



**PERIODIC REVIEW REPORT
(May 15, 2020 – May 15, 2023)**

**TOWN OF RAMAPO LANDFILL SITE
250 TORNE VALLEY ROAD
HILLBURN, ROCKLAND COUNTY, NEW YORK**

NYSDEC SITE NUMBER #344004; USEPA CERCLIS ID NYD000511493

Prepared for:

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and

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June 14, 2023

"Serving our clients and the environment since 1993"

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CERTIFICATION

I, Andrew M. Millspaugh, P.E., certify that I am a New York State registered professional engineer and that this Periodic Review Report (PRR) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in accordance with the DER-approved work plan and any DER-approved modifications.



Andrew M. Millspaugh, P.E.

6/14/2023

Date

EXECUTIVE SUMMARY

The Town of Ramapo Landfill (Landfill), located at 250 Torne Valley Road in the Village of Hillburn, Town of Ramapo, Rockland County, New York (refer to Figure 1), is a Superfund National Priorities List (NPL) site and is regulated by the United States Environmental Protection Agency (USEPA), CERCLIS ID NYD000511493. The Landfill property is also registered as a New York State Class 4 Inactive Hazardous Waste Disposal Site, Registry No. 344004.

The Landfill was placed on the NPL in September 1983. The USEPA issued a Record of Decision (ROD) dated March 31, 1992, which was modified in December 1997 by Explanation of Significant Difference (ESD).

Between 1980 and 1988, the NYSDEC and the Town of Ramapo entered into four (4) Orders on Consent phasing out Landfill operations, constructing a surface water and groundwater diversion system and a leachate collection and transport system, and conducting a Remedial Investigation and Feasibility Study (RI/FS). The leachate collection system was constructed along the downgradient edge of the Landfill from 1984 to 1985. Leachate has been discharged to the Rockland County Sewer District (RCSD) No. 1 Western Ramapo Treatment Plant since 1996.

The selected remedies for the Landfill include Institutional Controls (IC) through a Declaration of Covenants and Restrictions that restricts disturbance of the Landfill cover and places restrictions on site use and offsite groundwater use restrictions, and onsite Engineering Controls (EC) provided by the Landfill cover and leachate collection systems, groundwater containment, fencing and access controls, air and water quality monitoring, and regular inspections and maintenance activities. The Covenant of Restrictions and Environmental Easements were filed with the Rockland County Clerk on August 28, 2012 and October 10, 2012. Post-closure air and water quality monitoring, leachate removal, and inspections and maintenance at the Landfill have been provided by the Town of Ramapo since 1999. A Site Management Plan (SMP) incorporates the Institutional/Engineering Control (IC/EC) Plan, the Inspection and Monitoring Plan, and the Operation and Maintenance Plan to provide for the continual post-closure monitoring and maintenance of the Landfill.

A Periodic Review Report (PRR) is required once every three (3) years with Post Closure Monitoring (PCM) monitoring and reporting occurring every fifth quarter to document site management activities outlined in the SMP. This PRR covers the period of May 15, 2020 to May 15, 2023 and documents the monitoring event conducted May 3 to May 5, 2023. Additional PCM monitoring during this PRR period was conducted on January 18 to January 20, 2022. Results of the event were submitted to the NYSDEC in the PCM report dated March 29, 2022.

The remedial program implemented at the Landfill has been successful in meeting the remedial objectives set forth in the RODs. Leachate generation and contaminant migration through groundwater has reduced. The Landfill cover prevents contamination of surface runoff and direct human/animal contact with waste, and Landfill gas migration/buildup is effectively controlled.

Based on the results the current PCM event, no changes to the approved SMP are recommended. The requirements for discontinuing site management have not been met. As such, continued compliance with the approved SMP is recommended.

1.0 INTRODUCTION

The Town of Ramapo Landfill (Landfill), located at 250 Torne Valley Road in the Village of Hillburn, Town of Ramapo, Rockland County, New York (refer to Figure 1), is a Superfund National Priorities List (NPL) site and is regulated by the United States Environmental Protection Agency (USEPA), CERCLIS ID NYD000511493. The Landfill property is also registered as a New York State Class 4 Inactive Hazardous Waste Disposal Site, Registry No. 344004.

The Landfill was placed on the NPL in September 1983. The USEPA issued a Record of Decision (ROD) dated March 31, 1992, which was modified in December 1997 by Explanation of Significant Difference (ESD).

