SUPPLEMENTAL WORK PLAN
PHASE 2B REMEDIAL INVESTIGATION
TACONIC SITE

Prepared By:

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136 Coonbrook Road
Petersburgh, New York 12138

NYSDEC Site No. 442047

MARCH 2023

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LIST OF ACRONYMS

ACRONYM	Definition
CAMP	Community Air Monitoring Plan
COPC	Constituents of Potential Concern
CSM	Conceptual Site Model
EPA	United States Environmental Protection Agency
FSAP	Field Sampling and Analysis Plan
FSP	Field Sampling Plan
FWIA	Fish and Wildlife Impact Analysis
HASP	Health and Safety Plan
IDM	investigation derived materials
IID	Interim Investigation Deliverable
IRM	Interim Remedial Measures
MPR	monthly progress report
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PFAS	Per- and Poly-Fluoro Alkyl Substances
PFOA	Perfluorooctanoic Acid
PPE	personal protective equipment
PTFE	polytetrafluoroethylene
PW	production wells
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QHHEA	Qualitative Human Health Exposure Assessment
RI/FS	Remedial Investigation/Feasibility Study

1.0 INTRODUCTION

Tonoga, Inc. d/b/a Taconic (Taconic) has prepared this Supplemental Work Plan for a Phase 2b Remedial Investigation (RI) for the Taconic Site (Site) located in the Town of Petersburgh (Town), Rensselaer County, New York.

This Work Plan has been prepared in response to requests by the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) for additional sampling and laboratory analyses of local agricultural products to support the completion of the Qualitative Human Health Exposure Assessment (QHHEA).

The Remedial Investigation/Feasibility Study (RI/FS) is being conducted in accordance with the requirements of the Administrative Settlement Agreement and Order on Consent (Index No. CO 4-20160519-01) (Settlement Agreement) executed between the NYSDEC and Taconic, with an effective date of November 20, 2016. The Site is listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites as a Class 2 site (Site No. 442047).

A phased investigation approach was established in the RI/FS Work Plan (OBG 2018) and approved by the NYSDEC. This supplemental Phase 2b RI Work Plan describes the activities of Phase 2b intended to gather the data on the range of PFAS concentration in agricultural products produced in the vicinity of the Site as necessary to assess potential human exposure.

Phase 2b activities and analysis will be performed in accordance with the Field Sampling and Analysis Plan (FSAP), Quality Assurance Project Plan (QAPP), Health and Safety Plan (HASP), and Community Air Monitoring Plan (CAMP), as previously approved by the NYSDEC. These supplementary plans are available at the Document Repository at the Town Hall, 65 Main Street, Petersburgh, New York.

1.1 Site Description

Taconic owns a facility in Petersburgh, New York where it manufactures polytetrafluoroethylene (PTFE) coated fabrics. The Site is in a rural area, at the northernmost intersection of Coonbrook Road and State Route 22 (Figure 1). The Site is a 23.54-acre area that features nine structures related to manufacturing and three parking lots (Figure 2). There is an unnamed stream that runs through the Site (Unnamed Stream 1) and another running south of the Site on Taconic-owned property (Unnamed Stream 2). Near the Site, both streams can be dry in summer. Unnamed Stream 1 is not accessible to the public as it is on Taconic-owned property from upstream of the Site until the confluence with the Little Hoosic River. Unnamed Stream 2 is on Taconic-owned property south of the Site, and on private property upstream of the Site. Downstream of the Site after flowing under Route 22, Unnamed Stream 2 flows for about 250 feet along the border of a Taconic-owned property and a private property to the south.

The Site is currently an operating manufacturing facility. The surrounding parcels (some of which are owned by Taconic) are residential or undeveloped. The Little Hoosic River runs south to north on the opposite side of Route 22 from the Site.

1.2 Remedial Investigation Objectives

The purpose of the RI is to identify constituents of potential concern (COPCs), evaluate the nature and extent of COPC impacts in various environmental media (e.g., groundwater, soil, and surface water) because of the

contamination at and/or from the Site, assess the fate and transport of the COPCs, develop a CSM, and evaluate potential exposure pathways. The information collected during the investigation will be summarized in an RI Report, which will include a summary of the exposure assessment.

1.3 Remedial Activities Completed

Several Interim Remedial Measures (IRMs) and pre-RI activities have been completed at the Site, and RI activities are ongoing, with the first phase (Phase 1) and the first part of the second phase (Phase 2a) completed. IRMs and pre-RI activities completed to date are summarized in **Section 1.3.1**. RI activities completed under Phase 1 and Phase 2a are summarized in **Sections 1.3.2** and **1.3.3**, respectively, and are discussed in more detail in **Section 2**.

1.3.1 IRM and Pre-RI Activities

IRMs and pre-RI activities are outlined below. Taconic has worked with the NYSDEC, Town, Rensselaer County Department of Health (RCDOH) and NYSDOH) to implement the following:

- Provided residents of the Town with bottled water at multiple locations, free of charge, including home delivery to residents with special needs;
- Provided a climate-controlled bottled water headquarters at the Town Hall where Taconic distributed free water to Town residents;
- Provided a recycling center for Town residents' empty water bottles;
- Installed over 90 point of entry treatment (POET) systems in a designated Area of Interest on private wells in the Town and is currently providing sampling and maintenance of the POET systems. At the time of this report, over 1,700 samples of residential water supplies have been collected and analyzed to ensure the POET systems continue to provide drinking water to residents in the Town without detectable traces of perfluorooctanoic acid (PFOA), and other related poly- and perfluoroalkyl substance (PFAS) compounds;
- Collected samples of residential water supplies throughout the Area of Interest to ensure the raw water quality in wells that are not equipped with POET systems remain below the action levels established by the State. At the time of this report, over 450 samples of raw water supplies have been sampled and analyzed for PFOA and related compounds;
- Designed and installed a customized granular activated carbon (GAC) water treatment system for the Town Public Water Supply. The GAC system has been in operation since the Spring of 2017, with PFOA and related compounds below detectable levels in the treated water. As of this writing, over 100 samples of the Town's water supply have been collected and analyzed to ensure the GAC system continues to provide drinking water to residents in the Town without detectable traces of PFOA, and other related PFAS compounds;
- Designed and installed modifications to the GAC system in 2018 consisting of a recirculation loop and tank bypass line. The recirculation loop was installed to ensure the minimum flow requirements of the GAC system would be met during periods in which the Town was experiencing low well yields. The tank bypass line was installed to provide the make-up water for the recirculation loop and to facilitate future tank cleaning, inspection, and upgrade projects planned by the Town; and,
- Completed pre-RI field investigations as approved by the NYSDEC consisting of sampling and analysis of water samples from Taconic production wells, three ponds, and two streams near the Site.

