union Springs, the public supply wells. I believe, that there is data going back to, and this is in the record, the late 70s or

maybe early 80s, of when there is some data with respect to the Village of Union Springs water supply. So, again, as part of the OU1 remedy, the air-stripper [ph] was upgraded. There was a back-up air-stripper installed, and there was an air-stripper upgraded. And so we are not aware of any violations of the drinking water standards, any exceeding of the drinking water standards with those upgrades. Right?

With respect to historically, EPA does not do health studies. We don't do them, across the board. We, as Isabel described, perform risk assessment for human health and ecological, to assess the potential and future impacts. New York State DOH, with ETSDR [ph], maintains a health registry. And it can be, information gleaned from the health registry with respect to individuals who may have been, who may have cancer in the area. But again, that is maintained by EPHDR, and New York State. We can get you additional information that was to health registries maintained by those entities. A follow-up question perhaps, go ahead?

Q. I am still not hearing -- I am still not hearing -- if an individual is living, particularly in that housing development just south of Powerex, or anywheres in this whole plume area, if they are concerned about their health, just as you have to test for inorganic chemicals in the water -- I am no doctor, I am no chemist, I am no toxicologist -- but if I was living in those areas and I wanted -- I felt I should be

tested, particularly since there is no record, historically, of what the contaminant levels were quite close to G.E., and they were incredibly high, originally, what is an individual in those records supposed to do to be checked, and who picks up the costs for that?

MR. MANNINO: Maureen is going to answer that.

A. (Maureen Schuck:) Hi. I am Maureen Schuck with New York State Department of Health. You know, we don't follow the people that were potentially exposed. Our goal to work with EPA or the DEC in investigations of these hazardous waste sites is to identify and reduce the exposures that we can. And certainly that was done here. We identified exposures to drinking water, private drinking water wells. We identified exposure potentially we thought through soil vapor intrusion. And certainly with the public supply wells, we identified the potential there. And actions were taken.

As far as looking where somebody may have lived in an area, we really could not assess that they would be, one, exposed, because we don't have any information that that was the case. And certainly, even if there was a potential that they were exposed to drinking water, we really don't have the ability to say that that exposure would result in any health effects.

So it's very difficult to, either, go back and say. If we have data, it's easier, you know, we could work with people

and provide them with education and information that they could share with their physicians. And that probably would be, you know, what we would recommend, if anybody had any particular concerns. But doing biological testing when we don't know for certain that they were exposed really is not going to give us the information that, you know, you indicate people might want.

So, you know, it's very difficult to go back. So, no. We start with trying to lower or reduce exposures as much as we can. And you know, go from there, and identify those exposures. And take action that they don't happen again.

Q. I also brought up the point of what the TCE and some of these other chemicals transform into underground. Because my understanding is, they do change chemically. And correct me if I am wrong, they can change into some pretty nasty stuff?

A. (Mr. Mannino:) So the typical degradation process of TCE, the Cis, the trans, and then the vinyl chloride, where vinyl chloride has the high toxicity value, right? We, in Area 3, I believe, there is a localized area where we are seeing some vinyl chloride. The maximum number is -- I have to get that for you. I know it's in the double digits, I just don't know exactly what that number is. But, the vinyl chloride is something that we would be monitoring as far as the long-term monitoring program. But again, there are no current exposures to any of the contaminants, including vinyl chloride. But the

vinyl chloride from what I recall is typically limited to a general area in Area 3, in the western -- northwestern portion.

MS. FREDRICKS: Yes.

A. And also with respect to, for example, the Village of Union Springs drinking water supply, I don't believe vinyl chloride has ever been detected in any of the sand flow results -- that I have seen for the sampling. That it's predominately Cis-1 TCE, which again, is the breakdown component of TCE.

CONTINUING BY MR. HECHT:

Q. I have one last question. General Electric, the studies that were done by General Electric of the groundwater seeps in Cayuga Lake, will their methodology and results be on file at Seymour library? Because there are --

MS. FREDRICKS: Yes.

A. Yes.

Q. And methodology, too?

A. So, so, sorry. I was drawing your attention to, I think, two reports. One is called the remedial -- I am sorry -- remedial investigation and work plan, which lays out all the work that was going to be done as part of the supplemental investigation. And there, some of the methodology would be laid out. Actually, it's three documents. It's what's called quality assurance document plan which documents how the samples are collected and analyzed by the lab. And the

third document is the supplemental investigation report. All those documents are in the repository, and also available online. And you would be able to look in more detail with respect to the sampling methodology and the analytical work that was done associated with that.

Q. Okay, thank you.

A. You're welcome, Bill.

MR. BASILE: Yes, Mike?

BY MR. ONEILL:

Q. One last point. First of all, thank you people for coming out and explaining things to us, and concerns for Union Springs.

First point is, EPA looked at the feasibility of extending City of Auburn water to Union Springs? I would guess it's a million dollars away, if not that much money, as a contingency if Union Springs has issues with their wells? Extend the -- water from the City of Auburn out?

Second point, for the State Department of Health, there are hundreds of cancer deaths from employees on the acid (ph) line at G.E., so there is a huge record of deaths at the acid line at G.E.

COURT REPORTER: Acid line, a-c-i-d?

MR. ONEILL: Employees.

MR. BASILE: Are there any other questions? Any other questions? Yes, Mr. Mayor?

MR. SHATTUCK: So I would like to thank the federal, the state, and the county agencies, that have helped the village and really everyone involved in this. It's good to see Isabel again. She is not in Texas. And

sometimes they send her there. So, again, thank you. And we appreciate even the small gathering to be able to get more information.

MR. BASILE: We thank you. We thank you for coming out.

Just a reminder again as the screen indicates, if you have any questions following this evening, we will gladly accept them, through August the 27th. Information is available in the Seymour Library. And we will be available for a short period after we conclude here.

Thank you and have a great remainder of your summer. Take care.

(Hearing adjourned at 7:36 p.m.)

* * *

C E R T I F I C A T E

STATE OF NEW YORK:
COUNTY OF ONONDAGA:

I, PATRICK J. REAGAN, a Certified Shorthand Reporter in and for the State of New York, do hereby certify that the foregoing transcript of the U.S. EPA Public Hearing, Concerning Cayuga County Contamination Superfund site, recorded at the time and place first above-mentioned, is true and accurate to the best of my knowledge, skill and ability.

Date: _____

_____
Patrick J. Reagan, CSR

16 Dunlap Ave.
Marcellus, NY 13108

(315) 673-9358

EPA/Union Springs Public Hearing

Thursday, August 8, 2019

Speaker List:

* * *

Public Questions:

* * *

Other Speakers (Answering Questions)

David Eckhardt	PhD, Consultant
Peter Mannino,	EPA Branch Chief
Isabel Fredricks	Remedial Project Manager
Maureen Schuck	NYS DOH

* * *