The Landfill encompasses 86.07 acres owned by the Town of Ramapo and is located east of Torne Valley Road and immediately west/southwest of Baler Boulevard (refer to Figure 2). The Baler Building, which is actively accepting waste, is located on Baler Boulevard and is adjacent to the Landfill to the northeast. The highest elevation is located on the easternmost edge of the site, and the Landfill slopes downward in a westerly direction towards Torne Brook. The lowest elevation is located along the southwestern edge of the site. Stone and concrete drainage ditches are present along the perimeter of the Landfill. Several stone drainage channels and swales are connected to four (4) main stone drainage downchutes that drain into the western perimeter drainage ditch of the Landfill. The site is covered with suitable shallow rooted vegetation with no evidence of erosion. The Landfill is surrounded by perimeter fencing and can only be accessed through an access gate at the northeast edge of the Landfill adjacent to Baler Boulevard.

The Landfill stages compost windrows on the east edge of the property and contains a shooting range for the Town of Ramapo Police Department. The Landfill is mowed regularly to prevent deep rooted vegetation that may damage the cover; however, portions of the Landfill are not mowed due to the presence of Timber Rattlesnake habitats.

A Periodic Review Report (PRR) is required once every three (3) years with Post Closure Monitoring (PCM) monitoring and reporting occurring every 5th quarter to document site management activities outlined in the SMP. This PRR covers the period of May 15, 2020 to May 15, 2023 and documents the monitoring event conducted May 3 to May 5, 2023. Additional PCM monitoring during this PRR period was conducted on January 18 to January 20, 2022. Results of the event were submitted to the NYSDEC in the PCM report dated March 29, 2022.

1.1 Summary of Site History

The Landfill is located at the western base of the Ramapo Mountains on Torne Valley Road and consists of two major lobes commonly known as the north and south lobes. Landfill slopes range from three (3) to thirty-three (33) percent. Property features are presented in Figure 2.

Prior to landfilling operations in the 1950s and 1960s, portions of the property were excavated for gravel. In 1971, the Town was permitted by the Rockland County Department of Health (RCDOH) to operate a sanitary landfill. Under various operators, municipal solid waste (MSW) was accepted until 1984, and construction and demolition (C&D) debris was accepted until 1989. Substances reportedly disposed at the Landfill include industrial and sewer sludge, municipal refuse, asbestos, C&D debris, yard debris, paint sludge (presumably from an automotive plant), and liquid waste (reportedly from a paper company).

The Landfill was placed on the NPL in September 1983. Between 1980 and 1988, the NYSDEC and the Town of Ramapo entered into four (4) Orders on Consent phasing out Landfill operations, constructing a

surface water and groundwater diversion system and a leachate collection and transport system, and conducting a Remedial Investigation and Feasibility Study (RI/FS). The leachate collection system was constructed along the downgradient edge of the Landfill from 1984 to 1985. Initially, collected leachate was conveyed by pumps and lift stations to a wastewater treatment pond in the southwest corner of the Landfill property. After aeration and settling, treated water was discharged to the Ramapo River. Since 1996, leachate has been discharged to the Rockland County Sewer District (RCSD) No. 1 Western Ramapo Treatment Plant.

In 1998, the Town of Ramapo subdivided the sections of the Landfill property used for the transfer facility, scale house, and leachate storage tank. The transfer facility and scale house properties were sold to the Rockland County Solid Waste Management Authority (RCSWMA) and the leachate storage tank property was sold to the RCSD.

The selected remedies for the Landfill include Institutional Controls (IC) through a Declaration of Covenants and Restrictions that restricts disturbance of the Landfill cover and places restrictions on site use and offsite groundwater use restrictions, and onsite Engineering Controls (EC) provided by the Landfill cover and leachate collection systems, groundwater containment, fencing and access controls, air and water quality monitoring, and regular inspections and maintenance activities. The Covenant of Restrictions and Environmental Easements were filed with the Rockland County Clerk on August 28, 2012 and October 10, 2012. Post-closure water and air quality monitoring, leachate removal, and inspections and maintenance at the Landfill have been provided by the Town of Ramapo since 1999. An existing SMP incorporates the Institutional/Engineering Control (IC/EC) Plan, the Inspection and Monitoring Plan, and the Operation and Maintenance Plan to provide for the continual post-closure monitoring and maintenance of the Landfill.

1.2 Effectiveness of the Remedial Program and Compliance

The remedial program implemented at the Landfill has been successful in meeting the remedial objectives set forth in the RODs. Leachate generation and contaminant migration through groundwater has reduced. The Landfill cover prevents contamination of surface runoff, prevents direct human/animal contact with waste, and effectively controls Landfill gas migration/buildup.

