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NYS Brownfield Clean Program

Alternatives Analysis Report

5 Scobie Drive
City of Newburgh
Orange County, New York
BCP No. C336085

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CERTIFICATION
5 SCOBIE DRIVE, NEWBURGH, NEW YORK
ALTERNATIVES ANALYSIS REPORT

I, Rosaura Andújar-McNeil, P.E., certify that I am a NYS registered professional engineer and that this Alternative Analysis Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) dated May 3, 2010.

097844	3/22/2024	
NYS Professional Engineer #	Date	Signature

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ALTERNATIVES ANALYSIS REPORT
5 SCOBIE DRIVE, NEWBURGH, NEW YORK

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1.0 INTRODUCTION

1.1 Purpose and Organization

The purpose of this Alternatives Analysis Report (AAR) is to present site-specific remediation alternatives based on the findings and conclusions of the Draft Remedial Investigation (RI) Report and the Draft Supplemental Per- and Polyfluoroalkyl Substances (PFAS) Investigation Report (Supplemental PFAS Report) for the 5 Scobie Drive Site (the Site) Brownfield Cleanup Program (BCP) project, prepared by C.T. Male Associates Engineering, Surveying, Architecture & Landscape Architecture, D.P.C. (C.T. Male), dated December 2014 and November 2020, respectively. The Site location is identified on Figure 1.

The overall goal of the AAR is to develop and evaluate feasible remedial action(s) to achieve compliance with established regulatory clean up guidance levels and/or to protect human health and the environment from contaminated media present at the subject Site. The AAR is the technical support document for development of the proposed Remedial Action Work Plan (RAWP) and the New York State Department of Environmental Conservation's (NYSDEC or Department) Decision Document to be prepared for the Site.

The Site is currently a Brownfield Cleanup Program (BCP) site (BCP ID No. C336085). In March of 2023 the BCA was been amended to add the future Site owners/developers, Scobie Industrial Partners, LLC (SIP) as an additional Volunteer, and to reduce the area of the Site subject to the BCA to 15.24 acres. The Site is anticipated to be redeveloped for commercial purposes which will include construction of a 100,000 plus square foot facility including ancillary parking, roads, lighting, and utilities (water, sewer, gas and electric) to service the proposed building. The intended reuse of the property is consistent with local zoning for the property.

This AAR is organized and prepared in accordance with the DEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010. The AAR consists of four (4) sections:

- Section 1 is an introduction which presents the purpose of the project and background information including a Site description, Site history, historical contaminants of concern, nature and extent of Site contamination, and the contaminant fate and transport. Human and ecological exposure pathways are also discussed in this section.

- Section 2 identifies remedial action objectives, general response actions and remedial alternatives available for addressing the on-site contamination and their objectives.
- Section 3 presents an individual and comparative analysis of each of the alternatives discussed within the report.
- Section 4 presents a detailed analysis of the selected alternative.

The proposed remedy for the Site will pursue 6 NYCRR Part 375 Track 4 Soil Cleanup Objectives (SCOs). Track 4 SCOs consists of restricted use with site-specific SCOs. Site-specific SCOs are anticipated to be SCOs for Restricted Commercial Use. The selection of Track 4 SCOs is consistent with the Site's historical use as a landfill and its proximity to residential and commercial properties in an area that is currently zoned for industrial and commercial redevelopment in the City of Newburgh, New York.

1.2 Project Background

C.T. Male was retained by Scobie Industrial Partners, LLC to complete the AAR in accordance with the NYSDEC's May 2010 Final DER-10 Technical Guidance for Site Investigation and Remediation (DER-10) and based upon the results set forth in the RI Report and Supplemental PFAS Report. DER-10 sets forth the administrative and technical requirements for the completion of Site investigation and/or Site remediation.

The following project tasks for the Site were completed as follows:

- A NYSDEC Approved Remedial Investigation Work Plan (RIWP) was developed to provide overall Site Characterization.

- An RI was conducted to define the nature and extent of the impacts at the Site. The RI Report describes the investigations conducted at the Site for evaluating the nature and extent of contamination in surface soil, subsurface soil, sediment and groundwater. The target goals of the RI were to identify contaminants of concern, evaluate the horizontal and vertical extent of such contamination, and to produce data of sufficient quantity and quality to support the development and analyses of remedial alternatives. Relevant excerpts of RI Report prepared by C.T. Male are provided as Exhibit 1. The complete RI Report is available under separate cover.

- A Supplemental PFAS Report to evaluate PFAS impacts to soil and groundwater associated with the Site in November 2020. The report associated with this supplemental investigation was prepared by C.T. Male is provided as Exhibit 2.

- An Alternatives Analysis (this report) was prepared, incorporating the findings of the RI and supplemental PFAS investigation and the intended future use of the property.

- A Remedial Action Work Plan (RAWP) will be developed defining how the proposed remedy for the Site shall be implemented and what long-term maintenance and monitoring requirements will be required to achieve protection of human health and the environment.

1.2.1 Site Description

The subject Site is located at 5 Scobie Drive in the City of Newburgh, Orange County, New York. The Site consists of one (1) tax parcel (S.B.L. 1-1-6) and is approximately 15 acres in size. The Site is located to the northeast of the former DuPont-Stauffer Chemical Manufacturing site and the City Department of Public Works (DPW) facility, west of Scobie Drive and two (2) ongoing commercial enterprises, and south of Interstate I-84 (Figure 1). The Site is entered from Scobie Drive. Access to the Site by vehicle is restricted by the absence of a stabilized entrance. Heavy equipment trails were created to facilitate investigation tasks under the RI. The Site area topography is generally slopes to the north with some flatter spots with a slight downward grade to the north and east.

The Site is currently vacant and had historically been used as a landfill. Buildings are not present within the Site. The Site is currently overgrown. Stockpiles and scattered junkyard type objects (i.e., empty containers, tanks, empty drums, car parts, televisions, refrigerator carcasses, etc.) are present on the southern portion of the Site, adjacent to the City-owned DPW site. Some of the debris may be a result of "convenience dumping." A pile of wood chips located in the southeastern portion of the Site was generated during previous Site clearing activities.

No utilities are currently present on-site. However, the region is serviced with electricity and natural gas from Central Hudson Gas and Electric, and municipal water and sewer.

A shallow drainage ditch that appears to be manmade exists along the northern boundary of the Site. Federal wetlands are located along the drainage ditch and on the northern edge of the Site. The drainage swale on the northeastern side of the Site drains generally east to west-northwest into the wetlands on the northern edge of the Site. The drainage swale collects water from the adjacent commercial facilities located to the north and east of the property and from a portion of the residential development located on the east side of 5 Scobie Drive. The water course observed in the wetland flows east to west and is partially located along the northern Site boundary, existing between the Site and Interstate I-84. The water eventually flows into the Gidneytown Creek, located approximately 1,000 feet west of the wetlands to the north and west of the Site.

The Boundary and Topographic Survey Map is presented as Figure 2.

1.2.2 Site History

Between approximately 1948 and 1962, portions of the Site were used by the City of Newburgh as part of a much larger municipal landfill. All waste disposal activity on the Site ceased in 1962 when the NYSDOT took this parcel for the potential construction of an off ramp from Interstate I-84. The NYSDOT decided not to use this parcel as a possible on/off ramp for Interstate I-84 and the parcel was given back to the City of Newburgh Industrial Development Agency (NIDA) in 1984. The City IDA is the current owner of the parcel and the BCP Volunteer.

Historical evidence indicates that the Site had accepted waste from the nearby Former Creek Industrial Park and accepted incinerator ash from the former City-owned incinerator that was located on Pierces Road. Anecdotal evidence indicates that landfilling in this portion of the Site may have occurred by excavating trenches, backfilling the trenches with debris, and then covering the debris with the excavated material. The trenches also received waste from the residents of Newburgh, and at that time there was neither monitoring of nor restrictions on what could be disposed at this location.

1.2.3 Previous Investigations

Contaminants have been detected at the Site during several previous investigations prior to the RI, and suspect contamination is inferred based on the historic operation of the property and the findings of investigations performed on adjacent properties. A brief chronological summary of the on- and off-site investigations is provided below:

- 1984 Deep Test Pit Investigation, performed by McGoey Hauser and Edsall (MHE); ten (10) test pits were excavated at various locations across the Site for the City of Newburgh IDA around the time of purchase. Petroleum odors and waste material were observed at multiple locations. A test pit location map could not be located for this report.
- 1988, Final Draft Inspection Report, Newburgh Landfill, prepared by NUS Corporation. The inspection identified a 30-acre site, which suggests that it also included the City's DPW property. Samples were obtained during the inspection, and heavy metals, polychlorinated biphenyls (PCBs) and petroleum compounds were detected.
- 2002, Report for the Characterization of Drums, City of Newburgh DPW Landfill, prepared by First Environment. This investigation identified 430 containers on the City-owned property and 26 containers on the 5 Scobie Drive Site. Testing of the drum contents indicated the presence of hazardous waste on the City-owned property.
- 2004, Supplemental Remedial Investigation Report, DuPont-Stauffer Landfill, prepared by the Corporate Remediation Group. Soil and groundwater samples obtained during this investigation contained solvents, heavy metals, PCBs and polycyclic aromatic hydrocarbons (PAHs).
- 2004, Phase I Environmental Site Assessment (ESA), Vacant Parcel, 7-13 Scobie Drive (now 5 Scobie Drive), Newburgh, New York, prepared by HRP Associates. The Phase I ESA recommended additional investigation to confirm the absence or presence of hazardous waste based on the results of previous investigations on adjacent properties.
- 2008, Drum Characterization Report, Newburgh DPW Landfill, prepared by Camp Dresser and McKee (CDM). Soil borings installed on the City IDA property detected heavy metals contamination.
- 2011, Drum Cache Area Operating Plan, prepared by O'Brien and Gere for DuPont-Stauffer. The plan described the process for removing drums and

hazardous waste from the DPW site, which was completed in 2012. Hazardous waste was identified on the DPW property, and PAH and metals contamination were identified on the 5 Scobie Drive property.

- April 2013, Drum Cache Area Removal Action, The City of Newburgh/Newburgh City Landfill Superfund Site (CERCLIS ID #NYD980534846) Newburgh, New York, Site Number 3-36-063, prepared by Obrien and Gere. A portion of this removal action occurred on the 5 Scobie Drive Site. No drums were encountered at the Site. PAHs and metal contamination was documented.

The available information indicates that the 5 Scobie Drive Site was formerly part of a solid waste landfill operated by the City until the 1960's, when the property was taken by the NYSDOT for an off ramp connecting Route 9W to I-84. NYSDOT conveyed the property to the City IDA in 1984 and a test pit investigation performed in 1984 detected a substantial volume of what is referred to as "garbage".

In 1988, NUS Corporation (NUS) conducted a Site Inspection of the City of Newburgh Landfill for the USEPA. The findings are documented in a report entitled "A Final Draft Inspection Report prepared for the USEPA by NUS Corporation, 1988" which describes the inspection of a 30-acre municipal landfill site in Newburgh New York. Available mapping in that report indicates that the landfill included the current Newburgh Department of Public Works (DPW) site and all or significant portions of 5 Scobie Drive property. The NUS report indicated that the Newburgh Landfill operated from the 1940s to 1976 and may have accepted sludge and other waste products from the adjacent DuPont and Stauffer Chemical companies. During NUS's site inspection, surface soil staining was observed on the northeast edge of the landfill. NUS identified drums on the City IDA parcel. Samples were also obtained during the site inspection and the results indicated hazardous substances and petroleum at elevated levels at multiple locations. Sampling was primarily confined to the DPW parcels.

In 2002, the City commissioned a drum characterization study at its DPW site. The report entitled "Report for Characterization of Drums, City of Newburgh DPW Landfill, Pierces Road, Newburgh, New York", prepared by First Environment, indicated that approximately 26 drums containing unknown waste materials were located on the City IDA's 5 Scobie Drive property. Elevated photo-ionization detector (PID) readings were noted in some of the drums. In addition, a petroleum storage tank was observed on the City IDA property.

The DPW site was listed on the NYSDEC's list of Inactive Hazardous Waste Sites (Site #338036) as a "P" site. The P-site designation is given to sites where preliminary information indicates that contamination may be present at levels which may make it eligible for placement on the Registry of Inactive Hazardous Waste Disposal Sites. This designation prompted the NYSDEC driven Site Characterization activities. In 2008, CDM, a NYSDEC contractor, conducted an investigation of the drum storage area at the City's DPW site. Test pits and soil borings installed on and adjacent to the IDA's Scobie Drive parcel identified hazardous substances and petroleum. Hazardous wastes were identified on the DPW property.

In 2012 and 2013, Obrien and Gere, on behalf of Bayer Crop Science and DuPont-Stauffer, under an Order on Consent with the United States Environmental Protection Agency (USEPA), removed drums and other impacted material from the drum cache area in the City-owned DPW site by DuPont –Stauffer. A portion of the drum removal area (~0.5 acres) extended onto the 5 Scobie Drive parcel. Surface soils and debris and crushed drums were removed from this 0.5-acre portion of the Site. No evidence of hazardous waste was encountered on the 5 Scobie Drive Site during this action and the scope of work was modified to include a less intensive cover system due to the absence of impacts and to the shallow bedrock at the property. The drum removal action was not performed as part of the investigative work performed by the Department.

1.2.4 Emergent Contaminants Investigation

Following the completion of the RI Report in 2014, which is described in subsequent sections of this report, NSYDEC requested additional investigative work to assess the presence of emerging contaminants (ECs) at the Site. The following documents were prepared by C.T. Male documenting additional investigations.

- May 3, 2019, Emerging Contaminants Sampling Report, and
- November 13, 2020, Supplemental PFAS Investigation Report.

C.T. Male sampled three (3) monitoring wells at the Site for emerging contaminants 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS) compounds as part of the 2019 ECs investigation. 1,4-dioxane was detected above EPA and NYSDEC recommended concentrations at the time of sampling (1.0 parts per billion [ppb]) in MW-05 and CTM-MW-2. PFAS compounds were detected in all monitoring wells sampled at concentrations exceeding the USEPA's recommended Health Advisory Level (HAL) concentrations at the time of sampling (70 parts per trillion [ppt]).

Other PFAS compounds were also detected in concentrations that exceed the NYSDOH proposed Maximum Contaminant Limit (MCL) for drinking water resources and the NYSDEC recommended value of 10 ppt (ng/L). The report concluded that there were elevated levels of 1,4-Dioxane and PFAS in the groundwater at the Site. The source(s) of PFAS contamination were unknown. It was noted that the highest concentrations of contaminants were detected near the southern property boundary and upgradient with respect to groundwater flow.

Following the 2019 ECs investigation, supplemental PFAS data was collected in 2020 to further evaluate the extent and source of PFAS contamination at the request of NYSDEC. Representative shallow soil, waste characterization, groundwater, and surface water samples were collected, and Synthetic Precipitation Leaching Procedure (SPLP) was performed on the waste characterization samples.

PFAS was detected in surface water at concentrations ranging from 36.7 ppt to 174 ppt (guidance level 10 ppt). Groundwater sampling results detected total PFOS/PFOA concentrations ranging from 52 ng/l to 299 ng/l (guidance level 10 ng/L).

The waste characterization samples analyzed using SPLP method detected PFAS at concentrations ranging from 4.07 ng/l to 529 ng/l. There are no standards for SPLP PFAS.

With regards to PFAS concentrations in soils, it is noted that there are currently only Soil Cleanup Objectives (SCOs) for PFOA and PFOS. Commercial Use SCOs for PFOA and PFOS are 500 ppb and 600 ppb, respectively. Total PFOS/PFOA concentrations was documented in surface soils ranging from 1.94 ppb to 3.06 ppb, below the Commercial Use SCOs.

Based on the data collected in 2019 and 2020, the 2020 PFAS investigation report concluded that impacts to the groundwater derives primarily from off-site source(s) and that the Site is not a significant source of PFAS in the groundwater underlying the Site.

While there appears to be PFAS impacts associated with the historic use of the Site, upgradient groundwater data suggests that the site may be receiving contaminated groundwater from the adjacent Newburgh City Landfill.

The Supplemental PFAS Report, incorporating the 2019 Emerging Contaminants investigation, is provided as Exhibit 2.

1.2.5 Contaminants of Concern - Previous Investigations

The Site has historically been used as a municipal landfill, reportedly accepting waste from local residents and industries. The Site was also reportedly used for ash disposal. Ash was observed in test pits excavated in the northwestern portion of the Site along with other miscellaneous debris (ash, jars, glass, motor oil cans, tires, bricks, plastic, battery cases, etc.). Surface debris is present throughout the Site and on-going convenience dumping is likely to be occurring.

Limited laboratory analytical results from previous environmental investigations show elevated levels of semi-volatile organic compounds and metals in the central portions the Site, although these constituents were not detected at levels exceeding the criteria for classification as hazardous.

2.0 SUMMARY OF RI FINDINGS

The RI involved the collection and analysis of surface soil samples; the advancement of test pits and test borings for the collection and analysis of soil samples and to evaluate the Site's subsurface conditions; the installation of monitoring wells for the collection and analysis of groundwater samples, a leachate assessment, a fish and wildlife assessment and the collection of surface water and sediment samples.

The 2019 and 2020 supplemental PFAS investigations included the collection and laboratory analysis of surface water, shallow soil, and groundwater samples. Additionally, test pits were excavated to expose the soils and waste mass and to collect samples for laboratory analysis. Results for the PFAS investigation are presented in conjunction with RI findings.

2.1 Physical Characteristics of the Subject Site

The overburden generally consisted of loosely packed soils consisting primarily of sand, with varying percentages of silt, clay and gravel and including anthropogenically derived materials such as ash, broken glass, metal, ceramic debris and plastic, vinyl, wood, and paper products. Tires and other typical municipal solid waste were observed in the upper soil horizon.

Bedrock consists of limestone or dolomite and was encountered in test pits and in rock cores obtained on the western portion of the Site. The rock was weathered in the upper few feet grading to more competent bedrock at around five (5) feet below the surface of the bedrock.

Water table was encountered at depths ranging from more than 19 feet below ground surface (bgs) on the southern portion of the Site to less than four (4) feet bgs in the wells installed on the north side of the Site. Groundwater flows from south to north and discharges to the drainage channel along the northern edge of the Site.

2.1.1 Nature and Extent of Contamination

The primary contaminants of concern at the Site are SVOCs and metals in surface and subsurface soils, groundwater, surface water and sediments. One (1) pesticide (Dieldrin) and PCBs were encountered in sediment sample SED-02 and groundwater sample CTM-

MW-4 obtained in the northwest quadrant of the Site. Furthermore, the PFAS investigations documented the presence of PFAS in groundwater.

2.2 Summary of Extent of Contamination

Analytical results for sampled surface and subsurface soils, groundwater, surface water, and sediment were compared to the site-specific SCOs/SCGs. The following Table 2.2-1 lists those compounds and analytes that exceeded site-specific SCGs for Commercial Use sites along with the frequency that the applicable SCG was exceeded per analyzed media.

TABLE 2.2-1: COMPOUNDS AND ANALYTES EXCEEDING SCGs PER MEDIA TYPE

Media	Class	Contaminant of Concern	Concentration Range Above SCG	Frequency Exceeding Standard	Applicable SCG
Surface Soils (1) (mg/kg or ppm)	SVOCs	Benzo(a)anthracene	6.3	1 of 10	5.6(2)
		Benzo(a)pyrene	2.1–5.8	4 of 10	1(2)
		Benzo(b)fluoranthene	8	1 of 10	5.6(2)
		Dibenzo(a,h)anthracene	0.94	1 of 10	0.56(2)
	Metals	Arsenic, Total	18-21	3 of 10	16(2)
		Barium, Total	400	1 of 10	400(2)
Subsurface Soils (1) (mg/kg or ppm)	SVOCs	Benzo(a)pyrene	1.7-5.4	5 of 20	1(2)
		Benzo(b)fluoranthene	7.7	1 of 20	5.6(2)
		Dibenzo(a,h)anthracene	0.64-1.2	3 of 20	0.56(2)
	Metals	Arsenic, Total	23-54	2 of 20	16(2)
		Barium, Total	470-1,200	6 of 20	400(2)
		Copper, Total	480-850	3 of 20	270(2)
		Lead, Total	1,200-13,000	5 of 20	1,000(2)
		Mercury, Total	3.2-32	5 of 20	2.8(2)
Groundwater (3) (ug/L or ppb, with exception of PFOA and PFOS(4) ng/L or ppt)	Anions	Bromide	329-5760	1 of 10	2,000
		Chloride	20,700-413,000	3 of 10	250,000
	PCBs	Aroclor 1242	0.659	1 of 10	0.09
		Aroclor 1254	0.248	1 of 10	0.09
	SVOCs	1,4-Dichlorobenzene	1-7.6	1 of 10	3
		Bis(2-Ethylhexyl)phthalate)	8.4	1 of 10	5
		Naphthalene	0.08-39	1 of 10	10
		Benzo(a)anthracene	0.17	1 of 10	0.002
		Benzo(a)pyrene	0.1	1 of 10	Non Detect
		Benzo(b)fluoranthene	0.12	1 of 10	0.002
		Chrysene	0.16	1 of 10	0.002

TABLE 2.2-1: COMPOUNDS AND ANALYTES EXCEEDING SCGs PER MEDIA TYPE					
Media	**Class**	**Contaminant of Concern**	**Concentration Range Above SCG**	**Frequency Exceeding Standard**	**Applicable SCG**
	Emergent Contaminants	1,4 Dioxane	1.87-10.2	3 of 3	0.35
		PFOA	21.8-374	8 of 8	6.7(4)
		PFOS	18.3-207	8 of 8	2.7(4)
	Metals	Arsenic	29.81	1 of 10	25
		Antimony	0.42-4.29	2 of 10	3
		Boron	196-2,360	2 of 10	1,000
		Iron	3,810-48,700	10 of 10	300
		Lead	0.61-34.64	1 of 10	25
		Magnesium	33,700-73,800	9 of 10	25
		Manganese	273.6-1531	8 of 10	300
		Sodium	25,400-299,000	10 of 10	20,000
	VOCs(3)(4)	Chlorobenzene	0.73-70	5 of 10	5
		Benzene	1-9	4 of 10	1
		1,4-Dichlorobenzene	2.2-12	4 of 10	3
		Naphthalene	47	1 of 10	10
Surface Water (3) (ug/L or ppb, with exception of PFAS ng/L or ppt)	SVOCs	Benzo(a)pyrene	2.4	1 of 4	0.002
		Benzo(b)fluoranthene	0.48-3.5	2 of 4	0.002
		Chrysene	0.26-2	2 of 4	0.002
	Metals	Aluminum, Total	12.1-4,000	2 of 4	100
		Antimony, Total	2.32-36.19	3 of 4	3
		Cobalt, Total	0.93-13.18	1 of 4	5
		Iron, Total	4,030-74,900	4 of 4	300
		Magnesium, Total	29,100-43,100	1 of 4	35,000
		Manganese, Total	760.8-7,514	4 of 4	300
		Vanadium, Total	0.29-22.09	2 of 4	14
Sediment (6) (mg/kg or ppm)	Metals	Arsenic, Total	12-34	2of 4	>33(6)
		Silver, Total	0.82–4.3	1 of 4	>2.2(6)
		Zinc, Total	120-800	1 of 4	>460(6)

Table Notes:

(1) NYSDEC 6 NYCRR Part 375 Environmental Remediation Programs, Subpart 375-6 Commercial Use Soil Cleanup Objectives for soils.

(2) Applicable SCGs shown as Commercial Use SCOs. Frequency exceeding standard as compared to Commercial SCOs only.

(3) NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Effluent Limitations, June 1998 for groundwater and surface water.
(4) NYSDEC Sampling, Analysis, and Assessment of Per and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, November 2022.
(5) Total groundwater samples collected in the 2019 and 2020 PFAS investigations.
(6) NYSDEC Division of Fish, Wildlife and Marine Resources Screening and Assessment of Contaminated Sediment, January 24, 2014; Freshwater Sediment Guidance Values (Table 5 – Class C) and Sediment Guidance Values for PAHs (Table 7).

Refer to Figure 6 – *Surface Soil Parameters Above Commercial Use SCOs* and Figure 8 – *Subsurface Soil Parameters Above Commercial Use SCOs* in Exhibit 3 for sample locations exceeding SCOs. These RIR figures have been updated to depict exceedances above Restricted Commercial SCOs only at the request of NYSDEC in a correspondence dated July 13, 2023.

No soil vapor data was collected as part of the RI. The State of New York does not have any SCGs for volatile chemicals in soil vapors. New York State Department of Health (NYSDOH) utilizes several decision matrices for evaluating the potential for soil vapor intrusion. These decision matrices are presented in the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (GESVI), dated October 2006. Potentially applicable matrix values and/or relatively high concentrations of VOCs will be identified in any future soil vapor data collected for the Site, as deemed necessary by NYSDEC. A vapor intrusion (VI) assessment will be conducted to determine the potential for VI and the need for mitigation measures, if warranted.

2.3 Human Exposure Pathways

Exposure pathways are means by which contaminants move through the environment from a source to a point of contact with humans. A complete exposure pathway must have five (5) parts: 1) a source of contamination; 2) a mechanism for transport of a substance from the source to the air, surface water, sediment groundwater and/or soil; 3) a point where people come in contact with contaminated air, surface water, sediment, groundwater or soil (point of exposure); 4) a route of entry (exposure) into the body; and 5) a receptor population. Routes of entry include ingesting contaminated materials, breathing contaminated air, or absorbing contaminants through the skin. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and can reasonably be anticipated to never exist in the future. In some cases, although a pathway is complete, the likelihood that significant exposure will occur is small.

The potential Site related contaminants in soil are identified as heavy metals and SVOCs.

Potential exposure pathways for Site contaminants are a function of the contaminant, the affected media, contaminant location and the potentially impacted population. The potential exposure routes and pathways for the Site include inhalation, dermal contact and/or ingestion of contaminated soil on-site; dermal contact and/or ingestion of contaminated groundwater on-site.

The potential impacted populations at the Site and vicinity include residents in the neighboring community, Site visitors and trespassers on the Site, and workers who may be engaged in work that would disturb the soils and groundwater.

The potential for exposure to contaminants in existing undisturbed near-surface soils is considered to be moderate as the contaminants are somewhat accessible to the public. In the event that the Site's soils are disturbed during future Site development activities, the potential for inhalation, dermal contact and/or ingestion of contaminated soils would be viewed as moderate to high.

The ash material is impacted with heavy metals and SVOCs. The potential for exposure to undisturbed ash is considered low, as the soils are generally inaccessible to the public; however, should the Site be disturbed, the potential for inhalation, dermal contact and/or ingestion of contaminated soils would be viewed as high.

Groundwater is impacted by petroleum related VOCs, metals, PFAS and to a much lesser degree SVOCs and PCBs. These compounds may be naturally occurring (metals only) or may be directly related to the Site's previous use as an ash landfill. PFAS has been identified in upgradient groundwater. The Site and vicinity are served by public water provided by the City of Newburgh, therefore the potential for exposure via ingestion is low. Site workers may encounter contaminated groundwater during Site remediation/development activities. As such, the potential for ingestion of contaminated groundwater, and for dermal contact of contaminated groundwater by future Site workers and occupants and the surrounding community, is considered to be low to moderate.

2.4 Ecological Exposure Pathways

Based on the completion of a Fish and Wildlife Impact Analysis as part of the RI, the value of the fish and wildlife resources located within the study area is considered low, as the Site and its vicinity are significantly reworked and urbanized. Buildings and residential areas have eliminated much of the natural habitat in the vicinity of the project Site and have replaced it with paved roads and urban building exterior areas. Overall, many of the cover types in the study area have already been heavily influenced by human activities.

The value of the fish and wildlife resources to humans is very limited within the project Site. As a result, the value of these resources to humans is determined to be low.

3.0 DEVELOPMENT OF ALTERNATIVES

3.1 Introduction

The RI and subsequent ECs investigations included intrusive and non-intrusive investigations to determine the nature and extent of COCs within near-surface soils, subsurface soils, groundwater, surface water and sediment. The results of the RI and subsequent ECs investigations were used to develop and evaluate the remedial alternatives described within this report.

Feasible remedial action(s) are identified to achieve compliance with established regulatory cleanup guidance levels, sediment guidance values and/or to protect human health and the environment. The remedial alternatives for the Site are developed based on published literature and current knowledge of the technologies commonly employed in similar situations and circumstances. The remedial action objectives, general response actions, and development of remedial alternatives are presented in the following sections.

3.2 Remedial Action Objectives

Table 3.2-1 summarizes the Contaminants of Concern (COCs) within each medium and the remedial action objectives (RAOs) identified for each medium. Per correspondence received from the Department on August 14, 2023, the main RAOs have been limited to groundwater, soil, and soil vapor. The COCs include compounds and analytes which exceeded their respective SCGs. It is C.T. Male's opinion that with the exception of PFAS documented in the groundwater at the Site, the source of the COCs is the solid waste and ash material deposited on-site. PFAS has been identified in upgradient groundwater.

Potentially affected populations described in Table 3.2-1 include future users of the Site, persons who may be engaged in the future commercial activities at the Site, residents and workers in the nearby commercial buildings and nearby residential neighborhood, Site visitors and trespassers on the Site, and workers who may be engaged in remediation or construction activities during future Site development.

Table 3.2-1: Contaminants of Concern for Site Media and Remedial Action Objectives		
Media Type	**COCs**	**Remedial Action Objective**
Near-Surface and Sub-Surface Soil	SVOCs and Metals	**RAOs for Public Health Protection** Prevent ingestion/direct contact with the contaminated soils, and prevent inhalation of or exposure from contaminants volatilizing from contaminated soil. **RAOs for Environmental Protection** Prevent migration of contaminants that would result in groundwater or surface water contamination.
Groundwater	Metals, PCBs, SVOCs and VOCs (including PFAS compounds)	**RAOs for Public Health Protection** Prevent ingestion of the groundwater containing contaminant levels above drinking water standards, and prevent contact with, or inhalation of, VOCs potentially emanating from contaminated groundwater
Soil Vapor	Unknown	**RAOs for Public Health Protection** Mitigate impacts to public health resulting from existing, or the potential for soil vapor intrusion into the buildings at the Site.

The RAOs are to mitigate, reduce, and if possible, eliminate potential exposure pathways in the various media within the Site, with the ultimate goal of protecting human health and the environment.

In developing RAOs for the subject Site, the following design and development considerations were evaluated relative to economical and feasible solutions for addressing the Site contaminants:

- The Site is being considered for redevelopment for commercial purposes. The proposed use is consistent with local zoning and there are other nearby commercial establishments of similar size and character. The remedial action will significantly reduce if not eliminate potential exposure to COCs by Site visitors and workers should the Site undergo future development activities, as well as by future occupants of buildings constructed on the Site.

- Excavation to pre-disposal conditions would require the removal of a significant amount of solid waste and ash materials and is not feasible or practical. It is not possible to excavate the entire residual source, given its configuration and the local geologic conditions.

- The consequences of the Site remaining undeveloped due to the difficulties of remediating the Site should be taken into consideration.

The Site-specific project Standards, Criteria and Guidance Values (SCGs) are as follows.

- Analytical results for soil samples were compared to 6 NYCRR Part 375 Restricted Commercial Use SCOs.

- Analytical results for groundwater samples were compared to NYSDEC Groundwater Standards and Guidance Values, promulgated in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1.

- Analytical results for soil and groundwater for PFAS were compared to NYSDEC Sampling, Analysis, and Assessment of Per and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (dated November 2022).

The State of New York does not have any SCGs for volatile chemicals in soil vapors. NYSDOH utilizes several decision matrices for evaluating the potential for soil vapor intrusion. These decision matrices are presented in the NYSDOH GESVI. Potentially applicable matrix values and/or relatively high concentrations of VOCs will be identified in any future soil vapor data collected for the Site.

3.3 General Response Actions

The project Site is impacted by varying concentrations of SVOCs and metals in surface and near-surface soils; and metals, SVOCs VOCs, PFAS and PCBs at low levels in groundwater; and metals at low levels in stream sediment. Please note that most of the drainage ditch and surface water body adjacent to the property lie on adjacent land not part of this Site. The general response actions are developed to address Contaminants of Concern (COCs) present within the Site through a site-specific remedial alternative. The General Response Actions will address:

- COCs in soils exceeding SCOs for Commercial Uses;
- COCs in groundwater exceeding SCGs to the extent practical;
- Reduction of the potential for leachate outbreaks to occur; and
- Reduction of the potential for future impacts to surface water and stream sediment quality.

PFAS has been identified in upgradient groundwater. The NYSDEC is currently evaluating PFAS data for adjoining properties and the surrounding area. At this time, response actions will indirectly address PFAS in groundwater exceeding SCGs by reducing the amount of infiltration into the landfill mass (via the surface cover system), thus effectively reducing potential leaching of harmful chemicals into this media.

3.4 Development of Alternatives

The following sections present a selection of remedial alternatives that may be implemented to address the general response actions discussed in the previous section of this report. The alternatives under consideration include:

Alternative No. 1: No Action

- The Site will remain as is with no remediation proposed.
- No excavation or covering of impacted soils will take place.
- No monitoring and/or institutional/engineering controls will be implemented.

Consideration of this alternative is useful as it established a baseline against which other alternatives are compared.

Alternative No. 2: Excavation to Unrestricted Use SCOs

- Sampling (as warranted), management, segregation, and disposal of on-site surface materials (i.e., stumps, brush, incidental C&D materials and debris);
- Excavation and disposal of all waste material and soils exceeding Unrestricted SCOs;
- Excavation and disposal of all native soils impacted by waste disposal;
- Groundwater dewatering and treatment;
- Backfilling all excavations with NYSDEC-approved material;
- Removal of impacted sediment; and,
- Due to the prevalent PFAS contamination in groundwater, attributed to off-site sources, groundwater treatment and/or institutional controls in the form of an environmental easement restricting future groundwater use will be necessary.

Alternative No. 3: Limited Excavation (if warranted), Surface Cover, Institutional and Engineering Controls, and Monitored Natural Attenuation of Groundwater Impacts.

- Characterize soils to be removed for waste disposal purposes (if warranted), specifically the soils in the central portion of the Site with elevated levels of lead and mercury;
- Implement an explosive gas monitoring program beneath the footprint of the proposed building(s);
- Sample (as warranted), manage, segregate, and dispose of on-site surface materials (i.e., stumps, brush, incidental C&D materials and debris);
- Perform limited excavation(s) and dispose (if warranted) and/or relocate soils exceeding hazardous waste threshold or soils that are not suitable for construction purposes to facilitate development;

- Contain and treat or off-site disposal of impacted groundwater encountered during construction that may be generated from dewatering activities;

- Installation of a barrier demarcation layer to define the boundary between clean backfill and contaminated soils;

- Placement of a surface cover system, inclusive of building foundation and slab, pavement, soils meeting applicable SCOs, and impermeable layer in selected areas of exposed soils;

- Install an active sub-slab depressurization system (SSDS) in future on-site buildings;
- Plant suitable native plants as passive/seasonal leachate controls in portions of the Site where leachate breakouts were documented;
- Conduct environmental monitoring to measure the effectiveness of the remedy and use restrictions/limitations to prevent exposure to remaining contaminants; and,
- Establish institutional controls in the form of an environmental easement restricting future land use and groundwater use and requiring periodic inspection of the engineering controls for the Site.

3.4.1 Alternative No. 1: No Action

This alternative assumes that the Site will remain as is and that the potential threats to human health and the environment from the Site will not be addressed, and that no remediation will be performed.

3.4.2 Alternative No. 2: Excavation to Unrestricted Use SCOs

This alternative would involve the excavation and disposal of contaminated and uncontaminated waste material and contaminated soil within and potentially beyond the Site boundaries. Upon completion of the remedy, the excavated areas of the Site would be backfilled with NYSDEC-approved backfill material.

Groundwater remediation would involve extraction and treatment as needed during Site work. Based on the likely soil excavation depths, the impacted groundwater treated would effectively be remediated via extraction and treatment, during construction. There may be a residual component of impacted groundwater, but cleanup would be evaluated via monitored natural attenuation. PFAS contamination is not likely to be addressed with this alternative as PFAS has been identified in upgradient groundwater. Long-term collection of PFAS contaminated groundwater is neither practical nor feasible as it would require collection and treatment of water from an extensive watershed and includes two (2) likely additional sources of PFAS impacts upgradient from the Site (the City Landfill and the Dupont-Stauffer Site). PFAS groundwater treatment would necessitate a treatment plant for the Site and will not fully address groundwater impacts in the region due to off-site sources.

Periodic groundwater sampling would be required for an indeterminate period of time to gauge the effectiveness of the remedial action (e.g., required for a period of five [5] years). Removal of the source (contaminated soils and waste materials) would likely result in groundwater quality improvements.

Approximately 14.5 acres (631,620 square feet) are impacted with contaminated soils and waste material, with an average depth of waste material of approximately 10 feet. This translates into the removal of approximate 234,000 cubic yards of waste material and soil impacted above Unrestricted SCOs. Based on a conversation factor of 1.7 tons per cubic yard, this equates to approximately as much as 397,700 tons of waste, ash and soil requiring removal. Replacement would entail four (4) feet of clean soil across the 14.5-acre removal zone (~93,600 cubic yards of clean fill).

Approximately 2,900,000 gallons of impacted groundwater may be encountered during excavation based on soil porosity of 30% and a saturated thickness of two (2) feet across the Site. This groundwater will need to be evacuated, temporarily stored, treated and disposed of.

The remedial technologies described above for remediation of impacted soils and waste mass and groundwater are common practice but would require significant infrastructure to meet the RAOs for this alternative.

3.4.3 Alternative No. 3: Potential Limited Excavation, Surface Cover, Institutional and Engineering Controls, and Monitored Natural Attenuation of Groundwater Impacts

Prior to initiating construction, a limited removal action would be initiated to address the potential presence of hazardous soils/waste in the central portion of the Site following the characterization of soils for waste disposal purposes. Soils in the central portion of the Site with elevated levels of lead and mercury significantly exceed Commercial SCOs and have the potential to be hazardous. The limits of the potentially hazardous waste would be defined, and a determination made for the need for off-site disposal. If the material is not hazardous waste, with approval of NYSDEC, it may be re-used on-site as fill material, as long as it is suitable for re-use structurally (to be determined by a geotechnical/structural engineer).

Waste material with elevated levels of SPLP for Total PFOA/PFAS is not anticipated to be removed at this time. Additional information is needed to further evaluate the nature and extent of PFAS contamination associated with adjoining properties and surrounding area. Currently NYSDEC is evaluating PFAS data for adjoining properties and surrounding area.

On-site surface materials (i.e., stumps, brush, C&D materials and miscellaneous convenience dumping debris) would be collected, sampled (if warranted), managed, segregated and disposed off-site at a permitted facility following sample collection and testing, as warranted.

Alternative No. 3 provides flexibility in the addressing soils exceeding site-specific SCOs. Soils exceeding site-specific SCOs could either be removed and disposed off-site or be left in place below a demarcation layer and a surface cover system. Hazardous soils and waste, if documented, will be removed and properly disposed at a facility permitted to accept such waste.

Following step one of the process, which is limited excavation and/or soil relocation, depending upon hazardous waste classification, a surface cover system will be placed on the entire Site with exception of the wetland areas (surface cover to extend up to the wetland boundary). The surface cover system will consist of building concrete floor slabs, asphalt pavement, concrete walkways and a 12-inch layer of NYSDEC-approved backfill material meeting applicable SCOs in proposed landscaped areas, and impermeable layer in selected areas of exposed soils. Areas located north of the drainage swale ditch are not likely to be impacted and are likely to meet the site – specific SCOs.

In the event that groundwater is encountered during placement of the cover system or during any Site activity (construction, etc.), the groundwater would be extracted, temporarily stored, treated and disposed of. No long-term groundwater collection and treatment systems are proposed. PFAS contamination is not likely to be addressed with this alternative, as PFAS has been detected in upgradient groundwater. Long-term collection of PFAS contaminated groundwater is neither practical nor feasible as it would require collection and treatment of water from an extensive watershed and includes two (2) likely additional sources of PFAS impacts upgradient from the Site (the Newburgh City Landfill and the Dupont-Stauffer Site). PFAS groundwater treatment would necessitate a treatment plant for the Site and will not fully address groundwater impacts in the region due to off-site sources.

In addition, planting of suitable native plants as passive/seasonal leachate controls along areas in the drainage swale and ditch in the northern portion of the Site is proposed under this alternative. The effectiveness of the passive/seasonal leachate control will be limited by the season. However, it is anticipated that in conjunction with other proposed engineering controls (surface cover system limiting the amount of water infiltration) and institutional controls (restricting site access to the drainage ditch and swales) this measure will provide a measure of leachate control. The focus will be to use plantings such as willow trees that can, through their root system, absorb substantial quantities of groundwater.

In addition to the surface cover system, engineering controls will likely include the installation of the sub-slab depressurization system beneath future on-site buildings. Institutional controls in the form of an environmental easement restricting future land use and groundwater use and requiring periodic inspection of the engineering controls for the Site will be imposed.

The engineering and institutional controls would be incorporated into an environmental easement granted to the NYSDEC, which would then have the authority to enforce the terms of the easement and to notify future owners and/or developers of the restricted use of the property.

Implementation of the Site Management Plan (SMP) would provide specific requirements for future Site development, use and occupation. Long-term monitoring of the Site's groundwater would be conducted periodically for a period of at least five (5) years to gauge the effectiveness of the remedy.

4.0 DETAILED ANALYSIS OF ALTERNATIVES

4.1 Introduction

Each remedial alternative was evaluated based on specific criteria set forth in 6 NYCRR Part 375-1.8(f) and Section 4.2 of DER-10. From this AAR and the RI Report, the NYSDEC will prepare a Decision Document to be available for public review and comment. The NYSDEC will address any issues raised by the public.

The first two evaluation criteria (No. 1 and 2 below) are threshold criteria and must be satisfied in order for an alternative to be considered for evaluation. The next six (6) evaluation criteria (No. 3 to 8 below) are primary balancing criteria which are used to compare the positive and negative aspects of each of the remedial alternatives. After the Decision Document is subject to public comment, the final criterion (No. 9 below) is considered.

1. Overall protection of public health and the environment;
2. Compliance with Standards, Criteria, and Guidance (SCGs);
3. Long-term effectiveness and permanence;
4. Reduction of toxicity, mobility, or volume of contamination through treatment;
5. Short-term impact and effectiveness;
6. Implementability;
7. Cost effectiveness;
8. Land use; and
9. Community acceptance.

Institutional controls are means of attaching restrictions on the property to limit Site activities and future use of the property, and to assure due diligence in notification of prospective purchasers and the public. These restrictions can also include the installation of fencing or other means to limit access to the Site or a particular area of the Site. The Site's current and future land use plays a significant role in selecting the most effective institutional controls. Examples of institutional controls typically include land use and groundwater/drinking water use restrictions, deed restrictions, and notification in public registries of excavation and construction work activity, and appropriate posting of informational signs at the Site. Depending on the severity of contamination, institutional controls could be required along with other feasible remedial alternatives. For the purpose of analyzing the alternatives below, specific examples of institutional controls (as discussed above) are not referenced but would ultimately be selected based on the results of remedial action selected/performed.

Engineering controls means any method employed to actively or passively contain, stabilize, or monitor contamination; to restrict the movement of contamination to ensure the long-term effectiveness of a remedial program; or eliminate potential exposure pathways to contamination. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, and provisions of alternative water supplies via connection to an existing public/private water supply, adding treatment technologies to impacted water supplies, and installing filtration devices on private water supplies.

The following sections examine each of the alternatives in turn as they correlate to the eight (8) evaluation criteria.

4.1.1 Special Considerations

The proposed alternatives do not include active provisions for the remediation of PFAS in the groundwater, as PFAS has been identified in upgradient groundwater.

4.2 Alternative No. 1: No Action.

4.2.1 Overall protection of public health and the environment

Under this alternative, the property would be developed without directly mitigating the environmental issues as there will be no remediation and no institutional and/or engineering controls to protect human health and the environment. Any reduction in the concentration of metals, VOCs and SVOCs would be the result of natural attenuation, dispersion or dilution. Dispersion or dilution could potentially result in additional future groundwater impacts. Risk to human health from contact with impacted soil and groundwater exists and would not be lessened except by natural attenuation. The risks to public health and the environment would remain high, especially during construction activity.

4.2.2 Compliance with Standards, Criteria, and Guidance (SCGs)

This alternative does not comply with the SCGs. Development would not be protective of human health and the environment with COCs remaining in-place above SCGs. Although this option could be implemented, it provides no direct mitigation to existing conditions thereby leaving health risk factors. The COCs may attenuate over time, but there would be no process in-place to monitor the attenuation.

4.2.3 Long-term effectiveness and permanence

There is no long-term benefit associated with this alternative. Although permanent, it relies on naturally occurring processes to address on-site and off-site contamination.

4.2.4 Reduction of toxicity, mobility, or volume of contamination through treatment

There would be limited reduction in the toxicity, mobility, and volume of the contaminants.

4.2.5 Short-term impact and effectiveness

There are no short-term adverse environmental impacts and/or human exposure through implementation of this alternative as no remediation will take place.

4.2.6 Implementability

This alternative could be implemented as the Site requires no further action.

4.2.7 Cost effectiveness

The No Action alternative is not considered cost effective even though there are low foreseeable costs associated with this alternative as there would be no added protection to human health and the environment.

4.2.8 Land use

Redevelopment of this parcel is not likely under this alternative.

4.3 Alternative No. 2: Excavation to Unrestricted Use SCOs

4.3.1 Overall protection of public health and the environment

Protection of human health and the environment would be achieved through the implementation of Alternative 2, as the contaminated material and soil in excess of Unrestricted Use SCOs would be remediated through excavation and off-site disposal and replaced with clean fill. Contaminated groundwater in excess of SCGs would also be remediated during construction activities (less than five [5] years) employing treatment technologies during dewatering. PFAS contamination is not likely to be addressed with this alternative as PFAS has been identified in upgradient groundwater.

A short-term (less than five [5] years) institutional control would also be implemented. Periodic groundwater monitoring (for at least five [5] years) would be conducted to gauge the effectiveness of the groundwater remediation effort. However, as indicated above, this alternative will not address contamination remaining on the adjacent City-owned DPW site, so groundwater impacts will likely continue to exist as groundwater flows from beneath the City Landfill towards the Site.

Remediation of soils to Unrestricted Use SCOs and groundwater to applicable SCGs and removal of the waste mass could eliminate any possible source for soil vapor intrusion into future Site buildings and would effectively eliminate this exposure pathway; however, VOCs transported from the City-owned DPW site could result in off-gassing, which result in an ongoing exposure pathway.

Alternative No. 2 will satisfy the RAOs for the Site as potential exposures to contaminated soils and groundwater, with exception of PFAS, would be eliminated or substantially reduced and the potential for soil vapor intrusion into any future Site buildings would also be reduced.

4.3.2 Compliance with Standards, Criteria, and Guidance (SCGs)

Compliance with SCGs would be realized through the implementation of Alternative 2 as the waste mass and contaminated soil and groundwater in excess of SCGs would be remediated. PFAS contamination is not likely to be addressed with this alternative as PFAS has been identified in upgradient groundwater.

4.3.3 Long-term effectiveness and permanence

Implementing Alternative No. 2 is a long-term and permanently effective means of remediating soil and groundwater contamination, with exception of PFAS, at the Site. There would substantial reduction of risks remaining upon completion of this alternative, with the exception of ongoing potential future impacts from the City-owned DPW site. This alternative is considered to be a reliable means of reducing and possibly eliminating the potential impacts to human health and the environment.

Due to the prevalent PFAS contamination in groundwater, attributed to off-site sources, institutional controls in the form of an environmental easement restricting future groundwater use will be implemented and will serve to protect the public health. The environmental easement will be applicable to the current Site owner and is transferable to any future Site owners and/or lessees. NYSDEC will have the sole authority to alter and/or extinguish the easement.

4.3.4 Reduction of toxicity, mobility, or volume of contamination through treatment

Reduction of the toxicity, mobility or volume of the Site contaminants would effectively be realized through the implementation of Alternative 2 as the contaminated soil in excess of SCGs would be remediated through the excavation and disposal of the waste mass and impacted soil and replacement with clean fill. Groundwater impacts from on-site sources would be remediated by dewatering and treatment during remedial construction activities. However, PFAS contamination is not likely to be addressed with this alternative as it is C.T. Male' s opinion that the PFAS impacts documented in groundwater are primarily migrating onto the subject Site from upgradient sources. There appear to be PFAS impacts associated with the historic use of the Site. However, based on an evaluation of the overall data obtained both on- and off-site, it is likely that the Site is not the primary source of PFAS found in the groundwater beneath the Site.

4.3.5 Short-term impact and effectiveness

The short-term effectiveness of this alternative for Site soils will be immediate in that contaminated soils will be removed and disposed of off-site. Groundwater remediation during excavation dewatering and treatment will also be immediate. Periodic groundwater monitoring would be conducted to gauge the effectiveness of groundwater remediation.

PFAS contamination in groundwater is not likely to be addressed with this alternative as PFAS has been identified in upgradient groundwater. Due to the prevalent PFAS contamination in groundwater, attributed to off-site sources, institutional controls in the form of an environmental easement restricting future groundwater use will be implemented and will serve to protect the public health.

The community would be protected during the remedial action by establishing a work zone that excludes unauthorized individuals, and by employing effective dust suppression techniques (application of water) and community dust monitoring. There would be no significant environmental impacts as a result of implementing this alternative.

Alternative No. 2 would have the greatest potential for short term impacts to Site workers and the community because a large volume of soils would be excavated and disposed off-site. Additionally, a large volume of water will be evacuated and treated during the contaminated soil excavations.

It is estimated that the contaminated soil excavation and excavation dewatering and treatment will take approximately 12 to 24 months to complete.

4.3.6 Implementability

The technical difficulties that are anticipated during implementation of this alternative are considered high. The residual source areas are located at depth greater than 15 feet below ground surface. Shoring or bracing will likely be required to minimize potential safety issues during excavation. The adjacent DPW property would not likely be affected by the remedy. Soil stability due to slopes and other factors will be a concern at the common boundary between the Site and the DPW property. Furthermore, installation of shoring may also isolate some source area, reducing the effectiveness of this alternative.

The technical difficulties addressing groundwater impacts would be moderate to severe. Dewatering during excavation may create instability in the subsurface soil. Although technically feasible, the volume of water generated during excavation would be significant (approximately 2,900,000 gallons).

4.3.7 Cost effectiveness

The volume of waste, soil and groundwater to be removed is significant. The full extent of the waste mass within the site is unknown, and would require delineation to quantify. Furthermore, the technical difficulties that will be incurred to safely implement this alternative will add significantly to the cost. Overall, due to the significantly high cost required to implement this alternative, as well as and the lack of assurance that the residual source of contamination could be removed to pre-disposal conditions, this alternative is not considered cost effective.

4.3.8 Land use

The Site was likely to have been vacant before being utilized as a landfill and it is located in an area that is primarily commercial. Residential properties are located east of the proposed development. Implementation of this alternative would not have a negative effect on the intended use of the Site. Furthermore, the implementation of this alternative would allow for flexibility in the intended use of the Site by potentially being suitable for residential development. However, the presence of a steep slope between the Site and the City DPW site and proximity to the City DPW site would make the Site more suitable for commercial uses.

4.4 Alternative No. 3: Potential Limited Excavation, Surface Cover, Institutional and Engineering Controls, and Monitored Natural Attenuation of Groundwater Impacts

4.4.1 Overall protection of public health and the environment

The potential limited excavation (pending on soil characterization), surface cover, institutional and engineering controls, and SMP would serve as a mechanism to protect human health and the environment from the contaminants remaining after remedy implementation. Long-term monitoring would be conducted to gauge the effectiveness of the remediation effort. The implementation of institutional controls would serve to provide protection of the public health by controlling exposure pathways.

Alternative No. 3 would satisfy the RAOs for the Site, as human exposure to contaminated soils would be reduced by the limited excavation (if warranted) and managed by the installation of a surface cover system and through implementation of the institutional controls and SMP. Human exposure to contaminated groundwater would be reduced through application of an institutional control restricting groundwater usage and passive leachate controls and access limitations to existing surface water and wetland areas. Human exposure to potentially contaminated soil vapor would be mitigated via the installation of an SSDS in future on-site buildings.