1.3.2 RI Phase 1

The results of the Phase 1a and 1b RI are summarized in the Interim Investigation Deliverable (IID), which was submitted to NYSDEC on February 28, 2020.

Phase 1 involved sampling of relevant media (e.g., surface water, sediment, groundwater, surface soil, subsurface soil, wastewater and sludge) to define the nature of the COPCs and evaluate their extent. Phase 1 included the sampling of environmental media on the Site and nearby Taconic-owned properties, and laboratory analysis for PFAS, Target Compound List (TCL)/Target Analyte List (TAL) constituents, cyanide, total organic carbon (TOC), major cations/anions, grain size, and pH. Phase 1 was broken into subtasks of Phase 1a and Phase 1b, the objectives and activities of which are summarized Sections 1.3.2.1 and 1.3.2.2, respectively.

In addition to the field activities and the associated laboratory analyses, Phase 1 (both Phases 1a and 1b) also included data validation activities. Data validation was performed in accordance with Section 2.11 of the RI/FS Work Plan (OBG 2018) and associated Quality Assurance Project Plan (QAPP) (OBG 2018) by Data Validation Services, Inc.

1.3.2.1 Phase 1a

The objective of Phase 1a was to begin to define the nature of the COPCs and evaluate their extent, through the collection of environmental samples. The environmental media sampled included groundwater, surface water, sediment, surface soil, and subsurface soil. Wastewater and sludge in tanks were also sampled during Phase 1a for laboratory analysis. A primary objective of Phase 1a was also to collect preliminary groundwater data to inform the placement of groundwater monitoring wells to be installed in Phase 1b.

Phase 1a field activities were implemented from April 2018 through September 2018 and included:

- Collection and analysis of 26 surface water samples;
- Collection and analysis of 15 sediment samples;
- Collection and analysis of 80 surface soil samples;
- Collection and analysis of wastewater and sludge samples;
- Installation of two exploratory boreholes (with completion as open shallow bedrock monitoring wells);
- Borehole geophysical testing and concurrent depth-discrete groundwater profiling;
- Direct-push overburden investigation, including:
  - Direct sensing at four locations;
  - Collection and analysis of 33 discrete-interval groundwater samples; and
  - Collection and analysis of 41 subsurface soil samples.

1.3.2.2 RI Phase 1b

Phase 1b involved installation and sampling of groundwater monitoring wells to further define the nature of the COPCs and evaluate their extent. Groundwater monitoring well locations were chosen based on data from the direct-push overburden investigation, completed as part of Phase 1a.

Phase 1b field activities were implemented from April 2019 through October 2019 and included:

- Installation of 24 overburden monitoring wells;
- Collection of subsurface soil at 4 monitoring well locations;
- Development of monitoring wells;
- Hydraulic conductivity testing;
- Collection and analysis of groundwater samples (24 overburden monitoring wells, and two former residential wells, one at a Taconic-owned property on Coonbrook Rd and another at the Taconic-owned campground adjacent to the Little Hoosic River);

- Collection and analysis of groundwater samples from a new production well installed at the Site; and,
- Surveying.

1.3.3 Phase 2 Remedial Investigation

Phase 2 is intended to complete the requirements of an RI as described in *DER-10/Technical Guidance for Site Investigation and Remediation* (NYSDEC 2010). The objective of the Phase 2 RI is to expand the sampling and analysis of environmental media within the site and adjacent off-site areas to better define the potential source areas, migration pathways, and the nature and extent of the compounds at or emanating from the Site. In addition, as requested by the NYSDEC, a Fish and Wildlife Impact Analysis (FWIA) and a Qualitative Human Health Exposure Assessment (QHHEA) will be completed as part of Phase 2 of the RI.

Like Phase 1 of the RI, Phase 2 is also being completed in iterative phases, whereby data gathered in the initial phases will be used to plan and implement subsequent phases, as needed, to identify and design potential Interim Remedial Measures (IRMs) and to ultimately complete the RI.

The results of the Phase 2a RI are summarized in the Interim Investigation Deliverable (IID), which was submitted to NYSDEC on August 10, 2022.

Phase 2a involved additional collection of data and environmental samples to further delineate the extent of COPCs in environmental media and refine understanding of the geology and hydrogeology to assist with identification of primary migration pathways. Phase 2a was conducted in accordance with the Supplemental Work Plan Phase 2a Remedial Investigation approved by the NYSDEC on September 8, 2020 and the Supplemental Building 1 Remedial Investigation Work Plan approved by the NYSDEC on July 28, 2021.

Phase 2a field activities were implemented from November 2020 through March 2022 and included:

- Collection and analysis of 48 natural surface water samples during baseflow conditions, collected over two rounds of sampling;
- Collection and analysis of 37 stormwater and natural surface water samples during stormflow conditions, collected over two rounds of sampling;
- Collection and analysis of 12 sediment samples;
- Collection of 90 surface, near surface, and subsurface soil samples from 33 off-site sample locations;
- Collection of 13 surface, near surface, and subsurface soil samples from three on-site soil boring locations drilled for monitoring well installation;
- Collection of 17 subsurface soil samples from eight soil boring locations around Building 1;
- Installation, development, and sampling of two shallow/deep overburden monitoring well pairs (co-located with new bedrock well locations)
- Installation of three new overburden monitoring wells adjacent to Building 1;
- Development and sampling of two out of three new overburden wells adjacent to Building 1;
- Sampling of five existing overburden monitoring wells to assist with investigation of Building 1 groundwater;
- Surface geophysics to preliminarily characterize subsurface conditions, prior to installation of additional groundwater monitoring wells
- Installation of seven bedrock groundwater monitoring wells;
- Sampling of mixed borehole groundwater from four new bedrock groundwater monitoring wells;
- Borehole geophysics to identify potential water-bearing fracture zones for discrete interval groundwater sampling
- Discrete interval bedrock groundwater sampling using packer sampling methods in six new bedrock groundwater monitoring wells;
- Installation and two rounds of gauging of three staff gauges in local rivers and streams; and
- Three rounds of monitoring well gauging.