1.3 Recommendations

Based on the results of activities performed from May 15, 2020 to May 15, 2023, no changes to the approved SMP are recommended. The requirements for discontinuing site management have not been met.

2.0 OVERVIEW

The following information was collected in support of the Landfill PRR activities:

- A Landfill inspection was performed by Sterling Environmental Engineering, P.C. (STERLING) on May 5, 2023. Site Location and Property Features Maps are provided as Figures 1 and 2. The 2023 Landfill inspection documents the physical integrity and stability of the Landfill cover system and assesses the condition and capability of existing surface water drainage and erosion control features. An Inspection Checklist and Institutional and Engineering Control Evaluation Form is provided in Appendix A. The NYSDEC Institutional and Engineering Controls Certification Form is provided in Appendix B. A photograph log documenting observations during the Annual Landfill inspection is provided in Appendix C.
- The 2023 air quality monitoring event was conducted May 3 to May 5, 2023. Air monitoring locations are shown on Figure 3 and results are summarized on Table 1.

- Groundwater samples were collected from monitoring wells 1-OS, 2-OS, 3-OS/I, 4-OS, 7-OS, 8-OS, 8-I, 8-R, 9-OS, 9-I, 9-R, 10-OS, 10-I, 10-R, UP-OS, UP-I, UP-R, private water supply wells PW-1 and PW-2, and public water supply wells SVWC-93, SVWC-94, SVWC-95, and SVWC-96. Well locations are shown on Figure 3. The groundwater samples were analyzed for parameters listed in Table 2. A summary of field parameter measurements and analytical results for each well is summarized in Tables 3, 4, and 5. Analytical laboratory reports are provided in Appendix D. In addition, static water level readings were obtained at all of the sampled monitoring wells and monitoring wells 1-I, 1-R, 2I, 2-R, 3-R, 4-I, 4-R, 5-OS, 5-I, 5-R, 6-I, 6-R, 7-I, and 7-R.
- In accordance with the NYSDEC letter dated June 12, 2019 requesting that select groundwater samples be analyzed for additional emerging contaminants (per- and polyfluoroalkyl substances (PFAS) & 1,4-Dioxane), additional samples were collected from the upgradient monitoring well cluster (UP-OS, UP-I, and UP-R), the two (2) most downgradient sentinel well clusters (9-OS, 9-I, 9-R and 10-OS, 10-I, and 10-R), and two (2) of the public water supply wells (SVWC-94 and SVWC-95). The subject groundwater samples were collected during the PCM groundwater monitoring event.
- Historical data for select parameters (aluminum, beryllium, cadmium, copper, antimony, arsenic, chromium, iron, lead, magnesium, manganese, nickel, sodium, and thallium) requested by the NYSDEC and USEPA are provided in Tables 6 through 19.
- Reported discharge volumes pumped from the groundwater/leachate collection system and extraction wells, located on the downgradient side of the Landfill, to the RCSD No. 1 Western Ramapo Treatment Plant were provided by the Town of Ramapo and are included in Table 20.
- Analytical results from 2009 through the 2023 sampling event for leachate/groundwater pumped to the Western Ramapo Treatment Plant are summarized in Table 21, and analytical reports are provided in Appendix E.

3.0 PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

The Landfill has been subject to a SMP since March 1999. The SMP provides for regular site inspections, air, groundwater, and leachate monitoring, leachate collection and management, mowing, and Landfill gas management.

3.1 Air Quality

Air quality monitoring consisted of measuring concentrations of explosive gas (measured in percent of lower explosive limit (%LEL)), hydrogen sulfide (H₂S), and volatile organic compounds (VOC) in the headspace of each monitoring well, leachate manhole A-5, lift stations A-10 and W-20, and within the ambient breathing zone inside the Baler Building and along the Landfill perimeter at designated locations shown on Figure 3. Air quality monitoring results are summarized in Table 1. Explosive gas, H₂S, and VOC measurements were obtained with a QRAE multi-gas monitor equipped with a photoionization detector (PID). The presence of VOCs, H₂S, and explosive gas were not detected at any of the sampling locations (Table 1). The air quality monitoring survey for explosive gas, H₂S, and VOCs indicated the Landfill is in compliance with the requirements set forth in 6 NYCRR 360-2.15(k)(4) and 2.17(f) (effective prior to November 4, 2017).