4.4.2 Compliance with Standards, Criteria, and Guidance (SCGs)

Compliance with SCGs would not be attained through the implementation of Alternative No. 3. Under this alternative, a limited volume of soils will likely be disposed off-site, contaminated soils would remain in place and contaminants above SCGs could remain in groundwater and sediment. However, the public health would be protected from contaminants in soil and groundwater through the installation of a surface cover system, passive leachate controls, SSDS, institutional controls, implementation of the SMP.

Although Alternative No. 3 does not attain the SCGs for Unrestricted Use of the Site as described in Alternative No. 2, Alternative No. 3 offers acceptable (per applicable regulations) protection to public health through application of the above-referenced institutional and engineering controls.

4.4.3 Long-term effectiveness and permanence

The long-term effectiveness and permanence of Alternative No. 3 would be achieved by limited excavation (if warranted) and the installation of a surface cover system that would protect public health from Site contaminants, and by providing institutional controls and a SMP controlling Site usage and development and maintenance practices. There should be minimal long-term risks to human health if: 1) the cover material remains intact and is inspected annually, 2) long-term groundwater monitoring is conducted to gauge the effectiveness of the remedial effort, 3) SMP is followed by Site owners (present and future) and occupants, Site developers and any personnel involved in any future Site maintenance and development activities, and 4) institutional controls are implemented and followed by future Site owners and developers. Furthermore, additional engineering controls (SSDS and passive leachate controls), if properly maintained in accordance with the SMP, would further reduce human health risks.

The contaminants remaining in soils would be encapsulated from the potentially impacted population once the placement of the surface cover system is complete. The surface cover system would be an effective means of protection from Site contaminants if it is consistently inspected to ensure that it has not been breached by naturally occurring and/or man-made incidents.

Contaminants in groundwater would be remediated over time by reducing the amount of infiltration into the landfill mass, thus effectively reducing potential leaching of harmful chemicals into this media. However, the surface cover system will have no impact on harmful chemicals leaching on adjacent properties. Due to the prevalent PFAS contamination in groundwater, attributed to off-site sources, institutional controls in the form of an environmental easement restricting future groundwater use will be implemented and will serve to protect the public health. The environmental easement will be applicable to the current Site owner and is transferable to any future Site owners and/or lessees. NYSDEC will have the sole authority to alter and/or extinguish the easement.

4.4.4 Reduction of toxicity, mobility, or volume of contamination through treatment

This alternative would not dramatically reduce the toxicity or volume of contaminants in soil or groundwater, but it would limit mobility of select contaminants. Mobility of on-site soil contaminants into groundwater is expected to be limited since the metals and SVOCs tend to adhere to soil and not readily migrate into groundwater.

4.4.5 Short-term impact and effectiveness

The short-term effectiveness is immediate upon installation of the surface cover system and implementation of the institutional controls and SMP. It is estimated the installation of the surface cover system would take approximately 6 to 12 months to complete.

Short term adverse impacts to affected populations during implementation of this alternative include the possible inhalation or dermal contact and inhalation of contaminants during Site remediation, although these exposures would be less in comparison to Alternative 1. To minimize these impacts, site specific health and safety plans and dust suppression techniques in the form of the application of water and community dust monitoring at a minimum will need to be conducted during construction.

PFAS contamination is not likely to be addressed with this alternative as PFAS has been detected in upgradient groundwater.

4.4.6 Implementability

Alternative No. 3 can be implemented straightforwardly. The surface cover system and SSDS can be installed employing common engineering, reliable industry standards and construction practices.

The implementation of institutional controls and the SMP requires drafting of legal documents (e.g., environmental easement) and developing procedures that will be binding on future Site owners and developers. The institutional controls would be developed to protect affected populations during implementation of the remedial alternative and as guidance for future landowners and developer.

4.4.7 Cost effectiveness

The technical difficulties involved when implementing this remedy are limited. The technology and construction methods are commonly employed. No special engineering requirements would be necessary other than those commonly employed at remediation sites.

Overall, this alternative is cost effective. However, the cost associated with the installation of an impermeable layer in areas of exposed soils is anticipated to be moderate to high, depending on the impermeable material type and installation method.

4.4.8 Land use

The Alternative No. 3 allows the property to be redeveloped in a manner consistent with local land use. The Site could be used Industrial or Commercial redevelopment consistent with local zoning.

4.5 Summary of Evaluation

Evaluation Criteria	Alternative No. 1	Alternative No. 2	Alternative No. 3
Overall protection of public health and the environment	Poor	Good	Good
Compliance with SCGs	Poor	Very Good	Fair
Long-term effectiveness and permanence	Poor	Very Good	Good
Reduction of toxicity, mobility, or volume of contamination through treatment	Poor	Good	Fair
Short-term impact and effectiveness	Poor	Good	Good
Implementability	Excellent	Fair/Poor	Good

4.6 Comparative Analysis

Utilizing the evaluation criteria, each remedial alternative is compared to the others, based on cost and effectiveness, as a means to identify the most cost-effective, protective remedy. Each alternative is therefore ranked as low, moderate or high in terms of being a cost-effective, protective remedy. With the exception of Alternative 1, each of the alternatives satisfies the threshold criteria for overall protection of public health and the environment. Alternative No. 2 substantially complies with SCGs, while Alternative No.

moderately complies with SCGs. Alternative 1, No Action, addresses SCG compliance solely by relying on natural attenuation or protection of human health and the environment. Although Alternative No. 1 is the lowest cost option, it is not effective. As such, Alternative No. 1 is ranked as low for cost effectiveness and protectiveness.

Alternative No. 2 is the alternative with the highest cost due to the soil and waste disposal volume and the groundwater/dewatering treatment. It has the potential to protect potential Site occupants from Site contaminants through the removal of source material. This translates into the removal of approximately 234,000 cubic yards of waste material and soil above Unrestricted SCO's. Based on a conversation factor of 1.7 tons per cubic yard, this equates to approximately as much as 397,700 tons of waste and ash and soil requiring removal and disposal at a permitted facility at an estimated all-inclusive unit price of $120 to $150 per ton. Replacement would entail four (4) feet of clean soil across the 15.24-acre removal zone (~98,349 cubic yards of clean fill). Also, this alternative would require treatment approximately 2,900,000 gallons of impacted groundwater that may be encountered during excavation. This groundwater will need to be evacuated, temporarily stored, treated and disposed of at a cost of approximately $1.50 per gallon. Due to the technical difficulties associated with site conditions, dewatering, and soil stability, Alternative No. 2 is not easily implementable. As such, Alternative No. 2 is ranked as low for cost effectiveness and protectiveness.

Alternative No. 3 is less costly than Alternative No. 2 as the cost of limited soil/waste removal (if warranted) and cover systems and other associated engineering controls will likely be significantly less. Alternative 3 would protect potential Site users from Site contaminants by limited excavation (if warranted), placement of a surface cover system, installation of SSDS and passive leachate controls, and the implementation of institutional controls and maintenance of engineering controls codified in a SMP. Alternative No. 3 can be feasibly implementable employing common engineering, reliable industry standards and construction practices. As such, Alternative No. 3 is ranked as high for cost effectiveness and protectiveness.

It is important to note that PFAS contamination, under Alternatives No. 2 and 3, will likely remain, as PFAS has been detected in upgradient groundwater. Currently NYSDEC is evaluating PFAS data for adjoining properties and the surrounding area. PFAS contamination should be addressed as part of a larger regional effort upon evaluation of the available data for the Site, surrounding properties and area.

Based on the above evaluation, Alternative No. 3 is the most cost effective, protective remedy for the Site.

4.7 Sustainability / Green Remediation Concepts Analysis

The process of assessing remedial alternatives for sites managed under the NYS BCP applies selection criteria set forth in 6 NYCRR Part 375-1.8(f). An evaluation of each alternative against these criteria was presented in Sections 4.1 to 4.6 of this AAR. To further assist Applicants in determining which alternatives would provide the greatest net benefit to the environment, the NYSDEC published DER-31 / Green Remediation Policy (DER-31), dated January 20, 2011. DER-31 introduces a holistic approach to managing sites within the remedial program in the context of the larger environment, a concept known as green remediation. The main goal of this initiative is to promote the use of sustainable remediation practices and technologies that minimize the environmental footprint of a potential remedy while still protecting public health and the environment.

This initiation is implemented within this AAR, by identifying ancillary environmental impacts for each proposed remedial alternative including but not limited to:

- Long-term environmental impacts of treatment technologies;
- Pollutant emissions including greenhouse gases (GHFs);
- Energy efficiency;
- Conservation of resources and materials;
- Generated waste versus reuse and recycling;
- Habitat value (maintaining or creating new habitat);
- Fostering green and healthy communities and landscapes that balance ecological, economic and social goals; and,
- Green sustainable re-development.

Proposed remediation alternatives will be further assessed based on the number of green remediation techniques incorporated within each alternative. These techniques are considered easy to implement at a money saving or negligible cost. Some examples of these techniques include:

- Use of renewable energy and/or purchase of renewable energy credits (RECs) to offset energy demand;

- Reduce vehicle idling;
- Cover systems designed for alternative uses: habitat, recreation, minimal maintenance, stormwater infiltration;
- Beneficial reuse of materials (e.g. crushed clean concrete as base or fill), and;
- Use of Ultra Low Sulfur Diesel (ULSD) fuel.

Each remedial alternative is assessed based on all environmental effects of remedy implementation. Impacts and benefits implicit in each alternative are ranked as Poor, Fair, Good, or Very Good in terms of supporting a "Green Remedy". Non-applicable criteria are indicated with NA. Alternatives proposed:

- Alternative 1: No Action
- Alternative 2: Excavation to Unrestricted Use SCOs
- Alternative 3: Potential Limited Excavation, Surface Cover, Institutional and Engineering Controls, and Monitored Natural Attenuation of Groundwater Impacts

Sustainability / Green Remedial Alternative Analysis			
Evaluation Criteria	**Alternative No. 1**	**Alternative No. 2**	**Alternative No. 3**
Ancillary Environmental Impacts			
Long-term environmental impacts of treatment technologies	NA	Poor	Very Good
Pollutants emissions including greenhouse gases (GHFs)	Very Good	Poor	Very Good
Energy efficiency/usage	Very Good	Poor	Very Good
Conservation of resources and materials	Very Good	Poor	Very Good
Generated waste versus reuse and recycling	Very Good	Poor	Very Good
Habitat value (maintaining or creating new habitat)	Very Good	Fair	Fair
Fostering green and healthy communities and landscapes that balance ecological, economic and social goals; and	Poor	Good	Very Good
Green sustainable re-development	Poor	Very Good	Very Good
Environmental Benefits: Number of Green Remediation Techniques Incorporated			

Sustainability / Green Remedial Alternative Analysis			
Evaluation Criteria	**Alternative No. 1**	**Alternative No. 2**	**Alternative No. 3**
Use of renewable energy and/or purchase of renewable energy credits (RECs) to offset energy demand	Poor	Poor	Very Good
Reduction of vehicle idling	NA	Poor	Very Good
Cover systems designed for alternative uses: habitat, recreation, minimal maintenance, stormwater infiltration	Poor	Good	Very Good
Beneficial reuse of materials (e.g. crushed clean concrete as base or fill	Poor	Very Good	Very Good
Use of Ultra Low Sulfur Diesel (ULSD) fuel	NA	Good	Very Good

4.7.1 Alternative 1 Sustainability / Green Remedial Alternative Assessment

In consideration of ancillary environmental impacts, Alternative 1 is consistently ranked Very Good in: pollutant emissions, energy efficiency, resource conservation, and waste generation due to the lack of heavy machinery usage required for excavation and disposal of contaminated soil. It is ranked Poor for fostering green and healthy communities and green re-development, as the on-site contamination would remain in place, preventing redevelopment and community use of the Site.

In consideration of the environmental benefits / number of green remediation techniques incorporated; Alternative 1 is consistently ranked Poor since it does not incorporate any of these initiatives and does not provide an effective cover system protective of human health.

4.7.2 Alternative 2 Sustainability / Green Remedial Alternative Assessment

In consideration of ancillary environmental impacts, Alternative 2 is consistently ranked Poor in: long-term environmental impacts of treatment technologies, pollutant emissions, energy efficiency, resource conservation, and waste generation. This is due to the significant amount of energy for machinery usage required to excavate contaminated materials from the site and transport to a treatment, storage and disposal facility (TSDF). Alternative 2 ranks Fair in creation of habitat value since soil contamination would be removed, but at the cost of almost half of the existing habitat due to the proposed building and parking lot footprint. It is ranked good in fostering a green and healthy community since it offers ecological incentive, but at a large economic cost given the large volume of excavated soil disposed of on a per ton cost basis. It ranks Very Good in Green re-development since no contamination would remain to limit redevelopment.

In consideration of the environmental benefits / number of green remediation techniques incorporated, Alternative 2 is mixed. A significant number of RECs would require purchase to offset the large amount of energy (fuel) required for machinery needed to excavate contaminated material from the site and transport to a TSDF. All heavy machinery (excavators and trucks) would generate a significant amount of exhaust emissions, including idling while cuing for load-out, though ULSD would presumably be used in all equipment. This alternative would require the largest importation of clean material, so potential beneficial reuse of materials (e.g. imported clean crushed concrete) could be significant, if such material is used.

4.7.3 Alternative 3 Sustainability / Green Remedial Alternative Assessment

In consideration of ancillary environmental impacts, Alternative 3 is consistently ranked Very Good. The long-term environmental impacts of treatment technologies is low due to reduced excavation volume, requiring significantly less energy than Alternative 2, producing less waste and less emissions. Natural attenuation of groundwater also saves a great deal of energy that would otherwise be required to treat or dispose of groundwater dewatering effluent generated during Alternative 2. The placement of the impermeable layer (and associated clean soil cover) within areas of exposed soil would result in fostering a green landscape and adding potential habitat value. This alternative facilitates re-development of the Site.

In consideration of the number of green remediation techniques incorporated, Alternative 3 is ranked Very Good. Less RECs would require purchase to offset the reduced amount of energy usage (fuel) by machinery required to excavate from the site and transport to a TSDF a smaller quantity of soil/waste than Alternative 2. Heavy machinery (excavators and trucks) would generate a reduced volume of exhaust emissions than Alternative 2. Importation of clean fill material, building, parking area and stormwater impoundments will provide opportunities for beneficial reuse of materials (e.g., reuse of clean crushed concrete, etc.), if such material is used, which Alternative 1 does not provide.

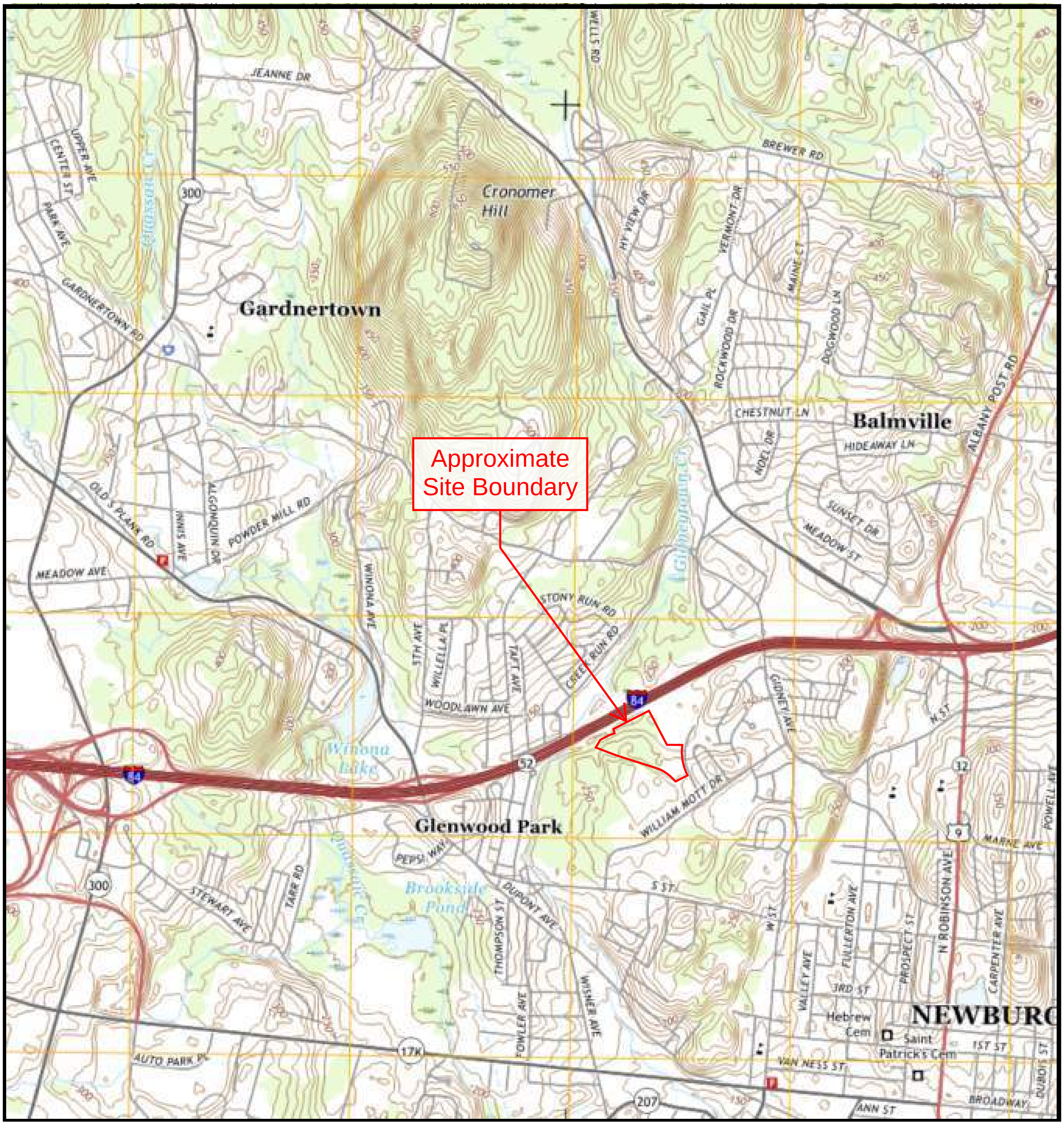
4.7.4 Sustainability / Green Remedial Alternative Comparative Analysis

Alternative 3 has the lowest ancillary environmental impacts of all three (3) alternatives, providing a balance between the economics of providing a tailored remediation while providing a green sustainable re-development of the Site. Alternative 3 also allows for inclusion of all green remediation techniques. The cover system also provides exposure protection for site occupants while allowing for the potential natural attenuation of soil and groundwater contaminants. Alternative 3 is the preferred alternative based on this sustainability green remedial comparative analysis.

FIGURE 1

SITE LOCATION MAP

Figure 1



MAP REFERENCE
United States Geological Survey
7.5 Minute Series Topographic Map
Quadrangle: Newburgh, NY
Date: 2016

N

C.T.MALE ASSOCIATES
ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, P.C.

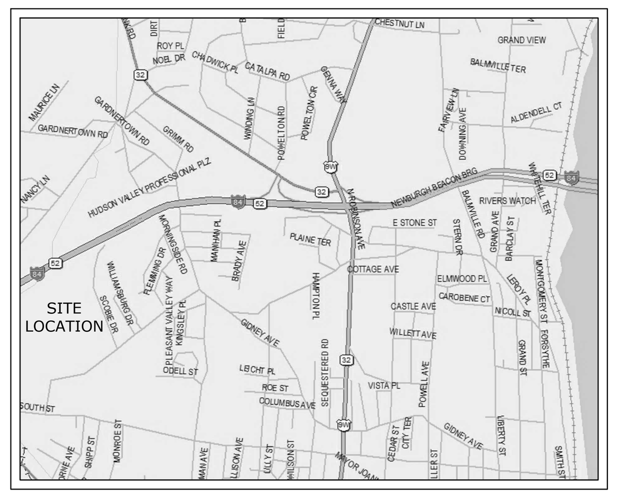
50 CENTURY HILL DRIVE
LATHAM, NY 12110

FIGURE 1 - SITE LOCATION MAP

CITY OF NEWBURGH	**ORANGE COUNTY, NY**
SCALE: NOT TO SCALE	The locations and features depicted on this map are approximate and do not represent an actual survey.
DRAFTER: ML	
PROJECT No: 23.3460	

FIGURE 2

BOUNDARY AND TOPOGRAPHIC SURVEY



SITE LOCATION MAP
(NOT TO SCALE)

MAP NOTES:

1. Boundary and topographic information shown hereon was compiled from an actual field survey conducted during the month of May, 2014, and field inspected and updated on August 10, 2020.
2. North orientation and bearings are Grid North based on the New York State Plane Coordinate System, East Zone, NAD 83. As established by GPS observations.
3. Objects shown on this drawing with a distance indicating how far that object is from a particular line, lie on the same side of the line that the offset distance is written.
4. Vertical datum shown hereon is NAVD 88 and was obtained through GPS observations.
5. Underground facilities, structures, and utilities have been plotted from data obtained from previous maps and record drawings. Surface features such as catch basin rims, manhole covers, water valves, gas valves, etc. are the result of field survey unless noted otherwise. There may be other underground utilities, the existence of which is not known to the undersigned. Size and location of all underground utilities and structures must be verified by the appropriate authorities. Dig Safely New York must be notified prior to conducting test borings, excavation and construction.
6. This survey was prepared without the benefit of an up to date abstract of title or title report and is therefore subject to any easements, covenants, restrictions or any statement of fact that such documents may disclose.
7. Wetlands and other waters of the U.S. were delineated by a C.T. Male field representative October 3, 2013 and May 9, 2014 in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and Northeast and North Central Regional Supplement.
8. The waters of the U.S. acreage has been calculated within the limits of delineation.
9. Soil Boring SB-13 was located in the field by the use of a hand held GPS Unit and not the result of conventional survey methods.

MAP REFERENCES:

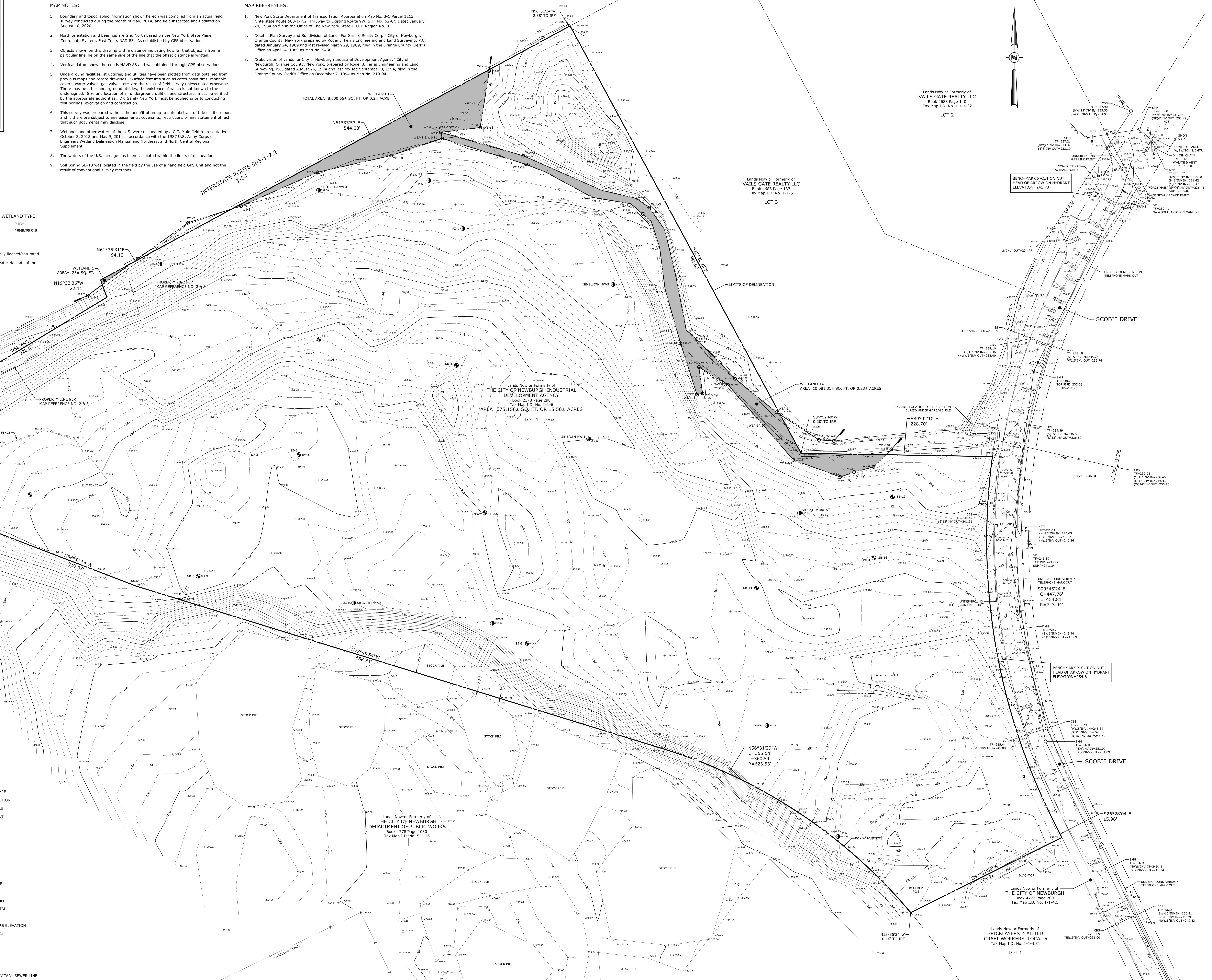
1. New York State Department of Transportation Appropriation Map No. 3-C Parcel 1213, "Interstate Route 503-1-7.2, Thruway to Existing Route 9W, S.H. No. 62-6", Dated January 20, 1984 on file in the Office of The New York State D.O.T. Region No. 8.
2. "Sketch Plan Survey and Subdivision of Lands For Sarbro Realty Corp." City of Newburgh, Orange County, New York prepared by Roger J. Ferris Engineering and Land Surveying, P.C. dated January 24, 1989 and last revised March 29, 1989, filed in the Orange County Clerk's Office on April 14, 1989 as Map No. 9436.
3. "Subdivision of Lands for City of Newburgh Industrial Development Agency" City of Newburgh, Orange County, New York, prepared by Roger J. Ferris Engineering and Land Surveying, P.C. dated August 26, 1994 and last revised September 8, 1994, filed in the Orange County Clerk's Office on December 7, 1994 as Map No. 210-94.

WETLANDS AND OTHER WATERS OF THE U.S.

WETLAND	ACREAGE	WETLAND TYPE
WETLAND 1	0.2± ACRE/8,600.66± SQ. FT.	PUBH
WETLAND 1A	0.23± ACRE/10,081± SQ. FT.	PEME/PSS1E

PUBH= Palustrine, unconsolidated bottom, permanently flooded
PEME= Palustrine, emergent, seasonally flooded/saturated
PSS1E= Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

Wetland type adapted from "Classification of Wetlands and Deepwater Habitats of the United States" Cowardin etal. 1979



LEGEND

CBS	CATCH BASIN SQUARE
ES	DRAINAGE END SECTION
DMH	DRAINAGE MANHOLE
GMON	GRANITE MONUMENT
HH	HAND HOLE
HYD	HYDRANT
IPF	IRON PIPE FOUND
IRF	IRON ROD FOUND
LP	LIGHT POLE
MW	MONITORING WELL
PZ	PIEZOMETER
SMH	SANITARY MANHOLE
SB-1	SOIL BORING
TMH	TELEPHONE MANHOLE
TPED	TELEPHONE PEDESTAL
TRANS	TRANSFORMER
TC=257.40 BC=256.88	TOP & BOTTOM CURB ELEVATION
UPED	UNKNOWN PEDESTAL
UV	UNKNOWN VALVE
WV	WATER VALVE
W1-1	WETLAND FLAG
	GUARD RAIL
SS	UNDERGROUND SANITARY SEWER LINE
ST	UNDERGROUND STORM LINE
UT	UNDERGROUND TELEPHONE LINE
UCATV	UNDERGROUND TELEVISION LINE

BAR SCALE
40 0 20 40 80
1 inch = 40 ft.

"ONLY COPIES OF THIS MAP SIGNED IN RED INK AND EMBOSSED WITH THE SEAL OF AN OFFICER OF C.T. MALE ASSOCIATES OR A DESIGNATED REPRESENTATIVE SHALL BE CONSIDERED TO BE A VALID TRUE COPY".

CAD DWG. FILE NAME: K:\Projects\133061\Survey\Drawings-Maps\TS-SCOBIE DRIVE.dwg

RAYMOND T. LIUZZO
P.L.S. NO. 50366

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
06/26/14	1	ADDITIONAL MONITORING WELLS LOCATED	SMW	JFC	WJN
07/10/14	2	CTM MONITOR WELLS LOCATED	GLB	JFC	WJN
08/10/20	3	SURVEY UPDATE	KEC	JAM	WJN
	4				
	5				
	6				
	7				
	8				
	9				

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C.T. MALE ASSOCIATES

APPROVED: WJN
DRAFTED : SMW
CHECKED : TCB
PROJ. NO : 13.3061
SCALE : 1"=40'
DATE : MAY 21, 2014

BOUNDARY & TOPOGRAPHIC SURVEY

LANDS NOW OR FORMERLY OF
THE CITY OF NEWBURGH INDUSTRIAL DEVELOPMENT AGENCY
5 SCOBIE DRIVE

CITY OF NEWBURGH — ORANGE COUNTY, NEW YORK

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 14-327

EXHIBIT 1

REMEDIAL INVESTIGATION REPORT (APPENDICES NOT INCLUDED)

December 2014

NYS Brownfield Cleanup Program

Draft Remedial Investigation Report
5 Scobie Drive Site
5 Scobie Drive
City of Newburgh
Orange County, New York

Prepared for:

5 Scobie Partners, LLC
106 Pierces Road
Newburgh, New York 12550

Prepared by:

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ENGINEERING, SURVEYING, ARCHITECTURE
& LANDSCAPE ARCHITECTURE, D.P.C.
652 RT 299, Suite 204-B
Highland, New York 12528
(845) 883-0964
FAX (845) 883-0965

C.T. Male Project No: 13.3061

"I James McIver, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with DER Technical Guidance for site Investigation and Remediation (DER-10)."

Unauthorized alteration or addition to this Document is a violation of Section 7209 Subdivision 2 of the New York State Education Law.

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C.T. MALE ASSOCIATES

NYS BROWNFIELD CLEANUP PROGRAM
REMEDIAL INVESTIGATION REPORT
5 SCOBIE DRIVE SITE
CITY OF NEWBURGH
ORANGE COUNTY, NEW YORK

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1.0 INTRODUCTION

A Remedial Investigation (RI) was completed for the property known as 5 Scobie Drive Site located at 5 Scobie Drive, in the City of Newburgh, Orange County, New York (herein "the site"). A Site Location Map is presented as Figure 1. This RI was completed in general conformance with NYSDEC's DER-10/Technical Guidance for Site Investigation and Remediation issued May 3, 2010 and the New York State Department of Environmental Conservation ("Department") Remedial Investigation Work Plan (RIWP) dated November 2013.

The future site owners/developers have entered the New York State Department of Environmental Conservation's (NYSDEC's) Brownfield Cleanup Program (BCP) as Volunteers in May of 2013 (BCP #336085). Contemplated reuse of the property is for a commercial/industrial warehouse and distribution facility. The Applicant has submitted a site plan to the City of Newburgh for review and approval that includes an approximate 155,000 square foot research, design and distribution facility. The site plan includes ancillary parking, roads, lighting, stormwater management infrastructure and public utilities (water, sewer, gas and electric) to service the proposed building and future development on adjacent parcels not subject to this cleanup. The intended reuse of the property is consistent with local zoning for the property.

The BCP investigation generally involved the collection and analysis of surface soil samples; the collection and analysis of stream sediment samples; the collection and analysis of surface water samples; the advancement of test pits and test borings for the collection and analysis of soil samples and to evaluate subsurface conditions; and the installation of monitoring wells for the collection and analysis of groundwater samples. Due to the presence of drainage channel, which could contain fish and other wildlife resources, a Fish and Wildlife Impact Analysis was conducted.

The Site is located in a commercial/industrial setting. The residential subdivision located on the eastern side of 5 Scobie Drive is serviced by municipal water. A walking tour of that neighborhood revealed no readily visible evidence of private wells. Additionally, this residential subdivision is hydro-geologically cross-gradient to the 5 Scobie Drive site so groundwater emanating from the Site does not migrate towards the subdivision.

Although the buildings are not depicted on Figure 2, "Existing Conditions" because they are not on the BCP Site, there are two commercial facilities located at the end of Scobie Drive. According to the City of Newburgh Engineer, these facilities are connected to the municipal water supply. No visible evidence of well heads were observed and, based on current use, it is not likely that either facility uses process water as part of its operations. The Umbra facility, located on the western end of Scobie Drive, is a sound and light stage, serving the television and movie industries. Freihofer's Bakery operates a warehouse and distribution facility on the eastern end of Scobie Drive.

These two properties are isolated hydro-geologically from the 5 Scobie Drive Site by a drainage channel that runs along the entire northern boundary of the Site (Figure 2).

This RI Report consists of seven (7) sections. Section 1 of the RI Report is an introduction, which presents the purpose of the project and background information such as project work tasks and modifications to the work plan, site description, site history, previous investigations and evaluations of the site, and contaminants of concern. Section 2 relates to the study area investigation and consists of a description (i.e., dates of completion, number of sampling locations, etc.) of the investigative tasks. Section 3 presents the physical characteristics of the study area as obtained during the site investigation. This section includes site conditions (i.e., soils, groundwater, regional geology, etc.) and surface features such as water bodies and drainage patterns. Section 4 discusses the nature and extent of the contamination in which the analytical results of soil (surface and subsurface), groundwater, and surface water and sediment are compared to applicable regulatory standards and guidance values. Section 5 describes the contaminant fate and transport (routes of migration, and contaminant persistence and migration) for the site contamination. Section 6 presents the exposure assessment to evaluate the potential for human exposure and environmental impact from site related contaminants. Section 7 presents the summary and conclusions of the investigation.

1.1 Purpose

The purpose of the RI report is to describe the investigations conducted at the site for defining the nature and extent of contamination in surface soil, subsurface soil, stream sediment, surface water, and groundwater. From this data decisions regarding the need for remedial actions are made and remedial options are evaluated based in part on the intended future use of the property (Industrial), consistent with locally adopted zoning regulations. The investigation defines the site characteristics in terms of its historical use, geology, hydrogeology, known or suspected contaminants and contemplated future use. The target goals of this RI were to identify contaminants of concern, define the horizontal and vertical extent of such contamination, and to produce data of sufficient quantity and quality to support the development of an acceptable Remedial Work Plan (RWP) for NYSDEC and public review.

1.2 Site Background

1.2.1 Site Description

The subject site is located at 5 Scobie Drive in the City of Newburgh, Orange County, New York. The Site consists mainly of one tax parcel (S.B.L. 1-1-6) approximately 15.6 acres in size. The Site is located to the north and east of the former DuPont-Stauffer Chemical Manufacturing site and the City DPW facility, west of Scobie Drive and two ongoing commercial enterprises, and south of Interstate I-84. The site is entered from Scobie Drive. Access to the site is restricted by vehicle due to the absence of a stabilized entrance. Heavy equipment trails were created to facilitate investigation tasks. The site area topography is generally sloping northward with some flatter spots with a slight downward grade to the north and east.

The site is currently vacant and had historically been used as a landfill. Buildings are not present within the site. The site is currently heavily wooded and overgrown. Stockpiles and scattered junkyard type objects, such as empty containers, tanks, empty drums, car parts, televisions, refrigerator carcasses, etc. were observed on the south side of the Site, adjacent to the City owned DPW site. Some of the debris may be from convenience dumping.

Utilities do not currently exist on the Site. However, the region is serviced with electricity and natural gas from Central Hudson Gas and Electric, and municipal water and sewer.

A shallow drainage ditch that appears to be manmade exists along the northern boundary of the site. Federal wetlands are located along the drainage ditch and on the northern edge of the Site. The drainage swale on the eastern side of the Site drains generally east to west-northwest into the wetlands on the northern edge of the Site. The drainage swale collects water from the adjacent commercial facilities located to the north and east of the property and from a portion of the residential development located on the east side of 5 Scobie Drive. The water course observed in the wetland flows east to west and is partially located along the northern site boundary, existing between the Site and Interstate I-84. The water eventually flows into the Gidneytown Creek, located approximately 1,000 feet west of the wetlands on the north side of the Site.

The Boundary and Topographic Survey Map is presented as Figure 2.

1.2.2 Site History

Between approximately 1948 and 1962, portions of the Site may have been used by the City as part of a municipal landfill. Historic use of the property and the presence of known or suspected sources of contamination have left it undeveloped and underutilized since it was returned to the City of Newburgh Industrial Development Agency (IDA) in 1984. The entire property is vacant and overgrown. All waste disposal activity ceased in 1962 when the NYSDOT took this parcel for the potential construction of an off ramp from Interstate I-84. The NYSDOT decided not to use this parcel as a possible on/off ramp for Interstate I-84 and returned the parcel to the City of Newburgh IDA. The City of Newburgh IDA is the current owner of the parcel and a BCP co-Requestor.

Historical evidence indicates that the Site may have accepted waste from the nearby Former Creek Industrial Park, and may have accepted incinerator ash from the former City-owned incinerator that was located on Pierces Road. Anecdotal evidence indicates that landfilling in this portion of the site may have occurred by excavating trenches and backfilling the trenches with debris that was then covered by excavated material. The trenches may have also received waste from the residents of Newburgh, and at that time there was neither monitoring of nor restrictions on what could be disposed of at this facility.

1.2.3 Previous Investigations

Contaminants have been detected at the Site during several previous investigations, and suspect contamination is inferred based on the historic operation of the property and the findings of investigations performed on adjacent properties. A brief chronological summary of the on- and off-site investigations is provided below:

- 1984 Deep Test Pit Investigation, performed by McGoey Hauser and Edsall (MHE); ten test pits were excavated at various locations across the site for the City of Newburgh IDA around the time of purchase. Petroleum odors and waste material were observed at many locations, but a test pit location map could not be located for this report.
- 1988, Final Draft Inspection Report, Newburgh Landfill, prepared by NUS Corporation. The inspection identified a 30 acre site, which suggests that it also included the City's DPW property. Samples were obtained during the inspection, and heavy metals, PCBs and petroleum compounds were detected.
- 2002, Report for the Characterization of Drums, City of Newburgh DPW Landfill, prepared by First Environment. This investigation identified 430 containers on the City owned property and 26 containers on the 5 Scobie Drive site. Testing of the drum contents indicated the presence of hazardous waste on the City owned property.
- 2004, Supplemental Remedial Investigation Report, DuPont-Stauffer Landfill, prepared by the Corporate Remediation Group. Soil and groundwater samples obtained during this investigation contained solvents, heavy metals, PCBs and PAHs.
- 2004, Phase I Environmental Site Assessment, Vacant Parcel, 7-13 Scobie Drive (now 5 Scobie Drive), Newburgh, New York, prepared by HRP Associates. The Phase I ESA recommended additional investigation to confirm the absence or presence of hazardous waste based on the results of the previously conducted investigations on the adjacent properties.
- 2008, Drum Characterization Report, Newburgh DPW Landfill, prepared by Camp Dresser and McKee (CDM). Soil borings installed on the City IDA property detected heavy metals contamination.
- 2011, Drum Cache Area Operating Plan, prepared by O'Brien and Gere for DuPont-Stauffer. The plan described the process for removing drums and

hazardous waste from the DPW site, which was completed in 2012. Hazardous waste was identified on the DPW property, and PAH and metals contamination were identified on the 5 Scobie Drive property.

- April, 2013, Drum Cache Area Removal Action, The City of Newburgh/Newburgh City Landfill Superfund Site (CERCLIS ID #NYD980534846) Newburgh, New York, Site Number 3-36-063, prepared by Obrien and Gere. A portion of this removal action occurred on the 5 Scobie Drive Site. No drums were encountered; PAH's and metal contamination was observed.

The available information indicates that the 5 Scobie Drive site was formerly operated as a solid waste landfill by the City until the 1960's, when the property was taken by the NYSDOT for an off ramp connecting Route 9W to I-84. NYS conveyed the property to the City IDA in 1984 and a test pit investigation performed in 1984 detected a substantial volume of what is referred to as "garbage".

In 1988, NUS Corporation (NUS) conducted a Site Inspection of the City of Newburgh Landfill for the USEPA. The findings are documented in a report entitled "A Final Draft Inspection Report prepared for the USEPA by NUS Corporation, 1988" which describes the inspection of a 30 acre municipal landfill site in Newburgh New York. Available mapping in that report indicates that the landfill included the current Newburgh Department of Public Works (DPW) site and all or significant portions of 5 Scobie Drive property. The NUS report indicated that the Newburgh Landfill operated from the 1940s to 1976 and may have accepted sludge and other waste products from the adjacent DuPont and Stauffer Chemical companies. During NUS's site inspection, surface soil staining was observed on the northeast edge of the landfill. NUS identified drums on the City IDA parcel. Samples were also obtained during the site inspection and the results indicated hazardous substances and petroleum at elevated levels at multiple locations. Sampling was primarily confined to the DPW parcels.

In 2002, the City commissioned a drum characterization study at its DPW site. The report entitled "Report for Characterization of Drums, City of Newburgh DPW Landfill, Pierces Road, Newburgh, New York", prepared by First Environment indicated that approximately 26 drums containing unknown waste materials were located on the City IDA's 5 Scobie Drive Property. Elevated photo-ionization detector (PID) readings were noted in some of the drums. In addition, a petroleum storage tank was observed on the City IDA property.

The DPW site was listed on the NYSDEC's list of Inactive Hazardous Waste Sites (Site #338036) as a "P" site. The P-site designation is given to sites where preliminary information indicates that contamination may be present at levels which may make it eligible for placement on the Registry of Inactive Hazardous Waste Disposal Sites. This designation prompted the NYSDEC driven Site Characterization activities that occurred on the City owned DPW property and the 5 Scobie Drive Site. In 2008, Camp Dresser and McKee (CDM) conducted an investigation of the drum storage area at the City's DPW site. Test pits and soil borings installed on and adjacent to the IDA's Scobie Drive parcel identified hazardous substances and petroleum. Hazardous wastes were identified on the DPW property.

In 2012 and 2013, Obrien and Gere, on behalf of Bayer Crop Science and DuPont-Stauffer, who were under an Order on Consent with the United States Environmental Protection Agency, removed drums and other impacted material from the drum cache area that was placed on the City-owned DPW site by DuPont –Stauffer. A portion of the drum removal area (~0.5 acres) extended onto the 5 Scobie Drive parcel. Surface soils and debris and crushed drums were removed from this 0.5 acre portion of the Site. No evidence of hazardous waste was encountered on the 5 Scobie Drive parcel and the scope of work was modified to include a less intensive cover system due to the absence of impacts and shallow bedrock. The drum removal action was not performed as part of the investigative work performed by the Department.

The site has historically operated as a landfill and accepted industrial waste and coal and incinerator ash according to the reports outlined above.

Copies of pertinent reports from previous investigations performed on and near the Site are presented in electronic format in Exhibit 2.

1.2.4 Contaminants of Concern

The Site has historically been used as a municipal landfill, reportedly accepting waste from local residents and industries. The Site was also reportedly used for ash disposal. Ash was observed in test pits excavated in the northwestern portion of the site along with other miscellaneous debris (ash, jars, glass, motor oil cans, tires, bricks, plastic, battery cases, etc.). Surface debris is present throughout the Site and on-going convenience dumping is occurring on the property.

Limited laboratory analytical results from previous environmental investigations show elevated levels of semi-volatile organic compounds and metals in the central portions the Site, although these constituents were not detected at levels exceeding the criteria for classification as hazardous.

2.0 STUDY AREA INVESTIGATION

2.1 Site Characterization

The remedial investigations were conducted within the property boundaries of the subject site and involved the following specific tasks:

- Surface Soil Sampling and Analysis;
- Exploratory Test Pitting;
- Test Boring and Monitoring Well Installations;
- Subsurface Soil Sampling and Analysis;
- Groundwater Sampling and Analysis;
- Stream Sediment Sampling and Analysis;
- Surface Water Sampling and Analysis;
- Leachate Seep Assessment;
- Data Usability Summary Report (DUSR); and
- Fish and Wildlife Impact Analysis.

2.1.1 Summary of Investigative Tasks

Table 2.1.1 presents a summary of the investigative tasks that were carried out as part of the BCP RI. The table lists each task that was performed, along with the location where the task was performed, the media that was subject to investigation, sample identification nomenclature (if applicable), and the laboratory analyses performed on specific media that was sampled (if applicable).

TABLE 2.1.1: INVESTIGATIVE TASKS SUMMARY											
Remedial Investigation Task	Sample ID	Media	Laboratory Analysis								
			TCL VOCs	TCL SVOCs	TCL PESTs	TCL PCBs	TAL Metals	TCL HERB.	TCLP	TOTAL CYANIDE	Leachate Indicators
Surface Soil Sampling	SS-1 to SS-10	Soil		X	X	X	X				
Subsurface Soil Sampling (Test Pits)	TP - 2, 4, 8, 9, 11, 12, 15, 19, 20(13′), 21, 27, 28, 31(1′,3′), 35(3′) TP - 5, 17, 20(5′), 22, 35(5′) TP – 6, 12, 25, 30, 32	Soil	X X	X X	X	X	X X	X	X	X	
Subsurface Soil Sampling (Test Borings)	None Collected for Laboratory Analysis	Soil	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 2.1.1: INVESTIGATIVE TASKS SUMMARY												
Remedial Investigation Task	Sample ID	Media	Laboratory Analysis									
			TCL VOCs	TCL SVOCs	TCL PESTs	TCL PCBs	TAL Metals	TCL HERB.	TCLP	TOTAL CYANIDE	Leachate Indicators
Groundwater Sampling	MW-4, MW-5, MW-6, PZ-1, CTM-MW-1 to CTM-MW-6	GW	X	X	X	X	X				X
Stream Sediment Sampling	SW-01 to SW-04	SW		X	X	X	X				
Surface Water Sampling	SED-01 to SED-04	Soil	X	X	X	X	X				
Data Usability Summary Report	NA	NA	X	X	X	X	X	X		X	

NA denotes Not Applicable
GW denotes Groundwater; SW denotes Surface Water

The surface soil sampling locations, test pit locations, stream sediment sample locations, and surface water sampling locations were horizontally established by a C.T. Male Associates' field representative utilizing a hand held global positioning system.

The soil boring/monitoring well locations and existing monitoring well locations were horizontally established by a C.T. Male Associates' survey field crew utilizing conventional survey methods and vertically with a self compensating differential level.

Sampling locations are shown on the Site Investigation Plans on Figures 3 through 5 corresponding to the related investigatory task.

2.1.2 Surface Soil Sampling

Ten (10) surface soil samples were collected for laboratory analysis on May 20, 2014. The locations of these surface soil samples, designated as SS-01 to SS-10, are shown on Figure 4.

The samples were collected across the site and were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOCs), TCL polychlorinated biphenyls (PCBs), TCL Pesticides, and the Target Analytes List (TAL) of metals. The sample locations were selected based on subjective observations made during exploratory test pits and coverage across the Site. Generally, at each location, the samples were selected based on the presence of surface staining and/or the presence of debris piles. The samples were collected in general conformance with the guidelines presented in the DEC's DER-10.

Each surface soil sample was collected from 0 to 6 inches below ground surface. This differs from the Remedial Investigation Work Plan which proposed to obtain the soil samples from 0 to 2-inches. Focused effort was made to obtain soil samples from the upper two inches of soil; however, the upper few inches of soil typically included a substantial volume of organic matter or leaf debris. This finding typically required collection immediately below the organic debris or root zone to get sufficient soil sample for analysis. The sample locations were advanced utilizing a decontaminated hand shovel. A new pair of clean sampling gloves was used when transferring the soil to labeled, laboratory-supplied clean containers. The sample jars were sealed and subsequently placed into a cooler containing ice to preserve the sample. As warranted, a transport blank supplied by the laboratory was included in the cooler. Each of the surface soil samples was subjectively assessed for impacts employing a Photo Ionization Detector (PID) headspace analysis and organoleptic (sight and smell) perception. The subjective assessments are presented in the Organic Vapor Headspace Analysis Logs in Appendix A.

2.1.3 Exploratory Test Pitting

Forty (40) exploratory test pits were completed within the project site from November 20 to 26, 2014 utilizing a track mounted excavator operated by A W Coon & Sons Inc. The test pits were completed across the site to evaluate subsurface conditions. The test pits are depicted as TP-1 to TP-40 on Figure 3.

The test pits were excavated on the site from depths ranging from 2 to 20 feet bgs. Excavated soils were visually classified and logged by a C.T. Male Associates' representative and are presented in the Test Pit Logs in Appendix B. Representative samples of the excavated soils from the all of the test pits were screened for volatile organic vapors with a Photo-ionization Detector (PID) using bag headspace analysis. Representative soil samples were placed in new, unused resealable plastic baggies and agitated to enhance volatilization of organic compounds. The tip of the PID was then inserted into a small opening in the baggie and the readings recorded. Results of the PID screening are presented in the Test Pit Organic Vapor Headspace Analysis Logs in Appendix C.

Soil samples were collected from the test pits, and forwarded to the laboratory of record for analyses for TCL volatile organic compounds (VOCs), TCL SVOCs and TAL metals in some instances and for TCL PCBs, TCL Pesticides, Herbicides, and total cyanide in others. Refer to Table 2.1.1 for further detail regarding what each samples was analyzed for. Additionally, select subsurface soil samples from the test pits were also analyzed for waste characterization purposes using Toxicity Characteristic Leaching Procedure (TCLP). The samples were selected on the basis of the subjective assessment and PID results. The samples collected for TCLP analyses were based on physical characteristics and were typically ash or industrial waste products. TCLP samples were collected from areas were extensive deposits of ash/industrial wastes were observed.

The samples were collected from the track mounted excavator bucket. A new pair of clean sampling gloves was used when transferring the soil to labeled, laboratory-supplied clean containers. The jars were sealed and subsequently placed into a cooler containing bagged ice and a transport blank supplied by the laboratory.

2.1.4 Test Borings and Monitoring Well Installations

Sixteen (16) exploratory test borings were completed on the Site. The borings are identified as SB-1 to SB-16 on Figure 5. The drilling activities were completed on June 3 through June 23, 2014 by SJB Services, Inc. of Malta, New York. For the purpose of this investigation, hollow stem auger, drive and wash casing, and rock coring drilling techniques were utilized. At each test location 4-¼ inch inside diameter hollow stem augers or 3-inch flush joint casing when rock coring was to be performed were advanced conducting continuous two (2) foot sampling intervals through the waste and a minimum of 4 feet into the underlying native soils below the waste. Beyond this depth, the sampling was performed at nominal five (5) foot intervals or less until refusal of the augers/casing was encountered or upon 15 feet of penetration into the underlying native soils. At six (6) of the test boring locations, the nature of auger refusal was investigated through rock coring methods. Rock coring was initiated at the depth of refusal and terminated after approximately five (5) feet of penetration into competent bedrock.

Each recovered soil and bedrock sample was visually classified and recorded. Soil samples were also screened for the presence of VOCs with a PID. The subsurface profiles are presented in the Subsurface Exploration Logs in Appendix D. The PID results are presented on the Test Boring Organic Vapor Headspace Analysis Logs in Appendix E.

Upon completion of sampling, select borings were converted to a groundwater monitoring well for the purpose of facilitating the collection of groundwater samples for laboratory analysis. Six (6) monitoring wells were installed on the Site. The monitoring wells are identified as CTM-MW-1 to CTM-MW-6 on Figure 5. The monitoring well locations were selected on the basis of the inferred groundwater flow interpreted by topography of the Site to characterize upgradient and downgradient water quality. The monitoring wells were constructed of two (2) inch diameter PVC slotted screen and riser pipe. Monitoring Well Construction Logs are included in Appendix F.

Table 2.1.5 provides a summary of the boring and monitoring well identification numbers, boring depths, depths of native material (if encountered), depths of bedrock (if encountered), depths at which the monitoring wells were set, and monitoring well screened interval depths.