2.0 CONTACTS

Key contact information for NYSDEC, New York State Department of Health (NYSDOH), and Taconic is provided below:

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3.0 SCOPE OF WORK

3.1 Regulations and Guidance

The RI has been conducted in accordance with 6NYCRR Part 375 and NYSDEC's guidance document "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) January 2020 and October 2020 (NYSDEC PFAS Guidance-2020). Samples collected during the RI have been routinely analyzed for the 21 compounds contained in Appendix G of the NYSDEC PFAS Guidance-2020. In September 2022, the NYSDEC announced revisions to the PFAS Guidance to include an expanded Analyte List of 40 PFAS and to require the use of a new, draft analytical method (draft EPA Method 1633) for the analysis of samples under the remedial program. This latest revision (NYSDEC PFAS Guidance-2022) is to be applicable to work plans approved by the NYSDEC after November 1, 2022.

As presented in the IIDs submitted to the NYSDEC for Phase 1 and Phase 2a of the RI, based upon the analysis of samples for the 21 PFAS required by 2020 NYSDEC guidance, PFOA is a COPC detected in areas adjacent to the Site. Subject to further evaluation in the RI, although PFOS has been regularly detected in areas on and adjacent to the site, the concentration and distribution indicate the presence of PFOS may not be completely related to Site operations. In addition to PFOA and PFOS, other PFAS, primarily perfluorocarboxylic acids (PFCAs) of various carbon chain lengths, have been detected during the RI in areas adjacent to the Site. PFOA and PFOS

are defined as hazardous substances in 6NYCRR Part 597. The other PFAS detected are not listed as hazardous substances in 6NYCRR Part 597 and do not meet the definition of a contaminant in 6 NYCRR Part 375-1.2(g).

This Phase 2b investigation is being completed to support the Qualitative Human Health Exposure Assessment (QHHEA). The requirements for the QHHEA are consistent with NYSDEC DER-10 Appendix 3B and outlined in the QHHEA scope of work approved by NYSDEC and NYSDOH, dated June 7, 2022, in **Appendix A.** The purpose of the QHHEA is to evaluate and document how people might be exposed to site-related contaminants and to identify and characterize the potentially exposed population(s) now and under the reasonably anticipated future use of the site.

The scope of the Phase 2b workplan is to collect data on the range of concentration of COPCs in the following local agricultural products as may be available in the vicinity of the Site:

- Fruits and vegetables
- Maple syrup
- Eggs
- Milk; and,
- Beef and chicken meat.

Although there are no formally promulgated regulatory standards for PFAS in home/farm raised food products, in December 2021, the NYSDEC published proposed modifications to 6NYCRR Part 375, including draft Soil Cleanup Objectives (SCOs) for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The Guidance Values and draft SCOs for PFOA and PFOS were derived by the NYSDEC to be protective of human health for various land use categories, some of which include the consumption of food products raised on the property.

The 2020 and 2022 NYSDEC Guidance Values and 2021 draft SCO Regulations in the table below for PFOA and PFOS are lower (more stringent) than residential soil targets in any other State reporting such criteria.

Guidance Values and Draft SCO Regulations for Anticipated Site Use	PFOA in Soil (ppb)	PFOS in Soil (ppb)
Restricted Residential	33	44
Residential	6.6	8.8
Unrestricted	0.66	0.88

The anticipated site use categories and associated exposure scenarios established by the NYSDEC (Unrestricted, Residential, and Restricted Residential) are described below:

- **Unrestricted Use** values are protective for an intensive residential/farm soil use scenario where contact with soil contaminants is possible via three pathways: direct contact/ingestion, the consumption of homegrown fruit/vegetables and the consumption of homeraised meat/dairy products;
- **Residential Use** values are protective for a non-farm soil use scenario where contact with soil contaminants is possible via two pathways: direct contact/ingestion, and the consumption of homegrown fruit/vegetables; and,
- **Restricted Residential Use** values are protective where contact with soil contaminants is via direct contact/ingestion only, where no homegrown products of any type are consumed.

Planned data collection efforts, which will include sampling and/or assessment are outlined in Section 3.2 for each pathway.

The potential pathway of ingestion of fish from the Little Hoosic was identified in the approved scope of work for the QHHEA. Existing data from NYSDEC collected in 2016 appears sufficient to evaluate this potential pathway, so additional sampling and analysis of fish tissue is not proposed in this Work Plan.

Other pathways identified in the approved QHHEA scope, which include, but are not limited to, potential exposure to surface soils, groundwater, surface water, and sediment, will be evaluated in the final QHHEA to be submitted with the RI report after the conclusion of the RI.

3.1 Objectives

The objectives of Phase 2b are as follows:

- Collect data necessary to evaluate if pathways related to consumption of local agricultural products are potentially complete; and,
- Identify additional data that may be needed to support the completion of the QHHEA related to consumption of local agricultural products.

3.2 Investigation Approach

The objectives listed in Section 3.1 will be achieved in Phase 2b through sampling and analysis of local fruits and vegetables, maple syrup, eggs, milk, beef, and chicken meat . Local farmers and agricultural suppliers if identified will be specifically targeted for sampling.