3.2 Groundwater Monitoring

3.2.1 Groundwater Flow

Depth to water measurements were obtained at or near the Landfill perimeter to determine groundwater elevations in the shallow overburden and bedrock aquifer systems. Groundwater flow direction in the overburden aquifer is to the northwest and/or west towards Torne Brook (Figure 5). Groundwater flow direction in the bedrock aquifer is similar (Figure 6). Groundwater gradients are similar in both aquifer systems and downward vertical gradients are noted throughout the Landfill perimeter well pairs 1-OS/1-R, 1-I/1-R, 2-OS/2-I, 4-OS/1-I, 4-OS/4-R, 5-OS/5-I, 5-OS/5-R, 6-I/6-R, 7-OS/7-I, 7-OS/7-R, 8-OS/8-I, 9-OS/9-I, 9-OS/9-R, 9-I/9-R and UP-OS/UP-I. All other monitoring well clusters and pairs display a slight to moderately upward vertical gradient. These vertical gradients are consistent with historical trends.

3.2.2 Groundwater Analytical Results

All samples were analyzed by Alpha Analytical, located in Westborough, Massachusetts, following established methodologies and protocols. A copy of the analytical reports, prepared in accordance with NYSDEC Analytical Services Protocol (ASP) Category A reporting requirements, are provided in Appendix D.

Static water level and water quality field parameters (temperature, specific conductivity, pH, and oxidation-reduction potential (ORP)) were measured in the field and are presented on Table 3. The summary of the May 2023 groundwater analytical results are provided on Tables 4 and 5. A duplicate sample was collected from bedrock monitoring well 10-I and is labeled as “DUP05032023”.

Analytical results for monitoring well samples are compared to the NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1), Ambient Water Quality Standards and Guidance Values (June 2004). No site-related VOCs were detected at any of the shallow overburden monitoring wells (UP-OS, 1-OS, 2-OS, 3-OS/I, 4-OS, 7-OS, 8-OS, 9-OS, and 10-OS), intermediate overburden monitoring wells (UP-I, 3-OS/I, 8-I, 9-I, and 10-I) or bedrock monitoring wells (8-R, 9-R, and 10-R). Analytical results for the drinking water supply well samples indicate that there are no reported USEPA MCL and NYSDOH Part 5 exceedances at the public water supply wells or private drinking water supply wells.

TOGS 1.1.1 exceedances were observed at six (6) shallow overburden monitoring wells (UP-OS, 1-OS, 2-OS, 3-OS/I, 4-OS, and 8-OS), three (3) intermediate overburden monitoring wells (UP-I, 3-OS/I and 8-I), and two (2) downgradient bedrock monitoring wells (8-R and 9-R). A detailed summary of reported parameter exceedances is provided below.

Reported concentrations for the following parameters exceed the applicable water quality standard:

Parameter Exceeding Water Quality Standard (TOGS 1.1.1)	Chromium	Iron	Magnesium	Manganese	Nickel	Sodium
NYS Groundwater Standard	0.05	0.3**	35	0.3**	0.1	20
UP-OS	--	1.62	--	0.02715	--	--
UP-I	0.05443	2.22	--	0.03364	0.108	--
1-OS	--	0.377	--	0.89	--	69.7
2-OS	--	--	--	--	--	32.9
3-OS/I	0.08466	0.409	--	--	--	35.4
4-OS	--	0.765	--	0.0381	--	84.9
8-OS	0.07087	5.04	--	0.01707	--	--
8-I	--	5.1	--	2.557	--	56.8
8-R	--	0.345	36.9	2.294	--	45.7
9-R	--	5.62	--	3.85	--	58.1

All units are in mg/L

-- = parameter did not exceed applicable standard

** = The standard for the sum of iron and manganese is 0.5 mg/L.

3.2.3 Concentration vs. Time Trends

Historical data summary tables are provided in Tables 6 through 19 for select inorganic parameters (aluminum, antimony, arsenic, beryllium, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel, sodium, and thallium) that have exceeded water quality standards or guidance values. Concentration versus time plots are also provided in Tables 6 through 19 to enable data trend analysis. The concentration trends over time for parameters with TOGS exceedances reported for this event are presented in plots shown in Tables 12, 13, 15, 16, 17, and 18 and are summarized below:

Chromium (Table 12)

The following monitoring wells exceeded the TOGS 1.1.1 standard for chromium (0.05 mg/L): UP-I, 3-OS/I, and 8-OS.