TABLE 2.1.5: RI Soil Boring and Monitoring Well Summary						
Boring/ MW ID	Boring Depth (feet bgs)	Depth to Native Material (feet bgs)	Depth to Bedrock (feet bgs)	Converted to Monitoring Well	MW Depth (feet bgs)	MW Screened Interval (feet bgs)
SB-1	20.6	14	15.4	No		
SB-2	21.9	8	16.9	No		
SB-3	24	12	19	No		
SB-4	48.5	22	43.5	No		
SB-5/ CTM-MW-2	31.5	16	26.5	Yes	24	19-24
SB-6/ CTM-MW-1	49.5	23	9.5	Yes	32	27-32
SB-7/7A	30.4/41	24/NA	NA/36	No		
SB-8	36.4	36.4	NA	No		
SB-9/ CTM-MW-3	14	0	NA	Yes	14	9-14
SB-10/ CTM-MW-4	22	NA	NA	Yes	20	10-20
SB-11/ CTM-MW-5	26	12	NA	Yes	25.5	25.5-20.5
SB-12/ CTM-MW-6	18	10	NA	Yes	18	13-18
SB-13	12	7	NA	No		
SB-14	18	14	NA	No		

TABLE 2.1.5: RI Soil Boring and Monitoring Well Summary						
Boring/ MW ID	Boring Depth (feet bgs)	Depth to Native Material (feet bgs)	Depth to Bedrock (feet bgs)	Converted to Monitoring Well	MW Depth (feet bgs)	MW Screened Interval (feet bgs)
SB-15	6.9	4	6.9	No		
SB-16	22	12.5	NA	No		

NA denotes Not Applicable

2.1.5 Groundwater Sampling

Groundwater samples were collected from new monitoring wells CTM-MW-1 through CTM-MW-6 and pre-existing monitoring wells MW-4, MW-5, MW-6, and PZ-1 on June 26 and 27, 2014. Prior to sampling, the water levels were recorded in each well from the top of the PVC casing utilizing a water level meter. Prior to the collection of groundwater samples, the monitoring wells were developed utilizing a peristaltic pump and disposable bailers to improve hydraulic connection between the wells and aquifer materials.

In addition to the six (6) wells installed as part of this RI, five (5) preexisting monitoring wells located on the Site that were installed during previous investigations were purged and sampled. For the purpose of this report, the pre-existing monitoring wells are identified as MW-3 to MW-6, and PZ-1 and are depicted on Figure 5. The well nomenclature was selected to correspond to the well names provided in existing reports. Pre-existing Monitoring well MW-3 was dry at time of sampling.

Prior to sampling, each well was purged of three (3) to five (5) well volumes utilizing a peristaltic pump or submersible pump. The wells were allowed to recover to a minimum of 90% of their pre-purging static water levels. The groundwater samples were collected in new laboratory supplied glass jars while wearing new gloves utilizing the peristaltic pump. New sampling tubing was used at each of the well locations. The jars were sealed and subsequently placed into a cooler containing bagged ice and a transport blank supplied by the laboratory.

During sample collection, the pH, temperature, and conductivity of the groundwater sample was measured with a portable water quality unit. The turbidity of the sample was also measured with a separate portable unit. The groundwater sample was also subjectively assessed for color, odor, and sheen.

The groundwater samples were submitted for laboratory analysis for TCL VOCs, SVOCs, Pesticides and PCBs, TAL metals plus Boron, and typical leachate indicators.

Water levels were also collected at all monitoring wells on July 8, 2014 following the same procedures in the previous sampling event.

2.1.6 Stream Sediment Sampling

Four (4) stream sediment samples designated as SED-01 to SED-04 on Figure 4 were collected for laboratory analysis on May 19 and 20, 2014.

The samples were collected from the drainage channel and Gidneytown Creek and were analyzed for the TCL of SVOCs, PCBs, Pesticides, and TAL metals. The sample locations were selected based on coverage across the Site and visual observations made during site reconnaissance. At each location, the sample locations were selected based on access to the stream and presence of surface staining.

Each stream sediment sample was collected from 0 to 6 inches below the surface of the sediment; immediately below the vegetative cover/debris on the bottom of the body of water. The sample locations were advanced utilizing a decontaminated stainless steel hand auger. A new pair of clean sampling gloves was used when transferring the soil to labeled, laboratory-supplied clean containers. The jars were sealed and subsequently placed into a cooler containing ice to preserve the sample and a transport blank supplied by the laboratory. Each of the stream sediment samples was subjectively assessed for impacts employing a Photo Ionization Detector (PID) headspace analysis and organoleptic (sight and smell) perception. The subjective assessments are presented in the Organic Vapor Headspace Analysis Logs in Appendix A.

2.1.7 Surface Water Sampling

Four (4) surface water samples designated as SW-01 to SW-04 on Figure 4 were collected for laboratory analysis on May 19 and 20, 2014.

The samples were collected from the drainage channel that eventually empties into the Gidneytown Creek and were analyzed for the TCL of VOCs, SVOCs, Pesticides, PCBs and TAL metals. The surface water sample was collected at the same location as the stream sediment sample with corresponding sample number.

Each surface water sample was collected using a new disposable bailer. A new pair of clean sampling gloves was used when handling the sampling equipment and transferring the surface water to labeled, laboratory-supplied clean containers. The jars were sealed and subsequently placed into a cooler containing ice to preserve the sample and a transport blank supplied by the laboratory.

During sample collection, the pH, temperature, and conductivity of the surface water sample was measured with a portable water quality unit. The turbidity of the sample was also measured with a separate portable unit. The surface water sample was also subjectively assessed for color, odor, and sheen.

2.1.8 Data Usability Summary Report

A Data Usability Summary Report (DUSR) was completed of the analytical data developed during this investigation to confirm the data is of adequate quality for subsequent decision making purposes. The DUSR is presented as Exhibit 1.

A Data Usability Summary Report (DUSR) was completed of the analytical data developed during this investigation to confirm the data is of adequate quality for subsequent decision making purposes. The DUSR is presented as Exhibit 1.

There are six separate Data Usability Summary Reports contained in Exhibit 1. This was the result of the way the samples were collected and analyzed by the laboratory. The DUSRs correspond to the dates that the samples were collected, forwarded to the labs and the dates that the analytical packets were provided electronically to C.T. Male Associates. The Data Validation subconsultant analyzed the packets as they were received. The DUSRs identify specific criteria that impacts the reliability of the data based on the completeness, holding times and sample preservation, surrogate spike recovery, MS/MSD recoveries, Lab control sample recoveries, method blank and field blank contamination, instrument calibration, duplicate sample precision and other factors. Since these factors differed based on laboratory run date, the DUSRs were prepared accordingly.

The DUSRs correspond to three sets of data sample related to soil samples obtained during the test pit investigation (L1323797, L1323390 and L1324057); surface soils, sediment and surface water samples (L1410884) and groundwater samples (L1414196 and L1414247). The general findings are summarized in the following paragraphs.

Soil Samples from the Test Pits

DUSR packet L1323797 indicates that there were several minor rejections of data. The data were not used for decision making purposes. Three VOCs and four SVOCs were rejected from sample TP-17 (1.5′). Otherwise the data were generally usable for the intended purposes; however, the data were modified on many samples and re-qualified as either non-detected or estimated based on various quality control factors.

DUSR packet L1323930 had no rejected data and the data were deemed acceptable for the intended purposes. There were some qualifiers that were changed to either non-detect or estimated based on various quality control range issues.

DUSR packet L1324057 had no rejected data and the data were deemed acceptable for the intended purposes. There were some qualifiers that were changed to either non-detect or estimated based on various quality control range issues.

Surface, Sediment and Surface Water Samples

DUSR packet L1410884 indicates that there were several minor rejections of data. The data were not used for decision making purposes. Several SVOC compounds were rejected in three samples due to severely low MS/MSD recoveries. Otherwise the data were generally usable for the intended purposes; however, the VOC, SVOC metals data were re-qualified as either non-detected or estimated based on various quality control factors in numerous samples.

Groundwater Samples

The groundwater DUSR is summarized in two separate reports, L1414196 and L1414247. L1414196 reports that there were minor rejections of the groundwater results described in this report in one sample, but, overall, the data could be relied upon for its intended purpose. Some minor deficiencies were noted. Some compound and analyte detections were ruled as either non-detected or qualified as estimated due to possible lab contamination. There were no rejections of data on L1414247; however, some detections were reclassified as either not detected or as estimated based on lab calibration issues.

Overall, the data were generally usable for the intended purposes; however, no rejected data was used in this assessment.

2.1.9 Fish and Wildlife Impact Analysis

Step 1 of a Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA) was completed by C.T. Male Associates for the project site. The surface of the approximate 15.6 acre project site presently consists of numerous shards of glass, metal pieces, debris stockpiles, a southern hardwoods forest and scrub shrub wetland. Refer to Appendix G, Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites (FWIA).

In general, the value of the fish and wildlife resources located within the 0.5 mile radius study area is low. Industrial and commercial buildings, roadways, landfills and residential areas have eliminated much of the natural habitat in the vicinity of the project site and have replaced it primarily with mowed lawns with trees, paved roads and urban structure exterior areas. Overall, many of the covertypes in the study area have been heavily influenced by human activities.

Based on correspondence with the United States Fish and Wildlife Service (USFWS), the site contains potential habitat for the Indiana bat (*Myotis sodalis*) and the northern-long eared bat (*Myotis septentrionalis*). Based on guidance provided by the USFWS, tree-cutting associated with remediation and subsequent site development will be limited to the seasonally restrictive period between October 1 and March 31st. Based on the currently proposed remediation schedule, tree-cutting, as required, would occur between this window. In an August 4, 2014 letter from USFWS, based on the project location, amount of tree removal and proposed conservation measures (seasonal tree removal), USFWS does not anticipate adverse impacts to Indiana or northern-long eared bats from the proposed project.

The value of fish and wildlife resources to humans is very limited within the project site. As a result, the value of these resources to humans was determined to be low. In accordance with the FWIA guidance, no additional assessment steps are likely to be necessary.

2.1.10 Leachate Seeps Assessment

Leachate seeps were identified in a site walk conducted on September 24, 2014 with representatives of the Department. The walkthrough concentrated along the banks of the drainage channel wetlands that are located on the eastern and northern edges of the Site.

Three small leachate seeps were identified; they are depicted as L1, L2 and L3 on Figure 4 – Surface Soils, Surface Water and Sediment Sample Locations. The leachate seeps exhibited the characteristic "orange" staining. No liquid was observed to be emanating from L1 and L3 at the time of inspection. L2 appears to discharge coincidently at the same elevation as the water observed in the unnamed tributary/drainage ditch located along the northern perimeter of the site.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

3.1 Results of the Study Area Investigation

A number of investigative tasks were completed by C.T. Male Associates to characterize the subject site. The results of the investigative tasks are supplemented with data obtained from previous site investigations and published literature including soil, bedrock, and aquifer mapping to further assess the physical characteristics of the project site. The physical characteristics of the site are discussed in the following sections.

3.1.1 Surface Features

There are no manmade building structures located within the site. The site is heavily wooded and overgrown. There is a manmade drainage channel that runs along the eastern edge of the site that eventually discharges to Gidneytown Creek, which is located approximately 1,000 feet west of the site (Figure 1).

3.1.2 Surface Water Bodies and Wetlands

There are Federal wetlands on and bordering the northern and eastern edges of the Site. The wetlands include and surround the man-made drainage channel. Water was observed continually in this drainage channel and is likely a represent the discharge location for shallow groundwater and not just surface water. Water was observed to be flowing westward in this drainage channel. Water flows to the Gidneytown Creek, located approximately 1,000 feet east of the site.

A drainage channel exists on the eastern side of the Site and drains south to north into the wetlands, remaining near the eastern property line. The wetland flows east to west and exists north of the Site and partially the northern site boundary, existing between the Site and Interstate I-84. The wetland most likely discharges to tributary to the Gidneytown creek located approximately 100 feet of the northwest corner of the site.

3.1.3 Leachate Seeps

Three small leachate seeps have been identified on the Site. The leachate seeps discharge into the drainage channel located along the north and east edges of the property. Seep L1 was observed to be mostly dry during the time of inspection in September 2014. The uppermost outbreak point of this seep appears to be at or about elevation 237′, which was higher than the water elevation observed in the drainage channel in this area. Groundwater elevation at nearby monitoring well CTM-MW-6 was observed at elevation 236.81′on June 24, 2014.

The top of native soil in the vicinity of L1 is thought to be between approximately elevation 235′and 236′. Groundwater is likely to reside within the waste material at this seep location. The groundwater elevation near seep L1 is estimated to be approximately one (1) foot in the waste material.

L2 is located on the adjacent property to the north. This seep discharges at the same elevation as that of the surface water observed in the drainage channel that runs along the northern boundary of the Site. The lateral extent of the staining was less than four feet across; however, staining in the drainage channel extended approximately 10 to 15 feet in the direction of surface water flow.

Groundwater elevation was observed to be approximately elevation 227.67′ at CTM-MW-3 during June 24, 2014 round of water levels, which is only slightly higher than the leachate seep elevation of approximately 227′. Impacted groundwater may be following a preferred pathway at this location, resulting in the narrow band of staining observed along the edge of the drainage channel at this location. No waste material is likely to be buried at this location based on the RI results, so this outbreak occurs through at least some portion of the native soils existing beneath the waste mass.

L3 is located between L1 and L2. Its lateral extent was less than two feet across and was dry at the time of observation. The top of native soils in this area is estimated to be around elevation 228′ to 230′. Groundwater elevation was measured at roughly 229.87′ in June, 2014 at nearby monitoring well MW-6. Groundwater may not have been present in the waste material during the time of inspection, but may reside in the waste material at this location when the water levels are higher. It is likely that this leachate seep is confined to the waste material and is controlled by the elevation of the top of native soils adjacent to seep location.

Groundwater flow is to the north. Based on the observed groundwater elevations, and the approximate elevations of the bottom of the waste material, groundwater exists within the waste mass. Based on test pit and monitoring well observations, between one (1) to two (2) feet of the waste mass is saturated. Based on observed groundwater flow direction, water moving through the waste mass discharges to the drainage channel on the north and east side of the property.

There are no apparent barriers to infiltration of precipitation and it is reasonable to assume based on surficial soils that the majority of the precipitation hitting the surface of the 5 Scobie Drive Site infiltrates through the waste material and into groundwater. The overall absence of leachate seeps relative to the perimeter of the waste mass suggests that the majority of the waste material is not consistently inundated or that only a portion of the waste mass is routinely saturated.

This is supported based on the test pits and soil borings installed as part of this RI. Figure 9 – Approximate Elevation Contours for Top Native Material depicts the surface of the native soils. Shallow bedrock was encountered beneath a layer of dense till on the west side of the site.

Groundwater was encountered in the fill and native soil in the central portion of the site but not in the shallow soils on the west side of the Site. Groundwater may exist in the bedrock formation under this portion of the Site. There appears to be a depression in the top of the native soil through the central portion of the Site, whose trough is oriented in an approximate northeast-southwest axis. Since groundwater migrating through the fill material is likely to take the path of least resistance, the groundwater may be channeled along a preferential pathway defined by the top of native material.

The soil beneath the fill material in the central portion of the site is defined by a layer of peat or organic debris underlain by very sandy soils mixed with varying percentages of silt, gravel and cobbles. The soil borings obtained in the central portion of the site indicate that the sandy horizon is more than 20 feet thick through the central valley. The soils were saturated. Generally, saturated conditions were not encountered until near the bottom of the waste material and the top of the native fill in this portion of the site.

It is possible that the saturated thickness in the waste mass varies seasonally. During period of high precipitation and therefore high infiltration, leachate breakouts are likely to be more noticeable; however, the perimeter of the site has been assessed on numerous occasions and leachate breakouts are confined to the areas L1, L2, and L3. No other evidence of leachate breakout was observed along the northern perimeter of the waste mass.

3.1.4 Surface Drainage Patterns

Storm water generated on the Site during precipitation events that does not infiltrate will run-off to the drainage channel located along the eastern and northern edge of the site. Figure 2- Boundary and Topographic Map, indicates substantial variation in existing elevations on the Site. There are a number of small surficial valleys and ridges that are likely to control run-off and infiltration patterns locally. These localized valleys and ridges slow run-off and promote infiltration or channel run-off directly into the drainage channel. Evidence of high flows in the drainage channel is observed, based on the amount of miscellaneous debris like wood and plastic observed to be accumulating in some portions of the channel. The debris piles alter the flow characteristics of the drainage channel, creating impoundment areas where water ponds, and slowing the rate of flow downstream.

3.1.5 Site Soils and Bedrock

Soils are mapped by the Orange County Soil Survey as the following:

- Southwestern and along boundary of the site: Udorthents, smooth (UH). These somewhat excessively drained soils consist of channery loam and very gravelly sandy loam. Slopes range from 0-8 percent.
- Northwestern area, central portion and southeastern portions of site: Mardin gravelly silt loam, 3-8 percent slopes (MdB). These moderately well drained soils are found on drumlinoid ridges, hills and till plains and consist of gravelly silt loam and channery silt loam.
- Northern and eastern portions of the site: Alden silt loam (Ab). Alden silt loam consists of a deep, very poorly drained, nearly level soil formed in glacial till deposits derived from shale, sandstone and some limestone. This soil type is located in low areas and depressions.

According to the Surficial Geology Map of the State of New York, Lower Hudson Sheet (Caldwell, 1989) the surficial geology is mapped as poorly sorted glacial till consisting of clay, silt-clay and boulder clay.

Bedrock geology is mapped as the Wappinger Group consisting of the Copake and Rochdale Limestone and Dolostone Formations (Geologic Map of New York, Lower Hudson Sheet; Fisher, Isacksen and Rickard, 1970).

The published reports are reasonably consistent with the finding of the RI. The subsurface soils included waste material mixed with granular fill or native sandy soils in those areas of the site where wastes were not encountered. Soils in the central portion of the site were quite thick and consisted of well sorted to poorly sorted fine to coarse sand containing varying percentages silt, gravel and cobbles. Soils in the western portion of the site were silt and sand with varying percentages of gravel overlying shallow bedrock. Underlying that unit was a dense glacial till. Bedrock cores obtained as part of the geotechnical investigation indicate that bedrock beneath the site is limestone or dolostone. Overall the test pit and soil boring investigations confirmed the published reports for the region.

3.1.6 Groundwater Characteristics

According to the map entitled "Unconsolidated Aquifers in Upstate New York, Lower Hudson Sheet" (Edward F. Bugliosi and Ruth A. Trudell, 1988`), the subject site is not located within the confines of a primary or principal aquifer.

Groundwater conditions were assessed through the advancement of test borings and test pits and the installation of monitoring wells. Static groundwater levels were collected from monitoring wells installed during the course of the RI on June 24 and July 8, 2014. Based on the water level data, the water table across the site ranges in depth from approximately 3.75 feet below existing site grades at monitoring well CTM-MW-4 located on the northern portion of the site, to 19.86 feet below existing site grades at monitoring well CTM-MW-2 located on the southwestern boundary of the site (see Figure 10).

Groundwater flows generally from south to north (Figure 10 – Groundwater Elevation Contour Map, June 24, 2014). Two rounds of water levels were taken and the results were the same. The recently installed wells were screened in the native fill material underlying the waste material. The native soils are considered the sensitive receptor for impacted groundwater migrating through the waste mass, and the drainage channel located on the east and north sides of the Site are also underlain by native soils. No confining unit was encountered during the soils investigation and no free product was observed. Screening the wells in the waste material was considered to be at risk since it might create a path for contaminant migration into the sensitive receptors; however, in the absence of a confining unit, the water elevations are considered representative of the unconfined conditions that exist in the vicinity of the landfill. The previously installed wells were screened in the waste material and the native soil.

Based on groundwater flow direction and observed elevations, groundwater discharges locally into the drainage channel. It is possible that during drought conditions, the stream may lose water to the underlying aquifer system; however, the stream has not been observed to be dry during the course of the RI investigation and the wet drainage channel located on the northern edge of the Site has consistently been wet.

Field observations and parameters (pH, conductivity, and temperature) were recorded during the groundwater sampling event completed on June 26 and 27, 2014 and were recorded on Groundwater Services Field Logs. The pH values for the collected groundwater samples were generally neutral, with values ranging from 6.54 to 7.38 standard units. The groundwater temperature upon sample collection ranged from 12.0 to 16.3 degrees Celsius. The conductivity for the groundwater samples ranged from 1414 µS to 5007µS. The turbidity values for the groundwater samples ranged from 5.50 to 27.9 NTUs. Table 3.1.5 lists the field parameter values for each well prior to sample collection.

Table 3.1.5 Summary of Field Observations During Groundwater Sampling					
Well ID	Turbidity (NTU) (1)	pH (SU) (2)	Temp (degrees C) (2)	Specific Conductance(2)	Water Level Elevation (feet)(3)
CTM-MW-1	18.4	6.69	14.9	1716 µS	232.43
CTM-MW-2	27.9	6.66	15.2	2740 µS	238.53
CTM-MW-3	14.4	7.04	14.4	1868 µS	227.63
CTM-MW-4	25.2	6.54	13.9	5070 µS	228.45
CTM-MW-5	23.4	7.38	13.3	1414 µS	231.03
CTM-MW-6	11.57	7.05	13.4	1642 µS	236.76
MW-3	-	-	-	-	-(4)
MW-4	11.9	6.95	12.0	1922 µS	244.36
MW-5	5.50	7.16	13.3	1421 µS	247.92
MW-6	18.4	6.65	13.0	1813 µS	229.97
PZ-1	8.77	6.56	16.3	2690 µS	231.15

(1) – A LaMotte Model 2020we Turbidity Meter was used. Turbidity readings were collected after purging, but before collecting laboratory samples.

(2) – An Oakton pH/CON 10 Meter was used. Readings were collected after purging, but before collecting laboratory samples.

(3) - A Solinst Water Level Meter was used. Readings were collected from the top of well PVC. The top of the well PVC was professionally surveyed.

(4) - Monitoring well MW-3 was dry at the time of sampling.

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 Sources

The Site was vacant until it was used by the City of Newburgh for the disposal of waste. The Site received industrial wastes and ash. Evidence of waste vinyl pieces were observed throughout the Site during the test pit investigation. DuPont-Stauffer reportedly manufactured vinyl products for automobiles. The Site might have also accepted unburned municipal waste when coal became a less prevalent form of heating energy. Also, it was reported that the Site may have been used to discard the ash generate from a City owned and operated incinerator plan located just off of Pierces Road.

4.2 Determination of Project Standards, Criteria and Guidance (SCGs)

Project SCGs were established for evaluation of analytical results for the four (4) media types that were sampled. The media types included surface/subsurface soils, groundwater, surface water, and sediment.

Laboratory analysis for surface soil samples the TCL of SVOCs, PCBs, Pesticides, and TAL metals; subsurface soil samples included the TCL of VOCs, SVOCs, and TAL of metals, with select samples only analyzed for TCL Pesticides, PCBs, herbicides, and total cyanide, and select subsurface soil samples for only TCLP. The analytical results for the TCL and TAL parameters were compared to NYSDEC 6 NYCRR Part 375 Environmental Remediation Programs, Subpart 375-6 Restricted Industrial Use Soil Cleanup Objectives (SCOs). The analytical results for the TCLP parameters were compared to 40 CFR §261.24 and 40 CFR §261.22 Code of Federal Regulations, Title 40 - Protection of Environment, Subpart C—Characteristics of Hazardous Waste.

Laboratory analysis of the groundwater samples included the TCL of VOCs, SVOCs, Pesticides, and PCBs, TAL metals, plus boron and Part 360 leachate indicators. The analytical results were compared to NYSDEC Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations promulgated in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) Water Class GA.

Laboratory analysis for the surface water samples included the TCL of VOCs, SVOCs, pesticides, PCBs, and TAL of metals. The analytical results were compared to NYSDEC Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations promulgated in the NYSDEC Division of Water TOGS Water Class A, A-S, AA, AA-S.

Laboratory analysis for the sediment samples included TCL SVOCs, PCBs, Pesticides, and TAL Metals. The analytical results for the parameters were compared to NYSDEC Division of Fish, Wildlife and Marine Resources Screening and Assessment of Contaminated Sediment, January 24, 2014; the data were compared to Table 5 Freshwater Sediment Guidance Values for metals, VOCs, PCBs and Pesticide action levels, and Table 7 Sediment Guidance Values for PAHs. Table 5 includes three action levels or classes. Class A are those sampling results that are deemed to not represent a threat to sensitive receptors; Class B are those sample results that suggest that additional monitoring is required and Class C are those results that require possible action.

4.3 Surface Soils

4.3.1 General

Ten (10) surface soil samples depicted as SS-01 to SS-10 on Figure 4 were collected across the site as part of the RI. The samples were analyzed for TCL SVOCs, PCBs, Pesticides, and TAL Metals.

The full analytical summary table of surface soil sampling results comparing the results to the SCOs is presented in Table 4.3-1. Values in the table which are shaded yellow have exceeded their corresponding SCOs for Restricted Industrial Use sites. The sampling locations where the analyzed parameters exceeded SCGs are depicted on Figure 6: Parameters in Surface Soil, Surface Water and Sediment Exceeding SCOs.

4.3.2 Volatile Organic Compounds in Surface Soil

With permission of the Department, volatile organic compounds were not analyzed in the surface soil samples.

4.3.3 Semi-Volatile Organic Compounds in Surface Soil

SVOCs were detected above the laboratory's detection limit in ten (10) surface soil samples within the site ranging from one (1) to twenty-two (22) compounds detected for each location. One (1) SVOC, benzo(a)pyrene, was detected at concentrations exceeding SCOs for Restricted Industrial Use sites at four locations: SS-02, SS-03, SS-04, and SS-08. SS-02 and SS-08 are located on the central portion of the Site. SS-03 and SS-04 are located in the vicinity of the northwestern site boundary.

The compounds detected are part of the family of compounds identified as Polycyclic Aromatic Hydrocarbons or PAHs. PAHs are often detected in the presence of unburned or partially combusted coal ash. Other sources of PAHs include heavier fraction petroleum products like diesel fuel or home heating oil. Coal and incinerator ash has been identified throughout the waste area.

4.3.4 Pesticides and PCBs in Surface Soils

Pesticides were detected above laboratory method specific detection limit at seven (7) locations (SS-02 to SS-05, SS-08 to SS-10). However, all detections were below the SCOs for Restricted Industrial Use Sites.

PCB congeners were also detected at concentrations exceeding the laboratory method specific detection limits at seven (7) surface soil sampling locations (SS-02 to SS-08); however, all of the PCB detections were below the SCOs for Restricted Industrial Use.

4.3.5 Metals in Surface Soils

Metals were detected above the laboratory method detection limit in surface soils across the site ranging from eighteen (18) to twenty-two (22) analytes detected per location. One (1) metal, arsenic, was detected at concentrations exceeding SCOs for Restricted Industrial Use sites. The metal was detected above SCGs at SS-03 and SS-04 located in the vicinity of the northwestern site boundary and SS-08 on the east central portion of the site.

4.3.6 Subjective Impacts in Surface Soils

Surface soil samples were subjectively assessed employing PID headspace analysis and organoleptic (sight and smell) perception. Results of the assessment did not indicate the presence of subjective impacts as would be evidenced by elevated PID readings, peculiar odors and staining/discoloration. See the Surface Soil and Sediment Organic Vapor Headspace Logs in Appendix A for additional detail.

4.4 Subsurface Soils

4.4.1 General

A total of twenty-five (25) subsurface soil samples were collected for laboratory analysis from the exploratory test pits. Fifteen (15) subsurface soil samples were submitted for TCL VOCs, SVOCs, and TAL metals. Five (5) subsurface soil samples were submitted for TCL VOCs, SVOCs, PCBs, Pesticides, TAL metals, and herbicides, total cyanide. Five (5) select subsurface samples were analyzed for the TCLP VOCs, SVOCs, Metals, Pesticides, Herbicides, Ignitability, and Corrosivity.

A table comparing the subsurface soil to the Industrial SCOs and the hazardous waste limits promulgated in 40Code of Federal Regulations (CFR) Part 300 is presented in Tables 4.4-1 and 4.4-2, respectively.

One (1) soil sample was collected from every other test pit, on average. The test pit identification numbers and the depth intervals that the subsurface soil samples were collected from are presented in Table 4.4-1: Subsurface Soil (Test Pits) Analytical Results Summary and Table 4.4-2: Subsurface Soils (TCLP) Analytical Results Summary. Values on the tables which are highlighted have exceeded their corresponding SCOs for Restricted Industrial Use sites or hazardous waste Maximum Concentration Limits identified in 40 CFR Part 300. The sampling locations where the analyzed parameters exceeded SCOs are depicted on Figure 8, Parameters in Subsurface Soil Exceeding Restricted Industrial Use SCOs.

4.4.2 Volatile Organic Compounds in Subsurface Soils

VOCs were detected at concentrations above the laboratory method detection limits for eighteen (18) subsurface soil samples at varying depths across the Site ranging from one (1) to twenty (20) compounds detected, but all detections were below SCOs for Restricted Industrial Use sites.

4.4.3 Semi-Volatile Organic Compounds in Subsurface Soils

SVOCs were detected at concentrations above the laboratory method detection limits for seventeen (17) subsurface soil samples at varying depths across the Site ranging from one (1) to twenty-two (22) compounds detected. All compounds detected were below SCOs for Restricted Industrial Use sites except one (1) SVOC, benzo(a)pyrene, at four (4) sample locations (TP-15(9.5′), TP-17(1.5′), TP-19(1.5′), and TP-31(1′)). Test pits TP-15, TP-17, and TP-19 are located on the central portion site and TP-31 is located on the western portion of the Site.

4.4.4 Pesticides, Herbicides, and PCBs in Subsurface Soils

Pesticides were detected above the laboratory's method detection limit in all five (5) subsurface soil samples from the test pits ranging from one (1) to eight (8) compounds detected per sample. All detections were below SCOs for Restricted Industrial Use sites.

Herbicides were not detected above the laboratory's method detection limit in the subsurface soil samples from the test pits.

PCBs were detected above the laboratory's method detection limit in four (4) of the five (5) subsurface soil samples ranging from one (1) to three (3) compounds detected per sample, but all detections were below SCOs for Restricted Industrial Use sites.

4.4.5 Metals in Subsurface Soils

Metals were detected above the laboratory method detection limit in subsurface soils across the site ranging from eighteen (18) to twenty-two (22) analytes detected per location. Three (3) metals, lead mercury and arsenic, were detected at concentrations exceeding SCOs for Restricted Industrial Use sites. Metals were detected above SCGs at

TP-11(3’) (mercury at 8.1 mg/kg versus the SCO of 5.7 mg/kg), located along the south eastern Site boundary; TP-17 (1.5′) (lead at 13,000 mg/kg versus the SCO of 3,900 mg/kg and mercury at 32 mg/kg versus the SCO of 5.7 mg/kg), located in the central portion of the Site; TP-35(3’) (arsenic at 23 mg/kg versus the SCO of 16 mg/kg), located near the south western site boundary; and TP-9(8′) (arsenic at 54 mg/kg versus the SCO of 16 mg/kg), located on the eastern portion of the site.

These soils are not exposed at the surface and will remain beneath the proposed soil cover system.

4.4.6 Toxicity Characteristic Leaching Procedure

VOCs, SVOCs, Pesticides, and Herbicides were not detected above the laboratory method detection limit. Metals were detected above the laboratory method detection limit in subsurface soils ranging from two (2) to three (3) compounds detected per location, but detections were below the 40 CFR Part 300 Maximum Concentration levels.

General Chemistry analysis of subsurface soil samples resulted in pH ranging from 7.1 to 7.6 standard units with one outlier of 4.6 standard units (TP-6(3’)).

The ignitable results for the subsurface soil samples were “non-ignitable”.

4.4.7 Subjective Impacts in Subsurface Soils

Subsurface soil samples were subjectively assessed employing PID headspace analysis and sight and smell perception. Subjective impacts, consisting of elevated PID readings, peculiar odors, and/or discoloration of soils were identified in all but a few sampling locations at varying depths across the Site. These observations are depicted on Figure 6. The Test Pit and Subsurface Soil Organic Vapor Headspace Analysis Logs are presented in Appendix C and E, respectively.

4.5 Groundwater

4.5.1 General

Groundwater samples were collected for analysis from each of the newly installed monitoring wells. Existing monitoring wells MW-4, MW-5, MW-6, and PZ-1 were also sampled with the exception of monitoring well MW-3 which was dry. The groundwater samples were analyzed for TCL VOCs, SVOCs, Pesticides, PCBs, TAL of metals plus boron, and typical leachate indicators.

The analytical summary results for groundwater samples are presented in Table 4.5-1: Groundwater Analytical Results Summary. The location and concentration range for parameters which have exceeded SCGs are identified in Figure 7: Parameters in Groundwater Exceeding SCGs.

4.5.2 Volatile Organic Compounds in Groundwater

VOCs were detected above the laboratory method detection limit in groundwater ranging from one (1) to seventeen (18) compounds detected at each monitoring well location. VOCs above SCGs were detected in monitoring wells CTM-MW-4, MW-4, MW-5, MW-6, and PZ-1. Wells with VOCs exceeding the SCGs are depicted on Figure 7. The VOCs exceeding SCGs include chlorobenzene, benzene, 1,4-dichlorobenzene, and naphthalene. The VOCs are primarily derived from petroleum products and consist of varying benzene congeners.

4.5.3 Semi-volatile Organic Compounds in Groundwater

Semi-volatile organic compounds (SVOCs) were detected above the laboratory method detection limit at seven (7) monitoring well locations, ranging from one (1) to twelve (12) compounds detected at each location (Attachment A). At two locations, CTM-MW-4 and PZ-1, the groundwater samples exceeded the applicable SCGs for SVOCs. Six (6) SVOCs (1,4-dichlorobenzene, naphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene) were detected above the applicable groundwater standards at CTM-MW-4. At PZ-1, bis(2-ethylhexyl)phthalate was detected above its respective SCG. Bis(2-ethylhexyl)phthalate is a common lab contaminant.

4.5.4 Pesticides and PCBs in Groundwater

PCBs were not detected above the laboratory method detection limit in the groundwater samples except for one (1) location, CTM-MW-4. Two (2) PCB congeners were detected above their respective SCGs. These PCBs were contained to CTM-MW-4 located near the northern site boundary (Figure 7).

Pesticides were not detected at concentrations exceeding the applicable SCGs in any monitoring well.

4.5.5 Metals in Groundwater

Between eighteen (18) and twenty (20) metals were detected at concentrations above the laboratory method detection limits in the samples obtained from the monitoring wells. Typically, in each well sample obtained, between three (3) to six (6) metals were detected at concentrations exceeding the applicable SCGs in each groundwater sample. Iron, sodium, magnesium, and manganese were detected at concentrations above SCGs in groundwater samples obtained from CTM-MW-1 through CTM-MW-6, PZ-1, MW-4, MW-5 and MW-6; antimony was detected in CTM-MW-1 and CTM-MW-4 above applicable SCGs; arsenic was detected in CTM-MW-2 above SCGs; and boron was detected in PZ-1 and CTM-MW-4 exceeding the applicable SCGs. Wells with analytes exceeding the applicable SCGs are depicted on Figure 7. Metals exceeding SCGs were identified across the site.

4.5.6 Leachate Indicators in Groundwater

Groundwater samples were analyzed for leachate indicators which include anions and general chemistry parameters. Three (3) anions were detected at concentrations above the laboratory method detection limits. Two (2) of those anions were detected at concentrations exceeding the applicable SCGs; bromide at CTM-MW-4 and chloride at CTM-MW-4, CTM-MW-2, and MW-4. The anion detections above SCGs do not correlate readily to any specific area of the Site, but were present throughout the Site.

General chemistry or typical leachate parameters were detected at levels above the laboratory method detection limit ranging from six (6) to nine (9) location; however, none of the detections exceeded the applicable SCGs identified in T.O.G.S. 1.1.1.

4.5.7 Subjective Impacts in Groundwater

Groundwater samples were subjectively assessed by organoleptic perception. Subjective impacts were identified at the following sampling locations:

- PZ-1 on 6/26/2014: waste type odor, groundwater reacted (bubbled) with preservative in lab containers
- CTM-MW-1 on 6/26/2014: faint waste type odor
- CTM-MW-2 on 6/26/2014: faint petroleum odor
- CTM-MW-3 on 6/26/2014: waste type odor
- CTM-MW-4 on 6/26/2014: abundance of dissolved gas
- MW-6 on 6/26/2014: slight petroleum odor, abundance of dissolved gas
- MW-5 on 6/27/2014: waste type odor
- MW-4 on 6/27/2014: waste type odor

4.6 Surface Water

4.6.1 General

Surface water samples were collected from the drainage ditch for analysis adjacent to the wetlands. The wetlands and surface water are sensitive receptors. Surface water samples SW-01 and SW-04 were collected from the eastern portion of the drainage ditch with SW-04 being the most upstream sample location. Surface water samples SW-02 and SW-03 were collected from the surface water present in the northern wetland area with SW-03 being the most downstream sample location. The surface water samples were analyzed for TCL VOCs, SVOCs, Pesticides, PCBs, and TAL metals.

The analytical summary results for surface water samples are presented in Table 4.6-1: Surface Water Analytical Results Summary. The location and concentration range for parameters which have exceeded SCGs are identified in Figure 6: Parameters in Surface Soil, Surface Water and Sediment Exceeding SCOs.

4.6.2 Volatile Organic Compounds in Surface Water

VOCs were detected above the laboratory method detection limit in surface water ranging from one (1) to three (3) compounds detected at each monitoring well location. VOCs were not detected at concentrations exceeding SCGs.

4.6.3 Semi-volatile Organic Compounds in Surface Water

SVOCs were detected above the laboratory method detection limit at three (3) of the four (4) surface water sampling locations. Two (2) locations had SVOCs detected above their respective SCGs. SW-01 had exceedences of benzo(b)fluoranthene and chrysene, and SW-04 had exceedences of benzo(a)pyrene, benzo(b)fluoranthene, and chrysene. The location and compounds exceeding SCGs are presented on Figure 6.

4.6.4 Pesticides and PCBs in Surface Water

PCBs and Pesticides were not detected at concentrations exceeding the laboratory method detection limits.

4.6.5 Metals in Surface Water

Metals were detected at concentrations exceeding the laboratory method detection limits at a rate of between seventeen (17) and twenty-three (23) metals per sample. Each of the four (4) surface water sampling locations had seven (7) metals detected at concentrations above SCGs. SW-04 contained aluminum, cobalt, iron, magnesium, manganese, and vanadium above the applicable SCGs; SW-01 contained antimony, iron, and manganese above SCGs; SW-02 contained aluminum, antimony, iron, manganese, and vanadium at levels exceeding SCGs; and SW-03 exceeded SCGs for antimony, iron, and manganese.

There appears to be no direct correlation between upstream and downstream results. The most significantly impacted surface water sample was the upstream location, SW-04, located on the north east corner of the site. This location may be receiving leachate from the landfill; however, the water flowing onto the site in the vicinity of SW-04 receives surface water run-off from the residential subdivision located to the east of 5 Scobie Drive and the commercial development located at the end of Scobie Drive.

4.6.6 Subjective Impacts in Surface Water

Surface water samples were subjectively assessed by organoleptic perception. Subjective impacts were identified at the following sampling locations, which are depicted on Figure 6:

- SW-01 on 5/20/2014: organic sheen and organic/decaying odor
- SW-02 on 5/19/2014: organic sheen and organic/decaying odor
- SW-03 on 5/19/2014: organic sheen
- SW-04 on 5/20/2014: organic sheen, orange brown to black surface film, and organic odor

4.7 Sediment

4.7.1 General

Sediment samples were collected in the drainage channel. Sediment samples SED-01 and SED-04 were collected from the eastern wetland area with SED-04 being the most upstream sediment sample location. Sediment samples SED-02 and SED-03 were collected from the northern portion of the drainage channel contained within the wetland, with SED-03 being the most downstream sediment sample location. The sediment samples were analyzed for the TCL of SVOCs, PCBs, Pesticides, and TAL Metals and compared to the results presented in the NYSDEC's Division of Fish, Wildlife and Marine Resources Screening and Assessment of Contaminated Sediment, January 24, 2014. The data were compared to Table 5 Freshwater Sediment Guidance Values for metals, VOCs, PCBs and Pesticide action levels, and Table 7 Sediment Guidance Values for PAHs. Table 5 includes three action levels or classes. Class A are those sampling results that are deemed to not represent a threat to sensitive receptors; Class B are those sample results that suggest that additional monitoring is required and Class C are those results that require possible action. The analytical summary results for sediment samples are presented in Table 4.7-1: Sediment Analytical Results Summary. The table includes the sediment guidance values as defined by Classes from Table 5 of the guidance and the PAH levels as defined in Table 7. The categories are highlighted by color for differentiation purposes. There are numerous metals in the sediment samples that fall within the Class B action level but only for samples exceed the Class C action level. The location and concentration range for parameters that exceed the applicable Class C Sediment Guidance Values (SGV's) are identified in Figure 6: Parameters in Surface Soil, Surface Water and Sediment Exceeding SGV's.

4.7.2 Volatile Organic Compounds in Sediment

Volatile organic compounds were not detected above the laboratory method detection limits in the sediment samples.

4.7.3 Semi-volatile Organic Compounds in Sediment

Sixteen (16) SVOCs were detected above the laboratory method detection limit, with varying number of detections per sediment sample. There were no SVOCs detected at concentrations above the applicable SGVs.

4.7.4 Pesticides and PCBs in Sediment

PCB congeners were detected at concentrations exceeding the laboratory method detection limits in SED-02 and SED-03. However, the congeners were not detected at concentrations above Class C SGVs. They were detected at levels falling within the Class B range.

Dieldrin was detected above the laboratory method detection limit but does not exceed the applicable Class C SGVs. .

4.7.5 Metals in Sediment

Between nineteen (19) and twenty-two (22) metals were detected at concentrations exceeding the laboratory method detection limits at all four (4) sediment sampling locations. Seven (7) metal (arsenic, cadmium, copper, lead, mercury, nickel and zinc were detected at levels within the Class B SGV range at all four sediment sampling locations. Three (3) metals were detected at concentrations above Class C SGVs at three of four sediment sampling locations. Arsenic, and zinc exceed the Class C SGVs in SED-04, located upstream. Silver was detected above the applicable Class C SGV at

SED-01, and arsenic was detected at SED-03 above the Class C SGVs, at the downstream end of the channel.

4.7.6 Subjective Impacts in Sediment

Sediment samples were subjectively assessed employing PID headspace analysis and sight and smell perception. Subjective impacts, consisting of elevated PID readings, peculiar odors, and/or discoloration of soils, if any, were not identified as documented in Subsurface Soil and Sediment Organic Vapor Headspace Analysis Logs in Appendix A.

4.8 Data Usability Summary Report

The remedial investigation analytical data was independently validated and deemed usable in accordance with NYSDEC DUSR requirements. There were minor rejections of data in three (3) of the six (6) data packages, all due to severely low MS/MSD recoveries. Exceptions of the data are identified below and summarized in Table 4.8.1. Any DUSR rejected data were not used in the interpretation of the results.

The independent review of the data indicates that the data were sufficient and representative and could be used to formulate decisions for remedial alternatives. Completed Data Usability Summary Reports provided by Environmental Data Services, Inc. (EDS) of Williamsburg, Virginia are found in Exhibit 1 of this report.

In-depth analysis of the validated data confirms that the data can be relied upon. Very little data was rejected outright or required qualifier modification. None of the rejected data applied to the key decision points, nor were any of the rejected compounds or analytes reported as detections. The changes to the analytical data as a result of the data validation have no significant impact on the proposed remedial alternative selected for the property, and we are confident that the data used to formulate that proposed remedial alternative can be relied upon for decision making purposes. All data tables and figures herein reflect the DUSR identified result qualifications.

The validated data can be found in Exhibit 1, attached to this report.

4.9 Summary of Extent of Contamination

4.9.1 General Overview

Analytical results for sampled surface and subsurface soils, groundwater, surface water, and sediment were compared to the site specific SCOs/SCGs identified in Section 4.2. The following Table 4.9-1 lists those compounds and analytes that exceeded project specific SCGs for Commercial/Industrial Use sites along with the frequency that the applicable SCG was exceeded per analyzed media.

TABLE 4.9-1: COMPOUNDS AND ANALYTES EXCEEDING SCGs PER MEDIA TYPE

Media	Class	Contaminant of Concern	Detected Concentration Range	Frequency Exceeding Standard	Applicable SCG
Surface Soils (mg/kg or ppm)	SVOCs	Benzo(a)pyrene	0.18–5.8	5 of 10	1.1
	Metals	Arsenic, Total	10-21	4 of 10	16
Subsurface Soils (mg/kg or ppm)	SVOCs	Benzo(a)pyrene	0.066-5.4	4 of 20	1.1
	Metals	Arsenic, Total	1.8-54	2 of 20	16
		Lead, Total	7.2-13,000	1 of 20	3,900
		Mercury, Total	0.02-32	2 of 20	5.7
Groundwater (ug/L or ppb)	Anions	Bromide	329-5760	1 of 10	2,000
		Chloride	20,700-413,000	3 of 10	250,000
	PCBs	Aroclor 1242	0.659	1 of 10	0.09
		Aroclor 1254	0.248	1 of 10	0.09
	SVOCs	1,4-Dichlorobenzene	1-7.6	1 of 10	3
		Bis(2-Ethylhexyl)phthalate)	8.4	1 of 10	5
		Naphthalene	0.08-39	1 of 10	10

TABLE 4.9-1: COMPOUNDS AND ANALYTES EXCEEDING SCGs PER MEDIA TYPE					
		Benzo(a)anthracene	0.17	1 of 10	0.002
		Benzo(a)pyrene	0.1	1 of 10	Non Detect
		Benzo(b)fluoranthene	0.12	1 of 10	0.002
		Chrysene	0.16	1 of 10	0.002
		Arsenic	29.81	1 of 10	25
	Metals	Antimony	0.42-4.29	2 of 10	3
		Boron	196-2,360	2 of 10	1,000
		Iron	3,810-48,700	10 of 10	300
		Lead	0.61-34.64	1 of 10	25
		Magnesium	33,700-73,800	9 of 10	25
		Manganese	273.6-1531	8 of 10	300
		Sodium	25,400-299,000	10 of 10	20,000
	VOCs	Chlorobenzene	0.73-70	5 of 10	5
		Benzene	1-9	4 of 10	1
		1,4-Dichlorobenzene	2.2-12	4 of 10	3
		Naphthalene	47	1 of 10	10
Surface Water (ug/L or	SVOCs	Benzo(a)pyrene	2.4	1 of 4	0.002
		Benzo(b)fluoranthene	0.48-3.5	2 of 4	0.002

TABLE 4.9-1: COMPOUNDS AND ANALYTES EXCEEDING SCGs PER MEDIA TYPE					
ppb)		Chrysene	0.26-2	2 of 4	0.002
	Metals	Aluminum, Total	12.1-4,000	2 of 4	100
		Antimony, Total	2.32-36.19	3 of 4	3
		Cobalt, Total	0.93-13.18	1 of 4	5
		Iron, Total	4,030-74,900	4 of 4	300
		Magnesium, Total	29,100-43,100	1 of 4	35,000
		Manganese, Total	760.8-7,514	4 of 4	300
		Vanadium, Total	0.29-22.09	2 of 4	14
Sediment (2) (mg/kg or ppm)					Class C
	Metals	Arsenic, Total	12-34	2of 4	>33(3)
		Silver, Total	0.82–4.3	1 of 4	>2.2
		Zinc, Total	120-800	1 of 4	>460

Table Notes:

(1) NYSDEC 6 NYCRR Part 375 Environmental Remediation Programs, Subpart 375-6 Industrial Use Soil Cleanup Objectives for soils and NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Effluent Limitations, June 1998 for groundwater and surface water.

(2) NYSDEC Division of Fish, Wildlife and Marine Resources Screening and Assessment of Contaminated Sediment, January 24, 2014; Freshwater Sediment Guidance Values (Table 5) and Sediment Guidance Values for PAHs (Table 7).

4.9.2 Surface and Subsurface Soils

Surface Soils

SVOCs were detected above SCGs at SS-02, SS-03, SS-04, and SS-08. Metals were detected above SCGs at SS-03, SS-04, and SS-08. SS-02 and SS-08 are located in the center of the site and SS-03 and SS-04 are located in the northwest portion of the site (see Figure 6). One (1) SVOC, benzo(a)pyrene, was detected above its respective SCG at the four (4) locations. One (1) metal, arsenic, was detected above its respective SCG at the three (3) locations.

Subsurface Soils

Arsenic was detected at TP-35 (23 mg/kg compared to SCO of 16 mg/kg) and TP-09 at 54 mg/kg. Lead (13,000 mg/kg; SCO: 3,900 mg/kg) and mercury (32 mg/kg; SCO: 5.7 mg/kg) at TP-17. Mercury was encountered at 8.1 mg/kg (SCO: 5.7 mg/kg) in the sample obtained from TP-11 at approximately 5 feet bgs. Arsenic was encountered at 54 mg/kg (SCO: 16 mg/kg) in TP-09.

The SVOC Benzo(a)pyrene was encountered in TP-15 (2.5 mg/kg), TP-17 (4.3 mg/kg), TP-19 (5.4 mg/kg), and TP-31 (3.2 mg/kg) at levels exceeding the applicable SCO of 1.1 mg/kg. These sample locations are presented in Figure 8. The exceedences are not correlated to any specific area of the Site or depth. The nature and extent of impacts to surface and subsurface soils indicates that site soils are generally impacted by SVOCs and metals at low levels. Surface and subsurface soils are impacted with the same SVOCs (Benzo(a)pyrene) and metals (arsenic, lead and mercury). The source of these impacts may be unburned coal ash. The locations of the surface and subsurface impacts exceeding SCOs are shown on Figures 6 and 8 respectively.

4.9.3 Groundwater

Groundwater at the site is impacted by eight (8) petroleum-type SVOCs, three (3) petroleum-type VOCs, eight (8) metals and two (2) PCB congeners. Groundwater impacts are observed in every well installed as part of this RI and in the previously installed wells that were sampled as part of this investigation. The compounds and analytes exceeding the applicable SCOs are depicted on Figure 7.

The overall nature and extent of impacts to groundwater indicate that it is generally impacted by weathered petroleum products, PAHs, metals and in one well, CTM-MW-4, PCBs were also present at very low levels. The source of the impacts may be weathered petroleum or it could be associated in part with the use of this facility for the burial of coal and incinerator ash.

Metals were detected in groundwater at levels exceeding the SCGs and typical leachate indicators were also present. The chemistry results in general only slightly exceed the applicable SCGs, suggesting that the historic use of the property has resulted in impacts to groundwater quality at low levels.

4.9.4 Surface Water

Surface water at the site is impacted by three (3) SVOCs (Benzo(a)pyrene, Benzo(b)fluoranthene, and Chrysene), and 11 metals (Aluminum, Antimony, Arsenic, Cobalt, Copper, Iron, Lead, Mercury, Magnesium, Manganese, and Vanadium). The surface appears most impacted in the eastern portion of the site. SW-04 is the upstream location and more metals and SVOCs were present at this location than the downstream sampling locations. The upstream impacts could be related to impacts originating at off-site locations; however, the compounds were similar to those encountered in groundwater samples obtained at the Site.

4.9.5 Sediment

Seven metals were detected at levels found within the Class B SGV range in the sediment samples. Those metals include arsenic, cadmium, copper, lead, mercury, nickel, and zinc. The presence of metals in the Class B range indicates that monitoring is indicated. Metals were detected above the applicable Class C SGVs at three of the four (4) sediment sample locations. Two (2) metals were detected above Class C SGVs at SED-04-04 (Arsenic and Zinc). Silver was detected above SGVs in the next downstream sampling point, SED-01. No metals were detected above SGVs in SED-02 and one metal, Arsenic was detected in SED-03, the most downstream sampling location. The sediment sampling results compared to their respective SGVs are depicted in Figure 6.

The arsenic in both SED-04 and SED-03 was detected at 34 MG/KG versus an applicable action level of 33 MG/KG. These values are within the range of statistical error and, no action is warranted based on these findings. Zinc was also present at SED 04. It was detected at 800 MG/KG versus an applicable SGV of > 460 MG/KG. However, this result is qualified as an estimate in the lab report and no action is warranted without confirmation. Silver was detected in SED-01 at 4.3 MG/KG versus the applicable SGV of >2.2 MG/KG.