The selection of properties for sampling will consider the NYSDEC's Guidance Values and proposed SCOs as described in Section 3.1 above based upon the concentrations of PFOA identified in the soil sampling results of the Remedial Investigation (RI). Properties in areas with soil concentrations greater than 6.6 ppb will be targeted for sampling of homeraised produce (fruits, vegetables, and syrup). Properties in area with soil concentrations greater than 0.66 ppb will be targeted for sampling of homeraised produce as well as meat and/or dairy products.

Depending on the locations selected for sampling and the availability of existing RI data, additional soil and/or water testing may be performed to assess the PFAS concentrations in the vicinity of the sampling. Other investigations, such as questionaries/interviews with those producing the agricultural products may also be performed to improve the understanding of possible uptake and transfer mechanisms. Proposed sampling of the agricultural products is detailed in the following subsections.

The general sampling procedures (e.g. PPE and other handling considerations) will be consistent with those used for the RI as outlined in the approved RI/FS Work Plan and the NYSDEC PFAS Guidance-2022.

Samples will be analyzed by draft EPA Method 1633 for the 40 PFAS as identified in NYSDEC Guidance 2022, for those matrices appropriate to the method. All other matrices (syrup, vegetables, eggs, and milk) will be analyzed by FDA methods appropriate for food as described in the Quality Assurance Project Plan (QAPP) and laboratory SOPs included with the QAPP. Analytical methods for the listed matrices will be evaluated and chosen in consultation with the NYSDEC.

3.2.1 Fruits and Vegetables

The approved QHHEA scope of work identifies ingestion of fruits and vegetables as a potential exposure pathway for further evaluation.

In Chapter 9 of the Exposure Factors Handbook (USEPA 2018), EPA divides fruits and vegetables into the following categories:

- Exposed fruit, such as apples, cherries, eggplant, grapes, peaches, plums, raspberries, strawberries
- Protected fruit, such as citrus fruit, bananas, mango, avocado
- Exposed vegetables, such as alfalfa, basil, cabbage, cauliflower, celery, lettuce, tomato
- Protected vegetables, such as beans, cantaloupe, chickpeas, peas, squash, and watermelon
- Root/ tuber vegetables, such as beets, carrots, turnips, parsnips, and potatoes

To support the evaluation of this pathway, samples from different categories of fruits and vegetables that are relevant to the Petersburgh area are proposed to be collected in accordance with the following sections.

3.2.1.1 Location Selection

Samples of edible fruits and/or vegetables will be collected from backyard gardens and/or farms that meet the following criteria:

- Located within an area with surface soil concentrations exceeding the proposed 6NYCRR Part 375 Table 6.8(b) Unrestricted SCO of 0.66 ppb for PFOA and with intensive residential/farm soil use where homegrown fruit/vegetables and homeraised meat/dairy products are produced/consumed,
- Located in an area with surface soil concentrations exceeding the proposed 6NYCRR Part 375 Table 6.8(b) Residential SCO of 6.6 ppb for PFOA and where homegrown fruit/vegetables products are produced/consumed,
- Depending on the locations of properties suitable for sampling, Taconic will attempt to collect a minimum of 20 percent of produce samples at properties in areas with soil concentrations of PFOA less than the Residential SCO of 6.6 ppb.
- Access agreement with the property owner

3.2.1.2 Sampling and Analysis

Where possible and relevant to the local area, a variety of fruits and vegetables across the different categories defined by EPA will be sampled as available. Samples are expected to be collected in 2023 based on the typical growing season of fruits and vegetables in the local area. It is anticipated that a total of approximately 15-20 samples of different types of fruit and vegetables will be collected. Properties will be selected in consultation with the NYSDEC to attempt to provide about 20 percent of the samples in areas with surface soil concentrations less than 6.6 ppb and 80 percent from properties in areas with surface soil concentrations of PFOA greater than 6.6 ppb. Fruits and vegetables commonly grown in the local area will be given priority in determining the types of produce to be sampled. The exact number and type of samples will be determined in consultation with NYSDEC and NYSDOH once sample locations are identified.

Only edible portions of produce will be analyzed because this would represent the direct exposure pathway to humans.

Samples will be collected in Ziploc bags and frozen to prevent spoilage.

Samples will be analyzed for the list of 40 PFAS by draft EPA Method 1633.

3.2.1.3 Additional Data Collection

A questionnaire will be provided to the resident(s) at the selected sampling location(s) to determine the following information prior to sample collection:

- Water source for the garden and any treatment systems prior to use; and,
- Name/ source of any other additives/ fertilizer used in garden.

Based on the review of the questionnaire responses and currently available RI soil and water data at the selected location(s), additional samples from soil and water may be collected to assist in the evaluation of the concentration detected in the produce samples. Identification of type and location of these samples will be determined in consultation with NYSDEC and NYSDOH.

3.2.2 Maple Syrup

The approved QHHEA scope of work identifies ingestion of maple syrup as a potential exposure pathway for further evaluation. Though ingestion of maple syrup is not expected to be a significant exposure pathway based on the study completed in North Bennington, VT (VTDEC 2016), sampling and analysis of maple syrup is proposed in accordance with the following sections.

3.2.2.1 Location Selection

Samples of maple syrup will be collected from two areas meeting the following criteria:

- Surface soil concentrations that exceed the proposed 6NYCRR Part 375 Table 6.8(b) Residential SCO of 6.6 ppb PFOA or groundwater/surface water concentrations that exceed the NYSDOH Maximum Contaminant Level (MCL) of 10 ppt for PFOA in drinking water; and,
- Access agreement with the property owner.

If multiple potential locations are identified, priority will be given to the location with currently available subsurface data and/or the highest concentrations of PFOA in soil and water samples.

3.2.2.2 Sampling and Analysis

Two samples of maple syrup originating from two separate areas of maple trees will be collected and analyzed for PFAS by draft EPA Method 1633 for 40 PFAS. The timing of sampling will be based on availability of product from the selected sample areas. The samples will be collected in unpreserved HDPE bottles. Samples will be frozen to prevent spoilage. Bottles will not be filled completely to capacity to allow for potential expansion when frozen.