Monitoring wells 3-OS/I, 4-OS, and 8-OS show data trendlines that are generally consistent with a slight apparent increasing trend. The May 3, 2023 sample collected from UP-I reported a chromium exceedance for the first time at this well.

Iron (Table 13)

The following monitoring wells exceeded the TOGS 1.1.1 standard for iron (0.3 mg/L): UP-OS, UP-I, 1-OS, 3-OS/I, 4-OS, 8-OS, 8-I, 8-R, and 9-R.

Monitoring wells 3-OS/I and 9-R show stable conditions over time. The following monitoring wells show a decreasing trend over time: 1-OS, 4-OS, 8-OS, 8-I, and 8-R.

Magnesium (Table 15)

Monitoring well 8-R exceeded the TOGS 1.1.1 standard for magnesium (35 mg/L). The magnesium concentration in well 8-R is slightly increasing over time.

Manganese (Table 16)

The following monitoring wells exceeded the TOGS 1.1.1 standard for manganese (0.3 mg/L): UP-OS, UP-I, 1-OS, 4-OS, 8-OS, 8-I, 8-R, and 9-R. Monitoring well 8-R shows a decreasing trend over time, although concentrations have fluctuated since 2016. Manganese in groundwater at monitoring well 8-I displays a slight increasing trend. Manganese in groundwater at 1-OS, 4-OS, and 8-OS shows a decreasing trend while monitoring well 9-R is generally stable.

Nickel (Table 17)

The following monitoring wells exceeded the TOGS 1.1.1 standard for nickel (0.1 mg/L): UP-I. This is the second exceedance for nickel at upgradient monitoring well UP-I since the well was installed in 2016.

Sodium (Table 18)

The following monitoring wells exceeded the TOGS 1.1.1 standard for sodium (20 mg/L): 1-OS, 2-OS, 3-OS/I, 4-OS, 8-I, 8-R, and 9-R. The following monitoring wells show an increasing trend over time: 1-OS, 2-OS, 3-OS/I, 4-OS, 8-OS, 8-I, and 9-R. Monitoring well 8-R shows a decreasing trend over time for sodium.

There are no NYSDOH drinking water quality standard or designated limits for sodium. Water containing more than 20 mg/L of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets. The onsite and offsite monitoring wells are not used as a drinking water supply source.

Sodium is included on the USEPA's Drinking Water Contaminant Candidate List (CCL). The CCL is a list of contaminants which, at the time of publication, are not subject to any proposed or promulgated National Primary Drinking Water Regulation (NPDWR), are known or anticipated to occur in public water systems, and may require regulations under the Safe Drinking Water Act (SDWA).

3.2.4 Offsite Private Drinking Water Supplies / Offsite Public Water Supplies

Groundwater from PW-1 and PW-2 is used as a private drinking water supply, and groundwater from SVWC-93, SVWC-94, SVWC-95, and SVWC-96 are used as a public water supply. Analytical results for these private and municipal drinking water supply wells are compared to the NYSDOH 10 NYCRR Part 5 MCLs and the USEPA MCLs for Primary Drinking Water Regulations. No exceedances of NYSDOH or USEPA MCLs were noted at the private water supply wells or public water supply wells (refer to Table 5 and Appendix D).

The sodium results at the private water supply wells are below the Applicable or Relevant and Appropriate Requirements (ARAR) standard of 20 mg/L while sodium results for the public water supply wells SVWC-93, SVWC-94, SVWC-95, and SVWC-96 exceed 20 mg/L. The public water supply wells have historically exceeded the ARAR for sodium and are increasing over time.

3.2.5 Emerging Contaminants in Select Onsite and Offsite Groundwater Samples

1,4-Dioxane

Groundwater samples were collected for 1,4-Dioxane analysis from nine (9) monitoring wells (UP-OS, UP-I, UP-R, 9-OS, 9-I, 9-R, 10-OS, 10-I, and 10-R) and two (2) public water supply wells (SVWC-94 and SVWC-95). The NYSDEC emerging contaminant screening level for 1,4-Dioxane in groundwater is 1.0 µg/L. On August 26, 2020, NYS adopted new drinking water standards for Public Water Supplies that set a MCL for 1,4-Dioxane of 1 part per billion (1 ppb or 1 µg/L). 1,4-Dioxane was not detected above the laboratory method detection limit (MDL) in groundwater samples collected from monitoring wells UP-OS, UP-I, UP-R, 9-OS, 9-I, 10-OS, 10-I, and 10-R. 1,4-Dioxane was detected below the MCL at public water supply well SVWC-94 (Table 5), and above the NYSDEC screening level in the groundwater sampled from monitoring well 9-R (Table 4).