It is interesting to note that the metals found in the surface soils correlate poorly with the metals found in the sediment samples. Arsenic, was detected in the surface soils at levels similar to those observed in the sediment samples and arsenic was found in one groundwater sample at levels exceeding the applicable SCGs. The source of the impacts to the sediments is not clearly defined. It may be related to surface runoff or other potential sources other than the buried wastes. Silver and Zinc were not present at substantially elevated levels in the surface or subsurface soils.

5.0 CONTAMINANT FATE AND TRANSPORT

5.1 General Overview

The contaminants exceeding the applicable SCOs or SCGs at the Site include:

- SVOCs and metals in surface soils (Figure 6);
- SVOC Benzo(a)pyrene and metals arsenic lead and mercury exceeding industrial SCOs at a few locations in subsurface soils (Figure 8);
- VOCs, SVOCs, metals, leachate indicators and PCB congeners in groundwater;
- SVOCs and metals in Surface Water; and
- Metals and PCBs in sediment samples

Compounds and analytes detected above SCOs in surface soils, subsurface soils, SGVs in sediment and SCGs in groundwater and surface water are presented in Table 4.9-1 in Section 4.9. Compounds and analytes which were detected at concentrations below SCOs or SCGs are not included in the table.

The fate and transport of the contaminants are based on the physical and chemical properties of the compounds and analytes and the site characteristics. This section defines and discusses the general characteristics of the contaminants which affect the fate and transport, the specific characteristics of the contaminants identified at the site, the site conditions which impact fate and transport, the transport off-site of the contaminants in the groundwater and soil vapor, and the fate of the contaminants in terms of transformation and degradation.

5.2 Definition of Relevant Properties

Due to their composition, the site contaminants have some common general characteristics and behavior. Characteristics which affect fate and transport include density, organic carbon/water partition coefficient, solubility in water, volatility, and degradability.

Table 5.2-1 presents various properties of the contaminants of concern. The specific gravity of a contaminant describes the weight of the contaminant relative to water, where one (1) is the weight of water. VOCs generally have a specific gravity value less than 1 and would therefore tend to be located in the upper portions of the aquifer. SVOCs, pesticides and metals often generally have a specific gravity value greater than one (1) and would therefore tend to migrate vertically downward. Depth to groundwater ranged between 3.75 feet below existing site grades at monitoring well CTM-MW-4 located on the northern portion of the site, to 19.86 feet below existing site grades at monitoring well CTM-MW-2 located on the southwestern boundary of the site (see Figure 5).

TABLE 5.2-1: Physical and Chemical Properties of Selected Site Contaminants

Compound	Density	Kow(1)	Koc(2)	Water Solubility(3)	Henry's Law Constant(4)
Volatile Organic Compounds:					
Acetone	0.7906	-0.24	-0.43	1.00E+06	3.97E-05
Benzene	0.88	2.13		1.75E+03	5.55E-03
Chlorobenzene	1.11	2.86		1.52E-01	3.70E-03
1,4-Dichlorobenzene	0.8758	3.42		7.38E+01	2.43E-03
Semi-Volatile Organic Compounds:					
Benzo(a)pyrene	1.3510	6.00	6.00	3.90E-03	2.40E-06
Benzo(b)fluoranthene	NDA	6.57	5.74	1.40E-02	1.20E-05
Chrysene	1.2740	5.61	5.39	1.80E-03	7.26E-20
Naphthalene	1.1450	3.36	3.11	3.00E+01	4.60E-04
Pesticides					
Dieldrin	1.75	5.37	2.61	1.95E-01	1.51E-05
Metals(5):					
Arsenic	5.72	NDA	NDA	Insoluble	NDA
Copper	8.94	NA	NA	0.12	NA
Iron	7.86	NA	NA	NDA	NA
Lead	11.35	NA	NA	0.001	NA
Manganese	7.43	NA	NA	NDA	NA
Sodium	0.97	NA	NA	Soluble	NA

References:
Superfund Public Health Evaluation Manual; EPA/540/189/002; Hawley's Condensed Chemical Dictionary, Twelfth Edition; Howard, Philip H., Fate and Exposure Data for Organic Chemicals. Vols. 1 & 2. 1989; and Robert C. Knox and others, Subsurface

Transport and Fate Processes, 1993; Wilson & Clarke, Hazardous Waste site Soil Remediation, Theory and Application of Innovative Technologies, 1994; Groundwater Chemicals Desk Reference, Fourth Edition, 2007, Montgomery, John H.
NDA denotes no data available in cited references.
NA denotes not applicable.
(1) Log octanol/water partition coefficient.
(2) Log organic carbon partition coefficient. Often a range is available rather than a single number.
(3) mg/l at 25 degrees C.
(4) Henry's Law constant, atm-m^3 / mole.
(5) The solubility of metals is highly dependent on the form of the metal compound present.

5.3 Contaminant Persistence

The organic carbon/water partition coefficient (Koc) indicates the tendency of an organic contaminant to sorb onto soil particles. Where the Koc is not experimentally available, it can be calculated based on the log octanol/water partition coefficient. The Koc multiplied by the organic carbon content of a given soil or sediment gives the estimated absorption partition coefficient (Kd) for that soil or sediment. Some absorption may occur between contaminants and inorganic soil particles, particularly clay. However, experimental data indicates that the absorption of nonionic, undisassociated chemicals to inorganic soil is low. Once the sorption sites in soil are used up, mobility in the water column and groundwater may increase to some extent.

Mobility is expected to be lowest in surface and near-surface soils, which tend to have some organic carbon. Below several feet in depth, the organic carbon content of soils is likely to be low, and even a compound with a high Koc will be moderately mobile. The VOCs, SVOCs, and pesticides have a wide range of organic carbon partition coefficients, from 7.49 for Indeno(1,2,3-cd)pyrene, indicating high sorption and low mobility in soil, to -0.43 for Acetone, indicating low sorption and high mobility.

The mobility of metals is affected by geologic conditions, and is often gauged by the environment’s oxidation/reduction (redox) potential. As the pH and dissolved oxygen vary, the solubility of metals can change substantially. Generally, but not always, reductive conditions favor the dissolved form of the metal, thus a change toward reducing conditions would make the metals more soluble and possibly more mobile.

Water solubility indicates the tendency of a compound to dissolve in and travel in water. The site contaminants (except for three (3) of the six (6) metals and the VOC p-Isopropyltoluene) have a wide range of solubility, but are generally soluble. When contaminant concentrations are above approximately ten (10) percent of the water solubility, a separate phase will tend to form. The water solubility values of the contaminants in groundwater vary, but are on the order of 3.48 to 1,000,000 mg/l for the VOCs, 1 to 30 mg/l for the SVOCs and 0.027 mg/l for the pesticide. The metals of concern, with the exception of copper and lead are nearly insoluble in water. Since the concentration of the contaminants detected at the site are much less than their water solubility values, separate phase layers are not likely to exist within the site.

Volatility in diffuse aqueous conditions such as occur in groundwater at the subject site is quantified by Henry's constant (K_h). The rate of volatilization increases as K_h increases. Volatility increases with decreases in atmospheric pressure, increase in temperature and when the compound vapor pressure is low relative to saturation. The contaminants of concern (except for pesticides and metals, which are not volatile) consist of semi-volatile organic compounds in surface soils, volatile and semi-volatile organic TICs and metals in subsurface soils and volatile and semi-volatile organic compounds and TICs, and pesticides in groundwater. These constituents may volatilize to some degree when unsaturated vapor, such as soil gas or the open atmosphere, are present.

The densities of the SVOCs in groundwater are 1.2030 for fluorine, 1.1450 for naphthalene and 1.1790 for phenanthrene. Because the SVOC densities are greater than one (1), the SVOCs will typically migrate vertically downward within the aquifer. None of the SVOCs detected above SCGs in groundwater were detected in surface and subsurface soils.

Due to the chemical composition of pesticides and metals, they do not typically biodegrade. Volatile organic compounds (VOCs) typically biodegrade at an accelerated rate, primarily under aerobic conditions. SVOCs biodegrade at a slower rate, often under anaerobic conditions. Biodegradation of VOCs and SVOCs in soil/groundwater has been found to occur under aerobic and anaerobic conditions. Biodegradation rates depend on the compounds detected. The presence of acclimatized microbes enhances biodegradation of the VOCs and SVOCs. Acclimatized microbes are soil microorganisms which have adapted themselves to the contaminants by producing enzymes to withstand toxic effects and to allow metabolism of the contaminants. Addition of nutrients would be expected to increase the rate of biotic degradation.

5.4 Contaminant Migration

The potential routes of contaminant migration are through groundwater and surface water run-off. VOCs were not detected in abundance in the shallow soils, so volatization to atmosphere is not likely. In addition, no subject evidence of typical landfill gas odors was noted. Depending on their solubility, contaminants could dissolve in groundwater and be transported in the direction of groundwater flow. The SVOC and metal contaminants present in surface soils could be transported to the atmosphere as dust should this media be disturbed or through displacement of this media by excessive winds. The SVOCs and metals could be dislodged by surface run-off; however, based on overall topography, significant run-off is not likely to occur unless exceptionally heavy storm related events are observed.

It is possible that the active drainage channel located on the eastern and northern edges of the Site could transport impacted sediment and dissolved VOCs, SVOCs and metals away from the site. Surface water sampling and sediment sampling indicate the entire reach of the drainage ditch has been impacted by low levels of metals, SVOCs, Pesticides and PCBs.

5.4.1 Groundwater Migration

The site's groundwater contains VOCs that are less dense than water and SVOCs which have densities greater than water. Due to their solubility, with the exception of the VOC p-isopropyltoluene which is insoluble, it is expected that the VOCs and SVOCs would migrate in the direction of the groundwater flow.

The detected metals and the VOC p-isopropyltoluene are insoluble in water and will tend to adsorb and absorb to soil particles, thus making it difficult for the metals and VOC to migrate with groundwater. Metals that are soluble in water (such as sodium) would readily migrate with groundwater. Groundwater contamination was identified in virtually every well sampled. The most significantly impacted wells were located in the southeast corner of the site (MW-4) and along the northern boundary of the site

(CTM-MW-04). There are no clearly identified sources other than the historic use of the property for the disposal of ash and municipal/industrial wastes. No obvious evidence of drums or containers containing solid or hazardous wastes were observed.

5.4.2 Atmospheric Migration

The SVOCs and metals observed in surface and subsurface soils would only be mobilized during Site disturbance. Any VOCs that were present in soils have long since dispersed. Any remaining VOCs in the soil vapor originating from surface soils, subsurface soils and groundwater may diffuse slowly upward and horizontally to unsaturated soil vapor. The rate of diffusion into the atmosphere depends on the differential in vapor saturation and on the atmospheric pressure. Under natural soil conditions, the differential is expected to be low within the soil and vadose zone. At the soil/atmosphere interface, the differential can change frequently, with great increases in differential causing contaminants to transport readily from surface soil to the atmosphere. Such is not likely to be the case at this Site given the overall absence of VOCs observed in shallow soils and groundwater. Site contaminants which may volatilize from the site soils to the atmosphere will disperse or abiotically degrade, with rates dependent on wind speed and levels of atmospheric radicals, respectively. Since the levels of contaminants in surface soils and subsurface soils are relatively low and VOCs are generally confined to deeper soils and groundwater, VOC and SVOC contaminants in the atmosphere are not expected to accumulate at detectable levels under existing conditions. Pesticides and metals do not exhibit volatility and therefore would not likely enter the atmosphere unless site soils were disturbed such that dust particles with pesticides and metals adhered to them enter the atmosphere.

5.4.3 Surface Water Transport

The SVOCs and metals observed in surface water and sediment samples could be mobilized under high flow conditions and/or Site disturbance. The impacted surface water and sediment could be transported away from the site; however, the sampling results indicate relatively minor impacts overall and disturbance of the stream bottom would potentially increase the observed impacts temporarily.

6.0 EXPOSURE ASSESSMENT

6.1 Qualitative Human Health Exposure Assessment

Exposure pathways are means by which contaminants move through the environment from a source to a point of contact with humans. A complete exposure pathway must meet five (5) criteria: 1) a source of contamination; 2) a mechanism for transport of a substance from the source to the air, surface water, groundwater and/or soil; 3) a point where people come in contact with contaminated air, surface water, groundwater or soil (point of exposure); 4) a route of entry (exposure) into the body; and 5) a receptor population. Routes of entry include ingesting contaminated materials, breathing contaminated air, or absorbing contaminants through the skin. If any part of an exposure pathway is absent, the pathway is said to be incomplete and no exposure or risk is possible. In some cases, although a pathway is complete, the likelihood that significant exposure will occur is small.

The potential site related contaminants were identified as those contaminants detected in various media at the site above SCGs and for sediment samples identified at levels exceeding the Class C SGVs. The potential site related contaminants that have been identified in various media at the site are presented in Table 6.1-1.

TABLE 6.1-1: PARAMETERS DETECTED ABOVE SCGs or Class C SGVs				
Compound	Surface Soils	Test Pits	Groundwater	SW & Sediment
Volatile Organic Compounds				
Chlorobenzene	No	No	Yes	No
Benzene	No	No	Yes	No
Bis(2Ethylhexl)phthalate	No	No	Yes	No
1,4-Dichlorobenzene	No	No	Yes	No
Semi-Volatile Organic Compounds				
Benzo(a)anthracene	No	No	Yes	Yes
Benzo(a)pyrene	Yes	Yes	Yes	Yes
Benzo(b)fluoranthene	No	No	Yes	Yes
Chrysene	No	No	Yes	Yes

Naphthalene	No	No	Yes	No
Anions				
Chloride	No	No	Yes	No
Boron	No	No	Yes	No
Bromide	No	No	Yes	No
Metals				
Aluminum	No	No	No	Yes
Antimony	No	No	Yes	Yes
Arsenic, Total	Yes	Yes	Yes	Yes
Cobalt	No	No	No	Yes
Copper, Total	Yes	No	No	Yes
Iron, Total	No	No	Yes	Yes
Lead, Total	Yes	No	Yes	Yes
Magnesium	No	No	Yes	Yes
Manganese, Total	Yes	No	Yes	Yes
Mercury	No	No	No	Yes
Silver	No	No	No	Yes
Sodium, Total	No	No	Yes	No
Vanadium	No	No	No	Yes
Zinc	No	No	No	Yes
Pesticides and PCBs				
Dieldrin	No	No	No	Yes
Aroclor 1242	No	No	Yes	No
Aroclor 1252	No	No	Yes	No

Exposure pathways for site contaminants are a function of the contaminant, the affected media, contaminant location and the potentially impacted population. The potential exposure routes and pathways include the following:

- inhalation, dermal contact and/or ingestion of contaminated soil on-site;
- dermal contact and/or ingestion of contaminated groundwater on-site;
- inhalation of vapors emanating from contaminated groundwater;

- dermal contact or ingestion of contaminated surface water; and
- dermal contact or ingestion of contaminated sediment.

The potential impacted populations at the site and vicinity or receptor populations would include site visitors and trespassers before remediation is implemented, and, during remedial activities, construction workers engaged in subsurface excavation during any future site development.

Arsenic, and Benzo(a)pyrene were detected above their SCOs or in surface soils. Subjective impacts were also considered in surface soils. The concentration of these contaminants of concern will warrant remedial action in portions of the site where detected, as they are present within surface soil that is readily accessible to dermal contact and ingestion. Furthermore, disturbance of these soils would create airborne dust containing these contaminants that may be inhaled by site workers during remedial construction activities. However, these contaminants were observed at very low levels in surface soils. The observed impacts only slightly exceed the applicable SCOs and were only identified at four (4) of the ten (10) locations sampled. However, because of the potential for dermal contact (including ingestion and inhalation) with exposure to the impacted surface soils, the associated impact with exposure to surface soils is described as low to moderate. Mitigation measures are straightforward and would include dust suppression measures during construction activity.

Arsenic, lead and mercury were detected above their respective SCOs in subsurface soils. Benzo(a)pyrene was also identified above SCOs at four test pit locations out of 25 locations sampled. The concentration and persistence of Benzo(a)pyrene may warrant remedial action in portions of the Site where detected. The Benzo(a)pyrene may be associated with unburned coal ash which was prevalent throughout the Site. This compound is present within subsurface soil that would be potentially moved or disturbed during the installation of site utilities and other remedial construction activity. Dermal contact and ingestion during any future Site work is a possibility but can be mitigated through appropriate health and safety protocols. Disturbance of these soils could create airborne contaminants that may be inhaled. Because of the potential for dermal contact (including ingestion and inhalation) with exposure to the impacted subsurface soils during any future excavation activities, the associated impact is anticipated to be moderate without appropriate protocols in place to mitigate fugitive dust.

Groundwater impacts consist of petroleum-related VOCs, SVOCs, metals and PCB congeners above SCGs. Groundwater on the site ranges in depth from 19 or more feet to 3.95 feet bgs. The site vicinity is served by public water provided by the City of Newburgh. Because residents in the site vicinity do not depend on private wells as a potable water source, the potential for dermal contact and/or ingestion through exposure to groundwater in the area is anticipated to be low; however, because groundwater is shallow along the northern boundary of the Site, construction workers may come in contact with contaminated groundwater during construction activity, so the dermal exposure potential and inadvertent ingestion from splashing or spray during excavation activity that penetrates into shallow groundwater by site workers during construction activity is considered moderate to high.

Low level petroleum-related VOCs and SVOCs are present in groundwater. The VOCs have the potential to volatilize into the pore spaces of overlying unsaturated soils and migrate into the interiors of future site buildings as soil gas. The soil gas may cause a potential inhalation exposure pathway to future building occupants. Based on the low level petroleum-related VOCs, the associated impact is anticipated to be low and any exposure pathway shall be mitigated by installing passive sub-slab ventilation that can be converted to an active system after pressure field testing and if confirmatory vapor intrusion sampling indicates that it is warranted.

6.2 Qualitative Off-Site Exposure Assessment

The potential off-site receptor populations would nearby workers at the adjacent commercial establishments, the residential neighborhoods surrounding the property and passersby along Interstate I-84 before remediation is implemented, and, during remedial activities during any future site development.

Arsenic, and benzo(a)pyrene were identified in surface soils. These compounds are not particularly mobile, but they could be mobilized during construction activity. Disturbance of these soils would create airborne dust containing these contaminants. that may be inhaled by persons traveling nearby the site workers during remedial construction activities. These contaminants were observed at very low levels in surface soils. A Community Air Monitoring Plan (CAMP) will be in place during construction activity. Adherence to dust monitoring and dust control measurements will be mandated, reducing the risk of exposure for off-site receptors. The observed impacts only slightly exceed the applicable SCOs and were only identified at four (4) of the ten (10) locations sampled. There is little to no potential for direct dermal exposure, mainly inhalation exposure. The potential for dermal contact (inhalation only) is described as low. Mitigation measures are prescriptive and would include dust suppression measures during construction activity.

Arsenic, lead and mercury were detected above their respective SCOs in subsurface soils. Benzo(a)pyrene was also identified above SCOs at four test pit locations out of 25 locations sampled. The concentration and persistence of benzo(a)pyrene may warrant remedial action in portions of the Site where detected. As it currently exists, these contaminants present no to low risk to off-site receptors.

If these compounds and analytes are moved or disturbed during the installation of site utilities and other remedial construction activity, dermal contact, inhalation or ingestion is a possibility for off-site receptors who might be downwind of construction activity. Disturbance of these soils could create airborne contaminants that may be inhaled. Because of the limited potential for dermal contact (including ingestion and inhalation) with exposure to the impacted subsurface soils during any future excavation activities, the associated impact to off-site sensitive receptors is anticipated to be low without appropriate protocols in place to mitigate fugitive dust, and further reduced with appropriate fugitive dust control measures in place.

Groundwater impacts consist of petroleum-related VOCs, SVOCs, metals and PCB congeners above SCGs. Groundwater on the site ranges in depth from 19 or more feet to 3.95 feet bgs. Shallow bedrock discharges to the surface water body observed along the north side of the property. Coincidently, groundwater located on the north side of the surface water body also discharges to the surface water body. Impacted groundwater is not likely to migrate off-site; therefore, the associated impact to off-site sensitive receptors is determined to be low. Additionally, the region surrounding the Site is served by public water provided by the City of Newburgh or the Town of Newburgh. Because residents and the adjacent commercial establishments do not depend on private wells as a potable water source, the potential for dermal contact and/or ingestion through exposure to groundwater in the area is anticipated to be low.

Groundwater is shallow along the northern boundary of the Site and discharges to the drainage channel. Surface water flowing in the drainage channel moves towards the Gidneytown Creek. This creek eventually discharges to the Quassaick Creek. Off-site sensitive receptors coming in contact with the surface water may experience slightly increased exposure potential. The dermal exposure potential and ingestion of shallow groundwater by sensitive receptors is considered low to moderate based on contaminant levels observed in the surface water body.

TABLE 7.1-1: POTENTIAL EXPOSURES TO SITE CONTAMINANTS	
Environmental Media & Exposure Route	Human Exposure Assessment
Direct Contact with Near-Surface Soil & Incidental Ingestion	1. The site is vacant and empty. Unless they are trespassing, people are currently not coming into contact with contaminated near-surface soils. 2. People may come into contact with contaminated near-surface soils during any future site development during construction. 3.Off-site exposure would only exist if construction activity generates fugitive dust emissions.
Direct Contact with Subsurface Soils & Incidental Ingestion	4. People can come into contact with contaminated subsurface soils if they complete ground intrusive work at the site, such during future construction work. 5.Off-site sensitive receptors would not be exposed to subsurface contaminants unless they are disturbed during construction activities.
Ingestion of Groundwater	6. Contaminated groundwater is not being

TABLE 7.1-1: POTENTIAL EXPOSURES TO SITE CONTAMINANTS	
Environmental Media & Exposure Route	Human Exposure Assessment
	used for drinking water, as the area is served by the public water supply. There are no known domestic water supply wells in the area. 7. Site workers could inadvertently ingest contaminated groundwater during construction activity because groundwater is shallow on the northern edge of the Site. 8.Off-site exposure to contaminated groundwater is not likely. Impacted groundwater is intercepted by the shallow drainage channel which acts as a hydraulic barrier, substantially reducing the likelihood of off-site exposure.
Direct Contact with Groundwater	9. People may come into contact with contaminated groundwater if they complete ground intrusive work at the site that extends to the water table. 10. Off-site sensitive receptors are not likely to come in contact with contaminated groundwater emanating from the Site because it is intercepted by the drainage channel.
Inhalation of Air (exposures related to soil vapor intrusion)	11. There are currently no buildings on the site. 12. Any future building is going to include a soil vapor mitigation system, whether it is needed or not.
Dermal Contact or Ingestion of Surface Water or Sediment	13. Site workers or trespassers may come into contact with contaminated surface water or sediment if they are working in

TABLE 7.1-1: POTENTIAL EXPOSURES TO SITE CONTAMINANTS	
Environmental Media & Exposure Route	Human Exposure Assessment
	or trespassing through the wetland area on the northern boundary of the site. 14. Off-site sensitive receptors may be affected if they come in contact with impacted surface water or sediment that migrates from the site.

7.0 SUMMARY AND CONCLUSIONS

7.1 Summary

This RI was completed to obtain sufficient information to develop remedial alternatives and a remedy for the site. This RI was completed in general conformance with NYSDEC's DER-10/Technical Guidance for Site Investigation and Remediation issued May 3, 2010 and involved the collection and analysis of surface soil samples; the advancement of test pits and test borings for the collection and analysis of soil samples and to evaluate the site's subsurface conditions; the installation of monitoring wells for the collection and analysis of groundwater samples, a leachate assessment, a fish and wildlife assessment and collection of surface water and sediment samples.

7.1.1 Site Background

The subject site is located at 5 Scobie Drive in the City of Newburgh, Orange County, New York. The site consists mainly of one tax parcel (S.B.L. 1-1-6) approximately 15.6 acres in size. The site is located to the north and east of the former DuPont-Stauffer Chemical Manufacturing site and the City DPW facility, west of Scobie Drive and two ongoing commercial enterprises, and south of Interstate I-84. The site area topography is generally sloping northward with some flatter spots with a slight downward grade to the north and east.

The site is currently vacant and had historically been used as a landfill. The site is currently heavily wooded and overgrown. Stockpiles and scattered junkyard type objects, such as empty containers, tanks, empty drums, car parts, televisions, refrigerator carcasses, etc. were observed on the south side of the site, adjacent to the City owned DPW site. Some of the debris may be from convenience dumping.

A shallow drainage channel that appears to be manmade exists along the northern boundary of the site. Wetlands are located along either side of the drainage channel and on the northern edge of the site. The drainage channel drains generally east to west-northwest into the wetlands on the northern edge of the site, eventually making its way to the Gidneytown Creek which is located approximately 1,000 feet west of the site (Figure 1).

Between approximately 1948 and 1962, portions of the site may have been used by the City as part of a municipal landfill. Historic use of the property and the presence of known or suspected sources of contamination have left it undeveloped and underutilized since 1984 when NYS gave it back to the City of Newburgh Industrial Development Agency. According to available records, waste disposal on the 5 Scobie Drive parcel ceased in 1962. Anecdotal evidence indicates that the City of Newburgh stopped using its current DPW site for waste disposal in the mid 1980's.

Contaminants were detected at the site during several previous investigations, and suspect contamination is inferred based on the historic operation of the property and the findings of investigations performed on adjacent properties.

The site reportedly accepted waste from local residents and industries. The site was also reportedly used for ash disposal. Ash was observed in test pits excavated in the northwestern portion of the site along with other miscellaneous debris (ash, jars, glass, motor oil cans, tires, bricks, plastic, battery cases, etc.). Surface debris is present throughout the Site and convenience dumping has/is occurring on the property.

Laboratory analytical results from previous environmental investigations show elevated levels of semi-volatile organic compounds and metals in the central portions the site, although these constituents were not detected at levels exceeding the criteria for classification as hazardous waste.

7.1.2 Physical Characteristics of the Subject site

The overburden generally consisted of loosely packed soils consisting primarily of sand, with varying percentages of silt, clay and gravel and including fill materials such as ash, broken glass, metal, ceramic debris and plastic, wood and paper products. Tires and other typical municipal solid waste were observed in the upper soil horizon.

Bedrock consists of limestone or dolomite and was encountered in test pits on the west side of the site and in rock cores obtained from beneath the proposed building footprint area. The rock was weathered in the upper few feet grading to more competent bedrock at around five feet below the surface of the bedrock.

Water table was encountered at depths ranging from more than 19 feet below ground surface on the south side of the site to less than four (4) feet bgs in the wells installed along surface water body on the north side of the site. Groundwater flows from south to north and discharges to the drainage channel along the northern edge of the site.

7.1.3 Nature and Extent of Contamination

The primary contaminants of concern at the site are SVOCs and metals in surface soils, subsurface soils, groundwater, surface water and sediments. A pesticide (Dieldrin) and PCBs were encountered in sediment (SED-02) and groundwater (CTM-MW-4) samples obtained in the northwest quadrant of the site. The nature and extent of contamination exceeding the industrial SCOs, the protection of ecological resources SCOs and groundwater and surface water SCGs is summarized briefly below:.

Surface Soils

SVOCs and metals were detected above SCOs at SS--02, SS-03, SS-04, and SS-08. The observed impacts are not correlated to a particular location at the site. The impacts are most likely associated with ash and unburned coal ash, which was widespread throughout the site and intermixed with other typical industrial wastes (e.g., remnant vinyl pieces) and municipal wastes (e.g., wood, tires, bottles and cans, etc.). The contaminants exceeded the respective SCOs by slight margins. Neither benzo(a)pyrene or arsenic exceeded its SCO by more than a factor of four.

Subsurface Soils

SVOCs and metals were detected above the respective SCOs at seven locations (Figure 8). The only compounds detected exceeding SCOs were benzo(a)pyrene and the metals arsenic, lead and mercury. Subjective impacts, associated with historic landfill activity were also observed. Slightly elevated PID readings, odors, solid waste, and discolored soil and ash deposits were noted.

The native soils underlying the landfill mass were typically not stained, except at the immediate boundary between the fill and native soils. Odors were not observed and there was no discoloration indicating substantial impacts. The overall nature and extent of impacts to native subsurface soils suggests that historic landfilling activity has not caused widespread degradation of subsurface conditions.

Groundwater

Groundwater at the site is impacted by VOCs, SVOCs, PCBs and metals; however, the impacts are typically at very low levels above the applicable SCGs.

Surface Water and Sediment Samples

Surface water and sediment in the drainage channel and water body adjacent to the site along the northern and eastern boundary were impacted with metals at levels that slightly exceed the applicable Class C SGVs. The metals are similar to those found in surface soils, subsurface soils and groundwater. The drainage channel receives water from other areas and is recharged by groundwater emanating from the beneath the site. These sources may be contributing to the observed impacts.

The sampling results were compared to those identified in the NYSDEC Division of Fish, Wildlife and Marine Resources Screening and Assessment of Contaminated Sediment, January 24, 2014 Freshwater Sediment Guidance Values and Sediment Guidance Values for PAHs. The Class C Sediment Guidance Values were exceeded only slightly, with the exception of zinc; however, zinc levels were estimated based on the lab results and should be considered accordingly. A Fish and Wildlife Assessment for the Site and surrounding area gave a weighted importance rating of "low" to the wetlands and drainage channel based on expected fish and wildlife populations, surrounding resources and the physical characteristics of the watershed feeding this drainage channel. Given the low level impacts in sediment and surface water, the urban setting, and the proximity of I-84 (a potential source of the observed impacts) the exposure potential is low for receptor populations and future mitigation efforts will further reduce exposure potential.

7.1.4 Fate and Transport

The site related contaminants include VOCs, SVOCs, metals, pesticides and PCBs in surface soils, subsurface soils, groundwater, surface water and sediment.

The SVOCs and metals in surface and subsurface soils that exceeded the SCOs and SCGs will tend to adhere to surrounding soil and fill particle voids and not migrate into underlying groundwater. However the contaminants of concern are present in the buried wastes and, as such, will continue to impact groundwater through infiltration.

The site's groundwater contains VOCs and SVOCs that are less dense than water and SVOCs which have densities greater than water. Due to their solubility, it is expected that the VOCs would migrate in the direction of the groundwater flow; however, the SVOCs have relatively lower solubility and are less likely to dissolve in water. They are more likely to remain persistent in soils than to migrate via groundwater transport. The detected metals for the most part are insoluble in water and would tend to adsorb and absorb to soil particles, thus making it difficult for the metals to migrate with groundwater. Metals that are soluble in water (such as sodium) would readily migrate with groundwater.

The VOCs and SVOCs in the soil vapor originating from surface soils, subsurface soils, groundwater and waste mass may diffuse slowly upward and horizontally to unsaturated soil vapor and/or atmosphere. Site contaminants which may volatilize from the site soils to the atmosphere are expected to disperse or abiotically degrade. Since VOCs are generally confined to the groundwater, VOC and SVOC contaminants in the atmosphere are not expected to accumulate at detectable levels under existing conditions. Pesticides and metals do not exhibit volatility and therefore would not likely enter the atmosphere unless site soils were disturbed such that dust particles with pesticides and metals adhered to them enter the atmosphere.

Metals and SVOCs found in sediment are likely to be attached to soil particles and would be transported under storm conditions when the flow rates are sufficient to scour sediment and move it to downstream locations. Under significant storm events, the channel bottom may be scoured; however, it is as likely that impacted materials will be transported on to the Site from off-site locations. The upstream drainage serves a residential subdivision and an industrial/commercial development.

7.2 Summary of the Human Health Exposure Assessment

The potential exposure pathways were evaluated from the perspective of the existing source areas to a point of contact with humans. There is a source of contamination; there is a mechanism for transport to the media of concern; (air, surface water, groundwater and/or soil) there is a point in the future where people may come in contact with Site contaminants; there is a route of entry (exposure) into the body; but as of now there is no receptor population. However, once the site is developed, that could change. The potential exposure routes and pathways include the following:

- inhalation, dermal contact and/or ingestion of contaminated soil on-site;
- dermal contact and/or ingestion of contaminated groundwater on-site;
- inhalation of vapors emanating from contaminated groundwater;
- dermal contact or ingestion of contaminated surface water; and
- dermal contact or ingestion of contaminated sediment.

The potential impacted populations at the site and vicinity will mainly be limited to site workers in the future and those engaged in subsurface excavation during any future site development.

Based on the low levels of contaminants observed, the overall risk to future site workers is designated as low to moderate. There is a low probability of impacts occurring to off-site receptor populations.

7.3 Conclusions

Based upon the findings and conclusion of this RI, additional investigative activities are not warranted at this time. The Remedial Investigation has adequately delineated the presence and extent of the contaminants of concern identified for the site. The existing data is considered to be sufficient for the preparation of the Alternatives Analysis and Remedial Work Plan.

7.3.1 Data Limitations and Disclaimer

All of the Remedial Investigation analytical were independently validated in accordance with NYSDEC DUSR requirements. The DUSRs is included as Exhibit 1 in the Final Remedial Investigation Report.

FIGURE 1

SITE LOCATION MAP

FIGURE 2

BOUNDARY AND TOPOGRAPHIC SURVEY

FIGURE 3

TEST PIT LOCATIONS

FIGURE 4

SURFACE SOIL, SEDIMENT, AND SURFACE WATER SAMPLING LOCATIONS

FIGURE 5

SOIL BORING AND MONITORING WELL LOCATIONS

FIGURE 6

PARAMETERS IN SURFACE SOIL, SURFACE WATER, AND SEDIMENT EXCEEDING SCOs

FIGURE 7

PARAMETERS IN GROUNDWATER EXCEEDING SCGs

FIGURE 8

PARAMETERS IN SUBSURFACE SOIL EXCEEDING SCOs

FIGURE 9

APPROXIMATE ELEVATION CONTOURS FOR TOP NATIVE MATERIAL

FIGURE 10

GROUNDWATER ELEVATION CONTOUR MAP, JUNE 24, 2014

TABLES

TABLE 4.3-1

SURFACE SOIL ANALYTICAL RESULTS SUMMARY

TABLE 4.4-1

SUBSURFACE SOILS (TEST PITS) ANALYTICAL RESULTS SUMMARY

TABLE 4.4-2

SUBSURFACE SOILS (TCLP) ANALYTICAL RESULTS SUMMARY

TABLE 4.5-1

GROUNDWATER ANALYTICAL RESULTS SUMMARY

TABLE 4.6-1

SURFACE WATER ANALYTICAL RESULTS SUMMARY

TABLE 4.7-1

SEDIMENT ANALYTICAL RESULTS SUMMARY

TABLE 4.8-1

MODIFIED OR REJECTED DATA;

DATA USABILITY SUMMARY REPORT

APPENDIX A

SURFACE SOIL AND SEDIMENT ORGANIC VAPOR HEADSPACE ANALYSIS LOGS

APPENDIX B

TEST PIT LOGS

APPENDIX C

TEST PIT ORGANIC VAPOR HEADSPACE ANALYSIS LOGS

APPENDIX D

SUBSURFACE EXPLORATION LOGS

APPENDIX E

SUBSURFACE SOIL ORGANIC VAPOR HEADSPACE ANALYSIS LOGS

APPENDIX F

MONITORING WELL CONSTRUCTION LOGS

APPENDIX G
FISH AND WILDLIFE IMPACT ANALYSIS

EXHIBIT 1

DATA USABILITY SUMMARY REPORT

EXHIBIT 2

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

EXHIBIT 3

REMEDIATION WORK PLAN AND SPILL INVESTIGATION REPORT

EXHIBIT 2

DRAFT SUPPLEMENTAL PFAS INVESTIGATION REPORT

November 13, 2020

NYS Brownfield Cleanup Program

Draft Supplemental PFAS Investigation Report
5 Scobie Drive Site
Newburgh
Orange County, New York

Prepared for:

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C.T. Male Project No: 19.9405

"I James McIver, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Supplemental PFAS Investigation Report was prepared in accordance with applicable statutes and regulations and in substantial conformance with DER Technical Guidance for site Investigation and Remediation (DER-10) and the NYSDEC's October 2020 PFAS Guidance document."

Unauthorized alteration or addition to this Document is a violation of Section 7209 Subdivision 2 of the New York State Education Law.

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C.T. MALE ASSOCIATES

ATTACHMENTS

Attachment A:	PFAS Investigation Letter Report by NIDA
Attachment B:	Figures
Attachment C:	Field Sampling Logs
Appendix D:	Laboratory Data

1.0 INTRODUCTION

C.T. Male Associates Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C. (C.T. Male) has prepared this Supplemental Emerging Contaminants Sampling Report (Report) for the above-referenced property (the "Site"), located in the City of Newburgh, Orange County, New York. This Report has been prepared pursuant to requests from the New York State Department of Environmental Conservation (NYSDEC) to collect supplemental PFAS data from the Site. Representative shallow soil, waste characterization, groundwater, and surface water samples were collected and Synthetic Precipitation Leaching Procedure (SPLP) was performed on the waste characterization samples. The analysis was limited to the NYSDEC's list of per- and polyfluoroalkyl substances (PFAS) as outlined in the NYSDEC's October 2020 PFAS guidance document.

1.1 Site Background

PFAS was detected in monitoring wells in April of 2019 when, at the request of the NYSDEC to the City of Newburgh Industrial Development Agency (NIDA) to sample for emerging contaminants, C.T. Male sampled three monitoring wells at the Site for PFAS compounds. The report of those results is attached to this letter in Attachment A. PFAS compounds were detected in all three wells at levels exceeding the USEPA's guidance levels of 70 parts per trillion (ppt). Higher levels were detected in the upgradient locations.

Combined PFOA/PFOS concentrations were: 110 parts per trillion (ppt) in upgradient monitoring well MW-5; 101 ppt in the duplicate sample collected from upgradient MW-5; 77.7 ppt in downgradient monitoring well CTM-MW-5; and, 581 ppt in upgradient monitoring well CTM-MW-2 (See Figure 1 from the 2019 well sampling effort by the NIDA in Attachment A).

2.0 SUPPLEMENTAL SAMPLING

During a recent discussion with Erik and Chris Cooney of Scobie Industrial Partners, LLC, a new potential BCP Applicant, the NYSDEC raised concerns about the presence of PFAS in groundwater beneath the Site and indicated that groundwater treatment may be required. The NYSDEC were informed that treatment of groundwater would be virtually impossible at this Site and would certainly be cost prohibitive for this BCP Applicant.[1]

The PFAS levels were higher upgradient. Groundwater beneath Site flows generally northward. Based on the groundwater impacts, it appears as if the upgradient City of Newburgh Department of Public Works property is the potential source of the PFAS impacts in groundwater. As such, Scobie Industrial Partners, LLC was reluctant to move forward without further definition of this potential problem.

2.1 Surface Water Sampling

Groundwater flow is towards the north and west at the Site as depicted in Figure 10 from the approved Remedial Investigation Report (RIR), which can be found in Attachment B. Shallow groundwater discharges to the wetlands and to a drainage channel on the north side of the Site. NYSDEC stream mapping data shows there are no mapped streams within the boundaries of the project Site. The nearest mapped stream is located within approximately 100 feet north of the northern property boundary. The mapped stream, Gidneytown Brook, is a Class C stream. This stream and the wetland area to the north of the Site is the sensitive receptor for PFAS impacted groundwater flowing beneath the Site.

[1] The requirement for groundwater remediation systems to address PFAS impacts at the Site would add millions of dollars to project costs. Only a small portion of those costs would be recoverable through tax incentives. Groundwater remediation may not even be viable based on geologic and hydrogeologic conditions. For example, the estimated pumping rate to entrain groundwater is between 350,000 and 500,000 gallons per day. The treatment system for that much PFAS impacted water is in excess two million dollars. Operations and Maintenance (O&M) Costs would be in excess of $150,000 annually. Virtually all those costs would be incurred to address a problem that originated off-site. Given the complexities of constructing at the Site, this project will not be viable if groundwater treatment is required by the NYSDEC.

The stream and wetlands are likely to be man-made features that was constructed or created either during construction of Interstate I-84 or as part of the construction of the two warehouse buildings located at the north end of 5 Scobie Drive. The wetlands and stream channel receive surface water runoff from the surrounding regions, stormwater from the warehouse development, and stormwater from an adjacent housing development to the east of Scobie Drive.

Scobie Industrial Partners, LLC authorized C.T. Male to collect four (4) surface water samples from the off-Site stream and wetlands. Surface water samples were taken September 1, 2020 from one upstream, two mid-stream and one downstream location as depicted in Figure 2 – Surface Water Sampling Results located in Attachment B.

2.2 Soil and Groundwater Testing

Based on the findings of the off-site surface water sampling, the NYSDEC suggested that additional characterization of the waste material on-site would be useful in determining the potential need for groundwater treatment. To that end, Scobie Industrial Partners, LLC authorized C.T. Male to collect three (3) surface soil samples, five (5) waste characterization samples including SPLP analysis of the waste and five (5) groundwater samples. The samples were collected in general conformance with the guidelines presented in the NYSDEC's DER-10.

2.2.1 Shallow Soil Samples

The shallow soil samples were collected on October 12, 2020. Each surface soil sample was collected from 0 to 6 inches below ground surface; immediately below the vegetative root zone. The sample locations were advanced utilizing a decontaminated hand shovel and placed in a disposable plastic bag. The sampling location corresponded to a test pit location so we could establish a vertical profile of PFAS impacts. The samples were transferred to laboratory grade glass jars and placed in a cooler to preserve the samples until delivered to the lab. The surface soil sample locations are depicted on Figure 3 – Surface Soil Sampling Results located in Attachment B.

2.2.2 Test Pit Samples

Waste characterization samples were obtained from five (5) deep test pits excavated on October 12, 2020 utilizing a track mounted excavator operated by Smit Environmental, Inc. The test pit locations were selected based on review of the existing test pit logs from the Remedial Investigation Report (RIR) and feedback from the NYSDEC, with the intent of focusing on those areas of the Site were vinyl waste products from the Dupont-Stauffer manufacturing facility were likely disposed of. Based on review of available PFAS literature, vinyl products are often manufactured with and frequently contain or are suspected of containing PFAS compounds.

The test pits were excavated until the waste mass was encountered. Once the waste products were clearly visible in the excavation, a discreet sample of the vinyl containing waste was isolated and placed in a disposal plastic bag before being transferred to pre-cleaned laboratory-supplied containers. The jars were sealed and subsequently placed into a cooler containing bagged ice and a transport blank supplied by the laboratory under normal chain of custody protocol.

The test pit sampling locations are depicted as PFAS-01 through PFAS-05 on Figure 4 – Test Pit Sampling Results located in Attachment B. The test pits were excavated on the Site from depths ranging from 10 to 12 feet below ground surface (bgs). Excavated soils were visually classified and logged by C.T. Male Associates' field geologist. Field logs are attached to this letter in Attachment C-- Test Pit Logs.

Soil samples were collected from the test pits and forwarded to the Alpha Analytical Laboratory for analyses for the NYSDEC's list of 21 PFAS compounds per its October 2020 PFAS Guidance. Additionally, also in accord with such guidance, each of waste characterization samples was analyzed using Synthetic Precipitation Leaching Procedure (SPLP) to evaluate whether the waste material may have been contributing to the PFAS concentrations observed in groundwater underlying the Site. The lab results are attached electronically to this submission. The SPLP sample locations are depicted in Figure 5 – SPLP Sampling Results found in Attachment B.

2.2.3 Groundwater Samples

Groundwater samples were obtained on October 13, 2020 immediately following the test pitting operation. The goal of this sampling was to provide comprehensive analysis of groundwater quality and PFAS distribution beneath the landfill. The original well locations were programed into a highly accurate Global Positioning System (GPS) device to find the existing wells at the Site. Due to past tree clearing activity access to the wells was virtually impossible; however, we were able to use the excavator to clear paths to the existing wells. Unfortunately, the previously sampled upgradient well CTM-MW-2 has apparently been destroyed or could not be located. Even though the location was pinpointed using the GPS device, there was no evidence of the well. It appears this portion of the property has been used by all-terrain vehicles (ATVs). C.T. Male sampled upgradient well MW-5 and downgradient wells CTM-MW-3, CTM-MW-4, MW-6 and CTM-MW-5. The well locations are depicted in Figure 6 – Groundwater Sampling Results.

Prior to sampling, the water levels were recorded in each well from the top of the PVC casing utilizing a water level meter. The groundwater samples were collected in new laboratory supplied glass jars while wearing new gloves utilizing the peristaltic pump. New sampling tubing was used at each of the well locations. The jars were sealed and subsequently placed into a cooler containing bagged ice and a transport blank supplied by the laboratory.

Prior to sampling, each monitoring well was purged employing low flow sampling techniques. A Geotech Geopump™ Series II peristaltic pump with new, dedicated tubing was used for purging and sampling each well. The field sampling technician wore a new pair of nitrile gloves at each monitoring well location. Field measurements were recorded prior to purging and at five- minute intervals thereafter for water level, temperature, specific conductance, and pH. Purging continued until stabilization of field parameters was achieved, to ensure that the monitoring well sample was representative of groundwater conditions.

Following purging of each monitoring well, the well was allowed to recover at least 80 percent prior to sample collection. The samples were collected in laboratory-provided containers and placed in a cooler containing ice. A chain-of-custody was prepared, and the samples were picked up by a laboratory-provided courier and delivered to Alpha Analytical Laboratories (Alpha).

2.2.4 Laboratory Analyses

The groundwater samples were analyzed for the Full PFAS Target Analyte List via Method US. EPA Method 537-Isotope Dilution. The analytical methods, detection limits, data reporting and the 21 compounds constituting the Full PFAS Target Analyte List were consistent with the NYSDEC-issued March 2020 "Groundwater Sampling for Emerging Contaminants" document. The lab results are attached electronically to this report in Attachment D.

3.0 ANALYTICAL RESULTS

3.1 Surface Water Sampling Results

PFAS was encountered in the downgradient stream and wetland. The results are depicted in Figure 2 – Surface Water Sampling Results. The PFAS levels went from lowest in the upstream location to highest in the furthest downstream location. PFAS was detected at 36.7 ppt in SW-1, 46.8 ppt in SW-2, 66.7 ppt in SW-3 and 174 ppt in SW-4. The level of PFAS impacts increases in the stream as it passes by the Site. However, the concentration of PFAS in surface water does not increase substantially until SW-4, which is hydraulically downgradient to the Dupont-Stauffer Landfill. The mid-stream samples are less than two times the upstream sample result, possibly indicating a minor groundwater contribution from the Site. The results of this sampling effort suggest that even if the PFAS impacts at the Site were fully mitigated via groundwater treatment, the surface water body would continue to be impacted from an upstream source(s) and the Dupont Stauffer Landfill would continue to impact the stream after it passed by the Site.

3.2 Surface Soil Sampling Results

PFAS was detected in all three surface soil samples. PFAS was encountered at 1.94 ppb in PFAS SS-01, 2.34 ppb in PFAS SS-02 and at 3.06 ppb at PFAS SS-03. We cannot provide a reason for its existence in the surface soils. It is possible that the sample region was previously disturbed during historic test pitting operation, bringing some of the vinyl impacted material to the surface.

The surface soil sample results are well below the Commercial and/or Industrial Soil Cleanup Objectives (SCOs) for PFOA and PFOS that would apply to the proposed future redevelopment. In fact, the surface soil sample results are below all the applicable SCOs except for unrestricted use. They even are below the protection of groundwater SCOs, even though protection of groundwater SCOs are not applicable in this instance.

3.3 Waste Characterization Sampling Results

During each of the excavations, waste material was encountered that include remnant vinyl products, plastic, metal, wood, ash and cover soil. The vinyl product was suspected of containing PFAS compounds. The vinyl remnants were reportedly from the former

Dupont Manufacturing facility located immediately adjacent to the Site. The product was reportedly waste material from the manufacture of car seat coverings and was reportedly fire retardant. C.T. Male's field geologist intentionally concentrated the field samples so that they predominantly contained man-made waste material including the vinyl products. The samples represent the "worst-case scenario" for the waste column and not the average condition. Test pit and field sampling logs are included with this report in Attachment C.

Total PFAS was encountered in PFAS-01 at 15.2 ppb, PFAS-02 at 1.98 ppb, PFAS-03 0.92 ppb, PFAS-04 at 3.64 ppb and PFAS-05 11.5 ppb. No specific observations could be made regarding the variations observed in the sampling results. Each of the soil samples contained an abundance of waste materials but the waste material varied throughout the Site. None of these observed values exceeded the SCOs for commercial or industrial re-use.

3.4 Synthetic Precipitation Leaching Procedure (SPLP) Results

Each of the waste characterization samples were also analyzed using SPLP to evaluate the potential for the waste to contribute to groundwater contamination at the Site. The precipitate from each sample contained the following PFAS concentrations:

Sample Location	PFOA/PFOS Concentration (ng/l)
PFAS-01	32/22
PFAS-02	33/10
PFAS-03	5.67/4.07
PFAS-04	26.2/4.90
PFAS-05	529/27.5

The results suggest that landfill mass contributes minimally, if at all, to the groundwater impacts observed at the Site. There are no standards promulgated for SPLP PFAS results; however, the findings indicate that the results fall nearby the current NYSDOH MCL of 10 ng/l for drinking water and well below the USEPA's health advisory level of 70 ng/l, with the exception of the PFOA concentration at PFAS-05 of 529 ng/l (Figure 5).

3.5 Groundwater Sampling Results

Groundwater samples obtained from upgradient and downgradient were impacted with PFAS compounds. The findings are summarized in the following table:

Sample Location	2019 TOTAL PFOA/PFOS	2020 TOTAL PFOA/PFOS
MW-5	110 ng/l	113 ng/l
CTM-MW-2	561 ng/l	Not found
CTM-MW-3		299 ng/l
CTM-MW-4		202 ng/l
MW-6		137 ng/l
CTM-MW-5	7.7 ng/l	52 ng/l

The highest observed reading was in upgradient well CTM-MW-2. This well is located immediately adjacent to the City's DPW Site. MW-5 is also located upgradient and adjacent to the City's DPW Site and it exhibits consistently higher levels of PFAS levels when compared to the nearest downgradient wells. CTM-MW-3 was not sampled during the first groundwater sampling round but during the second sampling event in October 2020, PFAS was encountered at 299 ng/l. This well is directly downgradient from upgradient well CTM-MW-2, so it is not that surprising that the levels are higher in this well than elsewhere on Site.

4.0 FINDINGS

- Soil samples obtained from the surface of the landfill and waste characterization samples contained PFAS compounds but none at levels that exceed the applicable SCOs for commercial or industrial re-use, which is the intended use by Scobie Industrial Partners, LLC.

- The specific source(s) of the PFAS contaminants found at the Site is unknown but may be related to historical use of the Site as a landfill. It is reasonably certain the remnant vinyl products disposed of in large quantities at the Site by Dupont is a potential source of the PFAS. These vinyl remnants were observed in the City's DPW Site when Dupont Stauffer was removing the "Bomb Slops" and drums from the emergency response action area on the City's DPW Site. A portion of that action area extends on to the Site. This emergency response action area was highly disturbed, which could have caused the PFAS to mobilize. It is interesting to note that the highest groundwater concentrations were detected near the southern property boundary and upgradient with respect to groundwater flow. The former City of Newburgh Landfill (the DPW Site) is located immediately upgradient and adjacent to the Site. It operated approximately 20 years longer than the landfill at the Site so the sheer volume of wastes containing PFAS is likely to be significantly higher. The City's DPW Site has been identified by the NYSDEC as "P" Site (Site No. 336036).

- The SPLP analysis is a measure of how much PFAS contamination may leach out from the waste material as rainwater infiltrates through the surface. The SPLP results suggests that the some of the waste material buried on-Site could be contributing to the groundwater contamination; however, that contribution is likely to be small, especially in comparison to the PFAS contributions to groundwater originating at the adjacent City DPW facility.

- Based upon the recent sampling at the Site, it appears that groundwater contains elevated concentrations of PFAS-related compounds. Specifically, total PFOA/PFOS, and several individual PFAS compounds were detected at concentrations that exceed the respective values recommended by EPA, NYSDEC and NYSDOH for evaluation of PFAS Sites.

5.0 CONCLUSIONS:

A. Impact to groundwater derives primarily from off-Site sources

As long as impacted groundwater is migrating from the off-Site adjacent property onto Site, the groundwater and the surface water bodies will remain impacted even if groundwater treatment was implemented on the Site. NYSDEC is aware of the widespread PFAS impacts in the region based on our surface water sampling. The Applicant will have no control over contributions from those sources regardless of any PFAS contributions from the Site itself and of the remedial action, including groundwater treatment, implemented at the Site.