3.2.2.3 Additional Data Collection

Based on currently available RI soil and water data at the selected location(s), additional samples from soil and water may be collected to assist in the evaluation of the concentration detected in the produce samples. Identification of type and location of these samples will be determined in consultation with NYSDEC and NYSDOH.

3.2.3 Eggs

The approved QHHEA scope of work identifies ingestion of eggs as a potential exposure pathway for further evaluation. To support the evaluation of this pathway, sampling and analysis of eggs is proposed in accordance with the following sections.

3.2.3.1 Location Selection

Eggs will be collected from up to three locations that meet the following criteria:

- Located within an area with PFOA concentrations in groundwater and/or surface water greater than 10 ppt; and,
- Access agreement with the property owner.

If multiple potential locations are identified, priority will be given to locations with currently available subsurface data, where possible.

3.2.3.2 Sampling and Analysis

One sample of approximately two eggs will be collected at each of three locations and analyzed for PFAS by draft EPA Method 1633 for 40 PFAS. The timing of sampling will depend on the availability of eggs from the selected sampling location. The eggs will be collected from different hens if possible. The eggs will be cracked open and the whole egg collected in unpreserved HDPE bottles. The shells will be discarded and not included in the sample. Egg samples will be frozen to prevent spoilage. Bottles will not be filled completely to capacity to allow for potential expansion when frozen.

3.2.3.3 Additional Data Collection

A questionnaire will be provided to the resident(s) at the selected sampling location to determine the following information prior to sample collection:

- Food source for chickens
- Water source for chickens
- General living conditions of chickens

Based on the review of the questionnaire responses and currently available subsurface data at the selected location(s), samples from additional media may be collected to support the assessment. Identification of type and location of these samples will be determined in consultation with NYSDEC and NYSDOH.

3.2.4 Milk

The approved QHHEA scope of work identifies ingestion of milk as a potential exposure pathway for further evaluation.

To support the evaluation of this pathway, samples of raw, unprocessed milk is proposed to be collected in accordance with the following sections from a milk producer in the Petersburgh area.The sample would be considered a worst-case initial screening of this pathway. .

3.2.4.1 Location Selection

Two milk samples will be collected from up to two dairy producers in a location that meets the following criteria:

- Located within area with PFOA concentrations in groundwater and/or surface water greater than 10 ppt; and,
- Access agreement with the property owner.

If multiple potential locations are identified, priority will be given to the location with currently available data, where possible.

3.2.4.2 Sampling and Analysis

The milk samples will be collected and analyzed for the list of 40 PFAS by draft EPA Method 1633 . Samples will be collected in unpreserved HDPE bottles. Samples will be frozen to prevent spoilage. Bottles will not be filled completely to capacity to allow for potential expansion when frozen.

3.2.4.3 Additional Data Collection

A questionnaire will be provided to the dairy producer to determine the following information prior to sample collection:

- Food source for cows;
- Water source for cows; and,
- General living conditions of cows

Based on the review of the questionnaire responses and currently available RI soil and water data at the selected location(s), additional samples from soil and water may be collected to assist in the evaluation of the concentration detected in the produce samples. Identification of type and location of these samples will be determined in consultation with NYSDEC and NYSDOH.

3.2.5 Beef and Chicken Meat

The approved QHHEA scope identifies ingestion of locally raised livestock as an exposure pathway for further evaluation. To support the evaluation of this pathway, sampling and analysis of beef and chicken meat is proposed in accordance with the following sections.

3.2.5.1 Location Selection

Two samples of beef and two samples of chicken meat from two producers each will be collected from beef/chicken locally raised in locations that meet the following criteria:

- Located within area with PFOA concentrations in groundwater and/or surface water greater than 10 ppt; and,
- Access agreement with the property owner.

If multiple potential locations are identified, priority will be given to the locations with currently available subsurface data, where possible.

3.2.5.2 Sampling and Analysis

Two samples of meat from edible portions will be obtained from up to two local sources each of beef and chicken and analyzed for the list of 40 PFAS by draft EPA Method 1633. Samples will be collected in Ziploc bags. If the samples are prepackaged, they will remain in their prepackaged form. Samples will be frozen (or kept frozen) to prevent spoilage.

3.2.5.3 Additional Data Collection

A questionnaire will be provided to the resident(s) at the selected sampling location to determine the following information prior to sample collection:

- Food source for cows/chickens;
- Water source for cows/chickens;

- General living conditions of cows/chickens;
- Date and location of slaughterhouse used; and,
- Packaging and storage conditions since slaughtered.

Based on the review of the questionnaire responses and currently available subsurface data at the selected location(s), samples from additional media may be collected to support the assessment. Identification of type and location of these samples will be determined in consultation with NYSDEC and NYSDOH.

4.0 PROJECT PLANNING AND IMPLEMENTATION

4.1 Applicable Guidance Documents

Work will be performed in accordance with the Field Sampling Plan (FSP) developed for this site, which includes the field methods and procedures to be used during all RI field activities. All sample handling and analysis will be performed in accordance with the QAPP, which includes data quality objectives and criteria, data acquisition, management, and analytical procedures, quality control measures, data validation and usability elements, and assessment and oversight details. Samples will be analyzed by Eurofins, or another laboratory similarly accredited/experienced in PFAS analysis. Quality Assurance/Quality Control (QA/QC) samples will be collected and analyzed as described in the QAPP. As applicable, work will also be performed in accordance with the Community Air Monitoring Plan (CAMP) and Health and Safety Plan (HASP). The FSAP, QAPP, and HASP/CAMP were prepared in accordance with *DER-10, Technical Guidance for Site Investigation and Remediation* (NYSDEC 2010) and have been previously approved by NYSDEC.

4.2 Notifications and Communications

In accordance with DER-10, NYSDEC will be notified of the start of any field activities associated with Phase 2b seven calendar days prior to the actual start of field activities. Notification will be provided in writing and will include a schedule of the work. Subsequent seven-day notices and work schedules will be provided where the work is to proceed in phases not subject to the initial schedule provided.