Per and Polyfluoroalkyl Substances (PFAS)

Groundwater samples were collected for PFAS compound analysis from nine (9) monitoring wells UP-OS, UP-I, UP-R, 9-OS, 9-I, 9-R, 10-OS, 10-I, and 10-R and two (2) public water supply wells (SVWC-94 and SVWC-95). On August 26, 2020, NYS adopted new drinking water standards for Public Water Supplies that set a MCL of 10 parts per trillion (10 ppt or 10 nanograms per liter (ng/L)) each for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). The groundwater sampled from onsite and offsite monitoring wells, as part of the groundwater monitoring program, is not used as a drinking water supply source. Results for PFAS compounds in groundwater are provided in Tables 4 and 5. Concentrations of PFAS compound did not exceed the NYSDEC Screening Level at any of the groundwater monitoring wells. The NYSDOH MCL for PFOA in drinking water and PFOS in drinking water were not exceeded at public water supply wells SVWC-94 and SVWC-95.

Data Validation

A Data Usability Summary Report (DUSR) was prepared by a certified Data Validator (Donald Anné of Alpha Geoscience) for emerging contaminants 1,4-Dioxane and PFAS. The DUSR is provided in Appendix F. The DUSR indicates that analytical data were generally acceptable and usable with no data qualified as rejected.

3.3 Leachate Quality

The May 19, 2022, August 24, 2022, October 12, 2022, and April 13, 2023 analytical results for leachate/groundwater are summarized in Table 21 and are generally consistent with previous results. Leachate water quality is characterized by detectable to elevated concentrations of leachate indicators such as ammonia, COD, chloride, hardness, nitrate, sulfate, TDS, and TKN and inorganic parameters, including boron, cadmium, copper, manganese, nickel and zinc. Inorganic parameters that were not detected include antimony, arsenic, beryllium, cadmium, chromium, lead, mercury, molybdenum, selenium, silver, and thallium.

3.4 Town of Ramapo Police Department Shooting Range Sampling

The Town of Ramapo Police Department is located along the western perimeter of the Landfill. The shooting range contains a lead capture system consisting of a compacted soil backstop and sand-filled impact berm. The base of the backstop consists of a limestone gravel subbase covered with geo-fabric. Drainage from below the shooting range is collected within perforated pipe and is conveyed to the east

through a corrugated pipe along the southern side berm of the shooting range. Drainage water exits the shooting range drainage system and is discharged directly into the Landfill stormwater drainage system. The Third USEPA Five-Year Review Report, dated December 2009, identified the shooting range as a potential lead source that could impact human health and the environment. Subsequent PCM monitoring events inspected the stormwater drainage system in an attempt to collect a water sample; however, the drainage was repeatedly dry with no discharge.

During the 2023 PCM event, stormwater was discharging from the drainage system, and one (1) water sample (RPD RANGE) was collected on May 5, 2023 and analyzed for total lead. The concentration of total lead was 0.001 mg/l which is below the TOGS 1.1.1 standard of 0.025 mg/L. The analytical laboratory report for the shooting range water sample is provided in Appendix D.

4.0 INSTITUTIONAL/ENGINEERING CONTROL PLAN COMPLIANCE

The multiple institutional and engineering controls for the Landfill implemented by the RODs and documented in the SMP continue to be in place and performing as designed. These controls were reviewed and evaluated through this PCM event.

4.1 Institutional Controls

Institutional Controls (IC) include restrictions on the use of real property that limits human and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of the remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to the Landfill property.

ICs may include, but are not limited to environmental easements, deed restrictions, discharge permits, site security (other than fencing), local permits, Orders on Consent/decrees, zoning restrictions, hazardous waste site registry, deed notice, groundwater use restrictions, condemnation of property, and public health advisories.

The Covenant of Restrictions and Environmental Easements were filed with the Rockland County Clerk on August 28, 2012 and October 10, 2012. The Environmental Easements stay with the property in perpetuity to provide an effective and enforceable means of encouraging the reuse and redevelopment of the property in a manner determined to be safe for a specific use, while ensuring the performance of operation, maintenance, and/or monitoring requirements, and to ensure the potential restriction of future uses of the land that are consistent with the ROD.