B. **The data strongly suggests that the Site is not a significant source of PFAS in the groundwater underlying the Site.**

This is based upon the following:

- PFAS levels in the downgradient wells were lower than those encountered in the upgradient wells. If the Site were a significant source of PFAS, higher readings would have been observed in the downgradient wells. These lower PFAS detections in the downgradient wells are indicative of the relative absence of source material at the Site, the minimal contribution to groundwater impacts from that source material, as well as the normal dilution and dispersion of contaminants in groundwater.

- This conclusion is supported by the SPLP sampling results which are only slightly above the applicable MCL and don’t exceed the USEPA health advisory.

ATTACHMENT A

PREVIOUS PFAS INVESTIGATION LETTER REPORT

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.

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May 3, 2019 ***Via Email***

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New York State Department of Environmental Conservation
Division of Environmental Remediation
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Albany, NY 12233-7014
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RE: Emerging Contaminants Sampling Report
5 Scobie Drive Site
City of Newburgh, Orange County
BCP Site ID No.: C336085

Dear Ms. Thompson:

C.T. Male Associates Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C. (C.T. Male) has prepared this Emerging Contaminants Sampling Report (Report) for the above-referenced property (the "Site"), located in the City of Newburgh, Orange County, New York. This Report has been prepared pursuant to your letter dated October 10, 2018, requesting that representative groundwater samples be collected from existing wells at the Site for laboratory analysis of emerging contaminants 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS).

Scope of Work
C.T. Male sampled three monitoring wells at the Site on April 12, 2019. Based on our initial site reconnaissance, the wells we had initially proposed to sample were destroyed, lost, or rendered inaccessible due to tree clearing activities that took place at the Site. C.T. Male was eventually able to locate four wells, MW-3, MW-5, CTM-5, and CTM-2; however, monitoring well MW-3 was determined to be dry on the day of the site visit. Therefore, C.T. Male collected samples from the three viable wells. We believe that the selected wells provide a representative example of site-wide groundwater conditions. Two of the wells are representative of upgradient water quality and the third well represents downgradient water quality. Please recall that the

former City of Newburgh Landfill is immediately adjacent and upgradient to the 5 Scobie Drive site. A Sample Location Map is included as Figure 1 in Appendix A.

Sampling Methods

Prior to sampling, each monitoring well was purged employing low flow sampling techniques. A Geotech Geopump™ Series II peristaltic pump with new, dedicated tubing was used for purging and sampling each well. The field sampling technician wore a new pair of nitrile gloves at each monitoring well location. Field measurements were recorded prior to purging and at five- minute intervals thereafter for water level, temperature, dissolved oxygen, specific conductance, pH, oxidation reduction potential, and turbidity. Purging continued until stabilization of field parameters was achieved, to ensure that the monitoring well sample was representative of groundwater conditions. Field sampling logs are attached to this letter report in Appendix B, Field Sampling Logs.

Following purging of each monitoring well, the well was allowed to recover at least 80 percent prior to sample collection. The samples were collected in laboratory-provided containers and placed in a cooler containing ice. A chain-of-custody was prepared, and the samples were picked up by a laboratory-provided courier and delivered to Alpha Analytical Laboratories (Alpha).

Laboratory Analyses

The groundwater samples were analyzed for 1,4-dioxane via U.S. EPA Method 8270 SIM and the Full PFAS Target Analyte List via Method US. EPA Method 537-Isotope Dilution. The analytical methods, detection limits, data reporting and the 21 compounds constituting the Full PFAS Target Analyte List were consistent with the NYSDEC-issued March 2019 "Groundwater Sampling for Emerging Contaminants" document.

Analytical Results

There are currently no promulgated maximum contaminant levels (MCLs) or standards for PFAS compounds. However, the U.S. Environmental Protection Agency (EPA) recommends using a limit of 70 parts per trillion (ppt) for the combined concentrations of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) and 1 part per billion (ppb) for 1,4 Dioxane. In addition, the New York State Department of Environmental Conservation (NYSDEC) has recommended using the New York State Department of Health (NYSDOH) proposed MCL of 10 ppt, individually, for each the list of 21 PFAS-related compounds. As such, C.T. Male compared the groundwater analytical results to the values recommended or proposed by EPA, NYSDEC and NYSDOH. A summary of the analytical results is given in Table 1 in Appendix C, Analytical Summary. The laboratory report is provided in Appendix D, Lab Results.

The groundwater analytical results identified elevated concentrations of 1,4 Dioxane and PFAS compounds in each of the three monitoring wells sampled. The results are summarized as follows:

<u>1,4 Dioxane</u>
1,4 Dioxane was detected at a concentration of 9.81 ppb in the sample collected from monitoring well MW-5. A duplicate sample collected from MW-5 had a similar concentration of 9.82 ppb. The sample collected from CTM-MW-5 detected 1,4 Dioxane at 10.2 ppb, and CTM-MW-2 had a concentration of 1.87 ppb. All the samples exceed the EPA and NYSDEC recommended concentration of 1 ppb.

<u>PFOA/PFOS</u>
Combined PFOA/PFOS concentrations were: 110 parts per trillion (ppt) in monitoring well MW-5; 101 ppt in the duplicate sample collected from MW-5; 77.7 ppt in CTM-MW-5; and, 581 ppt in CTM-MW-2. All the samples exceed the EPA recommended concentration of 70 ppt.

<u>Individual PFAS Compounds</u>
In addition to PFOA and PFOS, eight individual PFAS compounds were detected in the monitoring wells at concentrations that exceed the NYSDOH proposed MCL and NYSDEC recommended value of 10 ppt. The highest levels were detected in CTM-MW-2 located near the southern property boundary, including Perfluoroheptanoic Acid (PFHpA) at 253 ppt and Perfluorohexanesulfonic Acid (PFHxS) at 250 ppt, which are more than an order of magnitude above the NYSDEC recommended concentration. Refer to Table 1 in Appendix C for a complete list of PFAS concentrations detected.

Conclusions
Based upon the results of the emerging contaminants sampling at the Site, it appears that groundwater beneath Site contains elevated concentrations of 1,4 Dioxane and PFAS-related compounds. Specifically, 1,4 Dioxane, total PFOA/PFOS, and several individual PFAS compounds were detected at concentrations that exceed the respective values recommended by EPA, NYSDEC and NYSDOH for evaluation of PFAS sites.

The source(s) of the PFAS contaminants found at the Site is unknown but may be related to historical use of the Site as a landfill. It is interesting to note that the highest concentrations were detected near the southern property boundary and upgradient with respect to groundwater flow. The former City of Newburgh Landfill is located immediately adjacent to the 5 Scobie Drive Site and has been identified by the NYSDEC as "P" site (Site No. 336036)

Should you require additional information regarding this report, please do not hesitate to contact the undersigned at d.lent@ctmale.com or (845) 454-4400.

Respectfully,
C.T. MALE ASSOCIATES

David R. Lent

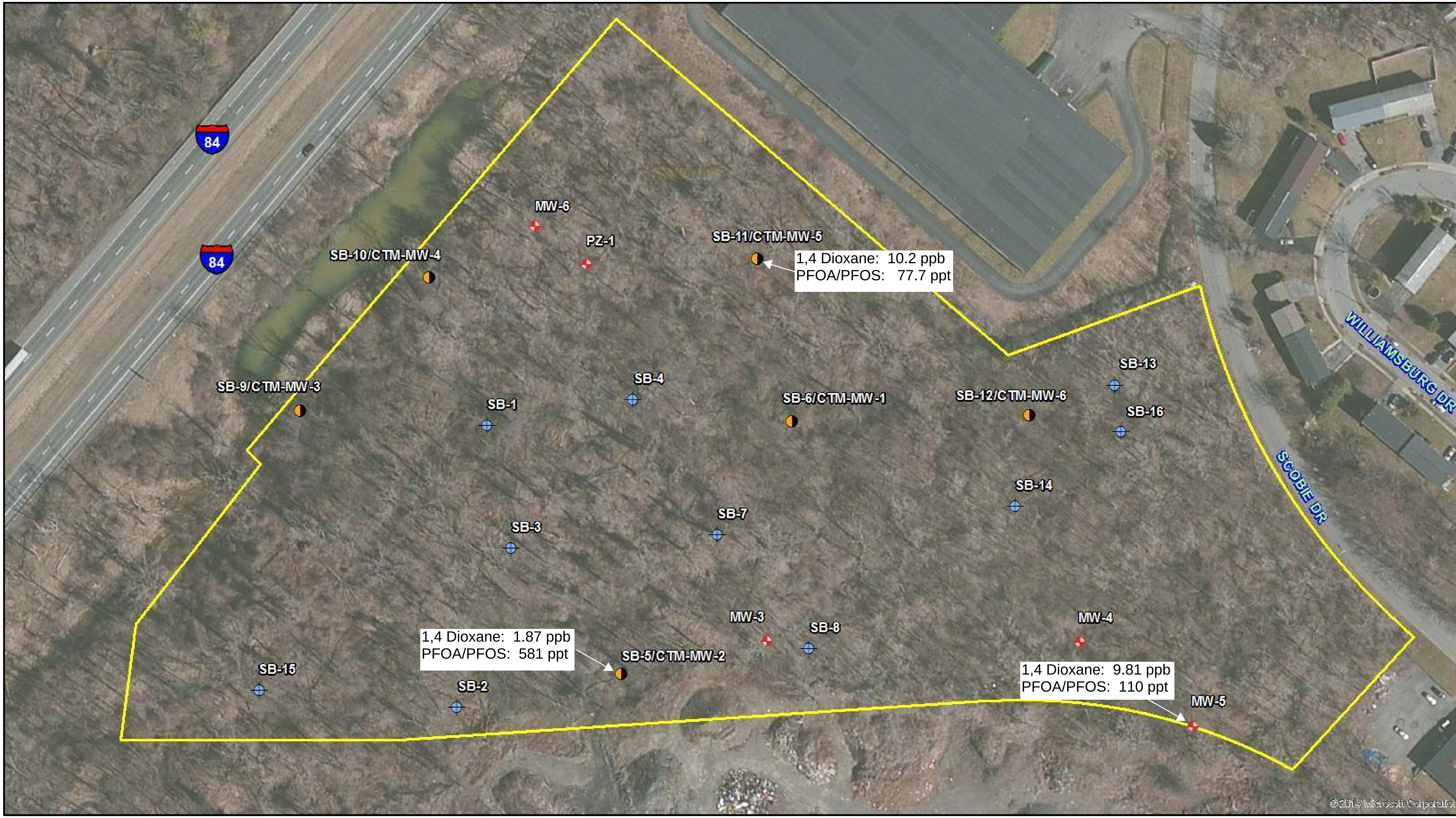
David R. Lent, P.G.
Managing Geologist

ec: Cher Vickers, City of Newburgh IDA
Jim McIver, C.T. Male

Attachments: Appendix A: Sample Location Map
Appendix B: Field Sampling Logs
Appendix C: Summary of Analytical Results
Appendix D: Laboratory Report

APPENDIX A

Figure 1 – Sample Location Map



N E W S

0 100 200 300 FT

1 inch = 100 feet

Project Number: 13.3061
Data Source: NYSGIS Clearinghouse, BING
Projection: State Plane NAD83 NYE (feet)
Date: October 3, 2014
File: Fig5_SB_MWLocations11x17.mxd
GIS: C Secor

Legend

- MW-3 — Approximate Monitoring Well Location and Number Installed by Others
- SB-3 — Approximate Soil Boring Location and Number
- SB-5/CTM-MW-2 — Approximate Soil Boring Converted to a Monitoring Well Location and Number Installed by C.T. Male
- Property Boundary (Approx)

Figure 1: Emerging Contaminants Sample Locations

5 Scobie Drive Site

City of Newburgh | Orange County, New York

C.T. MALE ASSOCIATES
ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
FOUNDED IN 1910

APPENDIX B

Field Sampling Logs

WELL LOW-FLOW PURGING LOG

Sampling Activity (check all that apply):

☐ Initial / 3 Vol. ☒ Low-Flow ☒ Sample

DATE: 4/12/19
PROJECT NO.: 11.1038
SAMPLING PERSONNEL: D. Cummings
NOTES TAKEN BY: D. Cummings

PROJECT NAME: Scobie Drive
PROJECT LOCATION: Newburgh, NY

NOTES CHECKED BY: ______

MONITORING WELL ID#: CTM-MW-2
DEPTH TO WATER (ft): 21.55 FROM: TPVC
DEPTH TO BOTTOM (ft): ______ FROM: TPVC
WATER COLUMN HEIGHT: ______ ft
WELL VOLUME: ______ GALLONS

WELL CASING DIAMETER: 2 in.

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL/LF
1.25" = 0.064 GAL/LF
2" = 0.16 GAL/LF
3" = 0.38 GAL/LF
4" = 0.66 GAL/LF
6" = 1.47 GAL/LF

Field Parameters	Stabilization	Time (since start of purging)										
Time (minutes)	-	Initial	5	10	15	20	25	30				
Water Level (ft)	± 0.00	21.55	21.55	21.53	21.54	21.54	21.54	21.54				
Temperature (C)	± 3%	15.3	15.1	15.1	15.1	15.1	15.1	15.1				
DO (mg/L)	±10% or < 0.5	3.05	0.32	0.17	0.19	0.18	0.17	0.18				
Conductivity (uS)	± 3%	1955	2206	2242	2255	2259	2262	2262				
pH (SU)	± 0.1	6.64	6.61	6.60	6.60	6.60	6.59	6.60				
ORP (mV)	±10 mV	29.5	-59.4	-68.2	-73.9	-77.1	-79.4	-80.7				
Turbidity (NTU)	±10% or < 5	11.7	13.2	12.2	8.18	5.20	5.41	5.22				

Field Parameters	Time (since start of purging)												
Time (minutes)													
Water Level (ft)													
Temperature (C)													
DO (mg/L)													
Conductivity (uS)													
pH (SU)													
ORP (mV)													
Turbidity (NTU)													

VOLUMES PURGED: 1.5 GALLONS
AVG PURGE RATE: 175 ml/min
TIME STARTED: 1610
TIME FINISHED: 1640

OBSERVATIONS: COLOR light brown ODOR none
SHEEN none OTHER n/a

WATER LEVEL AT 80% RECOV.: 21.55 ft
WATER RECOVERY HEIGHT: 0.01 ft
SAMPLE COLLECTION TIME: 1643
RECOVERY TIME IN MINUTES: 3

NOTES: ______

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: FA01466 (YSI)

WELL LOW-FLOW PURGING LOG

Sampling Activity (check all that apply):

☐ Initial / 3 Vol. ☒ Low-Flow ☒ Sample

DATE:	4/12/19	PROJECT NAME:	Scobie Drive
PROJECT NO.:	11.1038	PROJECT LOCATION:	Newburgh, NY
SAMPLING PERSONNEL:	D. Cummings		
NOTES TAKEN BY:	D. Cummings	NOTES CHECKED BY:	

MONITORING WELL ID#: ~~A4~~ CTM-MW-5
DEPTH TO WATER (ft): 8.92 FROM: TPVC
DEPTH TO BOTTOM (ft): ______ FROM: TPVC
WATER COLUMN HEIGHT: ______ ft
WELL VOLUME: ______ GALLONS

WELL CASING DIAMETER: 2 in.

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL/LF	3" = 0.38 GAL/LF
1.25" = 0.064 GAL/LF	4" = 0.66 GAL/LF
2" = 0.16 GAL/LF	6" = 1.47 GAL/LF

Field Parameters	Stabilization	Time (since start of purging)										
Time (minutes)	-	Initial	5	10	15	20	25	30	35			
Water Level (ft)	± 0.00	8.92	8.96	8.96	8.96	8.96	8.96	8.96	8.96			
Temperature (C)	± 3%	13.2	13.1	13.0	13.0	13.1	13.1	13.2	13.3			
DO (mg/L)	±10% or < 0.5	3.25	0.37	0.15	0.15	0.09	0.07	0.07	0.08			
Conductivity (uS)	± 3%	1609	1665	1639	1625	1614	1598	1598	1598			
pH (SU)	± 0.1	6.65	6.49	6.48	6.48	6.48	6.49	6.48	6.49			
ORP (mV)	±10 mV	37.2	-23.3	-34.4	-40.3	-42.7	-44.3	-44.9	-44.9			
Turbidity (NTU)	±10% or < 5	14.6	4.84	4.33	4.92	8.48	4.29	5.00	4.62			

Field Parameters	Time (since start of purging)												
Time (minutes)													
Water Level (ft)													
Temperature (C)													
DO (mg/L)													
Conductivity (uS)													
pH (SU)													
ORP (mV)													
Turbidity (NTU)													

VOLUMES PURGED: 1 GALLONS AVG PURGE RATE: 110 mL/min

TIME STARTED: 1425 TIME FINISHED: 1500

OBSERVATIONS: COLOR light brown ODOR none
SHEEN none OTHER none

WATER LEVEL AT 80% RECOV.: 8.92 ft WATER RECOVERY HEIGHT: .08 ft

SAMPLE COLLECTION TIME: 1508 RECOVERY TIME IN MINUTES: 8

NOTES:

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: FA014666 (YSI)

WELL LOW-FLOW PURGING LOG

Sampling Activity (check all that apply):

☐ Initial / 3 Vol. ☒ Low-Flow ☒ Sample

DATE: 4/12/19
PROJECT NO.: 11.1038
SAMPLING PERSONNEL: D. Cummings
NOTES TAKEN BY: D. Cummings

PROJECT NAME: Scobie Drive
PROJECT LOCATION: Newburgh, NY
NOTES CHECKED BY: ____________

MONITORING WELL ID#: MW-5
DEPTH TO WATER (ft): 12.76 FROM: TPVC
DEPTH TO BOTTOM (ft): ______ FROM: TPVC
WATER COLUMN HEIGHT: ______ ft
WELL VOLUME: ______ GALLONS

WELL CASING DIAMETER: 2 in.
CONVERSION FACTORS LINEAR FEET TO GALLONS
1" = 0.041 GAL/LF 3" = 0.38 GAL/LF
1.25" = 0.064 GAL/LF 4" = 0.66 GAL/LF
2" = 0.16 GAL/LF 6" = 1.47 GAL/LF

Field Parameters	Stabilization	Time (since start of purging)										
Time (minutes)	-	Initial	5	10	15	20	25	30	35	40	45	
Water Level (ft)	± 0.00	12.76	13.28	13.35	13.37	13.34	13.34	13.35	13.35	13.35	13.30	
Temperature (C)	± 3%	10.2	9.9	9.8	9.8	9.7	9.8	9.8	9.8	9.7	9.7	
DO (mg/L)	±10% or < 0.5	4.01	1.95	0.54	0.33	0.30	0.24	0.22	0.20	0.19	0.20	
Conductivity (uS)	± 3%	1170	1176	1173	1170	1166	1166	1169	1168	1169	1167	
pH (SU)	± 0.1	6.02	6.17	6.17	6.16	6.17	6.16	6.16	6.16	6.15	6.16	
ORP (mV)	±10 mV	53.0	-14.7	-29.7	-27.6	-24.8	-22.3	-19.8	-39.5	-35.5	-40.1	
Turbidity (NTU)	±10% or < 5	16.0	17.8	14.1	10.21	8.74	7.98	7.91	7.62	6.25	8.33	

Field Parameters	Time (since start of purging)												
Time (minutes)													
Water Level (ft)													
Temperature (C)													
DO (mg/L)													
Conductivity (uS)													
pH (SU)													
ORP (mV)													
Turbidity (NTU)													

VOLUMES PURGED: 1.5 GALLONS AVG PURGE RATE: 125 mL/min

TIME STARTED: 1005 TIME FINISHED: 1050

OBSERVATIONS: COLOR light brown ODOR light petroleum
SHEEN light petroleum OTHER n/a

WATER LEVEL AT 80% RECOV.: 12.79 ft WATER RECOVERY HEIGHT: 0.51 ft

SAMPLE COLLECTION TIME: 1116 RECOVERY TIME IN MINUTES: 26

NOTES: ____________

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER
BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: FA01466 (YSI)

Created On: 3/15/2018 Revised On: 4/1/2019

WELL LOW-FLOW PURGING LOG

Sampling Activity (check all that apply):

☐ Initial / 3 Vol. ☐ Low-Flow ☐ Sample

DATE: 4/12/19 PROJECT NAME: ____________

PROJECT NO.: ____________ PROJECT LOCATION: ____________

SAMPLING PERSONNEL: D. Cummings

NOTES TAKEN BY: D. Cummings NOTES CHECKED BY: ____________

MONITORING WELL ID#: MW-3 → DRY WELL CASING DIAMETER: ______ in.

DEPTH TO WATER (ft): 21.73 FROM: TPVC

DEPTH TO BOTTOM (ft): ~~21.73~~ FROM: TPVC

WATER COLUMN HEIGHT: ______ ft

WELL VOLUME: ______ GALLONS

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GAL/LF	3" = 0.38 GAL/LF
1.25" = 0.064 GAL/LF	4" = 0.66 GAL/LF
2" = 0.16 GAL/LF	6" = 1.47 GAL/LF

Field Parameters	Stabilization	Time (since start of purging)										
Time (minutes)	-	Initial										
Water Level (ft)	± 0.00											
Temperature (C)	± 3%											
DO (mg/L)	±10% or < 0.5											
Conductivity (uS)	± 3%											
pH (SU)	± 0.1											
ORP (mV)	±10 mV											
Turbidity (NTU)	±10% or < 5											

Field Parameters	Time (since start of purging)												
Time (minutes)													
Water Level (ft)													
Temperature (C)													
DO (mg/L)													
Conductivity (uS)													
pH (SU)													
ORP (mV)													
Turbidity (NTU)													

VOLUMES PURGED: ______ GALLONS AVG PURGE RATE: ______

TIME STARTED: 1345 TIME FINISHED: ______

OBSERVATIONS: COLOR ______ ODOR ______

SHEEN ______ OTHER ______

WATER LEVEL AT 80% RECOV.: ______ ft WATER RECOVERY HEIGHT: ______ ft

SAMPLE COLLECTION TIME: ______ RECOVERY TIME IN MINUTES: ______

NOTES: Well was dry.

EQUIPMENT: PERISTALTIC PUMP NEW DISPOSABLE BAILER STAINLESS STEEL BAILER

BLADDER PUMP SUBMERSIBLE PUMP OTHER

SERIAL NOs: FA014 66 (YSI)

APPENDIX C

Table 1 - Analytical Summary

Table 1
Summary of Groundwater Analytical Results
5 Scobie Drive Site
BCP Site ID No,: C336085

LOCATION			MW-5-20190412		DUP-20190412		CTM-MW-5-20190412		CTM-MW-2-20190412	
SAMPLING DATE			4/12/2019		4/12/2019		4/12/2019		4/12/2019	
LAB SAMPLE ID			L1915270-01		L1915270-02		L1915270-04		L1915270-05	
SAMPLE TYPE			WATER		WATER		WATER		WATER	
	NYSDEC Recommended or Proposed Values	Units	Results	RL	Results	RL	Results	RL	Results	RL
1,4 Dioxane by 8270D-SIM										
1,4-Dioxane	1	ppb	9.81	0.1444	9.82	0.1444	10.2	0.1444	1.87	0.1444
Perfluorinated Alkyl Acids by Isotope Dilution				0	0	0	0	0	0	0
Perfluorobutanoic Acid (PFBA)	10	ppt	18	2.13	17	2.16	10.9	2.01	85.4	2.19
Perfluoropentanoic Acid (PFPeA)	10	ppt	19.7	2.13	17.4	2.16	12.6	2.01	195	2.19
Perfluorobutanesulfonic Acid (PFBS)	10	ppt	8.19	2.13	7.83	2.16	4.71	2.01	82.4	2.19
Perfluorohexanoic Acid (PFHxA)	10	ppt	29.6	2.13	28.7	2.16	15	2.01	253	2.19
Perfluoroheptanoic Acid (PFHpA)	10	ppt	29.5	2.13	26.9	2.16	10.4	2.01	150	2.19
Perfluorohexanesulfonic Acid (PFHxS)	10	ppt	11.2	2.13	10.6	2.16	15.7	2.01	30	2.19
Perfluorooctanoic Acid (PFOA)	10	ppt	89.6	2.13	83.1	2.16	43.8	2.01	374	2.19
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	10	ppt	0.00146J	2.13	0.0009J	2.16	0.00137J	2.01	6.17	2.19
Perfluoroheptanesulfonic Acid (PFHpS)	10	ppt	0.00115J	2.13	0.000857J	2.16	0.0013J	2.01	5.46	2.19
Perfluorononanoic Acid (PFNA)	10	ppt	4.2	2.13	3.64	2.16	0.00194J	2.01	73.8	2.19
Perfluorooctanesulfonic Acid (PFOS)	10	ppt	20.7	2.13	18.3	2.16	33.9	2.01	207	2.19
Perfluorodecanoic Acid (PFDA)	10	ppt	ND	2.13	ND	2.16	ND	2.01	42.6	2.19
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	10	ppt	ND	2.13	ND	2.16	ND	2.01	ND	2.19
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	10	ppt	ND	2.13	0.000346J	2.16	ND	2.01	0.00105J	2.19
Perfluoroundecanoic Acid (PFUnA)	10	ppt	ND	2.13	ND	2.16	ND	2.01	0.000917J	2.19
Perfluorodecanesulfonic Acid (PFDS)	10	ppt	ND	2.13	ND	2.16	ND	2.01	ND	2.19
Perfluorooctanesulfonamide (FOSA)	10	ppt	ND	2.13	ND	2.16	ND	2.01	ND	2.19
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	10	ppt	0.000962J	2.13	ND	2.16	ND	2.01	3.63	2.19
Perfluorododecanoic Acid (PFDoA)	10	ppt	ND	2.13	ND	2.16	ND	2.01	ND	2.19
Perfluorotridecanoic Acid (PFTrDA)	10	ppt	ND	2.13	ND	2.16	ND	2.01	ND	2.19
Perfluorotetradecanoic Acid (PFTA)	10	ppt	ND	2.13	ND	2.16	ND	2.01	ND	2.19
PFOA/PFOS, Total	70	ppt	110	2.13	101	2.16	77.7	2.01	581	2.19

1. J qualifier indicates compound was detected above Method Detection Limit but is below the Reporting Level
2. Shaded cell indicates concentration above US. EPA, NYSDOH, NYSDEC recommended or proposed value
3. Units are in parts per billion (ppb) and parts per trillion (ppt)

APPENDIX D

Laboratory Report

ANALYTICAL REPORT

Lab Number:	L1915270
Client:	C.T. Male Associates 12 Raymond Avenue Poughkeepsie, NY 12603
ATTN:	David Lent
Phone:	(845) 454-4400
Project Name:	5 SCOBIE DRIVE SITE
Project Number:	11.1038
Report Date:	04/24/19

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: 5 SCOBIE DRIVE SITE
Project Number: 11.1038

Lab Number: L1915270
Report Date: 04/24/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1915270-01	MW-5-20190412	WATER	NEWBURGH, NY	04/12/19 11:16	04/15/19
L1915270-02	DUP-20190412	WATER	NEWBURGH, NY	04/12/19 00:00	04/15/19
L1915270-03	FIELD BLANK-20190412	WATER	NEWBURGH, NY	04/12/19 12:37	04/15/19
L1915270-04	CTM-MW-5-20190412	WATER	NEWBURGH, NY	04/12/19 15:08	04/15/19
L1915270-05	CTM-MW-2-20190412	WATER	NEWBURGH, NY	04/12/19 16:43	04/15/19
L1915270-06	EQUIPMENT BLANK-20190412	WATER	NEWBURGH, NY	04/12/19 13:06	04/15/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

The WG1228108-4 MS recovery, performed on L1915270-01, are outside the acceptance criteria for perfluorodecanesulfonic acid (pfds) (163%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 04/24/19

ORGANICS

SEMIVOLATILES

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-01	Date Collected:	04/12/19 11:16
Client ID:	MW-5-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	04/16/19 17:40
Analytical Date:	04/17/19 16:34		
Analyst:	PS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	9810		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

SAMPLE RESULTS

Lab ID: L1915270-01
Client ID: MW-5-20190412
Sample Location: NEWBURGH, NY

Date Collected: 04/12/19 11:16
Date Received: 04/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 04/21/19 18:51
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 04/19/19 08:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	18.0		ng/l	2.13	0.397	1
Perfluoropentanoic Acid (PFPeA)	19.7		ng/l	2.13	0.494	1
Perfluorobutanesulfonic Acid (PFBS)	8.19		ng/l	2.13	0.404	1
Perfluorohexanoic Acid (PFHxA)	29.6		ng/l	2.13	0.523	1
Perfluoroheptanoic Acid (PFHpA)	29.5		ng/l	2.13	0.396	1
Perfluorohexanesulfonic Acid (PFHxS)	11.2		ng/l	2.13	0.464	1
Perfluorooctanoic Acid (PFOA)	89.6		ng/l	2.13	0.489	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.46	J	ng/l	2.13	0.206	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.15	J	ng/l	2.13	0.553	1
Perfluorononanoic Acid (PFNA)	4.20		ng/l	2.13	0.464	1
Perfluorooctanesulfonic Acid (PFOS)	20.7		ng/l	2.13	0.596	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.13	0.660	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.13	0.309	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.13	0.266	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.13	0.451	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.13	0.411	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.13	0.591	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.962	J	ng/l	2.13	0.396	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.13	0.630	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.13	0.334	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.13	1.05	1
PFOA/PFOS, Total	110		ng/l	2.13	0.489	1

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-01	Date Collected:	04/12/19 11:16
Client ID:	MW-5-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	106		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	75		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	76		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	85		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	115		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	135		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	104		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	88		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	130		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	58		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	107		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	60		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	63		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	62		33-143

Project Name: 5 SCOBIE DRIVE SITE | **Lab Number:** L1915270
Project Number: 11.1038 | **Report Date:** 04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-02	Date Collected:	04/12/19 00:00
Client ID:	DUP-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	04/16/19 17:40
Analytical Date:	04/17/19 17:57		
Analyst:	PS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	9820		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-02	Date Collected:	04/12/19 00:00
Client ID:	DUP-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 537
Analytical Method:	122,537(M)	Extraction Date:	04/19/19 08:58
Analytical Date:	04/21/19 19:40		
Analyst:	AJ		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	17.0		ng/l	2.16	0.404	1
Perfluoropentanoic Acid (PFPeA)	17.4		ng/l	2.16	0.502	1
Perfluorobutanesulfonic Acid (PFBS)	7.83		ng/l	2.16	0.411	1
Perfluorohexanoic Acid (PFHxA)	28.7		ng/l	2.16	0.532	1
Perfluoroheptanoic Acid (PFHpA)	26.9		ng/l	2.16	0.402	1
Perfluorohexanesulfonic Acid (PFHxS)	10.6		ng/l	2.16	0.472	1
Perfluorooctanoic Acid (PFOA)	83.1		ng/l	2.16	0.498	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.900	J	ng/l	2.16	0.210	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.857	J	ng/l	2.16	0.563	1
Perfluorononanoic Acid (PFNA)	3.64		ng/l	2.16	0.472	1
Perfluorooctanesulfonic Acid (PFOS)	18.3		ng/l	2.16	0.606	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.16	0.671	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.16	0.315	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.346	J	ng/l	2.16	0.271	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.16	0.459	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.16	0.418	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.16	0.602	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.16	0.403	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.16	0.641	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.16	0.340	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.16	1.07	1
PFOA/PFOS, Total	101		ng/l	2.16	0.498	1

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-02	Date Collected:	04/12/19 00:00
Client ID:	DUP-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	111		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	79		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	77		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	92		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	127		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	111		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	156		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	117		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	112		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	155		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	69		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	113		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	57		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	62		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	64		33-143

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-03	Date Collected:	04/12/19 12:37
Client ID:	FIELD BLANK-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	04/16/19 17:40
Analytical Date:	04/17/19 18:23		
Analyst:	PS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	22		15-110

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-03	Date Collected:	04/12/19 12:37
Client ID:	FIELD BLANK-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 537
Analytical Method:	122,537(M)	Extraction Date:	04/19/19 08:58
Analytical Date:	04/21/19 17:11		
Analyst:	AJ		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.81	0.338	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.81	0.420	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.81	0.344	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.81	0.446	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.81	0.337	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.81	0.395	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.81	0.417	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.21	J	ng/l	1.81	0.176	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.81	0.471	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.81	0.395	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.81	0.507	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.81	0.562	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.81	0.263	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.81	0.227	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.81	0.384	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.81	0.350	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.81	0.504	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.81	0.338	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.81	0.536	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.81	0.284	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.81	0.895	1
PFOA/PFOS, Total	ND		ng/l	1.81	0.417	1

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-03	Date Collected:	04/12/19 12:37
Client ID:	FIELD BLANK-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	106		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	99		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	108		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	110		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	108		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	129		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	108		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	64		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	100		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	99		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	88		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	70		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	101		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	40		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	69		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	118		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		33-143

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

SAMPLE RESULTS

Lab ID: L1915270-04
Client ID: CTM-MW-5-20190412
Sample Location: NEWBURGH, NY
Date Collected: 04/12/19 15:08
Date Received: 04/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/19 18:47
Analyst: PS
Extraction Method: EPA 3510C
Extraction Date: 04/16/19 17:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	10200		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		15-110

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

SAMPLE RESULTS

Lab ID: L1915270-04
Client ID: CTM-MW-5-20190412
Sample Location: NEWBURGH, NY

Date Collected: 04/12/19 15:08
Date Received: 04/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 04/21/19 19:57
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 04/19/19 08:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	10.9		ng/l	2.01	0.375	1
Perfluoropentanoic Acid (PFPeA)	12.6		ng/l	2.01	0.466	1
Perfluorobutanesulfonic Acid (PFBS)	4.71		ng/l	2.01	0.382	1
Perfluorohexanoic Acid (PFHxA)	15.0		ng/l	2.01	0.494	1
Perfluoroheptanoic Acid (PFHpA)	10.4		ng/l	2.01	0.373	1
Perfluorohexanesulfonic Acid (PFHxS)	15.7		ng/l	2.01	0.438	1
Perfluorooctanoic Acid (PFOA)	43.8		ng/l	2.01	0.462	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.37	J	ng/l	2.01	0.195	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.30	J	ng/l	2.01	0.522	1
Perfluorononanoic Acid (PFNA)	1.94	J	ng/l	2.01	0.438	1
Perfluorooctanesulfonic Acid (PFOS)	33.9		ng/l	2.01	0.562	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.01	0.622	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.01	0.292	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.01	0.251	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.01	0.426	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.01	0.388	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.01	0.558	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.01	0.374	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.01	0.594	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.01	0.315	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.01	0.992	1
PFOA/PFOS, Total	77.7		ng/l	2.01	0.462	1

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-04	Date Collected:	04/12/19 15:08
Client ID:	CTM-MW-5-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	107		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	76		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	85		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	73		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	110		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	114		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	110		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	104		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	93		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	53		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	83		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	57		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	47		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	84		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	57		33-143

Project Name: 5 SCOBIE DRIVE SITE | **Lab Number:** L1915270
Project Number: 11.1038 | **Report Date:** 04/24/19

SAMPLE RESULTS

Lab ID: L1915270-05
Client ID: CTM-MW-2-20190412
Sample Location: NEWBURGH, NY

Date Collected: 04/12/19 16:43
Date Received: 04/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/19 19:10
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/16/19 17:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	1870		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	22		15-110

Project Name: 5 SCOBIE DRIVE SITE **Lab Number:** L1915270
Project Number: 11.1038 **Report Date:** 04/24/19

SAMPLE RESULTS

Lab ID: L1915270-05
Client ID: CTM-MW-2-20190412
Sample Location: NEWBURGH, NY

Date Collected: 04/12/19 16:43
Date Received: 04/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 04/21/19 20:13
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 04/19/19 08:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	85.4		ng/l	2.19	0.409	1
Perfluoropentanoic Acid (PFPeA)	195		ng/l	2.19	0.509	1
Perfluorobutanesulfonic Acid (PFBS)	82.4		ng/l	2.19	0.417	1
Perfluorohexanoic Acid (PFHxA)	253		ng/l	2.19	0.539	1
Perfluoroheptanoic Acid (PFHpA)	150		ng/l	2.19	0.408	1
Perfluorohexanesulfonic Acid (PFHxS)	30.0		ng/l	2.19	0.478	1
Perfluorooctanoic Acid (PFOA)	374		ng/l	2.19	0.504	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	6.17		ng/l	2.19	0.213	1
Perfluoroheptanesulfonic Acid (PFHpS)	5.46		ng/l	2.19	0.570	1
Perfluorononanoic Acid (PFNA)	73.8		ng/l	2.19	0.478	1
Perfluorooctanesulfonic Acid (PFOS)	207		ng/l	2.19	0.614	1
Perfluorodecanoic Acid (PFDA)	42.6		ng/l	2.19	0.680	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.19	0.319	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	1.05	J	ng/l	2.19	0.274	1
Perfluoroundecanoic Acid (PFUnA)	0.917	J	ng/l	2.19	0.465	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.19	0.423	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.19	0.610	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	3.63		ng/l	2.19	0.409	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.19	0.649	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.19	0.344	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.19	1.08	1
PFOA/PFOS, Total	581		ng/l	2.19	0.504	1

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-05	Date Collected:	04/12/19 16:43
Client ID:	CTM-MW-2-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	109		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	62		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	78		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	54		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	74		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	113		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	160		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	118		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	135		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	87		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	123		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	66		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	69		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	109		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		33-143

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-06	Date Collected:	04/12/19 13:06
Client ID:	EQUIPMENT BLANK-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	04/16/19 17:40
Analytical Date:	04/17/19 19:33		
Analyst:	PS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	88.9	J	ng/l	147	33.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	21		15-110

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

SAMPLE RESULTS

Lab ID: L1915270-06
Client ID: EQUIPMENT BLANK-20190412
Sample Location: NEWBURGH, NY

Date Collected: 04/12/19 13:06
Date Received: 04/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 122,537(M)
Analytical Date: 04/21/19 17:28
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 04/19/19 08:58

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.78	0.332	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.78	0.413	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	0.338	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.78	0.438	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	0.331	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	0.388	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	0.409	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.66	J	ng/l	1.78	0.172	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.78	0.463	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	0.388	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	0.498	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	0.552	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.78	0.259	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.223	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.377	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.343	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.495	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.332	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.527	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.279	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.879	1
PFOA/PFOS, Total	ND		ng/l	1.78	0.409	1

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

SAMPLE RESULTS

Lab ID:	L1915270-06	Date Collected:	04/12/19 13:06
Client ID:	EQUIPMENT BLANK-20190412	Date Received:	04/15/19
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	91		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	100		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	117		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	138		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	70		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	111		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	93		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	87		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	66		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	21		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	66		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	121		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		33-143

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 04/17/19 15:07
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 04/16/19 17:40

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-06 Batch: WG1226997-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	23		15-110

Project Name:	5 SCOBIE DRIVE SITE	**Lab Number:**	L1915270
Project Number:	11.1038	**Report Date:**	04/24/19

Method Blank Analysis
Batch Quality Control

Analytical Method:	122,537(M)	Extraction Method:	EPA 537
Analytical Date:	04/21/19 13:26	Extraction Date:	04/19/19 08:58
Analyst:	AJ		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1228108-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.373
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.464
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.380
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.492
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.372
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.436
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.460
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	0.194
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.520
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.436
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.560
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.620
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	0.291
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.250
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.424
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.386
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.556
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.373
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.592
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.314
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.988
PFOA/PFOS, Total	ND		ng/l	2.00	0.460

Project Name: 5 SCOBIE DRIVE SITE

Project Number: 11.1038

Lab Number: L1915270

Report Date: 04/24/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 122,537(M)
Analytical Date: 04/21/19 13:26
Analyst: AJ

Extraction Method: EPA 537
Extraction Date: 04/19/19 08:58

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1228108-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	116		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	105		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	114		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	117		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	116		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	127		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	114		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	81		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	103		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	122		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	77		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	104		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	50		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	66		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	83		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		33-143

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-06 Batch: WG1226997-2 WG1226997-3								
1,4-Dioxane	117		117		40-140	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	22		22		15-110

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DRIVE SITE
Project Number: 11.1038
Lab Number: L1915270
Report Date: 04/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1228108-2 WG1228108-3								
Perfluorobutanoic Acid (PFBA)	102		102		67-148	0		30
Perfluoropentanoic Acid (PFPeA)	105		106		63-161	1		30
Perfluorobutanesulfonic Acid (PFBS)	94		97		65-157	3		30
Perfluorohexanoic Acid (PFHxA)	116		116		69-168	0		30
Perfluoroheptanoic Acid (PFHpA)	105		108		58-159	3		30
Perfluorohexanesulfonic Acid (PFHxS)	102		99		69-177	3		30
Perfluorooctanoic Acid (PFOA)	105		109		63-159	4		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	108		103		49-187	5		30
Perfluoroheptanesulfonic Acid (PFHpS)	98		110		61-179	12		30
Perfluorononanoic Acid (PFNA)	112		120		68-171	7		30
Perfluorooctanesulfonic Acid (PFOS)	92		97		52-151	5		30
Perfluorodecanoic Acid (PFDA)	115		117		63-171	2		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	99		87		56-173	13		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	99		103		60-166	4		30
Perfluoroundecanoic Acid (PFUnA)	102		100		60-153	2		30
Perfluorodecanesulfonic Acid (PFDS)	124		135		38-156	8		30
Perfluorooctanesulfonamide (FOSA)	101		115		46-170	13		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	116		108		45-170	7		30
Perfluorododecanoic Acid (PFDoA)	109		111		67-153	2		30
Perfluorotridecanoic Acid (PFTrDA)	105		127		48-158	19		30
Perfluorotetradecanoic Acid (PFTA)	117		125		59-182	7		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DRIVE SITE
Lab Number: L1915270
Project Number: 11.1038
Report Date: 04/24/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1228108-2 WG1228108-3

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	119		115		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	109		104		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	119		121		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	115		121		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	113		112		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	127		139		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	109		109		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	83		68		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	104		96		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		108		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	99		100		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	103		85		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	80		85		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	103		97		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	42		47		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	83		82		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	102		87		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	83		77		33-143

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 SCOBIE DRIVE SITE
Project Number: 11.1038
Lab Number: L1915270
Report Date: 04/24/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1226997-4 WG1226997-5 QC Sample: L1915270-01 Client ID: MW-5-20190412												
1,4-Dioxane	9810	4810	15400	116		15200	112		40-140	1		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,4-Dioxane-d8	25		23		15-110

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 SCOBIE DRIVE SITE
Project Number: 11.1038
Lab Number: L1915270
Report Date: 04/24/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1228108-4 WG1228108-5 QC Sample: L1915270-01 Client ID: MW-5-20190412												
Perfluorobutanoic Acid (PFBA)	18.0	41.7	67.2	118		67.3	117		67-148	0		30
Perfluoropentanoic Acid (PFPeA)	19.7	41.7	69.0	118		67.2	113		63-161	3		30
Perfluorobutanesulfonic Acid (PFBS)	8.19	41.7	53.0	108		52.8	106		65-157	0		30
Perfluorohexanoic Acid (PFHxA)	29.6	41.7	87.0	138		84.8	131		69-168	3		30
Perfluoroheptanoic Acid (PFHpA)	29.5	41.7	81.0	124		81.5	123		58-159	1		30
Perfluorohexanesulfonic Acid (PFHxS)	11.2	41.7	55.5	106		55.8	106		69-177	1		30
Perfluorooctanoic Acid (PFOA)	89.6	41.7	142	126		148	138		63-159	4		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.46J	41.7	50.9	122		49.0	116		49-187	4		30
Perfluoroheptanesulfonic Acid (PFHpS)	1.15J	41.7	52.6	126		46.9	111		61-179	11		30
Perfluorononanoic Acid (PFNA)	4.20	41.7	59.5	133		56.9	125		68-171	4		30
Perfluorooctanesulfonic Acid (PFOS)	20.7	41.7	69.4	117		65.5	106		52-151	6		30
Perfluorodecanoic Acid (PFDA)	ND	41.7	52.4	126		51.7	123		63-171	1		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	41.7	48.3	116		51.6	122		56-173	7		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	41.7	45.1	108		45.1	107		60-166	0		30
Perfluoroundecanoic Acid (PFUnA)	ND	41.7	45.2	108		44.0	104		60-153	3		30
Perfluorodecanesulfonic Acid (PFDS)	ND	41.7	68.1	**163**	Q	59.1	140		38-156	14		30
Perfluorooctanesulfonamide (FOSA)	ND	41.7	45.4	109		46.1	109		46-170	2		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.962J	41.7	60.4	145		52.3	124		45-170	14		30
Perfluorododecanoic Acid (PFDoA)	ND	41.7	48.6	117		49.7	118		67-153	2		30
Perfluorotridecanoic Acid (PFTrDA)	ND	41.7	43.8	105		44.4	105		48-158	1		30
Perfluorotetradecanoic Acid (PFTA)	ND	41.7	57.3	138		61.6	146		59-182	7		30

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 SCOBIE DRIVE SITE
Project Number: 11.1038
Lab Number: L1915270
Report Date: 04/24/19

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab   Associated sample(s): 01-06   QC Batch ID: WG1228108-4 WG1228108-5   QC Sample: L1915270-01
Client ID: MW-5-20190412

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	138		134		7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	146		136		1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	61		60		23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	68		61		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	111		103		40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		91		38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	74		73		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87		83		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	117		112		47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	94		90		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	62		57		33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	103		102		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	73		73		16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	62		53		1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	94		99		42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		95		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	107		104		34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	85		80		31-159

Project Name: 5 SCOBIE DRIVE SITE
Project Number: 11.1038

Lab Number: L1915270
Report Date: 04/24/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1915270-01A	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-01A1	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-01A2	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-01B	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-01B1	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-01B2	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-01C	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-01C1	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-01C2	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-01D	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-01D1	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-01D2	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-02A	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-02B	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-02C	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-02D	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-03A	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-03C	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-03D	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-04A	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-04B	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-04C	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1915270-04D	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-05A	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-05B	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-05C	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-05D	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-06A	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-06B	Plastic 250ml Trizma preserved	A	NA		3.3	Y	Absent		A2-NY-537-ISOTOPE(14)
L1915270-06C	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L1915270-06D	Amber 500ml unpreserved	B	8	8	3.5	Y	Absent		A2-1,4-DIOXANE-SIM(7)

*Values in parentheses indicate holding time in days

Project Name: 5 SCOBIE DRIVE SITE **Lab Number:** L1915270
Project Number: 11.1038 **Report Date:** 04/24/19

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name: 5 SCOBIE DRIVE SITE **Lab Number:** L1915270
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1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.

122 Determination of Selected Perfluorintated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS). EPA Method 537, EPA/600/R-08/092. Version 1.1, September 2009.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 4/15/19

ALPHA Job #: L1915270

Project Information
Project Name: 5 Sobie Drive Site
Project Location: Newburgh, NY
Project # 11.1038
(Use Project name as Project #) ☐
Project Manager: Jim McIver / David Lent
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: CT Male Associates
Address: 12 Raymond Avenue
Poughkeepsie, NY 12603
Phone: 845-454-4400
Fax:
Email: d.lent@ctmale.com

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☒ Same as Client Info
PO #

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: A2-537	A2-1,4-Dioxane Sim							Sample Specific Comments	Total Bottles
15270.01	MW-5-20190412	4/12/19	1116	GW	DC	X	X								4
.01 ~~.02~~	MS-MW-5-20190412	↓	1139	GW	DC	X	X							MS	4
.01 ~~.03~~	MSD-MW-5-20190412		1155	GW	DC	X	X							MSD	4
.02 ~~.04~~	DUP-20190412		—	GW	DC	X	X								4
.03	Field Blank-20190412		1237	Water	DC	X	X							empty reagent bottle included	4
.04	CTM-MW-5-20190412		1508	GW	DC	X	X								4
.05	CTM-MW-2-20190412	↓	1643	GW	DC	X	X								4
.06	Equipment Blank-20190412	4/12/19	1306	Water	DC	X	X							(amber is 1/8 full)	4

	A2-537	A2-1,4-Dioxane Sim
Container Type	P	A
Preservative	A/O	A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	4/15/19 1026	[signature]	4/15/19 1026
[signature]	4/15/19 1410	PS AAL	4/15/19 2040
PS AAL	4/15/19 20:40	[signature]	4/15/19 2040
[signature]	04/16/19 0530	[signature]	4/16/19 0530

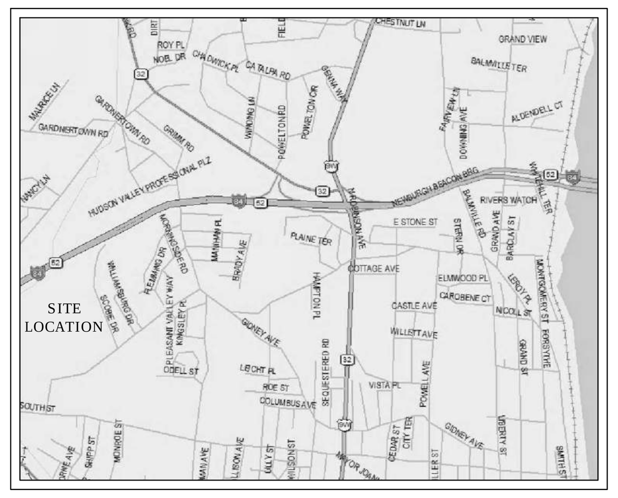
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

ATTACHMENT B

FIGURES

XREFS: NONE

PROJECT NUMBER: 13.3061



SITE LOCATION MAP
(NOT TO SCALE)

MAP NOTES:

1. Boundary and topographic information shown hereon was compiled from an actual field survey conducted during the month of May, 2014.
2. North orientation and bearings are Grid North based on the New York State Plane Coordinate System, East Zone, NAD 83. As established by GPS observations.
3. Objects shown on this drawing with a distance indicating how far that object is from a particular line, lie on the same side of the line that the offset distance is written.
4. Vertical datum shown hereon is NAVD 88 and was obtained through GPS observations.
5. Underground facilities, structures, and utilities have been plotted from data obtained from previous maps and record drawings. Surface features such as catch basin rims, manhole covers, water valves, gas valves, etc. are the result of field survey unless noted otherwise. There may be other underground utilities, the existence of which is not known to the undersigned. Size and location of all underground utilities and structures must be verified by the appropriate authorities. Dig Safely New York must be notified prior to conducting test borings, excavation and construction.
6. This survey was prepared without the benefit of an up to date abstract of title or title report and is therefore subject to any easements, covenants, restrictions or any statement of fact that such documents may disclose.
7. Wetlands and other waters of the U.S. were delineated by a C.T. Male field representative October 3, 2013 and May 9, 2014 in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and Northeast and North Central Regional Supplement.
8. The waters of the U.S. acreage has been calculated within the limits of delineation.
9. Soil Boring SB-13 was located in the field by the use of a hand held GPS Unit and not the result of conventional survey methods.