4.3 Management of Investigation Derived Materials

Investigation Derived Materials (IDM) produced during this project may include soil, decontamination water, groundwater, personal protective equipment (PPE), disposable sampling equipment and other debris. IDM will be handled and disposed in accordance with applicable state and federal regulations. Detailed procedures for handling and disposal of each type of IDM are included in the FSAP.

4.4 Documentation

All field activities will be documented and described in a field log. Other types of documentation will include questionaries and other pertinent types of information that may be received from the property owners. All field documentation will be digitized and included in the Remedial Investigation Report. Logs will be completed in accordance with the procedures described in the FSAP.

5.0 REPORTING

5.1 Monthly Progress Reports

As required under the Settlement Agreement, Monthly Progress Reports (MPRs) will be prepared and submitted to NYSDEC throughout implementation of the RI/FS. MPRs will cover the following:

- Actions taken during the month
- Analytical and other results obtained during the month
- Deliverables submitted or approved during the month
- Actions planned for the following month
- Anticipated delays and mitigative measures
- Proposed or approved modifications
- Citizen participation activities.

5.2 Phase 2b Interim Deliverable Report

Upon completion of Phase 2b of the RI and validation of the data as described in the QAPP, an interim submittal that includes summary tables and figures of validated data will be prepared and submitted to NYSDEC. Taconic will use the collected data and information to prepare the QHHEA.

6.0 SCHEDULE

A draft schedule for completion of Phase 2b is provided below. Proposed dates and/or durations for investigation activities and report preparation are presented. The start date of these activities is dependent upon approval of this work plan by NYSDEC and availability of the agricultural products proposed for sampling.

Milestone Activity	Estimated Schedule
NYSDEC approval of Phase 2b Work Plan	Winter 2022
Implementation of Phase 2b field activities	Winter 2022-Summer 2023
Interim investigation deliverable (with Phase 2b results) submittal to NYSDEC for review	60 days following receipt of the final analytical data for Phase 2b

7.0 REFERENCES

NYSDEC 2010. *DER-10/Technical Guidance for Site Investigation and Remediation*. May 3.

NYSDEC 2016. *Hoosick Falls 2016 Fish Sampling Data Summary*. https://www.dec.ny.gov/docs/remediation_hudson_pdf/pfospfcfish2016.pdf

NYSDEC 2018. *PFAS in New York State Fish, 2010-2018*. Presentation by Jesse Becker, Wayne Richter & Larry Skinner from NYSDEC Bureau of Ecosystem Health Division of Fish and Wildlife. https://www.state.nj.us/drbc/library/documents/TAC/06182019/PFASinNYSfish_Becker_NYSDEC.pdf

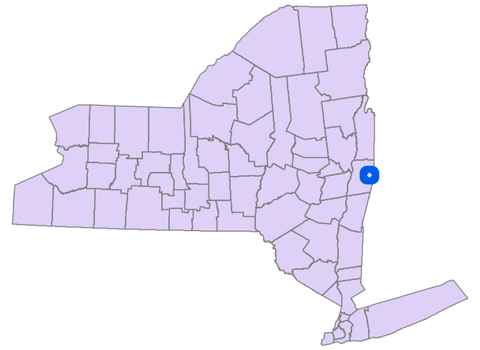
NYSDEC 2020. *Guidelines for Sampling and Analysis of PFAS*. January.

OBG 2018. *Remedial Investigation/Feasibility Study Work Plan, Taconic Site, NYSDEC Site No. 442047*. April.

USEPA. 2018. *Exposure Factors Handbook Chapter 9. Intake of Fruits and Vegetables*. August.

VTDEC. 2016. Lab Results from Maple Syrup Testing Analysis. https://dec.vermont.gov/sites/dec/files/co/pfoa/documents/Maple.syrup_.results.N.Benn_.pdf

FIGURES



Elevation Contours (20 foot intervals)