The following restrictions apply to the Landfill property (Parcel 39.19-1-3):

- There shall be no construction, use, or occupancy that results in a disturbance or excavation that threatens the integrity of the engineering controls (EC) described in Section 4.2, or which results in unacceptable human exposure to contaminated soils.
- The Owner shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of ECs described in Section 4.2 unless a written waiver is obtained from the USEPA and NYSDEC for each occasion.
- The Owner shall prohibit land use from ever being used for purposes other than commercial/industrial use without the express written waiver by the USEPA and NYSDEC.

- The Owner shall prohibit the use of underlying groundwater, without rendering it safe for drinking water or industrial purposes, as appropriate, unless the user first obtains permission to do so from the USEPA and NYSDEC. This restriction also applies to Parcel 39.19-1-3.1, owned by RCSD No. 1, and Parcels 39.19-1-4 and 39.19-1-5, owned by RCSWMA.
- The Owner shall provide an annual certification (see Section 2.3 of the SMP) prepared by a Professional Engineer or environmental professional acceptable to the USEPA and NYSDEC. The certification will document in-place ICs and ECs are unchanged from the previous certification, comply with the current SMP, and have not been impaired.
- The Owner shall continue to implement and maintain the ICs and ECs identified in the SMP unless permission to discontinue such controls is granted from the USEPA and NYSDEC. This requirement also applies to Parcel 39.19-1-3.1, owned by RCSD No. 1, and Parcels 39.19-1-4 and 39.19-1-5, owned by RCSWMA.
- All ICs and ECs shall be binding for present and all future owners. Any conveyance of the Landfill property or portions of the Landfill property are subject to the ICs and ECs.

4.2 Engineering Controls

Engineering Controls (EC) may include physical barriers or methods to actively or passively contain, stabilize, or monitor contamination, restrict the movement of contamination to ensure the long-term effectiveness of the remedial program, or eliminate potential exposure pathways to contamination.

The ECs for the Ramapo Landfill to control the source of contamination and the generation of contaminated leachate include:

- A Landfill cover consisting of layers of fill material, gas venting system, an impermeable membrane, and protective soil cover.
- Active groundwater extraction wells to supplement the existing leachate collection system (Figure 7).
- Leachate collection system for offsite treatment.
- Drainage swales to collect and divert surface water runoff downgradient of sections of the impermeable membrane installed on the Landfill slopes (Figure 4).
- Site security fencing to reduce trespassers on the Landfill property.

4.2.1 Landfill Cover System

Major components of the final cover system are a geomembrane barrier, secondary cushion geotextile, barrier protection soil layer, and a topsoil layer with vegetation.

The geomembrane barrier overlies the secondary cushion geotextile layer, which overlies the prepared existing subgrade, thereby covering the existing refuse mass and residual contaminated soil. The geomembrane barrier is overlain by another secondary cushion geotextile and a layer of 12 inches of low permeability barrier protection soil. The barrier protection soil layer is overlain by a 6-inch topsoil layer and seeded to minimize soil loss. The Landfill slopes are graded to provide proper drainage with slopes ranging from 3 to 33%.

Installation of the Landfill cover system minimizes infiltration of precipitation to wastes and the resultant generation of leachate and prevents the release of previously disposed wastes. The cover system is regularly inspected by the Town of Ramapo to evaluate its performance and assess the following physical condition elements: settlement and erosion of Landfill cover, vegetative growth, slope stability, damage due to presence of vector populations over or near Landfill cover (i.e., burrow holes), monitoring well and Landfill gas vent integrity, presence or absence of leachate outbreaks, surface water drainage structures, site fencing, gates, and access roads, and evidence of trespassing.

A completed Inspection Checklist and Institutional and Engineering Control Evaluation Form from the annual site inspection completed on May 5, 2023 is provided in Appendix A. The Landfill cover was observed to be in good condition with no evidence of surface water ponding, leachate discharges, or iron-stained soils. The Landfill appears secure, stable, and the Landfill cover was observed to be well maintained and remains in good condition. No evidence of settlement, erosion, or damage due to active vector populations was observed and the overall physical integrity of the Landfill is in good condition.

The stormwater drainage system appeared to be functioning as designed. Only minor vegetation was observed in the landfill drainage features that should be removed to prevent becoming overgrown.