MAP REFERENCES:

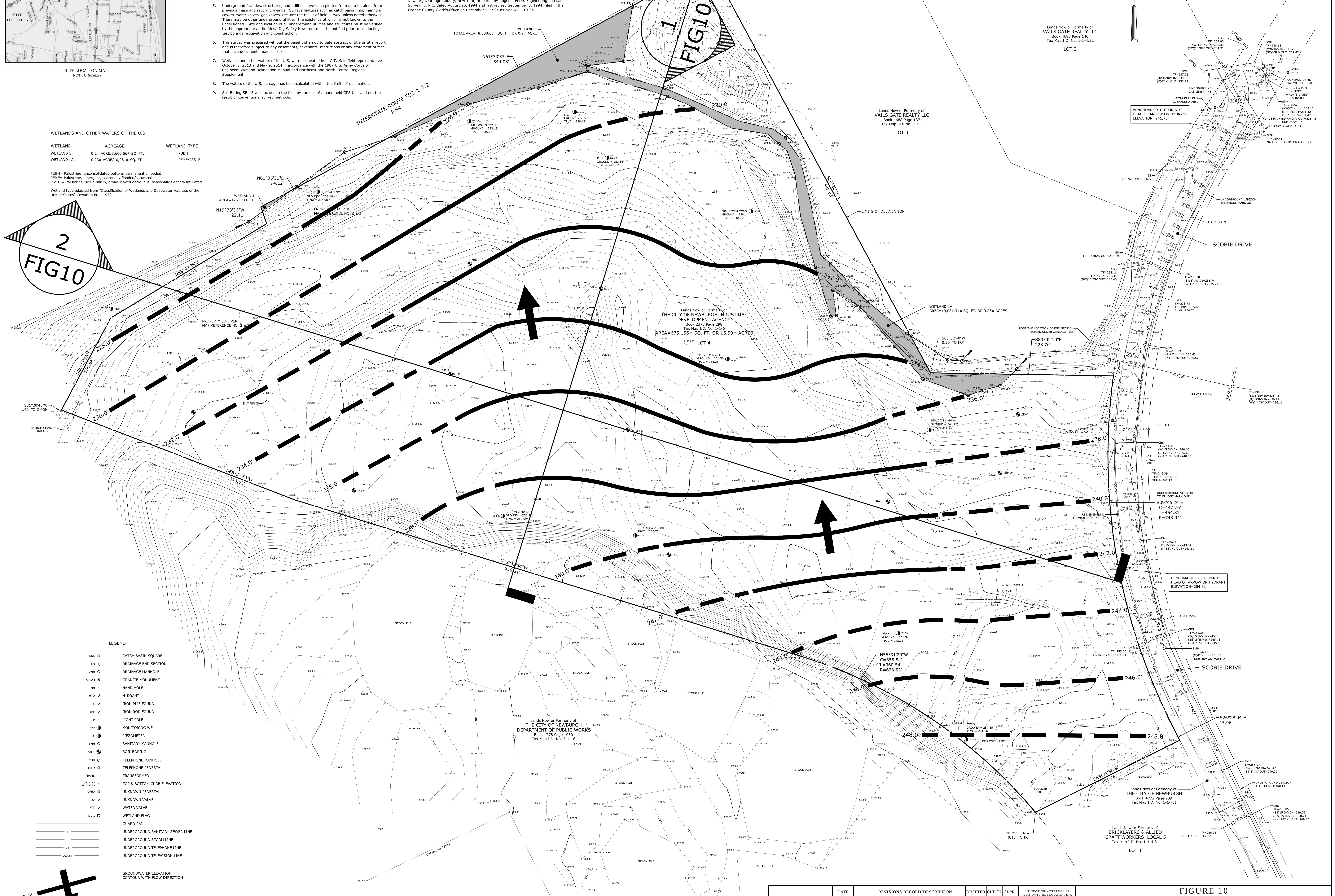
1. New York State Department of Transportation Appropriation Map No. 3-C Parcel 1213, "Interstate Route 503-1-7.2, Thruway to Existing Route 9W, S.H. No. 62-6", Dated January 20, 1984 on file in the Office of The New York State D.O.T. Region No. 8.
2. "Sketch Plan Survey and Subdivision of Lands For Sarbro Realty Corp." City of Newburgh, Orange County, New York prepared by Roger J. Ferris Engineering and Land Surveying, P.C. dated January 24, 1989 and last revised March 29, 1989, filed in the Orange County Clerk's Office on April 14, 1989 as Map No. 9436.
3. "Subdivision of Lands for City of Newburgh Industrial Development Agency" City of Newburgh, Orange County, New York, prepared by Roger J. Ferris Engineering and Land Surveying, P.C. dated August 26, 1994 and last revised September 8, 1994, filed in the Orange County Clerk's Office on December 7, 1994 as Map No. 210-94.

WETLANDS AND OTHER WATERS OF THE U.S.

WETLAND	ACREAGE	WETLAND TYPE
WETLAND 1	0.2± ACRE/8,600.66± SQ. FT.	PUBH
WETLAND 1A	0.23± ACRE/10,081± SQ. FT.	PEME/PSS1E

PUBH= Palustrine, unconsolidated bottom, permanently flooded
PEME= Palustrine, emergent, seasonally flooded/saturated
PSS1E= Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

Wetland type adapted from "Classification of Wetlands and Deepwater Habitats of the United States" Cowardin etal. 1979



LEGEND

CBS	CATCH BASIN SQUARE
ES	DRAINAGE END SECTION
DMH	DRAINAGE MANHOLE
GMON	GRANITE MONUMENT
HH	HAND HOLE
HYD	HYDRANT
IPF	IRON PIPE FOUND
IRF	IRON ROD FOUND
LP	LIGHT POLE
MW	MONITORING WELL
PZ	PIEZOMETER
SMH	SANITARY MANHOLE
SB-1	SOIL BORING
TMH	TELEPHONE MANHOLE
TPED	TELEPHONE PEDESTAL
TRANS	TRANSFORMER
TC=257.40 BC=256.88	TOP & BOTTOM CURB ELEVATION
UPED	UNKNOWN PEDESTAL
UV	UNKNOWN VALVE
WV	WATER VALVE
W1-1	WETLAND FLAG
	GUARD RAIL
SS	UNDERGROUND SANITARY SEWER LINE
ST	UNDERGROUND STORM LINE
UT	UNDERGROUND TELEPHONE LINE
UCATV	UNDERGROUND TELEVISION LINE
240.0'	GROUNDWATER ELEVATION CONTOUR WITH FLOW DIRECTION
	INFERRED GROUNDWATER ELEVATION CONTOUR

"ONLY COPIES OF THIS MAP SIGNED IN RED INK AND EMBOSSED WITH THE SEAL OF AN OFFICER OF C.T. MALE ASSOCIATES OR A DESIGNATED REPRESENTATIVE SHALL BE CONSIDERED TO BE A VALID TRUE COPY".

CAD DWG. FILE NAME: K:\Projects\133061\Env\Drawings-Maps\GWC-JUNE 24-2014 CROSS SECTIONS(2).dwg

DATE		REVISIONS RECORD/DESCRIPTION	DRAFTER	CHECK	APPR.
12/8/14	1	Added Cross Section Lines	S.WUNSCH		
	2				
	3				
	4				
	5				
	6				
	7				
	8				
	9				

UNAUTHORIZED ALTERATION OR ADDITION TO THIS DOCUMENT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW.

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C.T. MALE ASSOCIATES

DESIGNED: J.DIPPERT
DRAFTED : S.WUNSCH
CHECKED : J.DIPPERT
PROJ. NO : 13.3061
SCALE : 1"=40'
DATE : SEPT. 12, 2014

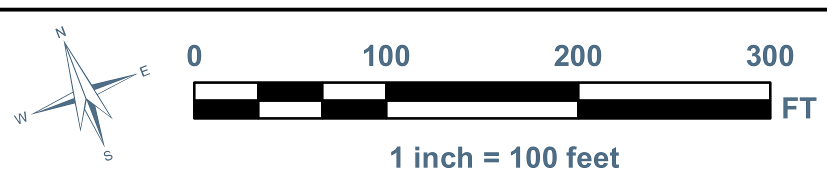
FIGURE 10
GROUNDWATER ELEVATION CONTOUR MAP
JUNE 24, 2014

5 SCOBIE DRIVE

CITY OF NEWBURGH — ORANGE COUNTY, NEW YORK

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture & Landscape Architecture, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

SHEET 1 OF 1
DWG. NO: 14-450



Project Number: 13.3061
Data Source: NYSGIS Clearinghouse, BING
Projection: State Plane NAD83 NYE (feet)
Date: October 3, 2014
File: Fig5_SB_MWLocations11x17.mxd
GIS: C Secor

Legend

- MW-3 — Approximate Monitoring Well Location and Number Installed by Others
- SB-3 — Approximate Soil Boring Location and Number
- SB-5/CTM-MW-2 — Approximate Soil Boring Converted to a Monitoring Well Location and Number Installed by C.T. Male
- Property Boundary (Approx)

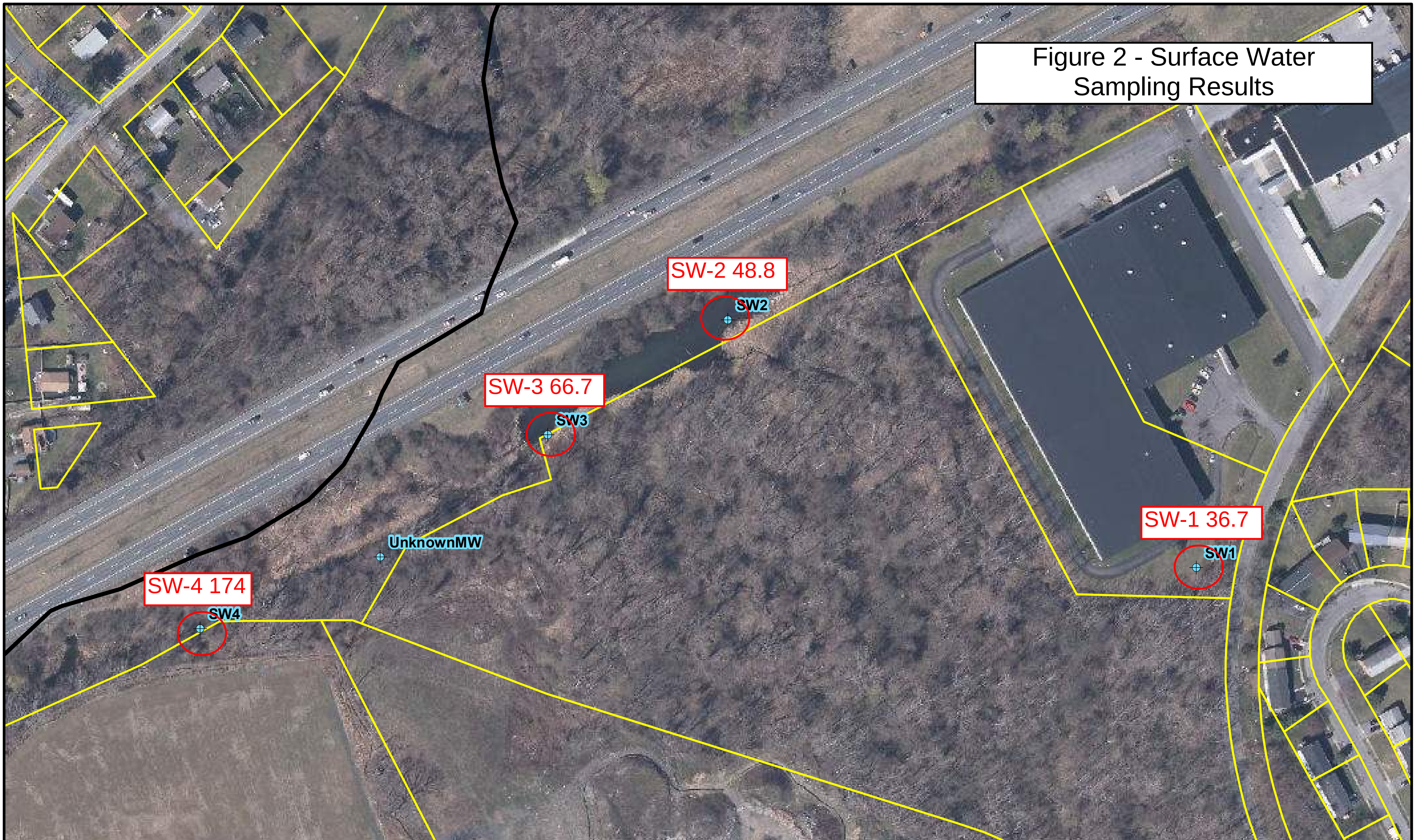
Figure 1: Emerging Contaminants Sample Locations

5 Scobie Drive Site

City of Newburgh — **Orange County, New York**

C.T. MALE ASSOCIATES
ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, D.P.C
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
FOUNDED IN 1910

Figure 2 - Surface Water Sampling Results



Sampling Point Map

Town of Newburgh | Orange County, NY

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

N W E S

0 100 200 400 FT

1 inch = 200 feet

Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.

Project Number:
Data Source: NYSGIS Clearinghouse
Projection: State Plane NAD83 NYE (Feet)
Date: September 16, 2020
File: SamplingPointMap_8x11.mxd
GIS: D Landreville

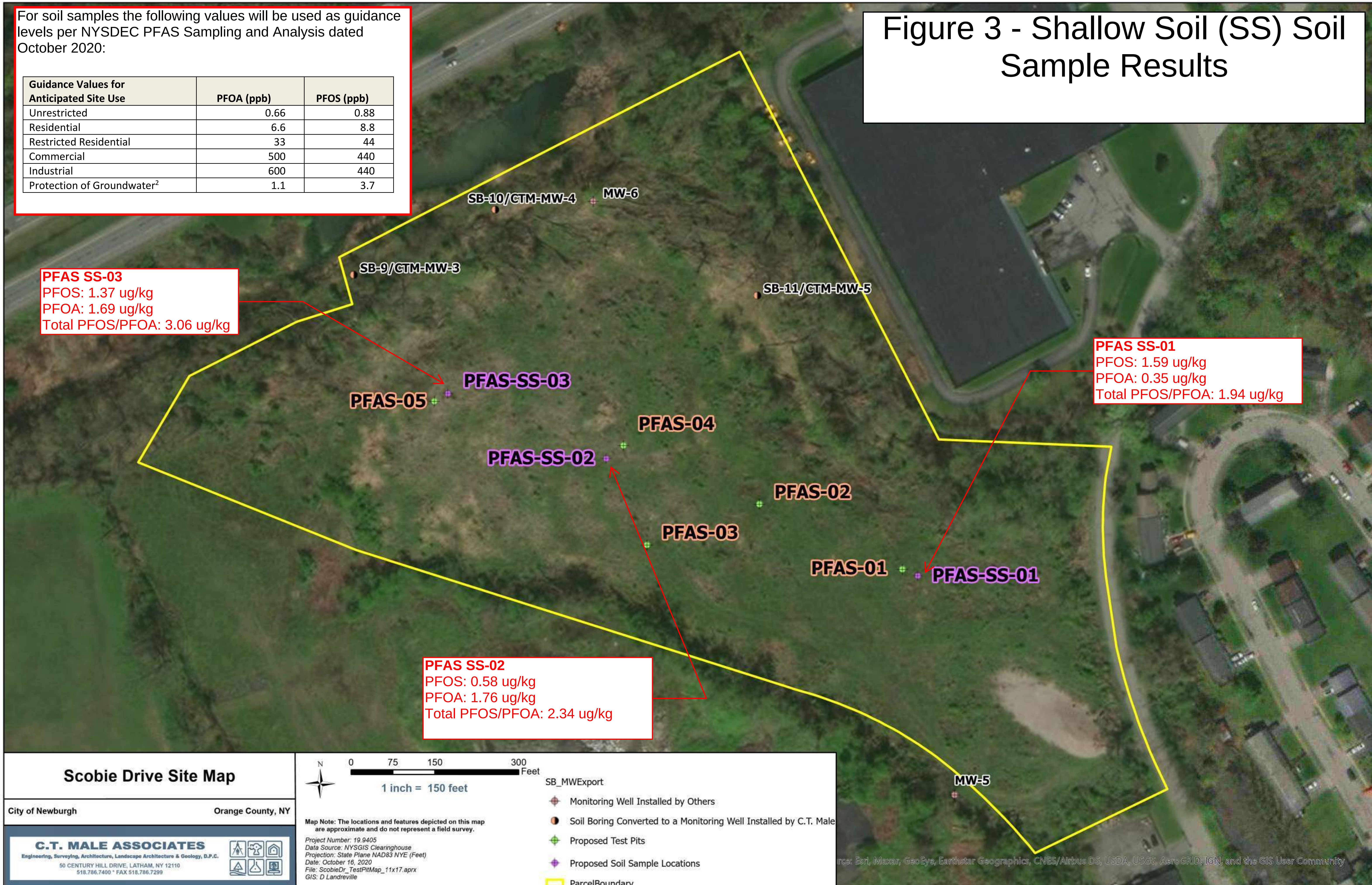
Legend

- GPSPoints (09-01-2020)
- Parcels
- Cities and Towns

Figure 3 - Shallow Soil (SS) Soil Sample Results

For soil samples the following values will be used as guidance levels per NYSDEC PFAS Sampling and Analysis dated October 2020:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	1.1	3.7



Scobie Drive Site Map

City of Newburgh — Orange County, NY

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299

Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.

Project Number: 19.9405
Data Source: NYSGIS Clearinghouse
Projection: State Plane NAD83 NYE (Feet)
Date: October 16, 2020
File: ScobieDr_TestPitMap_11x17.aprx
GIS: D Landreville

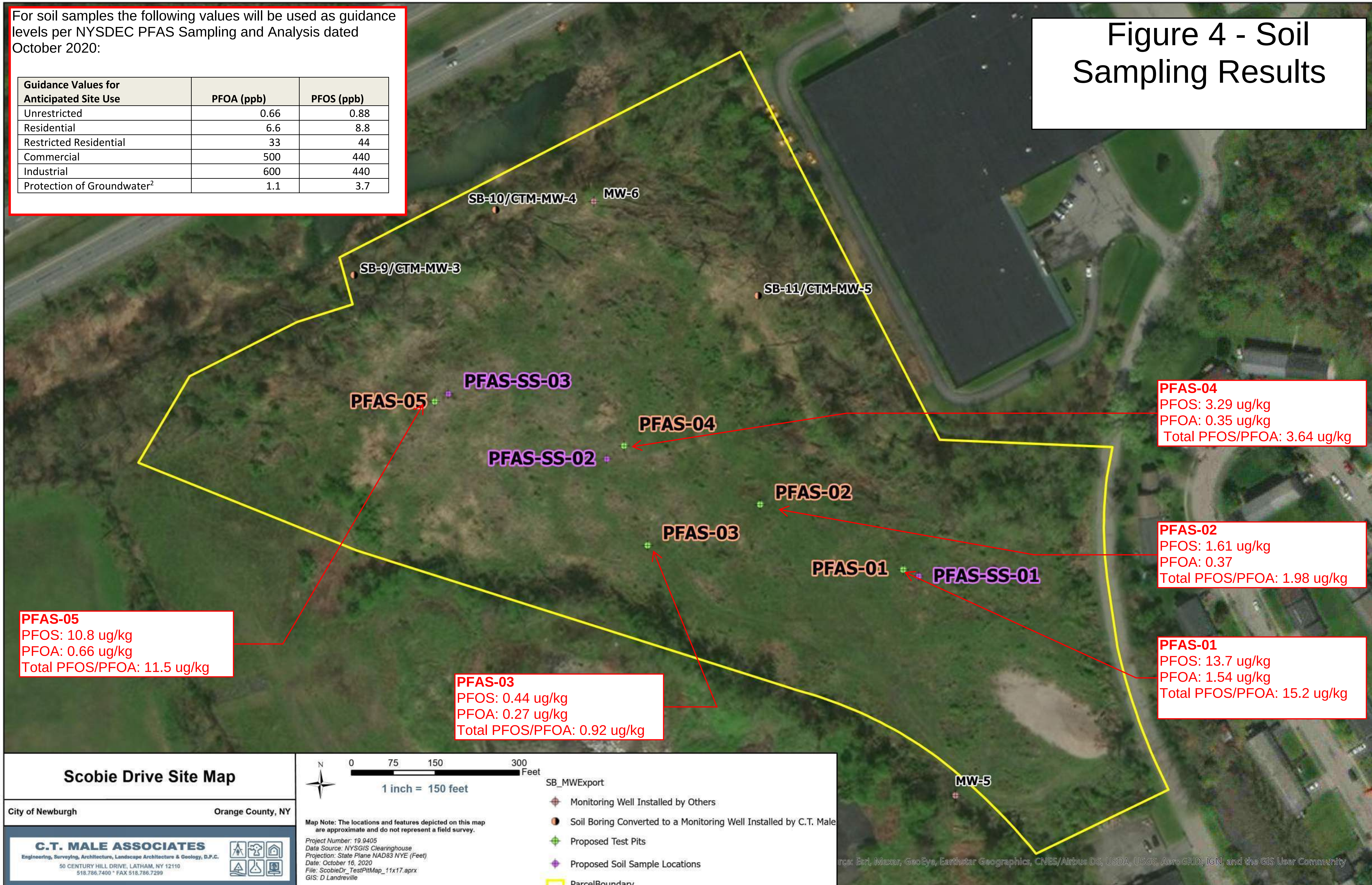
SB_MWExport
- Monitoring Well Installed by Others
- Soil Boring Converted to a Monitoring Well Installed by C.T. Male
- Proposed Test Pits
- Proposed Soil Sample Locations
- ParcelBoundary

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Figure 4 - Soil Sampling Results

For soil samples the following values will be used as guidance levels per NYSDEC PFAS Sampling and Analysis dated October 2020:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	1.1	3.7



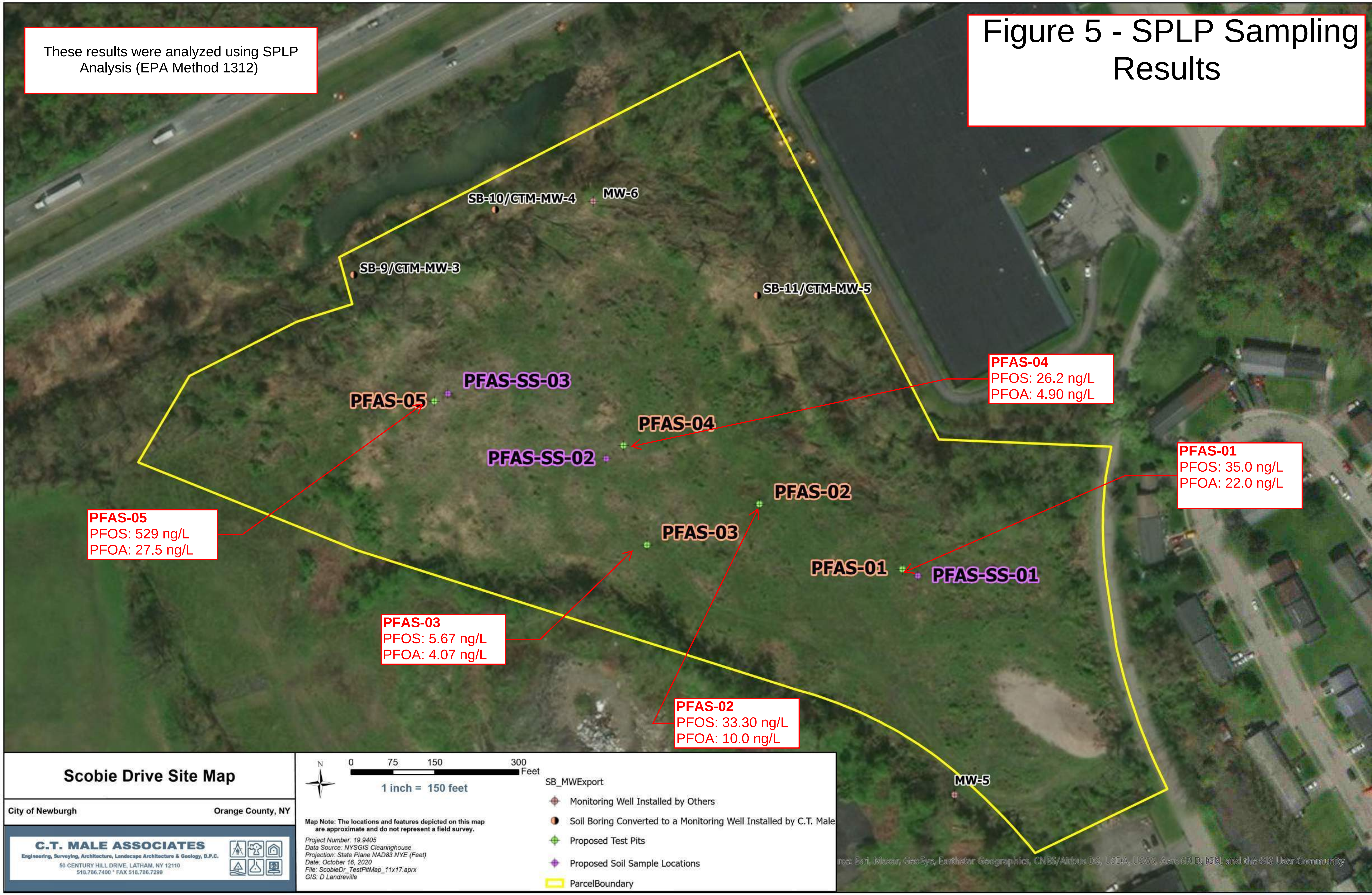
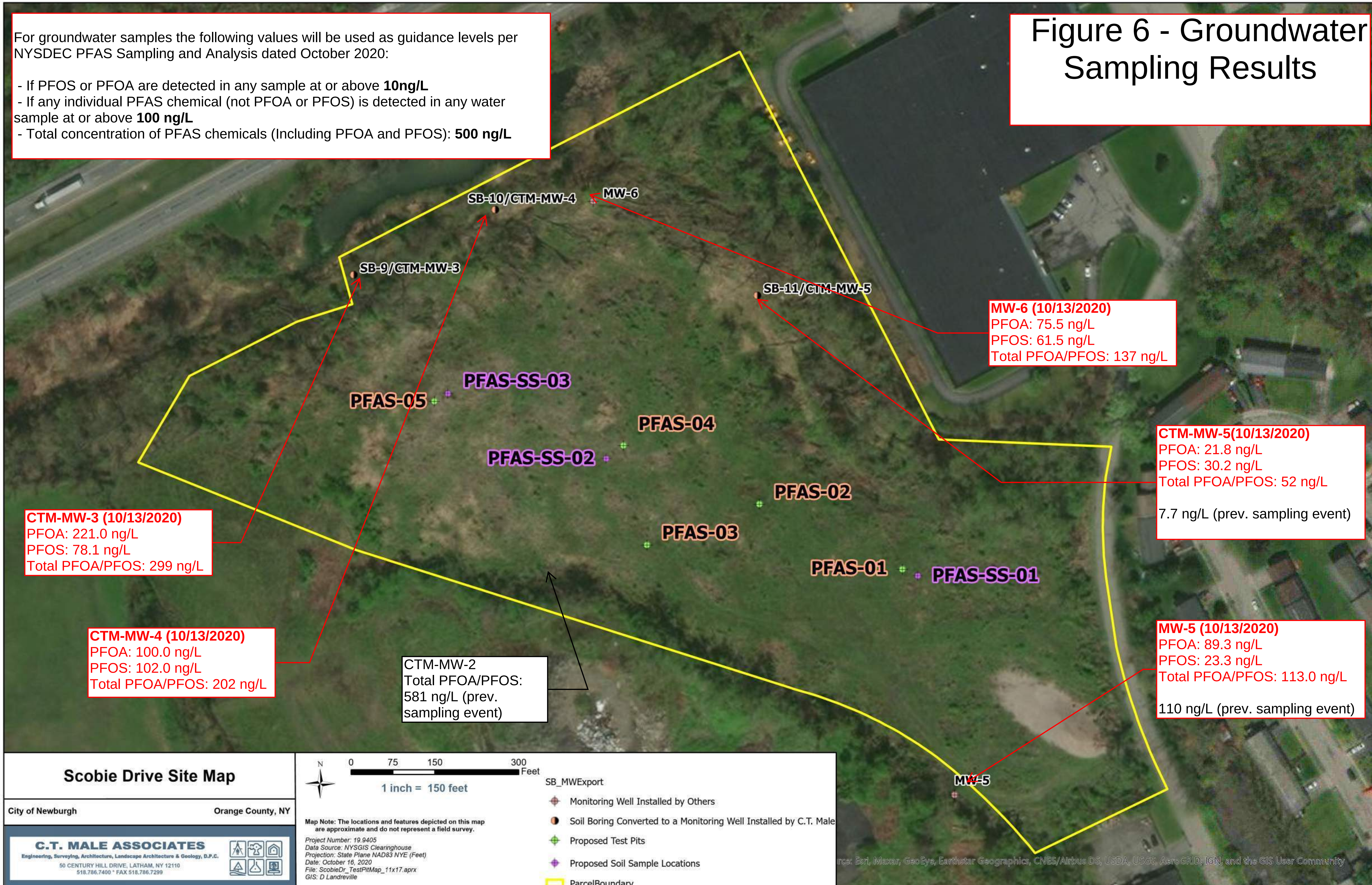


Figure 5 - SPLP Sampling Results
These results were analyzed using SPLP Analysis (EPA Method 1312)
SB-10/CTM-MW-4
MW-6
SB-9/CTM-MW-3
SB-11/CTM-MW-5
PFAS-SS-03
PFAS-05
PFAS-04
PFAS-SS-02
PFAS-02
PFAS-03
PFAS-01
PFAS-SS-01
MW-5
PFAS-04
PFOS: 26.2 ng/L
PFOA: 4.90 ng/L
PFAS-01
PFOS: 35.0 ng/L
PFOA: 22.0 ng/L
PFAS-05
PFOS: 529 ng/L
PFOA: 27.5 ng/L
PFAS-03
PFOS: 5.67 ng/L
PFOA: 4.07 ng/L
PFAS-02
PFOS: 33.30 ng/L
PFOA: 10.0 ng/L
Scobie Drive Site Map
City of Newburgh
Orange County, NY
C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299
N
0 75 150 300
Feet
1 inch = 150 feet
Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.
Project Number: 19.9405
Data Source: NYSGIS Clearinghouse
Projection: State Plane NAD83 NYE (Feet)
Date: October 16, 2020
File: ScobieDr_TestPitMap_11x17.aprx
GIS: D Landreville
SB_MWExport
Monitoring Well Installed by Others
Soil Boring Converted to a Monitoring Well Installed by C.T. Male
Proposed Test Pits
Proposed Soil Sample Locations
ParcelBoundary


For groundwater samples the following values will be used as guidance levels per NYSDEC PFAS Sampling and Analysis dated October 2020:
- If PFOS or PFOA are detected in any sample at or above **10ng/L**
- If any individual PFAS chemical (not PFOA or PFOS) is detected in any water sample at or above **100 ng/L**
- Total concentration of PFAS chemicals (Including PFOA and PFOS): **500 ng/L**
Figure 6 - Groundwater Sampling Results
SB-10/CTM-MW-4
MW-6
SB-9/CTM-MW-3
SB-11/CTM-MW-5
MW-6 (10/13/2020)
PFOA: 75.5 ng/L
PFOS: 61.5 ng/L
Total PFOA/PFOS: 137 ng/L
PFAS-SS-03
PFAS-05
PFAS-04
PFAS-SS-02
CTM-MW-5(10/13/2020)
PFOA: 21.8 ng/L
PFOS: 30.2 ng/L
Total PFOA/PFOS: 52 ng/L
7.7 ng/L (prev. sampling event)
PFAS-02
PFAS-03
PFAS-01
PFAS-SS-01
CTM-MW-3 (10/13/2020)
PFOA: 221.0 ng/L
PFOS: 78.1 ng/L
Total PFOA/PFOS: 299 ng/L
MW-5 (10/13/2020)
PFOA: 89.3 ng/L
PFOS: 23.3 ng/L
Total PFOA/PFOS: 113.0 ng/L
110 ng/L (prev. sampling event)
CTM-MW-4 (10/13/2020)
PFOA: 100.0 ng/L
PFOS: 102.0 ng/L
Total PFOA/PFOS: 202 ng/L
CTM-MW-2
Total PFOA/PFOS:
581 ng/L (prev. sampling event)
MW-5
Scobie Drive Site Map
City of Newburgh
Orange County, NY
C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology, D.P.C.
50 CENTURY HILL DRIVE, LATHAM, NY 12110
518.786.7400 * FAX 518.786.7299
N
0 75 150 300 Feet
1 inch = 150 feet
Map Note: The locations and features depicted on this map are approximate and do not represent a field survey.
Project Number: 19.9405
Data Source: NYSGIS Clearinghouse
Projection: State Plane NAD83 NYE (Feet)
Date: October 16, 2020
File: ScobieDr_TestPitMap_11x17.aprx
GIS: D Landreville
SB_MWExport
Monitoring Well Installed by Others
Soil Boring Converted to a Monitoring Well Installed by C.T. Male
Proposed Test Pits
Proposed Soil Sample Locations
ParcelBoundary

ATTACHMENT C

FIELD LOGS

Sample from Test Pit {FAS- 01

Sample from Test Pit PFAS - 02


Ziploc®
TP3

Sample from Test Plt PFAS - 04

Sample from Test Pit - 05

Environmental Services Field Log

Date: 10/12/2020 Time On-Site: 0930 Time Off-Site: 1845

Project Name: 5 Scobie Drive Project No.: 19.9405

Purpose: Test Pit Observation, Waste Sampling Field Report No:

Weather Conditions: Rain, 15°C

Present at Site: Dan Achtyl

Observations:

09:30 On site. Excavator on site, clearing a path onto the site. Set up GPS unit to navigate to test pit locations.
10:30 Start test pit PFAS-01. See test pit logs for observations.
11:30 Finish at PFAS-01, moving to location 2.
11:45 Start test pit PFAS-02. See test pit logs for observations.
12:15 Finish at PFAS-02, moving to location 3.
12:30 Start test pit PFAS-03. See test pit logs for observations.
13:15 Finish at PFAS-03, moving to location 4.
13:45 Start test pit PFAS-04. See test pit logs for observations.
14:15 Finish at PFAS-04, moving to location 5.
14:45 Start test pit PFAS-05. See test pit logs for observations.
15:15 Finish at PFAS-05. Representative waste samples collected from each test pit placed in a Ziploc bag and placed on ice to be transferred into lab supplied jars. Moving to locate monitoring wells. Locate CTM-MW-3, CTM-MW-4, MW-6, CTM-MW-5 and CTM-MW-2. Could not locate MW-4, well appears to be gone.
17:30 Collect PFAS samples of waste from each test pit and place in lab supplied jars. For each sample collected, a representative sample of the waste material was placed into the sample jars.

Items to Verify:

List of Attachments:

Field Log Prepared by: Dan Ach

Copies to:

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME: 5 Scobie Dr
PROJECT NUMBER: 19.9405
LOGGED BY: D. Ashtyl
CONTRACTOR: Jason S
EQUIPMENT: Kubota
DATE: 10/12/2020

TEST PIT NO. PFAS-01

0'

Brown SAND-SILT, little fabric straps, vinyl, ash, plastic, glass, metal

Gray SILT/CLAY, some Ash, Glass, Plastic, Metal, Wood

5'

Seam of vinyl material at 3'

10'

15'

TOTAL DEPTH: 10'
WATER AT: NA

NOTES: Sample from 3-5'

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	5 Scenic Dr	CONTRACTOR	Jason S
PROJECT NUMBER:	19.9405	EQUIPMENT:	Kubota
LOGGED BY:	D Achtyl	DATE:	10/12/2020

TEST PIT NO. PFAS-02

0'

Brown SAND + GRAVEL, some silt, trace waste

Gray SILT + CLAY + WASTE (Vinyl, plastic, metal, glass, wood, ash)

5'

VINYL @ 8'

10'

15'

TOTAL DEPTH: 11'

WATER AT: ±11'

NOTES: Sample from 6-8'

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture,
Landscape Architecture & Geology D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	5 Scobie Dr	CONTRACTOR	Jason S
PROJECT NUMBER:	19.9405	EQUIPMENT:	Kubota
LOGGED BY:	D. Achtyl	DATE:	10/12/2020

TEST PIT NO. PFAS-03

0' – ~6'	Brown SAND+GRAVEL, some silt, trace waste
~6' – 10'	Gray SILT/CLAY +WASTE (black vinyl, wood, glass, metal, ash)

TOTAL DEPTH: 10'

WATER AT: NA

NOTES: Sample from 6-10'

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	5 Scobie Dr	CONTRACTOR	Jason S
PROJECT NUMBER:	19.9405	EQUIPMENT:	Kubota
LOGGED BY:	D. Achtyl	DATE:	10/12/2020

TEST PIT NO. PFAS-04

0'–5'	Brown SAND+SILT, some Gravel, trace waste
5'–10'	Gray/Black SILT/CLAY + WASTE (paper, wood, glass, metal, trace amounts of vinyl material)
10'–15'	

TOTAL DEPTH: 10'

WATER AT: NA

NOTES: Sample from 6-9'

TEST PIT LOG

C.T. MALE ASSOCIATES
Engineering, Surveying, Architecture, Landscape Architecture & Geology D.P.C.
50 Century Hill Drive
Latham, NY 12110
(518) 786-7400 • FAX (581) 786-7299

PROJECT NAME:	5 Scobie Dr	CONTRACTOR	Jason S.
PROJECT NUMBER:	19.9105	EQUIPMENT:	Kubota
LOGGED BY:	D Achtyl	DATE:	10/12/2020

TEST PIT NO. PFAS-05

0' – ~6'	Brown SAND/SILT - GRAVEL, trace waste
~6' – ~9'	Brown SILT/CLAY + WASTE (Vinyl, fabric, paper, glass, plastic, metal)

0' 5' 10' 15'

TOTAL DEPTH: 9'

WATER AT: NA

NOTES: Sample from 6-9'

ORGANIC VAPOR HEADSPACE ANALYSIS LOG

PROJECT: 5 Scobie Dr		PROJECT #: 19.9105	PAGE 1 OF 1
CLIENT:			DATE COLLECTED: 10/12/2020
LOCATION: Newburgh, NY			
INSTRUMENT USED: MiniRae 3000	LAMP 10.6 eV		DATE ANALYZED: 10/12/2020
DATE INSTRUMENT CALIBRATED:	BY:		
TEMPERATURE OF SOIL: ambient			ANALYST: D. Ashk.l

EXPLORATION NUMBER	SAMPLE NUMBER	DEPTH (FT.)***	SAMPLE TYPE	SAMPLE READING (PPM)**	BACKGROUND READING (PPM)**	REMARKS
PFAS-01		3-5	Waste	10.7	0.0	Waste material + soil
PFAS-02		6-8		33.2	0.0	
PFAS-03		6-10		10.6	0.0	
PFAS-04		6-9		38.5	0.0	
PFAS-05		6-9		21.9	0.0	

*Instrument was calibrated in accordance with manufacturer's recommended procedure using a calibration gas supplied by the manufacturer.

**PPM represents concentration of detectable volatile and gaseous compounds in parts per million of air.

*** represents feet below the ground surface

ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Date Rec'd in Lab

ALPHA Job #

Project Information
Project Name: 5 Scobie Dr
Project Location: Newburgh, NY
Project # 19.9405
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: C.T. Male Associates
Address: 12 Raymond Ave
Poughkeepsie, NY 12603
Phone: 845-454-4400
Fax: —
Email: J.McIver@CTMale.com

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: 21 PFAS	SPLP PFAS	SPLP PFAS-HOLD						Sample Specific Comments	Total Bottles
	PFAS-01	10/12/2020	1745	Soil	DA	X	X								3
	PFAS-02	↓	1755	↓	DA	X	X								3
	PFAS-03	↓	1805	↓	DA	X	X								3
	PFAS-04	↓	1815	↓	DA	X	X								3
	PFAS-05	↓	1825	↓	DA	X	X								3
	PFAS-SS-01	10/13/2020	1450	↓	DA	X		X							3
	PFAS-SS-02	↓	1455	↓	DA	X		X						FD01	3
	PFAS-SS-03	↓	1500	↓	DA	X		X						MS/MSD	9
	FD01_201013	↓	—	↓	DA	X		X							3
	EB01_201013	↓	1435	Water	DA	X								Ziploc Bag	2

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type								
Preservative								

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/13/2020 1745	[signature] AAL	10/13/20 1745

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Form No: 01-25 HC (rev. 30-Sept-2013)

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Phone: 845 454 4400
Fax: —
Email: JMcIver@ctmale.com

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Project # 19.9405 / /
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

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Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☒ ASP-B
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☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

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	FRB01_201013	10/13/2020	1430	Water	DA	X		2
	LTB01_201013	↓	—	Water	DA	X		2

Container Type	P
Preservative	A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
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C = Cube
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D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/13/2020 1745	[signature] AAL	10/13/20 1745

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Environmental Services Field Log

Date: 10/13/2020 Time On-Site: 0900 Time Off-Site: 1630

Project Name: 5 Scobie Drive Project No.: 19.9405

Purpose: Surface Soil Sampling, GW Sampling Field Report No:

Weather Conditions: Rain, 15°C

Present at Site: Dan Achtyl, Mary Loughlin

Observations:

09:00 On site. Begin surface soil sampling. Navigate to location with GPS, remove vegetation, and use deconed shovel to collect representative soil sample from 0-6" and place in Ziploc bag and place on ice to be put in lab supplied jars.
10:30 Begin groundwater sampling. Cut locks off all wells. Begin at CTM-MW-5. Use 3 volume purge method for sampling, using peristaltic pump with new tubing at each well. MS/MSD samples collected at CTM-MW-5.
11:25 Start at MW-6.
11:55 Start at CTM-MW-4. Field duplicate collected here.
12:40 Start at CTM-MW-3.
13:15 CTM-MW-2 dry. Locate MW-5.
13:25 Start at MW-5.
13:45 Finish groundwater sampling. Equipment blank sample collected of peristaltic pump tubing.
14:30 Begin surface soil sample collection. MS/MSD samples collected at PFAS-SS-03. Field duplicate collected at PFAS-SS-02. Equipment blank sample collected of Ziploc bag.
16:30 Finish soil sample collection. Off site.

Items to Verify:

List of Attachments:

Field Log Prepared by: [signature]

Copies to:

Groundwater Services Field Log

DATE: 10/13/2020

PROJECT NAME: 5 Scobie Dr

PROJECT NO.: 19.9405

PROJECT LOCATION: Newburgh, NY

SAMPLING PERSONNEL: D. Achtyl

MONITORING WELL ID#: CTM-MW-5

NOTES TAKEN BY: D. Achtyl

DEPTH TO WATER: 9.95' FROM: TPVC

BAILER ID:

DEPTH TO BOTTOM: 27.64' FROM: TPVC

BAILER: ~~NEW DISPOSABLE~~

WATER COLUMN HEIGHT: 17.69'

BAILER: ~~STAINLESS STEEL~~

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 2.8 GALLONS

VOLUMES PURGED: 8.5 GALLONS

PURGE METHOD: peri pump

TIME STARTED: 1030 ; TIME FINISHED: 1110

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 3.11 NTU

OTHER

WATER RECOVERY HEIGHT: 9.95' ; RECOVERY TIME IN MINUTES: 5

FIELD PARAMETERS: pH 7.39 , TEMPERATURE 12.6 °C

CONDUCTIVITY 1080 µS , OTHER -81 mV

SAMPLE COLLECTION TIME: 1115

NOTES: PFAS

MS/MSD here

Groundwater Services Field Log

DATE: 10/13/2020 PROJECT NAME: 5 Scobe Dr

PROJECT NO.: 199905 PROJECT LOCATION: Newburgh, NY

SAMPLING PERSONNEL: D. Achtyl

MONITORING WELL ID#: MW-6 NOTES TAKEN BY: D. Achtyl

DEPTH TO WATER: 9.07 FROM: TPVC BAILER ID:

DEPTH TO BOTTOM: 17.60 FROM: TPVC BAILER: ~~NEW DISPOSABLE~~

WATER COLUMN HEIGHT: 8.53 BAILER: ~~STAINLESS STEEL~~

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 1.4 GALLONS

VOLUMES PURGED: 4.5 GALLONS PURGE METHOD: peri pump

TIME STARTED: 1125 ; TIME FINISHED: 1145

OBSERVATIONS: COLOR clear ; ODOR none

SHEEN none ; TURBIDITY 27.1 NTU

OTHER

WATER RECOVERY HEIGHT: 9.30 ; RECOVERY TIME IN MINUTES: 5

FIELD PARAMETERS: pH 6.87 , TEMPERATURE 13.5°C

CONDUCTIVITY 1346µS , OTHER -80 mV

SAMPLE COLLECTION TIME: 1150

NOTES: PFAS

Groundwater Services Field Log

DATE: 10/13/2020

PROJECT NAME: 5 Sabic Dr

PROJECT NO.: 199405

PROJECT LOCATION: Newburgh, NY

SAMPLING PERSONNEL: D. Achtyl

MONITORING WELL ID#: CTM-MW-4

NOTES TAKEN BY: D. Achtyl

DEPTH TO WATER: 6.78 FROM: TPVC

BAILER ID:

DEPTH TO BOTTOM: 23.10 FROM: TPVC

BAILER: ~~NEW DISPOSABLE~~

WATER COLUMN HEIGHT: 16.33

BAILER: ~~STAINLESS STEEL~~

OTHER

WELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL VOLUME: 2.6 GALLONS

VOLUMES PURGED: 8 GALLONS

PURGE METHOD: peri pump

TIME STARTED: 1155 ;

TIME FINISHED: 1230

OBSERVATIONS:

COLOR clear/gray ;

ODOR slight sulfur

SHEEN none ;

TURBIDITY 20 NTU

OTHER bubbles

WATER RECOVERY HEIGHT: 6.78 ;

RECOVERY TIME IN MINUTES: 5

FIELD PARAMETERS: pH 6.92 ,

TEMPERATURE 13.6 °C

CONDUCTIVITY 2250 µS ,

OTHER -50 mV

SAMPLE COLLECTION TIME: 1235

NOTES: PFAS

FD here

Groundwater Services Field Log

DATE: 10/13/2020
PROJECT NAME: 5 Scenic Dr
PROJECT NO.: 19.9405
PROJECT LOCATION: Newburgh, NY
SAMPLING PERSONNEL: D. Achtyl
MONITORING WELL ID#: CTM-MW-3
NOTES TAKEN BY: D. Achtyl
DEPTH TO WATER: 8.44' FROM: TPVC
BAILER ID:
DEPTH TO BOTTOM: 16.40' FROM: TPVC
BAILER: ~~NEW DISPOSABLE~~
WATER COLUMN HEIGHT: 7.96
BAILER: ~~STAINLESS STEEL~~
OTHER

WELL CASING DIAMETER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL VOLUME: 1.3 GALLONS
VOLUMES PURGED: 4.0 GALLONS
PURGE METHOD: peri pump
TIME STARTED: 1240 ; TIME FINISHED: 1300

OBSERVATIONS: COLOR clear ; ODOR none
SHEEN none ; TURBIDITY 6.31 NTU
OTHER

WATER RECOVERY HEIGHT: 8.44' ; RECOVERY TIME IN MINUTES: 5
FIELD PARAMETERS: pH 7.25 , TEMPERATURE 13.9 °C
CONDUCTIVITY 1432 µS , OTHER -65 mV
SAMPLE COLLECTION TIME: 1305
NOTES: PFAS

Groundwater Services Field Log

DATE: 10/13/2020

PROJECT NAME: 5 Scobie Dr

PROJECT NO.: 19.9405

PROJECT LOCATION: Newburgh, NY

SAMPLING PERSONNEL: D. Achtyl

MONITORING WELL ID#: MW-5

NOTES TAKEN BY: D. Achtyl

DEPTH TO WATER: 15.45 FROM: TPVC

BAILER ID:

DEPTH TO BOTTOM: 21.05 FROM: TPVC

BAILER: ~~NEW DISPOSABLE~~

WATER COLUMN HEIGHT: 5.60

BAILER: ~~STAINLESS STEEL~~

OTHER

CONVERSION FACTORS LINEAR FEET TO GALLONS

1" = 0.041 GALLONS	3" = 0.38 GALLONS
1.25" = 0.064 GALLONS	4" = 0.66 GALLONS
2" = 0.16 GALLONS	6" = 1.47 GALLONS

WELL CASING DIAMETER

WELL VOLUME: 0.9 GALLONS

VOLUMES PURGED: 3.0 GALLONS

PURGE METHOD: peri pump

TIME STARTED: 1325

TIME FINISHED: 1340

OBSERVATIONS:
COLOR clear/grey ; ODOR None
SHEEN None ; TURBIDITY 21.4 NTU
OTHER

WATER RECOVERY HEIGHT: 15.45 ; RECOVERY TIME IN MINUTES: 5

FIELD PARAMETERS: pH 7.21 , TEMPERATURE 14.0 °C

CONDUCTIVITY 1125 µS , OTHER -68 mV

SAMPLE COLLECTION TIME: 1345

NOTES: PFAS

ALPHA ANALYTICAL

NEW YORK CHAIN OF CUSTODY

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8 Walkup Dr.
TEL: 508-898-9220
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Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
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Page 1 of 2

Date Rec'd in Lab

ALPHA Job #

Project Information
Project Name: 5 Scobie Dr
Project Location: Newburgh, NY
Project # 19.9405
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: C.T. Male Associates
Address: 12 Raymond Ave
Poughkeepsie, NY 12603
Phone: 845-454-4400
Fax: —
Email: J.McIver@CTMale.com

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

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Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: 21 PFAS	SPLP PFAS	SPLP PFAS-HOLD						Sample Specific Comments	Total Bottles
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	PFAS-02	↓	1755	↓	DA	X	X								3
	PFAS-03	↓	1805	↓	DA	X	X								3
	PFAS-04	↓	1815	↓	DA	X	X								3
	PFAS-05	↓	1825	↓	DA	X	X								3
	PFAS-SS-01	10/13/2020	1450	↓	DA	X		X							3
	PFAS-SS-02	↓	1455	↓	DA	X		X						FD01	3
	PFAS-SS-03	↓	1500	↓	DA	X		X						MS/MSD	9
	FD01_~~201013~~ 201013	↓	—	↓	DA	X		X							3
	EB01_201013	↓	1435	Water	DA	X								Ziploc Bag	2

Container Type								
Preservative								

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
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K/E = Zn Ac/NaOH
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Container Code
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A = Amber Glass
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G = Glass
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C = Cube
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D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/13/2020 1745	[signature] AAL	10/13/20 1745

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	LTB01_201013	↓	—	Water	CA	X									2

Container Type	P								
Preservative	A								

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Preservation
☐ Lab to do
(Please Specify below)

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	CTM-MW-4_201013		1235	GW	DA	X	GWFD01	2
	CTM-MW-3_201013		1305	GW	DA	X		2
	MW-5_201013		1345	GW	DA	X		2
	GWFD01-201013		—	GW	DA	X		2
	GWEB01-201013		1415	Water	DA	X	Peri Pump Tubing	2
	GWFB01-201013	↓	1420	Water	DA	X		2
	GWLTB01-201013	—	—	Water	DA	X		2

	21 PFAS
Container Type	P
Preservative	A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/13/2020 1745	[signature] AAL	10/13/20 1745

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

ATTACHMENT D

LAB DATA

ANALYTICAL REPORT

Lab Number:	L2036016
Client:	C.T. Male Associates 50 Century Hill Drive Latham, NY 12210
ATTN:	Jim Mciver
Phone:	(518) 786-7400
Project Name:	Not Specified
Project Number:	19.9405
Report Date:	09/03/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: Not Specified
Project Number: 19.9405

Lab Number: L2036016
Report Date: 09/03/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2036016-01	SW-1	WATER	Not Specified	09/01/20 10:30	09/01/20
L2036016-02	SW-2	WATER	Not Specified	09/01/20 10:50	09/01/20
L2036016-03	SW-3	WATER	Not Specified	09/01/20 11:10	09/01/20
L2036016-04	SW-4	WATER	Not Specified	09/01/20 11:30	09/01/20
L2036016-05	LTB	WATER	Not Specified	09/01/20 00:00	09/01/20
L2036016-06	FTB	WATER	Not Specified	09/01/20 12:00	09/01/20

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2036016-04: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Susan O' Neil

Title: Technical Director/Representative Date: 09/03/20

ORGANICS

SEMIVOLATILES

Project Name: Not Specified
Lab Number: L2036016
Project Number: 19.9405
Report Date: 09/03/20

SAMPLE RESULTS

Lab ID: L2036016-01
Client ID: SW-1
Sample Location: Not Specified
Date Collected: 09/01/20 10:30
Date Received: 09/01/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 09/02/20 14:59
Analyst: RS
Extraction Method: ALPHA 23528
Extraction Date: 09/02/20 06:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	7.92		ng/l	1.79	0.366	1
Perfluoropentanoic Acid (PFPeA)	4.73		ng/l	1.79	0.355	1
Perfluorobutanesulfonic Acid (PFBS)	4.83		ng/l	1.79	0.213	1
Perfluorohexanoic Acid (PFHxA)	4.28		ng/l	1.79	0.294	1
Perfluoroheptanoic Acid (PFHpA)	2.97		ng/l	1.79	0.202	1
Perfluorohexanesulfonic Acid (PFHxS)	4.77		ng/l	1.79	0.337	1
Perfluorooctanoic Acid (PFOA)	16.0		ng/l	1.79	0.212	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.79	1.19	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.660	J	ng/l	1.79	0.617	1
Perfluorononanoic Acid (PFNA)	1.68	J	ng/l	1.79	0.280	1
Perfluorooctanesulfonic Acid (PFOS)	20.7		ng/l	1.79	0.452	1
Perfluorodecanoic Acid (PFDA)	0.452	J	ng/l	1.79	0.273	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.79	1.09	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.79	0.581	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.233	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.79	0.879	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.79	0.520	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.50	J	ng/l	1.79	0.721	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.334	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.79	0.293	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.222	1
PFOA/PFOS, Total	36.7		ng/l	1.79	0.212	1