0 1,500 3,000 6,000 Feet

FIGURE 1

TACONIC
Finding a better way

SITE LOCATION

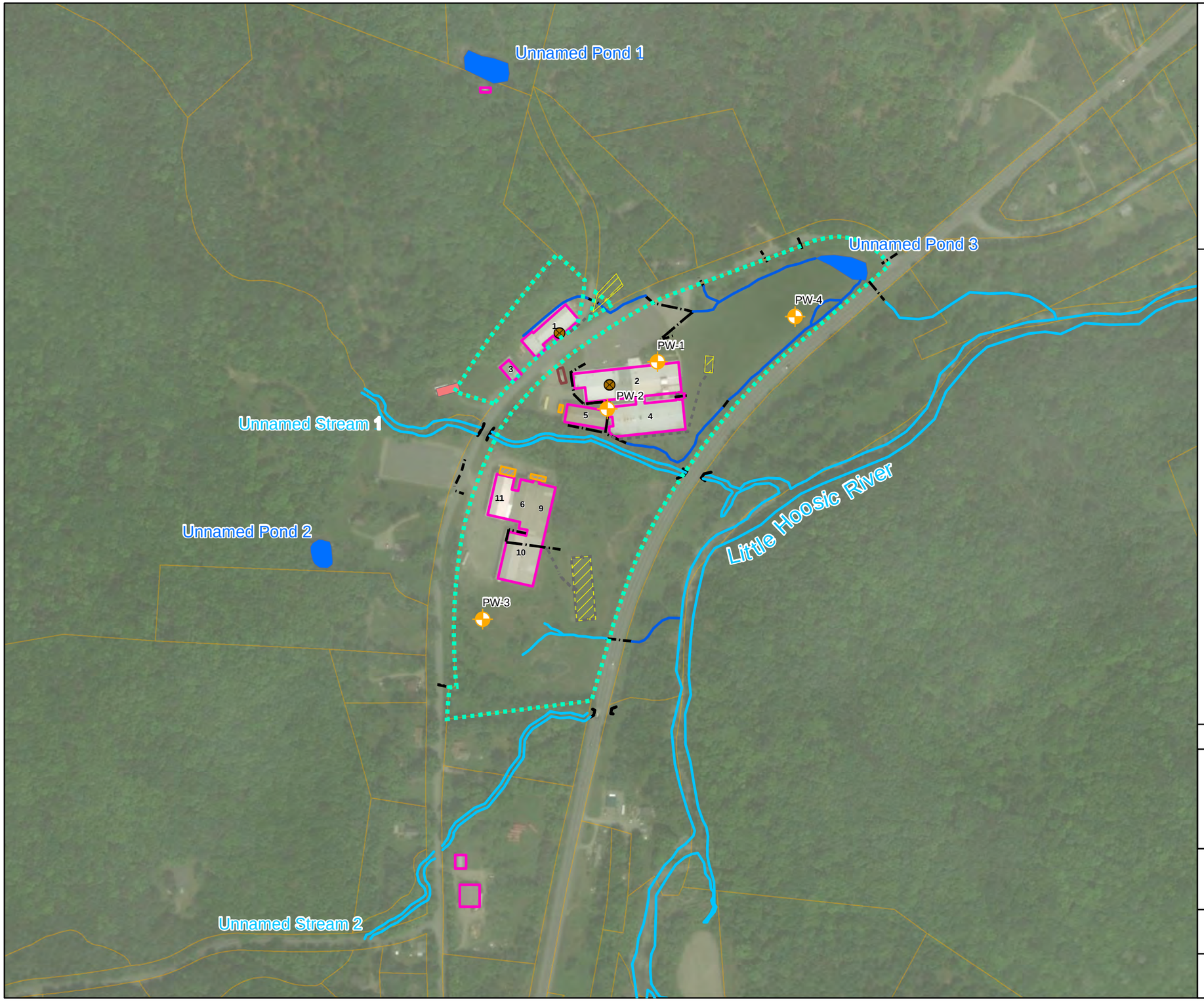
PHASE 2 REMEDIAL INVESTIGATION

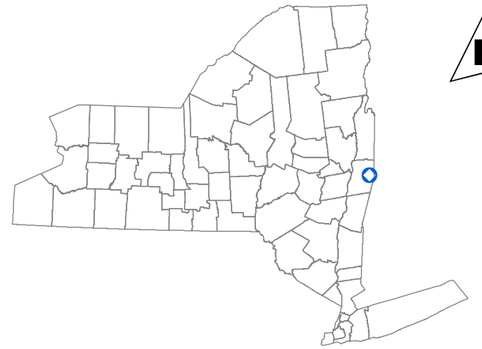
PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plotted By: Sisson, Evan

Plot Date: 7/9/2020

Document Path: E:\C Drive\p005664b\Taconic\MXDs\Taconic Site Location.mxd





Production Well Location
Inactive Drywell
Site Boundary
Tax Parcel Boundaries
Building Footprint

Utilities

Sanitary Sewer
Storm Ditch
Storm Sewer
Culvert
River Boundaries
Natural Gas Tank
Pond
Leach Field
Fume Eliminators
Sludge Roll-off Storage

0 265 530 1,060
Feet

FIGURE 2

TACONIC
Finding a better way

SITE PLAN, SITE FEATURES

PHASE 2 REMEDIAL INVESTIGATION

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, NY 13212 * 315-451-9560

Plotted By: Sisson, Evan

Plot Date: 7/9/2020

Document Path: E:\C Drive\p005664b\Taconic\MXDs\Taconic Site Plan.mxd

APPENDICES

APPENDIX A QHHEA SCOPE OF WORK

SCOPE OF WORK
QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT
TACONIC 136 COON BROOK ROAD, PETERSBURGH, NY 12138

The following is a scope of work summary for the preparation of a Qualitative Human Health Exposure Assessment (Part 2) for the Taconic facility located at 136 Coon Brook Road, Petersburgh, NY 12138.

The purpose of the Qualitative Human Health Exposure Assessment (QHHEA) Part 2 is to evaluate and document how people might be exposed to site-related contaminants, and to identify and characterize the potentially exposed population(s) now and under the reasonably anticipated future use of the site. The QHHEA will be conducted to meet the requirements of the New York State Department of Environmental Conservation (NYSDEC) – Division of Environmental Remediation DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 3B, dated May 2010.

To evaluate if an exposure pathway exists, the exposure assessment must assess the quality, representativeness and adequacy of the available data. For instance, field data quality, laboratory data quality, and sampling designs need to be appropriate to meet data quality objectives (e.g., detection limits and minimum reporting limits must be appropriate for the evaluation of human exposures).

The scope of work for the QHHEA includes:

- Review of analytical results for surface water, sediment, groundwater, surface and subsurface soils. This will include assessment of the quality, representativeness and adequacy of the available data to ensure it meets data quality objectives and is appropriate for the evaluation of human exposures.

- Exposure assessment evaluation which includes:

    a) A description of the contaminant source(s) including the location of the contaminant release to the environment (any waste disposal area or point of discharge) or if the original source is unknown, the contaminated environmental medium (soil, indoor or outdoor air, biota, water) at the point of exposure;

    b) An explanation of the contaminant release and transport mechanisms to the exposed population;

    c) Identification of reasonably ascertainable potential exposure point(s) where actual or potential human contact with a contaminated medium may occur;

    d) Description(s) of the route(s) of exposure (i.e., ingestion, inhalation, dermal absorption including but not limited to direct contact with soil, potable water exposures, exposures through ingestion of food such as maple syrup, exposures through gardening in impacted soil, exposures via ingestion of livestock exposed to PFAS, ingestion of fish and exposures via swimming);

    e) A characterization of the receptor populations who may be exposed to contaminants at a point of exposure; and

f) A qualitative review of the effectiveness of on-going Interim Remedial Measures (i.e. public water treatment, residential POET systems, and residential water monitoring programs) in mitigating human exposures.

All documentation and results of a QHHEA Part 2 including a summary table as described in Appendix 3B will be submitted to the NYSDEC for review and comment.