Project Name: Not Specified
Lab Number: L2036016
Project Number: 19.9405
Report Date: 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-01	Date Collected:	09/01/20 10:30
Client ID:	SW-1	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	83		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	83		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	80		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	69		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	75		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	82		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	83		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	140		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	88		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	80		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	73		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	115		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	51		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	73		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	28		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	58		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	65		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		33-143

Project Name: Not Specified
Lab Number: L2036016
Project Number: 19.9405
Report Date: 09/03/20

SAMPLE RESULTS

Lab ID: L2036016-02
Client ID: SW-2
Sample Location: Not Specified
Date Collected: 09/01/20 10:50
Date Received: 09/01/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 09/02/20 15:32
Analyst: RS
Extraction Method: ALPHA 23528
Extraction Date: 09/02/20 06:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	10.7		ng/l	10.0	2.04	1
Perfluoropentanoic Acid (PFPeA)	5.24	J	ng/l	10.0	1.98	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	10.0	1.19	1
Perfluorohexanoic Acid (PFHxA)	6.48	J	ng/l	10.0	1.64	1
Perfluoroheptanoic Acid (PFHpA)	3.70	J	ng/l	10.0	1.13	1
Perfluorohexanesulfonic Acid (PFHxS)	4.14	J	ng/l	10.0	1.88	1
Perfluorooctanoic Acid (PFOA)	18.2		ng/l	10.0	1.18	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	10.0	6.66	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	10.0	3.44	1
Perfluorononanoic Acid (PFNA)	1.82	J	ng/l	10.0	1.56	1
Perfluorooctanesulfonic Acid (PFOS)	30.6		ng/l	10.0	2.52	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	10.0	1.52	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	10.0	6.06	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	10.0	3.24	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	10.0	1.30	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	10.0	4.90	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	10.0	2.90	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	10.0	4.02	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	10.0	1.86	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	10.0	1.64	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	10.0	1.24	1
PFOA/PFOS, Total	48.8		ng/l	10.0	1.18	1

Project Name: Not Specified **Lab Number:** L2036016
Project Number: 19.9405 **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-02	Date Collected:	09/01/20 10:50
Client ID:	SW-2	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	96		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	79		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	81		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	89		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	84		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	142		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	79		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	77		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	70		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	138		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	69		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	47		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	73		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	69		33-143

Project Name: Not Specified | **Lab Number:** L2036016

Project Number: 19.9405 | **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-03	Date Collected:	09/01/20 11:10
Client ID:	SW-3	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	09/02/20 06:31
Analytical Date:	09/02/20 15:49		
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	7.86	J	ng/l	10.0	2.04	1
Perfluoropentanoic Acid (PFPeA)	5.64	J	ng/l	10.0	1.98	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	10.0	1.19	1
Perfluorohexanoic Acid (PFHxA)	6.32	J	ng/l	10.0	1.64	1
Perfluoroheptanoic Acid (PFHpA)	3.76	J	ng/l	10.0	1.13	1
Perfluorohexanesulfonic Acid (PFHxS)	3.04	J	ng/l	10.0	1.88	1
Perfluorooctanoic Acid (PFOA)	17.3		ng/l	10.0	1.18	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	10.0	6.66	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	10.0	3.44	1
Perfluorononanoic Acid (PFNA)	3.56	J	ng/l	10.0	1.56	1
Perfluorooctanesulfonic Acid (PFOS)	49.4		ng/l	10.0	2.52	1
Perfluorodecanoic Acid (PFDA)	2.00	J	ng/l	10.0	1.52	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	10.0	6.06	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	10.0	3.24	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	10.0	1.30	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	10.0	4.90	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	10.0	2.90	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	10.0	4.02	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	10.0	1.86	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	10.0	1.64	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	10.0	1.24	1
PFOA/PFOS, Total	66.7		ng/l	10.0	1.18	1

Project Name: Not Specified | **Lab Number:** L2036016

Project Number: 19.9405 | **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-03	Date Collected:	09/01/20 11:10
Client ID:	SW-3	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	84		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	97		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	89		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	83		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	84		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	86		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	79		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	78		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	72		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	65		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	61		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	55		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	49		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	53		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	24		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	45		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	60		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		33-143

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-04	Date Collected:	09/01/20 11:30
Client ID:	SW-4	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	09/02/20 06:31
Analytical Date:	09/02/20 16:05		
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	23.9		ng/l	1.91	0.391	1
Perfluoropentanoic Acid (PFPeA)	38.6		ng/l	1.91	0.379	1
Perfluorobutanesulfonic Acid (PFBS)	13.2		ng/l	1.91	0.228	1
Perfluorohexanoic Acid (PFHxA)	46.1		ng/l	1.91	0.314	1
Perfluoroheptanoic Acid (PFHpA)	30.6		ng/l	1.91	0.216	1
Perfluorohexanesulfonic Acid (PFHxS)	15.6		ng/l	1.91	0.360	1
Perfluorooctanoic Acid (PFOA)	109		ng/l	1.91	0.226	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.91	1.28	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.42	J	ng/l	1.91	0.659	1
Perfluorononanoic Acid (PFNA)	11.3		ng/l	1.91	0.299	1
Perfluorooctanesulfonic Acid (PFOS)	65.4		ng/l	1.91	0.482	1
Perfluorodecanoic Acid (PFDA)	3.86		ng/l	1.91	0.291	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.91	1.16	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.91	0.620	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.91	0.249	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.91	0.938	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.91	0.555	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.40		ng/l	1.91	0.770	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.91	0.356	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.91	0.313	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.91	0.237	1
PFOA/PFOS, Total	174		ng/l	1.91	0.226	1

Project Name: Not Specified **Lab Number:** L2036016
Project Number: 19.9405 **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-04	Date Collected:	09/01/20 11:30
Client ID:	SW-4	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	58		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	68		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	58		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	67		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	75		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	85		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	154		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	78		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**192**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	80		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	96		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	52		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	79		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	96		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		33-143

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-05	Date Collected:	09/01/20 00:00
Client ID:	LTB	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	09/02/20 06:31
Analytical Date:	09/02/20 16:38		
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.83	0.373	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.83	0.362	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.83	0.218	1
Perfluorohexanoic Acid (PFHxA)	0.300	J	ng/l	1.83	0.300	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.83	0.206	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.83	0.344	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.83	0.216	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.83	1.22	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.83	0.629	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.83	0.285	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.83	0.461	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.83	0.278	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.83	1.11	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.83	0.592	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.83	0.238	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.83	0.896	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.83	0.530	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.83	0.735	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.83	0.340	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.83	0.299	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.83	0.227	1
PFOA/PFOS, Total	ND		ng/l	1.83	0.216	1

Project Name: Not Specified **Lab Number:** L2036016
Project Number: 19.9405 **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-05	Date Collected:	09/01/20 00:00
Client ID:	LTB	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	108		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	90		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	86		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	78		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	46		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	85		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	77		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	75		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	47		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	48		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	66		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	41		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	43		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	64		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	68		33-143

Project Name: Not Specified **Lab Number:** L2036016
Project Number: 19.9405 **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-06	Date Collected:	09/01/20 12:00
Client ID:	FTB	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	09/02/20 06:31
Analytical Date:	09/02/20 16:58		
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.91	0.390	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.91	0.378	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.91	0.227	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.91	0.313	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.91	0.215	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.91	0.359	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.91	0.226	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.91	1.27	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.91	0.657	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.91	0.298	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.91	0.482	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.91	0.290	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.91	1.16	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.91	0.619	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.91	0.248	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.91	0.936	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.91	0.554	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.91	0.768	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.91	0.355	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.91	0.313	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.91	0.237	1
PFOA/PFOS, Total	ND		ng/l	1.91	0.226	1

Project Name: Not Specified **Lab Number:** L2036016
Project Number: 19.9405 **Report Date:** 09/03/20

SAMPLE RESULTS

Lab ID:	L2036016-06	Date Collected:	09/01/20 12:00
Client ID:	FTB	Date Received:	09/01/20
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	94		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	76		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	49		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	84		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	78		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	73		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	51		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	32		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	74		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	43		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	42		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	73		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	72		33-143

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	09/02/20 14:09	Extraction Date:	09/02/20 06:31
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1405518-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.20	J	ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	0.368	J	ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	09/02/20 14:09	Extraction Date:	09/02/20 06:31
Analyst:	RS		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1405518-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	93		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	66		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	85		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	78		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	70		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	40		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	72		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	87		33-143

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 19.9405
Lab Number: L2036016
Report Date: 09/03/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1405518-2 WG1405518-3								
Perfluorobutanoic Acid (PFBA)	95		100		67-148	5		30
Perfluoropentanoic Acid (PFPeA)	95		101		63-161	6		30
Perfluorobutanesulfonic Acid (PFBS)	89		93		65-157	4		30
Perfluorohexanoic Acid (PFHxA)	100		104		69-168	4		30
Perfluoroheptanoic Acid (PFHpA)	97		102		58-159	5		30
Perfluorohexanesulfonic Acid (PFHxS)	85		98		69-177	14		30
Perfluorooctanoic Acid (PFOA)	90		96		63-159	6		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	100		101		49-187	1		30
Perfluoroheptanesulfonic Acid (PFHpS)	92		94		61-179	2		30
Perfluorononanoic Acid (PFNA)	95		101		68-171	6		30
Perfluorooctanesulfonic Acid (PFOS)	92		93		52-151	1		30
Perfluorodecanoic Acid (PFDA)	102		100		63-171	2		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	92		100		56-173	8		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	81		105		60-166	26		30
Perfluoroundecanoic Acid (PFUnA)	96		100		60-153	4		30
Perfluorodecanesulfonic Acid (PFDS)	97		94		38-156	3		30
Perfluorooctanesulfonamide (FOSA)	93		102		46-170	9		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	81		107		45-170	28		30
Perfluorododecanoic Acid (PFDoA)	96		98		67-153	2		30
Perfluorotridecanoic Acid (PFTrDA)	94		104		48-158	10		30
Perfluorotetradecanoic Acid (PFTA)	100		106		59-182	6		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified | **Lab Number:** L2036016

Project Number: 19.9405 | **Report Date:** 09/03/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1405518-2 WG1405518-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	102		97		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	122		117		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		99		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	101		95		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101		93		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		86		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		94		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	74		72		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	105		99		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		92		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		93		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	86		81		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83		61		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		85		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	53		45		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	86		68		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	96		88		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	92		85		33-143

Matrix Spike Analysis
Batch Quality Control

Project Name: Not Specified | **Lab Number:** L2036016
Project Number: 19.9405 | **Report Date:** 09/03/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1405518-4 QC Sample: L2036016-01 Client ID: SW-1												
Perfluorobutanoic Acid (PFBA)	7.92	37	44.5	99		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	4.73	37	41.7	100		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	4.83	32.9	35.6	94		-	-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	4.28	37	41.0	99		-	-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	2.97	37	39.7	99		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	4.77	33.8	39.6	103		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	16.0	37	47.6	85		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	35.2	36.6	104		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	0.660J	35.2	34.2	95		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	1.68J	37	38.9	100		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	20.7	34.4	50.2	86		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	0.452J	37	39.8	106		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	35.6	35.1	99		-	-		56-173	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	37	39.4	106		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	37	40.8	110		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35.7	32.0	90		-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	37	31.4F	85		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.50J	37	33.6	87		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	37	33.5	90		-	-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	37	38.2	103		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	37	38.8	105		-	-		59-182	-		30

Matrix Spike Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 19.9405
Lab Number: L2036016
Report Date: 09/03/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1405518-4 QC Sample: L2036016-01 Client ID: SW-1												

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	137				7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	162				1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	68				23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	59				1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	72				40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	77				38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	73				21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	78				30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	72				47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	72				24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	69				33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	88				2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	87				16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	33				1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	85				42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	87				36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91				34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	83				31-159

Lab Duplicate Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: 19.9405
Lab Number: L2036016
Report Date: 09/03/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1405518-5 QC Sample: L2036016-04 Client ID: SW-4						
Perfluorobutanoic Acid (PFBA)	23.9	23.5	ng/l	2		30
Perfluoropentanoic Acid (PFPeA)	38.6	39.2	ng/l	2		30
Perfluorobutanesulfonic Acid (PFBS)	13.2	13.7	ng/l	4		30
Perfluorohexanoic Acid (PFHxA)	46.1	48.8	ng/l	6		30
Perfluoroheptanoic Acid (PFHpA)	30.6	31.9	ng/l	4		30
Perfluorohexanesulfonic Acid (PFHxS)	15.6	17.2	ng/l	10		30
Perfluorooctanoic Acid (PFOA)	109	109	ng/l	0		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/l	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	1.42J	1.40J	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	11.3	12.3	ng/l	8		30
Perfluorooctanesulfonic Acid (PFOS)	65.4	73.1	ng/l	11		30
Perfluorodecanoic Acid (PFDA)	3.86	4.50	ng/l	15		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.40	1.70J	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30

Project Name: Not Specified
Project Number: 19.9405

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2036016
Report Date: 09/03/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1405518-5 QC Sample: L2036016-04 Client ID: SW-4						
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
PFOA/PFOS, Total	174	182	ng/l	4		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		85		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	58		57		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	68		65		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	58		55		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	67		65		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	75		64		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	85		85		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	154		147		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		95		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84		74		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	78		73		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	192	Q	169		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	80		72		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	96		86		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	52		51		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	79		87		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	96		85		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		84		33-143

Project Name: Not Specified
Project Number: 19.9405

Lab Number: L2036016
Report Date: 09/03/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2036016-01A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-01B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-02A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-02B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-03A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-03B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-04A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-04B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-05A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-05B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-06A	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2036016-06B	2 Plastic/1 Plastic/1 H20 Plastic	A	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

Report Format: *DU Report with 'J' Qualifiers*

Project Name:	Not Specified	**Lab Number:**	L2036016
Project Number:	19.9405	**Report Date:**	09/03/20

Data Qualifiers

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab 9/1/20

ALPHA Job # L2036016

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: 5 Scobie Drive
Project Location: Newburgh, NY
Project # 19.4405
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

Turn-Around Time

Standard ☐ Due Date: 9/8/2020
Rush (only if pre approved) ☒ # of Days:

Client Information

Client: C.T. Male Associates
Address: 50 Century Hill Dr
Latham NY 12110
Phone: 518 786 7400
Fax: —
Email: J.McIver@CTMale.com

Deliverables

☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	21 PFAS	Sample Specific Comments	Total Bottles
36016-01	SW-1	9/1/2020	1030	SW	DA	X		2
-02	SW-2	↓	1050	SW	DA	X		2
-03	SW-3	↓	1110	SW	DA	X		2
-04	SW-4	↓	1130	SW	DA	X		2
-05	LTB	↓	—	W	DA	X		2
-06	FTB	↓	1200	W	DA	X		2

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type: P
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/1/2020 1415	R Kotansky	9/1/20 - 1415
R Kotansky	9/1/20 - 1752	William Moore	9/1/20 1752
William Moore	9/1/20 2006	MICHAEL DICK AAL	9/1/20 2006
MICHAEL DICK AAL	9/1/20 2030	[signature] - AAL	9/1/20 2025

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

ANALYTICAL REPORT

Lab Number:	L2043931
Client:	C.T. Male Associates 50 Century Hill Drive Latham, NY 12210
ATTN:	Jim Mciver
Phone:	(518) 786-7400
Project Name:	5 SCOBIE DR
Project Number:	19.9405
Report Date:	10/27/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043931
Report Date: 10/27/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2043931-01	CTM-MW-5_201013	WATER	NEWBURGH, NY	10/13/20 11:15	10/13/20
L2043931-02	MW-6_201013	WATER	NEWBURGH, NY	10/13/20 11:50	10/13/20
L2043931-03	CTM-MW-4_201013	WATER	NEWBURGH, NY	10/13/20 12:35	10/13/20
L2043931-04	CTM-MW-3_201013	WATER	NEWBURGH, NY	10/13/20 13:05	10/13/20
L2043931-05	MW-5_201013	WATER	NEWBURGH, NY	10/13/20 13:45	10/13/20
L2043931-06	GWFD01-201013	WATER	NEWBURGH, NY	10/13/20 00:00	10/13/20
L2043931-07	GWEB01-201013	WATER	NEWBURGH, NY	10/13/20 14:15	10/13/20
L2043931-08	GWFB01-201013	WATER	NEWBURGH, NY	10/13/20 14:20	10/13/20
L2043931-09	GWLTB01-201013	WATER	NEWBURGH, NY	10/13/20 00:00	10/13/20

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2043931-02 and -03D: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

L2043931-03D and -06D: The sample has elevated detection limits due to the dilution required by the sample matrix.

The WG1424986-6/-7 MS/MSD RPD, performed on L2043931-01, is outside the acceptance criteria for n-methyl perfluorooctanesulfonamidoacetic acid (nmefosaa) (37%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Susan E O'Neil Susan O' Neil

Title: Technical Director/Representative Date: 10/27/20

ORGANICS

SEMIVOLATILES

Project Name: 5 SCOBIE DR
Lab Number: L2043931
Project Number: 19.9405
Report Date: 10/27/20

SAMPLE RESULTS

Lab ID: L2043931-01
Client ID: CTM-MW-5_201013
Sample Location: NEWBURGH, NY
Date Collected: 10/13/20 11:15
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 22:42
Analyst: JW
Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 09:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	6.86		ng/l	1.75	0.358	1
Perfluoropentanoic Acid (PFPeA)	5.82		ng/l	1.75	0.347	1
Perfluorobutanesulfonic Acid (PFBS)	3.90		ng/l	1.75	0.208	1
Perfluorohexanoic Acid (PFHxA)	5.77		ng/l	1.75	0.287	1
Perfluoroheptanoic Acid (PFHpA)	4.05		ng/l	1.75	0.197	1
Perfluorohexanesulfonic Acid (PFHxS)	8.80		ng/l	1.75	0.329	1
Perfluorooctanoic Acid (PFOA)	21.8		ng/l	1.75	0.207	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.75	1.17	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.852	J	ng/l	1.75	0.603	1
Perfluorononanoic Acid (PFNA)	1.03	J	ng/l	1.75	0.273	1
Perfluorooctanesulfonic Acid (PFOS)	30.2		ng/l	1.75	0.442	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.75	0.266	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.75	1.06	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.75	0.568	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.75	0.228	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.75	0.859	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.75	0.508	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.75	0.704	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.75	0.326	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.75	0.287	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.75	0.217	1
PFOA/PFOS, Total	52.0		ng/l	1.75	0.207	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-01	Date Collected:	10/13/20 11:15
Client ID:	CTM-MW-5_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	90		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	85		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	86		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	74		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	164		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	88		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	84		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	49		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	79		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	27		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	57		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	67		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	60		33-143

Project Name: 5 SCOBIE DR **Lab Number:** L2043931
Project Number: 19.9405 **Report Date:** 10/27/20

SAMPLE RESULTS

Lab ID: L2043931-02
Client ID: MW-6_201013
Sample Location: NEWBURGH, NY

Date Collected: 10/13/20 11:50
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 23:32
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 09:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	5.88		ng/l	1.87	0.381	1
Perfluoropentanoic Acid (PFPeA)	7.34		ng/l	1.87	0.370	1
Perfluorobutanesulfonic Acid (PFBS)	6.06		ng/l	1.87	0.222	1
Perfluorohexanoic Acid (PFHxA)	8.72		ng/l	1.87	0.306	1
Perfluoroheptanoic Acid (PFHpA)	8.79		ng/l	1.87	0.210	1
Perfluorohexanesulfonic Acid (PFHxS)	17.4		ng/l	1.87	0.351	1
Perfluorooctanoic Acid (PFOA)	75.5		ng/l	1.87	0.220	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.87	1.24	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.00		ng/l	1.87	0.642	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.87	0.291	1
Perfluorooctanesulfonic Acid (PFOS)	61.5		ng/l	1.87	0.470	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.87	0.284	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.87	1.13	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.87	0.605	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.87	0.243	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.87	0.915	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.87	0.541	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	8.58	F	ng/l	1.87	0.750	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.87	0.347	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.87	0.305	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.87	0.232	1
PFOA/PFOS, Total	137		ng/l	1.87	0.220	1

Project Name: 5 SCOBIE DR | **Lab Number:** L2043931

Project Number: 19.9405 | **Report Date:** 10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-02	Date Collected:	10/13/20 11:50
Client ID:	MW-6_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	102		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	75		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	78		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	70		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	83		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	92		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	204		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	108		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	92		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	84		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**180**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	107		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	102		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	45		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	133		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	72		33-143

Project Name: 5 SCOBIE DR **Lab Number:** L2043931

Project Number: 19.9405 **Report Date:** 10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-03 D	Date Collected:	10/13/20 12:35
Client ID:	CTM-MW-4_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 09:04
Analytical Date:	10/25/20 12:15		
Analyst:	SG		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	21.2		ng/l	9.54	1.94	5
Perfluoropentanoic Acid (PFPeA)	21.8		ng/l	9.54	1.89	5
Perfluorobutanesulfonic Acid (PFBS)	9.25	J	ng/l	9.54	1.13	5
Perfluorohexanoic Acid (PFHxA)	15.8		ng/l	9.54	1.56	5
Perfluoroheptanoic Acid (PFHpA)	12.3		ng/l	9.54	1.07	5
Perfluorohexanesulfonic Acid (PFHxS)	44.4	F	ng/l	9.54	1.79	5
Perfluorooctanoic Acid (PFOA)	100		ng/l	9.54	1.12	5
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	9.54	6.35	5
Perfluoroheptanesulfonic Acid (PFHpS)	3.30	J	ng/l	9.54	3.28	5
Perfluorononanoic Acid (PFNA)	ND		ng/l	9.54	1.49	5
Perfluorooctanesulfonic Acid (PFOS)	102		ng/l	9.54	2.40	5
Perfluorodecanoic Acid (PFDA)	ND		ng/l	9.54	1.45	5
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	9.54	5.78	5
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	9.54	3.09	5
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	9.54	1.24	5
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	9.54	4.67	5
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	9.54	2.76	5
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	29.8	F	ng/l	9.54	3.83	5
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	9.54	1.77	5
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	9.54	1.56	5
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	9.54	1.18	5
PFOA/PFOS, Total	202		ng/l	9.54	1.12	5

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-03	D	Date Collected:	10/13/20 12:35
Client ID:	CTM-MW-4_201013		Date Received:	10/13/20
Sample Location:	NEWBURGH, NY		Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	104		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	86		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	82		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	111		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	108		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	198		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	128		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**181**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	109		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	72		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	102		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	85		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		33-143

Project Name: 5 SCOBIE DR
Lab Number: L2043931
Project Number: 19.9405
Report Date: 10/27/20

SAMPLE RESULTS

Lab ID: L2043931-04
Client ID: CTM-MW-3_201013
Sample Location: NEWBURGH, NY

Date Collected: 10/13/20 13:05
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/24/20 00:05
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 09:04

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	35.6		ng/l	1.79	0.366	1
Perfluoropentanoic Acid (PFPeA)	72.2		ng/l	1.79	0.355	1
Perfluorobutanesulfonic Acid (PFBS)	29.0		ng/l	1.79	0.214	1
Perfluorohexanoic Acid (PFHxA)	88.7		ng/l	1.79	0.294	1
Perfluoroheptanoic Acid (PFHpA)	63.0		ng/l	1.79	0.202	1
Perfluorohexanesulfonic Acid (PFHxS)	27.0		ng/l	1.79	0.337	1
Perfluorooctanoic Acid (PFOA)	221		ng/l	1.79	0.212	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.79	1.19	1
Perfluoroheptanesulfonic Acid (PFHpS)	3.17		ng/l	1.79	0.617	1
Perfluorononanoic Acid (PFNA)	25.6		ng/l	1.79	0.280	1
Perfluorooctanesulfonic Acid (PFOS)	78.1	F	ng/l	1.79	0.452	1
Perfluorodecanoic Acid (PFDA)	8.30		ng/l	1.79	0.273	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.79	1.09	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.79	0.581	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.79	0.233	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.79	0.879	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.79	0.520	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.90		ng/l	1.79	0.721	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.79	0.334	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.79	0.294	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.79	0.222	1
PFOA/PFOS, Total	299		ng/l	1.79	0.212	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-04	Date Collected:	10/13/20 13:05
Client ID:	CTM-MW-3_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	91		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	62		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	74		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	61		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	77		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	196		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	102		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	82		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	81		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	163		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	79		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	87		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	41		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	88		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	74		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	60		33-143

Project Name: 5 SCOBIE DR
Lab Number: L2043931
Project Number: 19.9405
Report Date: 10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-05	Date Collected:	10/13/20 13:45
Client ID:	MW-5_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 09:04
Analytical Date:	10/24/20 00:22		
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	13.3		ng/l	1.82	0.372	1
Perfluoropentanoic Acid (PFPeA)	15.8		ng/l	1.82	0.361	1
Perfluorobutanesulfonic Acid (PFBS)	9.50		ng/l	1.82	0.217	1
Perfluorohexanoic Acid (PFHxA)	26.0		ng/l	1.82	0.299	1
Perfluoroheptanoic Acid (PFHpA)	27.5		ng/l	1.82	0.205	1
Perfluorohexanesulfonic Acid (PFHxS)	14.7		ng/l	1.82	0.342	1
Perfluorooctanoic Acid (PFOA)	89.3		ng/l	1.82	0.215	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.82	1.21	1
Perfluoroheptanesulfonic Acid (PFHpS)	0.943	J	ng/l	1.82	0.626	1
Perfluorononanoic Acid (PFNA)	3.97		ng/l	1.82	0.284	1
Perfluorooctanesulfonic Acid (PFOS)	23.3		ng/l	1.82	0.459	1
Perfluorodecanoic Acid (PFDA)	0.834	J	ng/l	1.82	0.277	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.82	1.10	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.590	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.237	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.82	0.892	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.82	0.528	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.732	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.339	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.298	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.226	1
PFOA/PFOS, Total	113		ng/l	1.82	0.215	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-05	Date Collected:	10/13/20 13:45
Client ID:	MW-5_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	90		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	72		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	80		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	72		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	84		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	189		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	85		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	77		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	158		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	56		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	78		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	93		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	67		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	60		33-143

Project Name: 5 SCOBIE DR | **Lab Number:** L2043931

Project Number: 19.9405 | **Report Date:** 10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-06	D	Date Collected:	10/13/20 00:00
Client ID:	GWFD01-201013		Date Received:	10/13/20
Sample Location:	NEWBURGH, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Water		Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID		Extraction Date:	10/22/20 09:04
Analytical Date:	10/25/20 12:31			
Analyst:	SG			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	22.4		ng/l	9.57	1.95	5
Perfluoropentanoic Acid (PFPeA)	19.6		ng/l	9.57	1.90	5
Perfluorobutanesulfonic Acid (PFBS)	11.4		ng/l	9.57	1.14	5
Perfluorohexanoic Acid (PFHxA)	15.9		ng/l	9.57	1.57	5
Perfluoroheptanoic Acid (PFHpA)	13.4		ng/l	9.57	1.08	5
Perfluorohexanesulfonic Acid (PFHxS)	50.3	F	ng/l	9.57	1.80	5
Perfluorooctanoic Acid (PFOA)	104		ng/l	9.57	1.13	5
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	9.57	6.38	5
Perfluoroheptanesulfonic Acid (PFHpS)	4.63	J	ng/l	9.57	3.29	5
Perfluorononanoic Acid (PFNA)	ND		ng/l	9.57	1.49	5
Perfluorooctanesulfonic Acid (PFOS)	125		ng/l	9.57	2.41	5
Perfluorodecanoic Acid (PFDA)	ND		ng/l	9.57	1.46	5
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	9.57	5.80	5
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	9.57	3.10	5
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	9.57	1.24	5
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	9.57	4.69	5
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	9.57	2.78	5
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	38.2	F	ng/l	9.57	3.85	5
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	9.57	1.78	5
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	9.57	1.57	5
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	9.57	1.19	5
PFOA/PFOS, Total	229		ng/l	9.57	1.13	5

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-06	D	Date Collected:	10/13/20 00:00
Client ID:	GWFD01-201013		Date Received:	10/13/20
Sample Location:	NEWBURGH, NY		Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	108		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	89		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	102		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	86		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	104		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	113		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	110		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	203		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	134		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	107		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	104		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	155		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	76		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	113		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	72		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	99		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	87		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	68		33-143

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-07	Date Collected:	10/13/20 14:15
Client ID:	GWEB01-201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 09:04
Analytical Date:	10/24/20 00:55		
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.87	0.382	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.87	0.371	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.87	0.223	1
Perfluorohexanoic Acid (PFHxA)	0.348	J	ng/l	1.87	0.307	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.87	0.211	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.87	0.352	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.87	0.221	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.87	1.25	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.87	0.644	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.87	0.292	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.87	0.472	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.87	0.285	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.87	1.14	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.87	0.607	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.87	0.244	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.87	0.918	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.87	0.543	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.87	0.753	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.87	0.348	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.87	0.306	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.87	0.232	1
PFOA/PFOS, Total	ND		ng/l	1.87	0.221	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-07	Date Collected:	10/13/20 14:15
Client ID:	GWEB01-201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	117		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	100		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	97		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	95		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	62		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	92		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	65		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	56		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	37		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	68		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	87		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71		33-143

Project Name: 5 SCOBIE DR **Lab Number:** L2043931
Project Number: 19.9405 **Report Date:** 10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-08	Date Collected:	10/13/20 14:20
Client ID:	GWFB01-201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 09:04
Analytical Date:	10/24/20 01:11		
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.86	0.380	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.86	0.369	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.86	0.222	1
Perfluorohexanoic Acid (PFHxA)	0.388	J	ng/l	1.86	0.306	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.86	0.210	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.86	0.350	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.86	0.220	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.86	1.24	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.86	0.641	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.86	0.291	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.86	0.470	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.86	0.283	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.86	1.13	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.86	0.604	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.86	0.242	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.86	0.913	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.86	0.540	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.86	0.749	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.86	0.346	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.86	0.305	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.86	0.231	1
PFOA/PFOS, Total	ND		ng/l	1.86	0.220	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-08	Date Collected:	10/13/20 14:20
Client ID:	GWFB01-201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	114		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	93		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	98		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	61		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	88		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	61		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	63		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	84		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	44		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	65		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	77		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	66		33-143

Project Name: 5 SCOBIE DR | **Lab Number:** L2043931
Project Number: 19.9405 | **Report Date:** 10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-09	Date Collected:	10/13/20 00:00
Client ID:	GWLTB01-201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 09:04
Analytical Date:	10/24/20 01:28		
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.94	0.395	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.94	0.383	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.94	0.230	1
Perfluorohexanoic Acid (PFHxA)	0.383	J	ng/l	1.94	0.317	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.94	0.218	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.94	0.364	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.94	0.228	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.94	1.29	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.94	0.666	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.94	0.302	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.94	0.488	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.94	0.294	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.94	1.17	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.94	0.627	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.94	0.252	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.94	0.948	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.94	0.561	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.94	0.778	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.94	0.360	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.94	0.316	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.94	0.240	1
PFOA/PFOS, Total	ND		ng/l	1.94	0.228	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

SAMPLE RESULTS

Lab ID:	L2043931-09	Date Collected:	10/13/20 00:00
Client ID:	GWLTB01-201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	113		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	108		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	64		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	90		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	91		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	85		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	66		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	54		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	84		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	47		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	65		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	78		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	67		33-143

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043931
Report Date: 10/27/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 18:17
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 09:04

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-09 Batch: WG1424986-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.376	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	10/23/20 18:17	Extraction Date:	10/22/20 09:04
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-09 Batch: WG1424986-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	67		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	97		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	98		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	79		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	78		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	102		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	50		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	76		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	95		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	79		33-143

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043931
Report Date: 10/27/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 Batch: WG1424986-2 WG1424986-3								
Perfluorobutanoic Acid (PFBA)	104		105		67-148	1		30
Perfluoropentanoic Acid (PFPeA)	99		101		63-161	2		30
Perfluorobutanesulfonic Acid (PFBS)	92		96		65-157	4		30
Perfluorohexanoic Acid (PFHxA)	103		106		69-168	3		30
Perfluoroheptanoic Acid (PFHpA)	101		101		58-159	0		30
Perfluorohexanesulfonic Acid (PFHxS)	101		103		69-177	2		30
Perfluorooctanoic Acid (PFOA)	102		103		63-159	1		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	114		119		49-187	4		30
Perfluoroheptanesulfonic Acid (PFHpS)	105		102		61-179	3		30
Perfluorononanoic Acid (PFNA)	102		103		68-171	1		30
Perfluorooctanesulfonic Acid (PFOS)	106		104		52-151	2		30
Perfluorodecanoic Acid (PFDA)	98		101		63-171	3		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	121		118		56-173	3		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	119		117		60-166	2		30
Perfluoroundecanoic Acid (PFUnA)	101		102		60-153	1		30
Perfluorodecanesulfonic Acid (PFDS)	120		113		38-156	6		30
Perfluorooctanesulfonamide (FOSA)	102		102		46-170	0		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	108		113		45-170	5		30
Perfluorododecanoic Acid (PFDoA)	110		111		67-153	1		30
Perfluorotridecanoic Acid (PFTrDA)	105		108		48-158	3		30
Perfluorotetradecanoic Acid (PFTA)	103		106		59-182	3		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR

Project Number: 19.9405

Lab Number: L2043931

Report Date: 10/27/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 Batch: WG1424986-2 WG1424986-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	92		91		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	103		104		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		94		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	89		87		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		89		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	102		97		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	91		89		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	71		69		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	94		92		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		94		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	93		92		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	72		70		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	62		64		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		94		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	48		53		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	76		72		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	88		88		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	77		74		33-143

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043931
Report Date: 10/27/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1424986-6 WG1424986-7 QC Sample: L2043931-01 Client ID: CTM-MW-5_201013												
Perfluorobutanoic Acid (PFBA)	6.86	35.1	43.5	104		45.9	104		67-148	5		30
Perfluoropentanoic Acid (PFPeA)	5.82	35.1	42.6	105		44.6	103		63-161	5		30
Perfluorobutanesulfonic Acid (PFBS)	3.90	31.1	36.2	104		37.0	99		65-157	2		30
Perfluorohexanoic Acid (PFHxA)	5.77	35.1	42.7	105		44.6	103		69-168	4		30
Perfluoroheptanoic Acid (PFHpA)	4.05	35.1	40.1	103		42.3	101		58-159	5		30
Perfluorohexanesulfonic Acid (PFHxS)	8.80	32	42.1	104		44.6	104		69-177	6		30
Perfluorooctanoic Acid (PFOA)	21.8	35.1	58.7	105		59.9	101		63-159	2		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	33.4	40.4	121		41.4	115		49-187	2		30
Perfluoroheptanesulfonic Acid (PFHpS)	0.852J	33.4	38.2	112		39.0	106		61-179	2		30
Perfluorononanoic Acid (PFNA)	1.03J	35.1	39.4	109		40.2	104		68-171	2		30
Perfluorooctanesulfonic Acid (PFOS)	30.2	32.5	64.7	106		65.3	100		52-151	1		30
Perfluorodecanoic Acid (PFDA)	ND	35.1	35.2	100		38.0	101		63-171	8		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	33.7	35.9F	107		41.0F	113		56-173	13		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	35.1	34.2	98		49.5	131		60-166	**37**	Q	30
Perfluoroundecanoic Acid (PFUnA)	ND	35.1	35.4	101		38.8	103		60-153	9		30
Perfluorodecanesulfonic Acid (PFDS)	ND	33.8	38.8	115		37.6	103		38-156	3		30
Perfluorooctanesulfonamide (FOSA)	ND	35.1	34.0F	97		39.5F	105		46-170	15		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	35.1	37.9	108		38.4	102		45-170	1		30
Perfluorododecanoic Acid (PFDoA)	ND	35.1	36.6	104		40.7	108		67-153	11		30
Perfluorotridecanoic Acid (PFTrDA)	ND	35.1	35.4	101		39.3	104		48-158	10		30
Perfluorotetradecanoic Acid (PFTA)	ND	35.1	37.2	106		40.1	106		59-182	8		30

Matrix Spike Analysis
Batch Quality Control

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043931
Project Number:	19.9405	**Report Date:**	10/27/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1424986-6 WG1424986-7 QC Sample: L2043931-01 Client ID: CTM-MW-5_201013

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	93		90		7-170
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	171		175		1-244
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	54		53		23-146
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	52		41		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	76		72		40-144
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	81		78		38-144
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	74		74		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	88		88		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		100		47-153
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	67		63		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	61		58		33-143
Perfluoro[13C4]Butanoic Acid (MPFBA)	91		90		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	88		87		16-173
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	27		27		1-87
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	84		89		42-146
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89		89		36-149
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	87		89		34-146
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	84		87		31-159

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2043931-01A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-01A1	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-01A2	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-01B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-01B1	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-01B2	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-02A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-02B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-03A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-03B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-04A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-04B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-05A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-05B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-06A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-06B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-07A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-07B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-08A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-09A	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043931-09B	Plastic 250ml unpreserved	A	NA		3.2	Y	Absent		A2-NY-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Project Name: 5 SCOBIE DR **Lab Number:** L2043931
Project Number: 19.9405 **Report Date:** 10/27/20

Data Qualifiers

the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: *DU Report with 'J' Qualifiers*

REFERENCES

134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab 10/14/20

ALPHA Job # L2043931

Project Information
Project Name: 5 Scobie Dr
Project Location: Newburgh, NY
Project # 19.9405
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

Turn-Around Time
Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information
Client: C.T. Male Associates
Address: 12 Raymond Ave
Poughkeepsie, NY 12603
Phone: 845-454-4400
Fax: —
Email: J.McIver@CTMale.com

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS: 21 PFAS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	21 PFAS	Sample Specific Comments	Total Bottles
43931-01	CTM-MW-5_201013	10/13/2020	1115	GW	DA	X	MS/MSD	6
-02	MW-6_201013		1150	GW	DA	X		2
-03	CTM-MW-4_201013		1235	GW	DA	X		2
-04	CTM-MW-3_201013		1305	GW	DA	X		2
-05	MW-5_201013		1345	GW	DA	X		2
-06	GWFD01-201013		—	GW	DA	X		2
-07	GWEB01-201013		1415	Water	DA	X	Peri Pump Tubing	2
-08	GWFB01-201013		1420	Water	DA	X		2
-09	GWLTB01-201013	—	—	Water	DA	X		2
-10								

	21 PFAS
Container Type	P
Preservative	A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/13/2020 1745	[signature] AAL	10/13/20 1745
[signature]	10/13/21 1750	[signature]	10/14/20 0020

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

ANALYTICAL REPORT

Lab Number:	L2043933
Client:	C.T. Male Associates 50 Century Hill Drive Latham, NY 12210
ATTN:	Jim Mciver
Phone:	(518) 786-7400
Project Name:	5 SCOBIE DR
Project Number:	19.9405
Report Date:	10/28/20

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2043933-01	PFAS-01	SOIL	NEWBURGH, NY	10/12/20 17:45	10/13/20
L2043933-02	PFAS-02	SOIL	NEWBURGH, NY	10/12/20 17:55	10/13/20
L2043933-03	PFAS-03	SOIL	NEWBURGH, NY	10/12/20 18:05	10/13/20
L2043933-04	PFAS-04	SOIL	NEWBURGH, NY	10/12/20 18:15	10/13/20
L2043933-05	PFAS-05	SOIL	NEWBURGH, NY	10/12/20 18:25	10/13/20
L2043933-06	PFAS-SS-01	SOIL	NEWBURGH, NY	10/13/20 14:50	10/13/20
L2043933-07	PFAS-SS-02	SOIL	NEWBURGH, NY	10/13/20 14:55	10/13/20
L2043933-08	PFAS-SS-03	SOIL	NEWBURGH, NY	10/13/20 15:00	10/13/20
L2043933-09	FD01_201013	SOIL	NEWBURGH, NY	10/13/20 00:00	10/13/20
L2043933-10	EB01_201013	WATER	NEWBURGH, NY	10/13/20 14:35	10/13/20
L2043933-11	FB01_201013	WATER	NEWBURGH, NY	10/13/20 14:30	10/13/20
L2043933-12	LTB01_201013	WATER	NEWBURGH, NY	10/13/20 14:30	10/13/20

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2043933-01, -02, -03, -04, and -05: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

L2043933-03, -07 and -09: The MeOH fraction of the extraction is reported for the following compounds: Perfluorooctanesulfonamide (FOSA) due to better extraction efficiency of the Surrogates (Extracted Internal Standards).

WG1424600-2: The Extracted Internal Standard recovery is below the acceptance criteria for Perfluoro[13C8]Octanesulfonamide (M8FOSA) (less than 10%); however, all associated target analytes are within criteria; therefore, no further action was taken.

The WG1424600-5 MSD recovery, performed on L2043933-08, is outside the acceptance criteria for n-ethyl perfluorooctanesulfonamidoacetic acid (netfosaa) (145%).

SPLP Perfluorinated Alkyl Acids by Isotope Dilution

L2043933-01, -04, and -05: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

L2043933-02 and -05: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

WG1425281-6: This blank represents the SPLP tumbling blank associated with L2043933-01 through -05.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Susan E O'Neil Susan O' Neil

Title: Technical Director/Representative Date: 10/28/20

ORGANICS

SEMIVOLATILES

Project Name: 5 SCOBIE DR | **Lab Number:** L2043933

Project Number: 19.9405 | **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-01	Date Collected:	10/12/20 17:45
Client ID:	PFAS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 16:45
Analytical Date:	10/23/20 16:38		
Analyst:	JW		
Percent Solids:	33%		
TCLP/SPLP Ext. Date:	10/20/20 15:15		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	50.0	10.2	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	50.0	9.90	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	50.0	5.95	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	50.0	11.3	1
Perfluorohexanoic Acid (PFHxA)	10.5	J	ng/l	50.0	8.20	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	50.0	6.13	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	50.0	5.63	1
Perfluorohexanesulfonic Acid (PFHxS)	10.7	JF	ng/l	50.0	9.40	1
Perfluorooctanoic Acid (PFOA)	22.0	J	ng/l	50.0	5.90	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	50.0	33.3	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	50.0	17.2	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	50.0	7.80	1
Perfluorooctanesulfonic Acid (PFOS)	35.0	JF	ng/l	50.0	12.6	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	50.0	7.60	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	50.0	30.3	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	50.0	28.0	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	50.0	16.2	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	50.0	6.50	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	50.0	24.5	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	50.0	14.5	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	50.0	20.1	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	50.0	9.30	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	50.0	8.18	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	50.0	6.20	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-01	Date Collected:	10/12/20 17:45
Client ID:	PFAS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	114		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	80		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	93		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	99		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	95		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	80		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	90		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	93		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	75		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	68		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	25		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	67		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		33-143

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-01	Date Collected:	10/12/20 17:45
Client ID:	PFAS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 18:35		
Analyst:	JW		
Percent Solids:	33%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ug/kg	1.46	0.067	1
Perfluoropentanoic Acid (PFPeA)	ND		ug/kg	1.46	0.135	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	1.46	0.114	1
Perfluorohexanoic Acid (PFHxA)	0.205	J	ug/kg	1.46	0.154	1
Perfluoroheptanoic Acid (PFHpA)	ND		ug/kg	1.46	0.132	1
Perfluorohexanesulfonic Acid (PFHxS)	0.486	J	ug/kg	1.46	0.177	1
Perfluorooctanoic Acid (PFOA)	1.54		ug/kg	1.46	0.123	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	1.46	0.526	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	1.46	0.400	1
Perfluorononanoic Acid (PFNA)	ND		ug/kg	1.46	0.220	1
Perfluorooctanesulfonic Acid (PFOS)	13.7		ug/kg	1.46	0.381	1
Perfluorodecanoic Acid (PFDA)	ND		ug/kg	1.46	0.196	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	1.46	0.841	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	1.46	0.590	1
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	1.46	0.137	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	1.46	0.448	1
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	1.46	0.287	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	16.0		ug/kg	1.46	0.248	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	1.46	0.205	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	1.46	0.599	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	1.46	0.158	1
PFOA/PFOS, Total	15.2		ug/kg	1.46	0.123	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-01	Date Collected:	10/12/20 17:45
Client ID:	PFAS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	115		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	86		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	87		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**210**	Q	32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	118		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	100		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**308**	Q	25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	**143**	Q	45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	103		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	88		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	127		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	115		26-160

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-02	Date Collected:	10/12/20 17:55
Client ID:	PFAS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 16:45
Analytical Date:	10/23/20 16:54		
Analyst:	JW		
Percent Solids:	80%		
TCLP/SPLP Ext. Date:	10/20/20 15:15		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	1.08	J	ng/l	1.80	0.368	1
Perfluoropentanoic Acid (PFPeA)	0.624	J	ng/l	1.80	0.357	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.80	0.215	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.80	0.408	1
Perfluorohexanoic Acid (PFHxA)	0.697	JF	ng/l	1.80	0.296	1
Perfluoropentanesulfonic Acid (PFPeS)	0.397	JF	ng/l	1.80	0.221	1
Perfluoroheptanoic Acid (PFHpA)	0.772	J	ng/l	1.80	0.203	1
Perfluorohexanesulfonic Acid (PFHxS)	1.45	J	ng/l	1.80	0.339	1
Perfluorooctanoic Acid (PFOA)	10.0		ng/l	1.80	0.213	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.80	1.20	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.30	JF	ng/l	1.80	0.621	1
Perfluorononanoic Acid (PFNA)	0.361	J	ng/l	1.80	0.282	1
Perfluorooctanesulfonic Acid (PFOS)	33.3		ng/l	1.80	0.455	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.80	0.274	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	1.09	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.80	1.01	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.585	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.235	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.884	1
Perfluorooctanesulfonamide (FOSA)	2.74	F	ng/l	1.80	0.523	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	4.17	F	ng/l	1.80	0.726	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.336	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.295	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.224	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-02	Date Collected:	10/12/20 17:55
Client ID:	PFAS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	73		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	82		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	212		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	76		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	80		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	80		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**246**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	89		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	71		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**174**	Q	7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	61		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	71		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	17		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	76		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	43		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	49		33-143

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-02	Date Collected:	10/12/20 17:55
Client ID:	PFAS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 18:52		
Analyst:	JW		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ug/kg	0.615	0.028	1
Perfluoropentanoic Acid (PFPeA)	ND		ug/kg	0.615	0.057	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.615	0.048	1
Perfluorohexanoic Acid (PFHxA)	ND		ug/kg	0.615	0.065	1
Perfluoroheptanoic Acid (PFHpA)	ND		ug/kg	0.615	0.056	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.615	0.074	1
Perfluorooctanoic Acid (PFOA)	0.373	J	ug/kg	0.615	0.052	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.615	0.221	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.615	0.168	1
Perfluorononanoic Acid (PFNA)	ND		ug/kg	0.615	0.092	1
Perfluorooctanesulfonic Acid (PFOS)	1.61		ug/kg	0.615	0.160	1
Perfluorodecanoic Acid (PFDA)	ND		ug/kg	0.615	0.082	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.615	0.353	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.615	0.248	1
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	0.615	0.058	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.615	0.188	1
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.615	0.120	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.15		ug/kg	0.615	0.104	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.615	0.086	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.615	0.252	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.615	0.066	1
PFOA/PFOS, Total	1.98	J	ug/kg	0.615	0.052	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-02	Date Collected:	10/12/20 17:55
Client ID:	PFAS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	100		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	119		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	84		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	75		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	85		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	98		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	157		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	101		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**287**	Q	25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	**145**	Q	45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	110		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	50		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	**187**	Q	42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	102		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		26-160

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-03
Client ID: PFAS-03
Sample Location: NEWBURGH, NY
Date Collected: 10/12/20 18:05
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 17:11
Analyst: JW
Percent Solids: 71%
TCLP/SPLP Ext. Date: 10/20/20 15:15
Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 16:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.949	J	ng/l	2.20	0.448	1
Perfluoropentanoic Acid (PFPeA)	1.81	J	ng/l	2.20	0.435	1
Perfluorobutanesulfonic Acid (PFBS)	0.457	J	ng/l	2.20	0.261	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.20	0.496	1
Perfluorohexanoic Acid (PFHxA)	1.84	J	ng/l	2.20	0.360	1
Perfluoropentanesulfonic Acid (PFPeS)	0.940	JF	ng/l	2.20	0.269	1
Perfluoroheptanoic Acid (PFHpA)	2.20		ng/l	2.20	0.247	1
Perfluorohexanesulfonic Acid (PFHxS)	1.32	JF	ng/l	2.20	0.413	1
Perfluorooctanoic Acid (PFOA)	4.07		ng/l	2.20	0.259	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.20	1.46	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.20	0.755	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.20	0.343	1
Perfluorooctanesulfonic Acid (PFOS)	5.67	F	ng/l	2.20	0.553	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.20	0.334	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.20	1.33	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.20	1.23	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.20	0.712	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.20	0.286	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.20	1.08	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.20	0.637	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.38	F	ng/l	2.20	0.883	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.20	0.408	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.20	0.359	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.20	0.272	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-03	Date Collected:	10/12/20 18:05
Client ID:	PFAS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	74		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	82		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	85		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	142		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	68		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	72		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	75		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	134		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	76		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	85		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	73		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	101		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	45		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	68		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	14		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	44		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	52		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	45		33-143

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-03	Date Collected:	10/12/20 18:05
Client ID:	PFAS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 19:08		
Analyst:	JW		
Percent Solids:	71%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.057	J	ug/kg	0.690	0.031	1
Perfluoropentanoic Acid (PFPeA)	0.146	J	ug/kg	0.690	0.064	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.690	0.054	1
Perfluorohexanoic Acid (PFHxA)	0.197	J	ug/kg	0.690	0.073	1
Perfluoroheptanoic Acid (PFHpA)	0.233	J	ug/kg	0.690	0.062	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.690	0.084	1
Perfluorooctanoic Acid (PFOA)	0.274	J	ug/kg	0.690	0.058	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.690	0.248	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.690	0.188	1
Perfluorononanoic Acid (PFNA)	ND		ug/kg	0.690	0.104	1
Perfluorooctanesulfonic Acid (PFOS)	0.445	J	ug/kg	0.690	0.179	1
Perfluorodecanoic Acid (PFDA)	ND		ug/kg	0.690	0.093	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.690	0.396	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.690	0.278	1
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	0.690	0.065	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.690	0.211	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.93		ug/kg	0.690	0.117	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.690	0.097	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.690	0.282	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.690	0.075	1
PFOA/PFOS, Total	0.719	J	ug/kg	0.690	0.058	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-03	Date Collected:	10/12/20 18:05
Client ID:	PFAS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	104		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	119		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	89		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	108		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	104		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	106		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	116		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	121		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	109		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**210**	Q	25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	91		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	137		64-158
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	126		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	130		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	127		26-160

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-03	Date Collected:	10/12/20 18:05
Client ID:	PFAS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/28/20 02:56		
Analyst:	PB		
Percent Solids:	71%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.690	0.135	1

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	72		1-125

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-04
Client ID: PFAS-04
Sample Location: NEWBURGH, NY

Date Collected: 10/12/20 18:15
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 17:27
Analyst: JW
Percent Solids: 47%
TCLP/SPLP Ext. Date: 10/20/20 15:15

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 16:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	10.0	2.04	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	10.0	1.98	1
Perfluorobutanesulfonic Acid (PFBS)	2.44	J	ng/l	10.0	1.19	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	10.0	2.26	1
Perfluorohexanoic Acid (PFHxA)	2.48	J	ng/l	10.0	1.64	1
Perfluoropentanesulfonic Acid (PFPeS)	1.92	J	ng/l	10.0	1.23	1
Perfluoroheptanoic Acid (PFHpA)	1.76	J	ng/l	10.0	1.13	1
Perfluorohexanesulfonic Acid (PFHxS)	3.08	J	ng/l	10.0	1.88	1
Perfluorooctanoic Acid (PFOA)	4.90	J	ng/l	10.0	1.18	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	10.0	6.66	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	10.0	3.44	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	10.0	1.56	1
Perfluorooctanesulfonic Acid (PFOS)	26.2	F	ng/l	10.0	2.52	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	10.0	1.52	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	10.0	6.06	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	10.0	5.60	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	10.0	3.24	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	10.0	1.30	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	10.0	4.90	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	10.0	2.90	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	22.2	F	ng/l	10.0	4.02	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	10.0	1.86	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	10.0	1.64	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	10.0	1.24	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-04	Date Collected:	10/12/20 18:15
Client ID:	PFAS-04	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	86		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	84		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	76		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	85		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	102		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	86		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	87		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	87		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	93		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	90		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	62		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	95		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	11		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	65		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	74		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	63		33-143