1.0 SITE DESCRIPTION

The Taconic Plastics Facility comprises approximately 23.54 acres of property in a rural area, at the at the northernmost intersection of Coonbrook Road and State Route 22. The majority of the Site consists of developed area including buildings, paved surfaces, and stormwater management facilities. Non-developed portions of the Site consist of mowed lawn, ornamental landscaping, planted drainage swales, and woodlands. Site structures include the main manufacturing building, the attached administration building, and several other buildings for various operations.

Taconic manufactures polytetrafluoroethylene (PTFE) coated fabrics at this facility. The Site features nine structures related to manufacturing and three parking lots. The Site is currently an operating manufacturing facility.

The Site is bounded to the south by forested lands and residential lots, to the east by Route 22, to the west by Russell Road and Toad Point Road with extensive forested landscapes, and to the north by agricultural and forested lands. The Site is located in an area zoned for industrial use in the Town of Petersburgh. The area surrounding the Site is generally characterized as undeveloped.

The Site lies within the New England Uplands Physiographic Province of New York State (National Park Service, 2021). The New England Uplands Province extends north into Canada and is flanked by the Piedmont Plains to the south. The terrain is characterized by plateaus and narrow valleys. The Site itself is located on the west side of the Little Hoosic River Valley. The Little Hoosic River is abutted by the Taconic mountains to the east and by an upland area that raises up to Grafton Lakes and Graton State Park to the west. The Little Hoosic flows north before discharging to the Hoosic River, which flows north then west before its confluence with the Hudson River just north of Mecanicville.

Stormwater runoff from the Site is directed into a series of storm drains that collect in a series of catch basins before being conveyed via storm sewers to on-site ditches and swales. Stormwater for buildings 1 thru 5 is conveyed to an Unnamed Pond 3 off the Site, and then under Route 22 to the Little Hoosic River. Stormwater from paved areas of the complex associated with Buildings 6, 9, 10, and 11 are collected in catch basins and conveyed through storm sewers which discharge to a low-lying wetland area east of Building 10. The parking lot north of Coon Brook Road and the low-lying wetland area south of Building 10 drain through an Unnamed Stream and culvert under Route 22 to the Little Hoosic River. During heavy rain events, a minor component of stormwater overland flow discharges directly to Unnamed Stream 1.

2.0 CONCEPTUAL SITE MODEL

The analytical data presented in the Interim Investigation Deliverable report prepared by Parsons in February 2020 was reviewed to evaluate appropriate potential human exposure pathways for this Site. A preliminary Conceptual Site Model is presented in the Parsons report. Based on the surface water, sediment, groundwater including groundwater collected from production wells and residential wells, surface soil, and subsurface soil data collected from the Site and areas potentially downgradient of the Site, Table 1, the Exposure Assessment Summary was prepared. This table lists potential human receptors and exposure pathways those receptors may have in relation to exposure to Site media. The table highlights existing data and areas where data may need to be collected in the future. This table provides an overview of the current and potential exposures for the specific site that will be the basis of the Quantitative Human Health Exposure Assessment.

Table 1
Exposure Assessment Summary
Taconic
136 Coon Brook Road
Petersburgh, New York

Environmental Media & Exposure Route	Human Receptor	Exposure Assessment
Potential Human Exposures		
Surface soils		
Direct contact/incidental ingestion, infalation of fugitive dust - surface soils	Employee Trespasser/On-Site Visitor Landscaper	Human receptors may be exposed to constituents detected in surface soil including PFAS. Additional potential exposures to VOCs, SVOCs, pesticides, PCBs, and metals may be included if they are determined to be constituents of potential concern (COPCs). COPCs in each media will be determined based on concentration, frequency of detection, distribution, and comparison to background concentrations.
Direct contact/incidental ingestion, inhalation of fugitive dust - surface and subsurface soils	Construction/Utility Worker	Human receptors may be exposed to constituents detected in surface soil including PFAS. Additional potential exposures to VOCs, SVOCs, pesticides, PCBs, and metals may be included if they are determined to be constituents of potential concern (COPCs). COPCs in each media will be determined based on concentration, frequency of detection, distribution, and comparison to background concentrations.
Groundwater		
Ingestion of groundwater Dermal contact, inhalation in shower scenario	Local residents	Human receptors may be exposed to constituents detected in residential drinking water wells including PFAS and metals.
Direct contact groundwater	Employees	Human receptors may be exposed to constituents detected in production well groundwater including PFAS and metals.
Direct contact groundwater	Construction/Utility Worker	Human receptors may be exposed to constituents detected in shallow groundwater including PFAS and metals.
Indoor Air/Soil Gas		
Inhalation of indoor air	Employees	Indoor air is not considered a media of concern at this time.
Surface Water/Sediment		
Direct contact/incidential ingestion surface water while wading/swimming	Local residents	Human receptors may be exposed to constituents detected in surface water including PFAS in streams, ponds, and Little Hoosic River.
Direct contact/incidential ingestion sediment while wading/swimming	Local residents	Human receptors may be exposed to constituents detected in sediment including PFAS in streams, ponds, and Little Hoosic River. Additional COPCs may include VOCs, SVOCs, pesticides, and metals to be determined based on concentration, frequency of detection, distribution, and comparison to background concentrations.
Other media		
Ingestion of maple syrup	Local residents	Potential exposures to PFAS in maple syrup will be discussed qualitatively based on existing studies of maple syrup performed in Vermont and New York.
Gardening Ingestion of produce, direct contact with soil	Local residents	Further review of this pathway is recommended to determine if soil and/or groundwater used for watering in local farms and gardens have been affected by the Site If PFAS is in garden soil, potential concentrations in vegetables can be estimated or vegetables can be collected and analyzed.
Ingestion of live stock/chickens/milk	Local residents	Further review of this pathway is recommended to determine if soil/groundwater in local farms have been affected by the Site, collection of local meat and/or milk and analysis of tissue/milk is a possible way to determine if livestock have been affected.
Ingestion of fish	Local residents	Existing DEC data may be used to evaluate this pathway. Collection of local fish and analysis of fish tissue for PFAS may be recommended in the future if fish of edible size are in streams, ponds, and/or Little Hoosic River.