Project Name: 5 SCOBIE DR
Lab Number: L2043933
Project Number: 19.9405
Report Date: 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-04
Client ID: PFAS-04
Sample Location: NEWBURGH, NY
Date Collected: 10/12/20 18:15
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/22/20 19:25
Analyst: JW
Percent Solids: 47%
Extraction Method: ALPHA 23528
Extraction Date: 10/21/20 12:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ug/kg	0.993	0.045	1
Perfluoropentanoic Acid (PFPeA)	ND		ug/kg	0.993	0.091	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.993	0.077	1
Perfluorohexanoic Acid (PFHxA)	0.117	J	ug/kg	0.993	0.104	1
Perfluoroheptanoic Acid (PFHpA)	0.094	J	ug/kg	0.993	0.090	1
Perfluorohexanesulfonic Acid (PFHxS)	0.130	J	ug/kg	0.993	0.120	1
Perfluorooctanoic Acid (PFOA)	0.354	J	ug/kg	0.993	0.083	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.993	0.356	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.993	0.271	1
Perfluorononanoic Acid (PFNA)	ND		ug/kg	0.993	0.149	1
Perfluorooctanesulfonic Acid (PFOS)	3.29		ug/kg	0.993	0.258	1
Perfluorodecanoic Acid (PFDA)	ND		ug/kg	0.993	0.133	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.993	0.570	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.993	0.400	1
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	0.993	0.093	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.993	0.304	1
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.993	0.194	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	6.49		ug/kg	0.993	0.168	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.993	0.139	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.993	0.406	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.993	0.107	1
PFOA/PFOS, Total	3.64	J	ug/kg	0.993	0.083	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-04	Date Collected:	10/12/20 18:15
Client ID:	PFAS-04	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	120		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	92		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	77		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	105		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	126		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	117		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	113		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**233**	Q	25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	116		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	133		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	49		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	**151**	Q	42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	135		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	106		26-160

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-05	Date Collected:	10/12/20 18:25
Client ID:	PFAS-05	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 16:45
Analytical Date:	10/23/20 17:44		
Analyst:	JW		
Percent Solids:	82%		
TCLP/SPLP Ext. Date:	10/20/20 15:15		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	5.86	J	ng/l	10.0	2.04	1
Perfluoropentanoic Acid (PFPeA)	4.60	J	ng/l	10.0	1.98	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	10.0	1.19	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	10.0	2.26	1
Perfluorohexanoic Acid (PFHxA)	5.90	J	ng/l	10.0	1.64	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	10.0	1.23	1
Perfluoroheptanoic Acid (PFHpA)	5.54	J	ng/l	10.0	1.13	1
Perfluorohexanesulfonic Acid (PFHxS)	12.5	F	ng/l	10.0	1.88	1
Perfluorooctanoic Acid (PFOA)	27.5		ng/l	10.0	1.18	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	10.0	6.66	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	10.0	3.44	1
Perfluorononanoic Acid (PFNA)	2.32	J	ng/l	10.0	1.56	1
Perfluorooctanesulfonic Acid (PFOS)	529	F	ng/l	10.0	2.52	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	10.0	1.52	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	10.0	6.06	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	10.0	5.60	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	10.0	3.24	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	10.0	1.30	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	10.0	4.90	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	10.0	2.90	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	10.0	4.02	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	10.0	1.86	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	10.0	1.64	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	10.0	1.24	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-05	Date Collected:	10/12/20 18:25
Client ID:	PFAS-05	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	105		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	114		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	**351**	Q	1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	92		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	87		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	122		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**447**	Q	1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	45		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	103		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	139		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	58		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	74		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	**147**	Q	23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	97		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	110		33-143

Project Name: 5 SCOBIE DR | **Lab Number:** L2043933

Project Number: 19.9405 | **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-05	Date Collected:	10/12/20 18:25
Client ID:	PFAS-05	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 19:41		
Analyst:	JW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.118	J	ug/kg	0.557	0.025	1
Perfluoropentanoic Acid (PFPeA)	0.087	J	ug/kg	0.557	0.051	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.557	0.043	1
Perfluorohexanoic Acid (PFHxA)	0.141	J	ug/kg	0.557	0.058	1
Perfluoroheptanoic Acid (PFHpA)	0.110	J	ug/kg	0.557	0.050	1
Perfluorohexanesulfonic Acid (PFHxS)	0.095	J	ug/kg	0.557	0.067	1
Perfluorooctanoic Acid (PFOA)	0.657		ug/kg	0.557	0.047	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.557	0.200	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.557	0.152	1
Perfluorononanoic Acid (PFNA)	ND		ug/kg	0.557	0.084	1
Perfluorooctanesulfonic Acid (PFOS)	10.8		ug/kg	0.557	0.145	1
Perfluorodecanoic Acid (PFDA)	ND		ug/kg	0.557	0.075	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.557	0.320	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.557	0.224	1
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	0.557	0.052	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.557	0.170	1
Perfluorooctanesulfonamide (FOSA)	0.196	J	ug/kg	0.557	0.109	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.43		ug/kg	0.557	0.094	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.557	0.078	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.557	0.228	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.557	0.060	1
PFOA/PFOS, Total	11.5		ug/kg	0.557	0.047	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-05	Date Collected:	10/12/20 18:25
Client ID:	PFAS-05	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	**41**	Q	60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	**47**	Q	65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	**45**	Q	70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	**30**	Q	61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	**36**	Q	62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	**42**	Q	63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	**42**	Q	62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	57		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**49**	Q	61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	**57**	Q	65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**43**	Q	65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	135		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	**10**	Q	45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	**42**	Q	64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	33		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	**21**	Q	42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	**43**	Q	56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	44		26-160

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-06	Date Collected:	10/13/20 14:50
Client ID:	PFAS-SS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 19:58		
Analyst:	JW		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.163	J	ug/kg	0.615	0.028	1
Perfluoropentanoic Acid (PFPeA)	0.090	J	ug/kg	0.615	0.057	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.615	0.048	1
Perfluorohexanoic Acid (PFHxA)	0.108	J	ug/kg	0.615	0.065	1
Perfluoroheptanoic Acid (PFHpA)	0.080	J	ug/kg	0.615	0.056	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.615	0.074	1
Perfluorooctanoic Acid (PFOA)	0.346	J	ug/kg	0.615	0.052	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.615	0.221	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.615	0.168	1
Perfluorononanoic Acid (PFNA)	0.247	J	ug/kg	0.615	0.092	1
Perfluorooctanesulfonic Acid (PFOS)	1.59		ug/kg	0.615	0.160	1
Perfluorodecanoic Acid (PFDA)	0.187	J	ug/kg	0.615	0.082	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.615	0.353	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.615	0.248	1
Perfluoroundecanoic Acid (PFUnA)	0.183	J	ug/kg	0.615	0.058	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.615	0.188	1
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.615	0.120	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ug/kg	0.615	0.104	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.615	0.086	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.615	0.252	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.615	0.066	1
PFOA/PFOS, Total	1.94	J	ug/kg	0.615	0.052	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-06	Date Collected:	10/13/20 14:50
Client ID:	PFAS-SS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	105		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	120		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	100		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	114		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	106		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	81		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	116		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	121		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	110		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	108		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	96		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	133		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	15		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	99		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	122		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	113		26-160

Project Name: 5 SCOBIE DR **Lab Number:** L2043933

Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-07
Client ID: PFAS-SS-02
Sample Location: NEWBURGH, NY

Date Collected: 10/13/20 14:55
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/22/20 20:14
Analyst: JW
Percent Solids: 73%

Extraction Method: ALPHA 23528
Extraction Date: 10/21/20 12:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.640		ug/kg	0.630	0.029	1
Perfluoropentanoic Acid (PFPeA)	0.465	J	ug/kg	0.630	0.058	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.630	0.049	1
Perfluorohexanoic Acid (PFHxA)	0.506	J	ug/kg	0.630	0.066	1
Perfluoroheptanoic Acid (PFHpA)	0.557	J	ug/kg	0.630	0.057	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.630	0.076	1
Perfluorooctanoic Acid (PFOA)	1.76		ug/kg	0.630	0.053	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.630	0.226	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.630	0.172	1
Perfluorononanoic Acid (PFNA)	0.280	J	ug/kg	0.630	0.095	1
Perfluorooctanesulfonic Acid (PFOS)	0.575	J	ug/kg	0.630	0.164	1
Perfluorodecanoic Acid (PFDA)	0.112	J	ug/kg	0.630	0.085	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.630	0.362	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.630	0.254	1
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	0.630	0.059	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.630	0.193	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ug/kg	0.630	0.106	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.630	0.088	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.630	0.258	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.630	0.068	1
PFOA/PFOS, Total	2.34	J	ug/kg	0.630	0.053	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-07	Date Collected:	10/13/20 14:55
Client ID:	PFAS-SS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	93		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	110		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	104		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	85		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	91		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	75		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	112		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	121		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	108		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	110		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	71		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	131		64-158
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	78		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	111		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	90		26-160

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-07	Date Collected:	10/13/20 14:55
Client ID:	PFAS-SS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/26/20 13:46		
Analyst:	PB		
Percent Solids:	73%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.630	0.124	1

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	99		1-125

Project Name: 5 SCOBIE DR **Lab Number:** L2043933

Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-08	Date Collected:	10/13/20 15:00
Client ID:	PFAS-SS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 20:48		
Analyst:	JW		
Percent Solids:	63%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.920		ug/kg	0.778	0.035	1
Perfluoropentanoic Acid (PFPeA)	0.550	J	ug/kg	0.778	0.072	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.778	0.061	1
Perfluorohexanoic Acid (PFHxA)	0.508	J	ug/kg	0.778	0.082	1
Perfluoroheptanoic Acid (PFHpA)	0.574	J	ug/kg	0.778	0.070	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.778	0.094	1
Perfluorooctanoic Acid (PFOA)	1.69		ug/kg	0.778	0.065	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.778	0.279	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.778	0.212	1
Perfluorononanoic Acid (PFNA)	0.440	J	ug/kg	0.778	0.117	1
Perfluorooctanesulfonic Acid (PFOS)	1.37		ug/kg	0.778	0.202	1
Perfluorodecanoic Acid (PFDA)	0.245	J	ug/kg	0.778	0.104	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.778	0.447	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.778	0.314	1
Perfluoroundecanoic Acid (PFUnA)	0.163	J	ug/kg	0.778	0.073	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.778	0.238	1
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.778	0.152	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ug/kg	0.778	0.131	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.778	0.109	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.778	0.318	1
Perfluorotetradecanoic Acid (PFTA)	0.090	J	ug/kg	0.778	0.084	1
PFOA/PFOS, Total	3.06		ug/kg	0.778	0.065	1

Project Name: 5 SCOBIE DR | **Lab Number:** L2043933
Project Number: 19.9405 | **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-08	Date Collected:	10/13/20 15:00
Client ID:	PFAS-SS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	85		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	89		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	101		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	71		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	116		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	104		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	102		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	127		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	16		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	80		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	116		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	85		26-160

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-09	Date Collected:	10/13/20 00:00
Client ID:	FD01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/22/20 21:37		
Analyst:	JW		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	0.589	J	ug/kg	0.610	0.028	1
Perfluoropentanoic Acid (PFPeA)	0.432	J	ug/kg	0.610	0.056	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.610	0.048	1
Perfluorohexanoic Acid (PFHxA)	0.461	J	ug/kg	0.610	0.064	1
Perfluoroheptanoic Acid (PFHpA)	0.497	J	ug/kg	0.610	0.055	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.610	0.074	1
Perfluorooctanoic Acid (PFOA)	1.70		ug/kg	0.610	0.051	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.610	0.219	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.610	0.166	1
Perfluorononanoic Acid (PFNA)	0.314	J	ug/kg	0.610	0.091	1
Perfluorooctanesulfonic Acid (PFOS)	0.831		ug/kg	0.610	0.158	1
Perfluorodecanoic Acid (PFDA)	0.099	J	ug/kg	0.610	0.082	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.610	0.350	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.610	0.246	1
Perfluoroundecanoic Acid (PFUnA)	0.096	J	ug/kg	0.610	0.057	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.610	0.186	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ug/kg	0.610	0.103	1
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.610	0.085	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.610	0.249	1
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.610	0.066	1
PFOA/PFOS, Total	2.53		ug/kg	0.610	0.051	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-09	Date Collected:	10/13/20 00:00
Client ID:	FD01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	91		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	105		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	84		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	73		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	117		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	109		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	127		64-158
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	81		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	114		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	94		26-160

Project Name: 5 SCOBIE DR | **Lab Number:** L2043933
Project Number: 19.9405 | **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-09	Date Collected:	10/13/20 00:00
Client ID:	FD01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/21/20 12:00
Analytical Date:	10/26/20 13:52		
Analyst:	PB		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.610	0.119	1

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	109		1-125

Project Name: 5 SCOBIE DR **Lab Number:** L2043933

Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-10	Date Collected:	10/13/20 14:35
Client ID:	EB01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	ALPHA 23528
Analytical Method:	134,LCMSMS-ID	Extraction Date:	10/22/20 17:10
Analytical Date:	10/23/20 19:33		
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.10	0.428	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.10	0.415	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.10	0.249	1
Perfluorohexanoic Acid (PFHxA)	0.369	J	ng/l	2.10	0.344	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.10	0.236	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.10	0.394	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.10	0.247	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.10	1.40	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.10	0.721	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.10	0.327	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.10	0.528	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.10	0.318	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.10	1.27	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.10	0.679	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.10	0.272	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.10	1.03	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.10	0.608	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.10	0.842	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.10	0.390	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.10	0.343	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.10	0.260	1
PFOA/PFOS, Total	ND		ng/l	2.10	0.247	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-10	Date Collected:	10/13/20 14:35
Client ID:	EB01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	111		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	152		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	102		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	104		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	107		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	75		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	116		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	105		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	108		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	126		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	113		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	126		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	126		33-143

Project Name: 5 SCOBIE DR | **Lab Number:** L2043933
Project Number: 19.9405 | **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-11
Client ID: FB01_201013
Sample Location: NEWBURGH, NY

Date Collected: 10/13/20 14:30
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/27/20 03:24
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 17:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.89	0.386	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.89	0.375	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.89	0.225	1
Perfluorohexanoic Acid (PFHxA)	0.337	J	ng/l	1.89	0.310	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.89	0.213	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.89	0.356	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.89	0.223	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.89	1.26	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.89	0.651	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.89	0.295	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.89	0.477	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.89	0.288	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.89	1.15	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.89	0.613	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.89	0.246	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.89	0.928	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.89	0.549	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.89	0.761	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.89	0.352	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.89	0.310	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.89	0.235	1
PFOA/PFOS, Total	ND		ng/l	1.89	0.223	1

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-11	Date Collected:	10/13/20 14:30
Client ID:	FB01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	110		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	151		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	92		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	111		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	108		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	76		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	119		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	105		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	101		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	102		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	87		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	129		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	47		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	94		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	126		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	130		33-143

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-12
Client ID: LTB01_201013
Sample Location: NEWBURGH, NY

Date Collected: 10/13/20 14:30
Date Received: 10/13/20
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/27/20 03:41
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 17:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.89	0.386	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.89	0.375	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.89	0.225	1
Perfluorohexanoic Acid (PFHxA)	0.314	JF	ng/l	1.89	0.310	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.89	0.213	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.89	0.356	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.89	0.223	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.89	1.26	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.89	0.651	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.89	0.295	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.89	0.477	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.89	0.288	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.89	1.15	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.89	0.613	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.89	0.246	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.89	0.928	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.89	0.549	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.89	0.761	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.89	0.352	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.89	0.310	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.89	0.235	1
PFOA/PFOS, Total	ND		ng/l	1.89	0.223	1

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-12	Date Collected:	10/13/20 14:30
Client ID:	LTB01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	108		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	142		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	87		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	97		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	115		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	77		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	109		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	96		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	107		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	91		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	118		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	31		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	105		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	108		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	123		33-143

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/22/20 16:22
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 10/21/20 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-09 Batch: WG1424600-1					
Perfluorobutanoic Acid (PFBA)	ND		ug/kg	0.500	0.023
Perfluoropentanoic Acid (PFPeA)	ND		ug/kg	0.500	0.046
Perfluorobutanesulfonic Acid (PFBS)	ND		ug/kg	0.500	0.039
Perfluorohexanoic Acid (PFHxA)	ND		ug/kg	0.500	0.053
Perfluoroheptanoic Acid (PFHpA)	ND		ug/kg	0.500	0.045
Perfluorohexanesulfonic Acid (PFHxS)	ND		ug/kg	0.500	0.061
Perfluorooctanoic Acid (PFOA)	ND		ug/kg	0.500	0.042
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ug/kg	0.500	0.180
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ug/kg	0.500	0.136
Perfluorononanoic Acid (PFNA)	ND		ug/kg	0.500	0.075
Perfluorooctanesulfonic Acid (PFOS)	ND		ug/kg	0.500	0.130
Perfluorodecanoic Acid (PFDA)	ND		ug/kg	0.500	0.067
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ug/kg	0.500	0.287
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ug/kg	0.500	0.202
Perfluoroundecanoic Acid (PFUnA)	ND		ug/kg	0.500	0.047
Perfluorodecanesulfonic Acid (PFDS)	ND		ug/kg	0.500	0.153
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.500	0.098
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ug/kg	0.500	0.085
Perfluorododecanoic Acid (PFDoA)	ND		ug/kg	0.500	0.070
Perfluorotridecanoic Acid (PFTrDA)	ND		ug/kg	0.500	0.204
Perfluorotetradecanoic Acid (PFTA)	ND		ug/kg	0.500	0.054
PFOA/PFOS, Total	ND		ug/kg	0.500	0.042

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/22/20 16:22
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 10/21/20 12:00

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-09 Batch: WG1424600-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	115		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	128		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	95		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	97		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	104		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	118		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	114		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	71		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	120		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	110		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	108		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	108		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	135		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	42		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	127		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	131		26-160

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	10/26/20 17:21	Extraction Date:	10/21/20 12:00
Analyst:	PB		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-09 Batch: WG1424600-1					
Perfluorooctanesulfonamide (FOSA)	ND		ug/kg	0.500	0.098

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	107		1-125

Project Name: 5 SCOBIE DR | **Lab Number:** L2043933
Project Number: 19.9405 | **Report Date:** 10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 14:25
Analyst: JW
TCLP/SPLP Extraction Date:

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 16:45

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-05 Batch: WG1425281-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	2.00	0.452
Perfluorohexanoic Acid (PFHxA)	0.608	J	ng/l	2.00	0.328
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	2.00	0.245
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	2.00	1.12
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248

Project Name:	5 SCOBIE DR	Lab Number:	L2043933
Project Number:	19.9405	Report Date:	10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	10/23/20 14:25	Extraction Date:	10/22/20 16:45
Analyst:	JW		
TCLP/SPLP Extraction Date:			

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-05 Batch: WG1425281-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	98		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	115		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	67		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	92		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	100		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	79		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	104		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	74		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	80		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	51		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	77		33-143

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	10/26/20 16:56	Extraction Date:	10/22/20 16:45
Analyst:	PB		
TCLP/SPLP Extraction Date:			

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-05 Batch: WG1425281-1					
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	81		1-87

Project Name: 5 SCOBIE DR
Lab Number: L2043933
Project Number: 19.9405
Report Date: 10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 14:42
Analyst: JW
TCLP/SPLP Extraction Date: 10/20/20 15:15
Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 16:45

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-05 Batch: WG1425281-6					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.78	0.364
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.78	0.354
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.78	0.212
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	1.78	0.404
Perfluorohexanoic Acid (PFHxA)	0.439	J	ng/l	1.78	0.293
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.78	0.219
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.78	0.201
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.78	0.336
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.78	0.211
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.70	J	ng/l	1.78	1.19
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.78	0.614
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.78	0.278
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.78	0.450
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.78	0.271
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.78	1.08
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.78	1.00
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.78	0.578
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.78	0.232
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.78	0.875
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.78	0.518
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.78	0.718
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.78	0.332
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.78	0.292
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.78	0.221

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	10/23/20 14:42	Extraction Date:	10/22/20 16:45
Analyst:	JW		
TCLP/SPLP Extraction Date:	10/20/20 15:15		

Parameter	Result	Qualifier	Units	RL	MDL
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab for sample(s): 01-05 Batch: WG1425281-6					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	91		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	111		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	58		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	88		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	107		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	68		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	100		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	95		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	75		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	64		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	96		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	18		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	67		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	87		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		33-143

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 10/23/20 18:27
Analyst: JW

Extraction Method: ALPHA 23528
Extraction Date: 10/22/20 17:10

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 10-12 Batch: WG1425297-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

Method Blank Analysis
Batch Quality Control

Analytical Method:	134,LCMSMS-ID	Extraction Method:	ALPHA 23528
Analytical Date:	10/23/20 18:27	Extraction Date:	10/22/20 17:10
Analyst:	JW		

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 10-12 Batch: WG1425297-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	117		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	151		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	106		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	115		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	115		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	77		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	121		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	110		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	140		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	82		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	126		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	99		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	129		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	133		33-143

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Lab Number: L2043933
Project Number: 19.9405
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 Batch: WG1424600-2 WG1424600-3								
Perfluorobutanoic Acid (PFBA)	102		102		71-135	2		30
Perfluoropentanoic Acid (PFPeA)	102		101		69-132	3		30
Perfluorobutanesulfonic Acid (PFBS)	97		98		72-128	2		30
Perfluorohexanoic Acid (PFHxA)	105		104		70-132	3		30
Perfluoroheptanoic Acid (PFHpA)	103		103		71-131	1		30
Perfluorohexanesulfonic Acid (PFHxS)	77		77		67-130	5		30
Perfluorooctanoic Acid (PFOA)	104		103		69-133	3		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	110		109		64-140	0		30
Perfluoroheptanesulfonic Acid (PFHpS)	92		92		70-132	0		30
Perfluorononanoic Acid (PFNA)	105		104		72-129	2		30
Perfluorooctanesulfonic Acid (PFOS)	95		101		68-136	0		30
Perfluorodecanoic Acid (PFDA)	104		106		69-133	6		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	120		112		65-137	8		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	111		113		63-144	22		30
Perfluoroundecanoic Acid (PFUnA)	95		99		64-136	1		30
Perfluorodecanesulfonic Acid (PFDS)	115		108		59-134	5		30
Perfluorooctanesulfonamide (FOSA)	110		105		67-137	15		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	112		110		61-139	3		30
Perfluorododecanoic Acid (PFDoA)	89		102		69-135	3		30
Perfluorotridecanoic Acid (PFTrDA)	116		125		66-139	2		30
Perfluorotetradecanoic Acid (PFTA)	106		105		69-133	3		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 Batch: WG1424600-2 WG1424600-3								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	109		115		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	120		127		65-182
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	92		96		70-151
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		95		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	101		102		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		108		63-166
Perfluoro[13C8]Octanoic Acid (M8PFOA)	109		111		62-152
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	68		72		32-182
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	113		118		61-154
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	110		110		65-151
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	110		113		65-150
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	86		103		25-186
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	95		97		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	134		133		64-158
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	3		39		1-125
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	108		113		42-136
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	133		127		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	131		142		26-160

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043933
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 Batch: WG1424600-2 WG1424600-3								
Perfluorooctanesulfonamide (FOSA)	105		106		67-137	1		30

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	119		121		1-125

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043933
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-05 Batch: WG1425281-2 WG1425281-3								
Perfluorobutanoic Acid (PFBA)	107		110		67-148	3		30
Perfluoropentanoic Acid (PFPeA)	105		107		63-161	2		30
Perfluorobutanesulfonic Acid (PFBS)	96		100		65-157	4		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	113		116		37-219	3		30
Perfluorohexanoic Acid (PFHxA)	109		110		69-168	1		30
Perfluoropentanesulfonic Acid (PFPeS)	94		98		52-156	4		30
Perfluoroheptanoic Acid (PFHpA)	105		109		58-159	4		30
Perfluorohexanesulfonic Acid (PFHxS)	102		107		69-177	5		30
Perfluorooctanoic Acid (PFOA)	105		108		63-159	3		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	121		124		49-187	2		30
Perfluoroheptanesulfonic Acid (PFHpS)	108		108		61-179	0		30
Perfluorononanoic Acid (PFNA)	107		112		68-171	5		30
Perfluorooctanesulfonic Acid (PFOS)	116		111		52-151	4		30
Perfluorodecanoic Acid (PFDA)	101		105		63-171	4		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	120		111		56-173	8		30
Perfluorononanesulfonic Acid (PFNS)	116		119		48-150	3		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	108		116		60-166	7		30
Perfluoroundecanoic Acid (PFUnA)	110		113		60-153	3		30
Perfluorodecanesulfonic Acid (PFDS)	126		120		38-156	5		30
Perfluorooctanesulfonamide (FOSA)	103		110		46-170	7		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	112		121		45-170	8		30
Perfluorododecanoic Acid (PFDoA)	109		115		67-153	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-05 Batch: WG1425281-2 WG1425281-3								
Perfluorotridecanoic Acid (PFTrDA)	112		117		48-158	4		30
Perfluorotetradecanoic Acid (PFTA)	104		111		59-182	7		30

Surrogate (Extracted Internal Standard)	*LCS %Recovery*	*Qual*	*LCSD %Recovery*	*Qual*	*Acceptance Criteria*
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		93		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	106		105		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		98		31-159
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	63		64		1-313
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	89		91		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		91		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		104		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		94		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	70		72		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95		96		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		100		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	93		92		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	72		73		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	66		64		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		92		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	48		48		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	73		71		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	85		87		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		76		33-143

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
SPLP Perfluorinated Alkyl Acids by Isotope Dilution & EPA 1312 - Mansfield Lab Associated sample(s): 01-05 Batch: WG1425281-2 WG1425281-3								
Perfluorooctanesulfonamide (FOSA)	109		112		46-170	3		30

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	80		81		1-87

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043933
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 10-12 Batch: WG1425297-2 WG1425297-3								
Perfluorobutanoic Acid (PFBA)	102		100		67-148	2		30
Perfluoropentanoic Acid (PFPeA)	102		99		63-161	3		30
Perfluorobutanesulfonic Acid (PFBS)	99		95		65-157	4		30
Perfluorohexanoic Acid (PFHxA)	105		103		69-168	2		30
Perfluoroheptanoic Acid (PFHpA)	102		99		58-159	3		30
Perfluorohexanesulfonic Acid (PFHxS)	77		71		69-177	8		30
Perfluorooctanoic Acid (PFOA)	98		99		63-159	1		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	106		111		49-187	5		30
Perfluoroheptanesulfonic Acid (PFHpS)	95		92		61-179	3		30
Perfluorononanoic Acid (PFNA)	104		100		68-171	4		30
Perfluorooctanesulfonic Acid (PFOS)	100		99		52-151	1		30
Perfluorodecanoic Acid (PFDA)	102		101		63-171	1		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	107		109		56-173	2		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	120		104		60-166	14		30
Perfluoroundecanoic Acid (PFUnA)	96		90		60-153	6		30
Perfluorodecanesulfonic Acid (PFDS)	108		114		38-156	5		30
Perfluorooctanesulfonamide (FOSA)	104		98		46-170	6		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	110		112		45-170	2		30
Perfluorododecanoic Acid (PFDoA)	98		96		67-153	2		30
Perfluorotridecanoic Acid (PFTrDA)	121		117		48-158	3		30
Perfluorotetradecanoic Acid (PFTA)	104		103		59-182	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043933
Report Date: 10/28/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 10-12 Batch: WG1425297-2 WG1425297-3								

Surrogate (Extracted Internal Standard)	*LCS %Recovery*	*Qual*	*LCSD %Recovery*	*Qual*	*Acceptance Criteria*
Perfluoro[13C4]Butanoic Acid (MPFBA)	109		114		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	138		145		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96		100		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	89		94		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96		103		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	105		119		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	106		111		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	77		79		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	110		120		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	102		112		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		110		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	114		128		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		95		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	111		133		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		47		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	96		107		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	108		124		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	126		135		33-143

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043933
Report Date: 10/28/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1424600-4 WG1424600-5 QC Sample: L2043933-08 Client ID: PFAS-SS-03												
Perfluorobutanoic Acid (PFBA)	0.920	7.8	8.92	103		8.43	99		71-135	6		30
Perfluoropentanoic Acid (PFPeA)	0.550J	7.8	8.75	105		8.23	101		69-132	6		30
Perfluorobutanesulfonic Acid (PFBS)	ND	6.93	7.40	107		7.08	105		72-128	4		30
Perfluorohexanoic Acid (PFHxA)	0.508J	7.8	8.76	106		8.14	100		70-132	7		30
Perfluoroheptanoic Acid (PFHpA)	0.574J	7.8	8.60	103		8.22	101		71-131	5		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	7.13	7.06	99		5.29	76		67-130	29		30
Perfluorooctanoic Acid (PFOA)	1.69	7.8	10.0	107		9.41	102		69-133	6		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	7.42	8.17	110		7.91	109		64-140	3		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	7.42	7.06	95		6.40	89		70-132	10		30
Perfluorononanoic Acid (PFNA)	0.440J	7.8	8.66	105		8.20	102		72-129	5		30
Perfluorooctanesulfonic Acid (PFOS)	1.37	7.24	9.19	108		8.68	104		68-136	6		30
Perfluorodecanoic Acid (PFDA)	0.245J	7.8	8.88	111		8.83	113		69-133	1		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	7.49	8.57	114		7.92	109		65-137	8		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	7.8	8.16	105		8.50	112		63-144	4		30
Perfluoroundecanoic Acid (PFUnA)	0.163J	7.8	8.32	105		7.19F	93		64-136	15		30
Perfluorodecanesulfonic Acid (PFDS)	ND	7.52	8.12	108		7.40	101		59-134	9		30
Perfluorooctanesulfonamide (FOSA)	ND	7.8	7.59F	97		7.26F	96		67-137	4		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	7.8	9.47	121		11.0	**145**	Q	61-139	15		30
Perfluorododecanoic Acid (PFDoA)	ND	7.8	7.87	101		7.01	92		69-135	12		30
Perfluorotridecanoic Acid (PFTrDA)	ND	7.8	8.78	113		8.57	113		66-139	2		30
Perfluorotetradecanoic Acid (PFTA)	0.090J	7.8	8.38	106		8.03	105		69-133	4		30

Matrix Spike Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab   Associated sample(s): 01-09   QC Batch ID: WG1424600-4 WG1424600-5   QC Sample: L2043933-08
Client ID: PFAS-SS-03

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	101		100		25-186
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	74		78		32-182
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	79		69		42-136
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	73		73		45-137
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	118		127		64-158
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		98		65-150
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	79		85		61-147
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	91		94		62-149
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	89		123		63-166
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	111		120		56-148
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	83		90		26-160
Perfluoro[13C4]Butanoic Acid (MPFBA)	89		97		60-153
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	102		110		65-182
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	23		37		1-125
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	107		118		65-151
Perfluoro[13C8]Octanoic Acid (M8PFOA)	96		103		62-152
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	106		107		61-154
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	91		102		70-151

Lab Duplicate Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 10-12 QC Batch ID: WG1425297-5 QC Sample: L2043933-10 Client ID: EB01_201013						
Perfluorobutanoic Acid (PFBA)	ND	ND	ng/l	NC		30
Perfluoropentanoic Acid (PFPeA)	ND	ND	ng/l	NC		30
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	0.369J	0.382J	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	ND	ND	ng/l	NC		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/l	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405
Lab Number: L2043933
Report Date: 10/28/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 10-12 QC Batch ID: WG1425297-5 QC Sample: L2043933-10 Client ID: EB01_201013						
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30
PFOA/PFOS, Total	ND	ND	ng/l	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	111		111		2-156
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	152		150		16-173
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101		100		31-159
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	94		95		21-145
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	102		102		30-139
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	104		106		47-153
Perfluoro[13C8]Octanoic Acid (M8PFOA)	107		109		36-149
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	75		73		1-244
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	116		115		34-146
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	109		111		42-146
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	105		103		38-144
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	108		111		7-170
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	83		79		1-181
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	126		119		40-144
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		29		1-87
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	113		75		23-146
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	126		115		24-161
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	126		121		33-143

INORGANICS
&
MISCELLANEOUS

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-01 Date Collected: 10/12/20 17:45
Client ID: PFAS-01 Date Received: 10/13/20
Sample Location: NEWBURGH, NY Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	32.5		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-02 Date Collected: 10/12/20 17:55
Client ID: PFAS-02 Date Received: 10/13/20
Sample Location: NEWBURGH, NY Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	79.5		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-03	Date Collected:	10/12/20 18:05
Client ID:	PFAS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	71.2		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-04	Date Collected:	10/12/20 18:15
Client ID:	PFAS-04	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	47.4		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

SAMPLE RESULTS

Lab ID: L2043933-05 Date Collected: 10/12/20 18:25
Client ID: PFAS-05 Date Received: 10/13/20
Sample Location: NEWBURGH, NY Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	82.4		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-06	Date Collected:	10/13/20 14:50
Client ID:	PFAS-SS-01	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	77.8		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-07	Date Collected:	10/13/20 14:55
Client ID:	PFAS-SS-02	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	72.6		%	0.100	0.100	1	-	10/23/20 11:00	121,2540G	AL

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-08	Date Collected:	10/13/20 15:00
Client ID:	PFAS-SS-03	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	63.0		%	0.100	0.100	1	-	10/22/20 14:11	121,2540G	KM

Project Name:	5 SCOBIE DR	**Lab Number:**	L2043933
Project Number:	19.9405	**Report Date:**	10/28/20

SAMPLE RESULTS

Lab ID:	L2043933-09	Date Collected:	10/13/20 00:00
Client ID:	FD01_201013	Date Received:	10/13/20
Sample Location:	NEWBURGH, NY	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	76.3		%	0.100	0.100	1	-	10/22/20 14:11	121,2540G	KM

Lab Duplicate Analysis
Batch Quality Control

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 08-09 QC Batch ID: WG1425238-1 QC Sample: L2043933-08 Client ID: PFAS-SS-03						
Solids, Total	63.0	64.8	%	3		10
General Chemistry - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1425592-1 QC Sample: L2044946-01 Client ID: DUP Sample						
Solids, Total	81.8	82.9	%	1		10

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2043933-01A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-01B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		-
L2043933-01C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-01X	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-01X1	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-01X2	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-01X3	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-01X9	Tumble Vessel	B	NA		2.8	Y	Absent		-
L2043933-02A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-02B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		-
L2043933-02C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-02X	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-02X1	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-02X2	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-02X3	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-02X9	Tumble Vessel	B	NA		2.8	Y	Absent		-
L2043933-03A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-03B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		-
L2043933-03C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-03X	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-03X1	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-03X2	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-03X3	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2043933-03X9	Tumble Vessel	B	NA		2.8	Y	Absent		-
L2043933-04A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-04B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		-
L2043933-04C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-04X	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-04X1	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-04X2	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-04X3	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-04X9	Tumble Vessel	B	NA		2.8	Y	Absent		-
L2043933-05A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-05B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		-
L2043933-05C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-05X	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-05X1	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-05X2	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-05X3	Plastic 250ml unpreserved Extracts	B	NA		2.8	Y	Absent		A2-SPLP-537-ISOTOPE(14)
L2043933-05X9	Tumble Vessel	B	NA		2.8	Y	Absent		-
L2043933-06A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-06B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		HOLD-537(28)
L2043933-06C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-07A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-07B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		HOLD-537(28)
L2043933-07C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-08A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-08A1	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-08A2	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-08B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		HOLD-537(28)
L2043933-08B1	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		HOLD-537(28)

*Values in parentheses indicate holding time in days

Project Name: 5 SCOBIE DR
Project Number: 19.9405

Lab Number: L2043933
Report Date: 10/28/20

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2043933-08B2	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		HOLD-537(28)
L2043933-08C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-08C1	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-08C2	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-09A	Plastic 2oz unpreserved for TS	B	NA		2.8	Y	Absent		A2-TS(7)
L2043933-09B	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		HOLD-537(28)
L2043933-09C	Plastic 8oz unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-10A	Plastic 250ml unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-10B	Plastic 250ml unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-11A	Plastic 250ml unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-12A	Plastic 250ml unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)
L2043933-12B	Plastic 250ml unpreserved	B	NA		2.8	Y	Absent		A2-NY-537-ISOTOPE(14)

*Values in parentheses indicate holding time in days

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: 5 SCOBIE DR **Lab Number:** L2043933
Project Number: 19.9405 **Report Date:** 10/28/20

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where

Data Qualifiers

the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
EPA TO-12 Non-methane organics
EPA 3C Fixed gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:10282017:06

ALPHA ANALYTICAL — NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Westborough, MA 01581, 8 Walkup Dr., TEL: 508-898-9220, FAX: 508-898-9193
Mansfield, MA 02048, 320 Forbes Blvd, TEL: 508-822-9300, FAX: 508-822-3288

Page 1 of 2

Date Rec'd in Lab: 10/14/20

ALPHA Job #: L2043933

Project Information
Project Name: 5 Scobie Dr
Project Location: Newburgh, NY
Project # 19.9405
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

Client Information
Client: C.T. Male Associates
Address: 12 Raymond Ave, Poughkeepsie, NY 12603
Phone: 845-454-4400
Fax: —
Email: J.McIver@CTMale.com

Turn-Around Time
Standard ☒
Rush (only if pre approved) ☐
Due Date:
# of Days:

Deliverables
☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information
☐ Same as Client Info
PO #

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility: ☐ NJ ☐ NY ☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

Sample Filtration: ☐ Done ☐ Lab to do
Preservation: ☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	21 PFAS	SPLP PFAS	SPLP PFAS - HOLD	Sample Specific Comments	Total Bottles
43933-01	PFAS-01	10/12/2020	1745	Soil	DA	X	X			3
-02	PFAS-02	↓	1755	↓	DA	X	X			3
-03	PFAS-03		1805		DA	X	X			3
-04	PFAS-04		1815		DA	X	X			3
-05	PFAS-05	↓	1825		DA	X	X			3
-06	PFAS-SS-01	10/13/2020	1450		DA	X		X		3
-07	PFAS-SS-02		1455		DA	X		X		3
-08	PFAS-SS-03		1500		DA	X		X	MS/MSD	9
-09	FD01_~~[illegible]~~ 201013		—	↓	DA	X		X		3
-10	EB01_201013	↓	1435	Water	DA	X			Ziploc Bag	2

Preservative Code	Container Code
A = None	P = Plastic
B = HCl	A = Amber Glass
C = HNO_3	V = Vial
D = H_2SO_4	G = Glass
E = NaOH	B = Bacteria Cup
F = MeOH	C = Cube
G = $NaHSO_4$	O = Other
H = $Na_2S_2O_3$	E = Encore
K/E = Zn Ac/NaOH	D = BOD Bottle
O = Other	

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/13/2020 1745	[signature] AAL	10/13/20 1745
[signature]	10/13/20 1750	[signature]	10/14/20 01:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

ALPHA

NEW YORK CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 2 of 2

Date Rec'd in Lab 10/14/20

ALPHA Job # L2043933

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: 5 Scobie Dr
Project Location: Newburgh, NY
Project #: 19.9405.11
(Use Project name as Project #) ☐
Project Manager: Jim McIver
ALPHAQuote #:

Turn-Around Time

Standard ☒ Due Date:
Rush (only if pre approved) ☐ # of Days:

Client Information

Client: C.T. Male Associates
Address: 50 Century Hill 12 Raymond Ave
Poughkeepsie, NY 12603
Phone: 845-454-4400
Fax: —
Email: J.McIver@ctmale.com

Deliverables

☐ ASP-A ☒ ASP-B
☐ EQuIS (1 File) ☒ EQuIS (4 File)
☐ Other

Billing Information

☐ Same as Client Info
PO #

Regulatory Requirement

☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS: 21 PFAS

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	21 PFAS								Sample Specific Comments	Total Bottles
43933-11	EB01_201013	10/13/2020	1430	Water	DA	X									2
-12	LFB01_201013	↓	—	Water	DA	X									2

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type: P
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
Dan Conley	10/13/2020 1745	Jim Conley AAL	10/13/20 1745
Jim Conley	10/13/20 1750	[illegible]	10/14/20 01:20

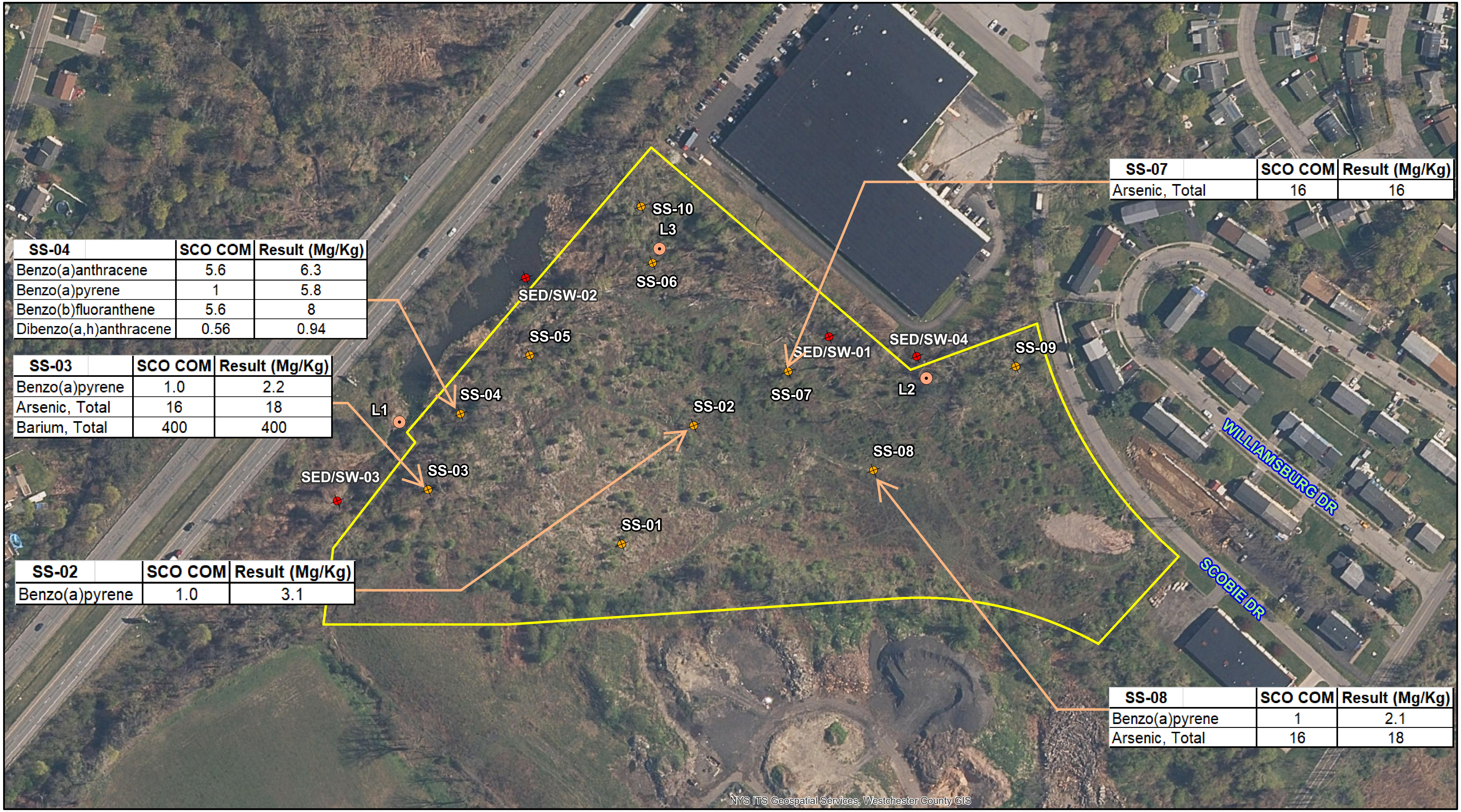
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

EXHIBIT 3

FIGURE 6 – Surface Soil Parameters Above Commercial Use SCOs

FIGURE 8 – Subsurface Soil Parameters Above Commercial Use SCOs



SS-04	SCO COM	Result (Mg/Kg)
Benzo(a)anthracene	5.6	6.3
Benzo(a)pyrene	1	5.8
Benzo(b)fluoranthene	5.6	8
Dibenzo(a,h)anthracene	0.56	0.94

SS-03	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1.0	2.2
Arsenic, Total	16	18
Barium, Total	400	400

SS-02	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1.0	3.1

SS-07	SCO COM	Result (Mg/Kg)
Arsenic, Total	16	16

SS-08	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1	2.1
Arsenic, Total	16	18

0 150 300 450 FT

1 inch = 150 feet

Project Number: 13.3061
Data Source: NYSGIS Clearinghouse
Projection: State Plane NAD83 NYE (feet)
Date: August 22, 2023
File: Fig6_Parameters_SS_SED_SW11x17_BlankMap2023.mxd
GIS: D Landreville
Edits: E White

Legend

- L1 — Approximate Leachate Seeps Location and Number
- SED/SW-01 — Approximate Sediment and Surface Water Sampling Location and Number (collected 5/19/14 & 5/20/14)
- SS-01 — Approximate Surface Soil Sampling Location and Number (collected 5/19/14 & 5/20/14)
- Property Boundary (Approx)

NOTES:

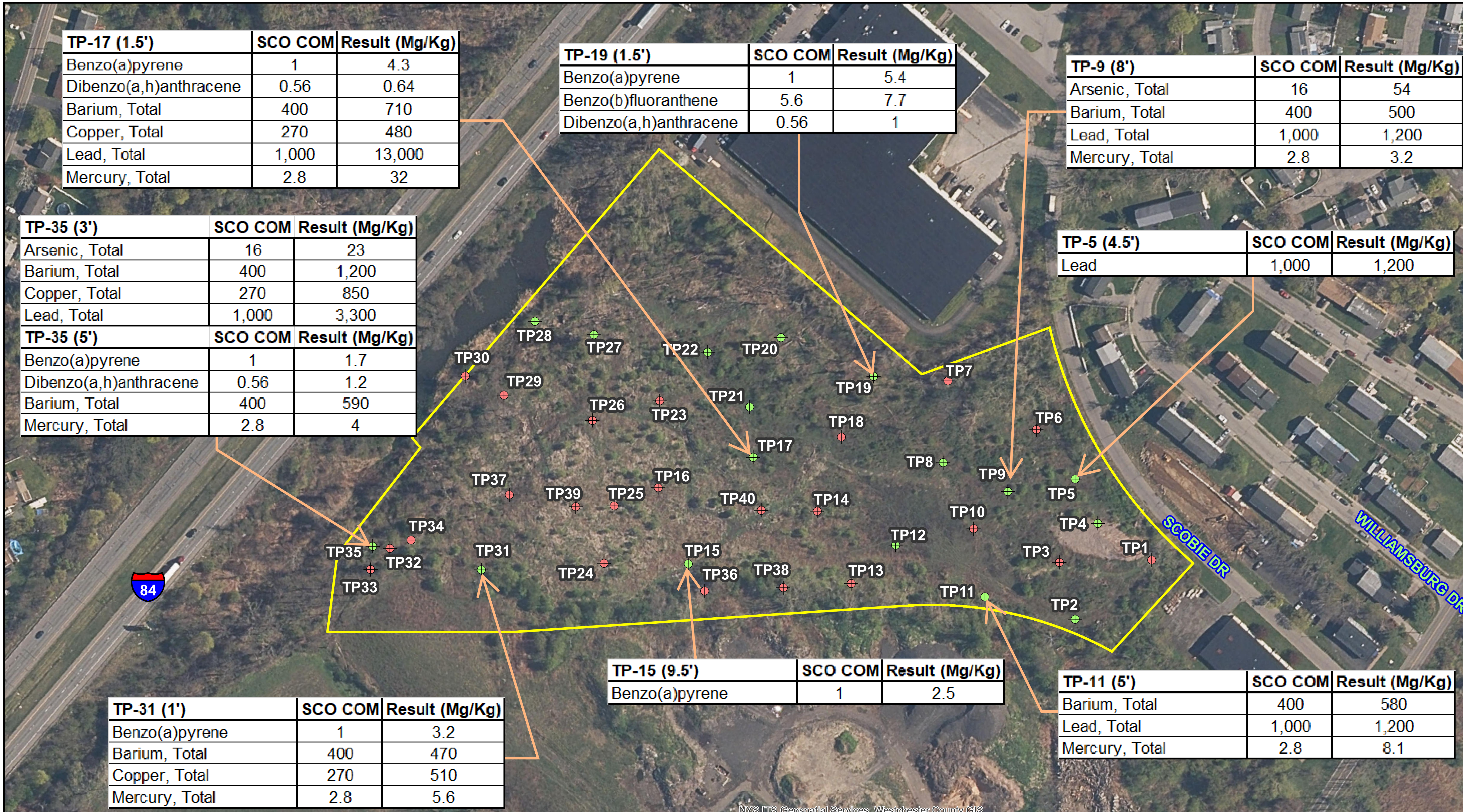
SCO ER: Soil Cleanup Objective Ecological Resources
SCO COM: Soil Cleanup Objective Commercial Use
NY-AWQS: TOGS 1.1.1 Ambient Water Quality Standard
MG/KG: Milligrams per Kilogram or Parts per Million
UG/L: Micrograms per Liter or Parts per Billion

Figure 6 - Surface Soil Parameters Above Commercial Use SCOs

5 Scobie Drive Site

City of Newburgh **Orange County, New York**

C.T. MALE ASSOCIATES
ENGINEERING, SURVEYING, ARCHITECTURE & LANDSCAPE ARCHITECTURE, D.P.C
50 CENTURY HILL DRIVE, LATHAM, NEW YORK 12110
(518) 786-7400 * FAX (518) 786-7299 * WWW.CTMALE.COM
FOUNDED IN 1910



TP-17 (1.5')	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1	4.3
Dibenzo(a,h)anthracene	0.56	0.64
Barium, Total	400	710
Copper, Total	270	480
Lead, Total	1,000	13,000
Mercury, Total	2.8	32

TP-19 (1.5')	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1	5.4
Benzo(b)fluoranthene	5.6	7.7
Dibenzo(a,h)anthracene	0.56	1

TP-9 (8')	SCO COM	Result (Mg/Kg)
Arsenic, Total	16	54
Barium, Total	400	500
Lead, Total	1,000	1,200
Mercury, Total	2.8	3.2

TP-35 (3')	SCO COM	Result (Mg/Kg)
Arsenic, Total	16	23
Barium, Total	400	1,200
Copper, Total	270	850
Lead, Total	1,000	3,300
TP-35 (5')	**SCO COM**	**Result (Mg/Kg)**
Benzo(a)pyrene	1	1.7
Dibenzo(a,h)anthracene	0.56	1.2
Barium, Total	400	590
Mercury, Total	2.8	4

TP-5 (4.5')	SCO COM	Result (Mg/Kg)
Lead	1,000	1,200

TP-15 (9.5')	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1	2.5

TP-11 (5')	SCO COM	Result (Mg/Kg)
Barium, Total	400	580
Lead, Total	1,000	1,200
Mercury, Total	2.8	8.1

TP-31 (1')	SCO COM	Result (Mg/Kg)
Benzo(a)pyrene	1	3.2
Barium, Total	400	470
Copper, Total	270	510
Mercury, Total	2.8	5.6

N E W S

0 150 300 450 FT

1 inch = 150 feet

Project Number: 13.3061
Data Source: NYSGIS Clearinghouse, BING
Projection: State Plane NAD83 NYE (feet)
Date: August 22, 2023
File: Fig8_Parameters_SubsurfaceSoil11x17_BlankMap2023.mxd
GIS: D Landreville
Edits: E White

Legend

TP25 — Approximate Test Pit Location and Number - Sample Not Submitted For Laboratory Analysis

TP12 (11') — Approximate Test Pit Location and Number - Sample Submitted For Laboratory Analysis with Depth at Which Sample was Collected

Property Boundary (Approx)

NOTES:

SCO COM: Soil Cleanup Objective Commercial Use
MG/KG: Milligrams per Kilogram or Parts per Million

Figure 8 - Subsurface Soil Parameters Above Commercial Use SCOs

5 Scobie Drive Site

City of Newburgh **Orange County, New York**

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