Three (3) damaged gas vents and two (2) angled gas vents (Figure 7 and Photographs 4, 5, 7, 8, and 10, Appendix C) were observed across the Landfill. The subject gas vents should be repaired as part of standard maintenance as described in the SMP. The concrete collar for the manhole cover at MH E-6 is damaged (Figure 7 and Photograph 2, Appendix C). Although the manhole was functioning as designed, the concrete collar should be repaired. No additional actions or special maintenance is required for the Landfill cover system at this time beyond the regular ongoing post-closure care.

4.2.2 Leachate Collection System

All leachate collected from the leachate collection system flows by gravity to the adjacent RCSD No. 1 pump station and then the leachate/groundwater is pumped to the Western Ramapo Sewage Treatment Plant. The leachate collection/transfer system is designed and constructed to operate automatically. Extraction well and lift station locations are provided in Figure 7.

Individual pump controls are as follows:

1. Extraction Wells - Water Level Sensors
2. Lift Station and Pump Pit Pumps - Floats with mercury switches sensing actual water levels.

4.2.3 Groundwater Extraction Wells

The groundwater extraction wells are pumped to contain the contaminant plume that migrates from the Landfill. The groundwater extraction wells are located on the western side of the Landfill along Torne Valley Road between monitoring well clusters MW-3 and MW-8. The layout of the extraction well system is approximately 700 feet in length. Three (3) extraction wells (W-5, W-6, and W-7) are approximately 20 feet deep and screened in dense sand and partially into the upper two (2) feet of bedrock. The remaining extraction wells (W-1, W-2, W-3, and W-4) are deeper, ranging from 30 to 44 feet in depth and are screened in dense sand and partially into upper ten feet of bedrock (see Figure 7 for locations).

The Town hired a consultant, Roberge Electric (Roberge), to install a flow meter on Extraction Well W-3 to serve as a prototype. Installation was completed at the end of May 2016. After evaluation, the flow meter performance was determined to be satisfactory, and the Town contracted with Roberge to equip the

remaining extraction wells with similar flow meters. Roberge completed installation of six (6) flow meters at lift station A-7 and W-20 and extraction wells W-1, W-2, W-4, and W-7 in mid-November 2016. Installation of flow meters at extraction wells W-5 and W-6 were installed in May 2017.

Annual leachate/groundwater volumes pumped from the Landfill to the Western Ramapo Sewage Treatment Plant between 1995 and 2023 are summarized in Table 20. The total leachate/groundwater removed from the Landfill during 2022 was 14,916,500 gallons. The total leachate/groundwater removed from the Landfill from January 1 through April 30, 2023 was 5,235,368 gallons. Removed leachate/groundwater was directed through a force main to the Western Ramapo Sewage Treatment Plant for treatment. For comparison, the volume of leachate/groundwater discharged to the Western Ramapo Sewage Treatment Plant between 1995 and 2022 has averaged 14,901,258 gallons per year.

The Fifth USEPA Five-Year Review Report for the Ramapo Landfill Superfund Site (February 21, 2020) identified that the extraction well capture efficiency cannot be determined based on fluctuating iron and manganese levels in multiple downgradient wells and downgradient exceedances of chromium. USEPA requested a Capture Zone Analysis to determine the source of the exceedances (i.e., Landfill versus naturally occurring background conditions) and assist in determining capture efficiency of the leachate collection system. The leachate collection system is currently being evaluated in accordance with a Capture Zone Analysis Work Plan dated November 29, 2022.

4.2.4 Surface Water Runoff Features and Drainage Swales

Surface water runoff features are located on and around the Landfill property (Figure 4). Terraces and riprap downchutes on the Landfill waste mass direct stormwater runoff to the Landfill perimeter drainage ditches successfully preventing the occurrence of standing water on the Landfill. The surface water runoff is directed into perimeter drainage ditches into drainage basins to reduce particulates and sediment before it ultimately enters into the Torne Brook. These surface water runoff features are checked routinely by the Town of Ramapo for sediment buildup, overgrowth of vegetation, overflow of drainage ditches or basins, improper drainage of terraces and downchutes, and sloughing of the Landfill cover. Based on the observed conditions during the Annual Landfill Site Inspection, no corrective measures are needed for the surface water management features.

Drainage swales collect diverted surface water runoff (Figure 4). Two (2) swales are located on the north lobe and two (2) swales are located on the south lobe of the Landfill. These swales divert runoff into wetlands, a retention pond, and Torne Brook.

4.2.5 Groundwater Monitoring Wells

Existing groundwater monitoring wells are located along the upgradient, crossgradient, and downgradient perimeter of the Landfill waste mass. The wells are used to monitor groundwater quality around the Landfill property. Monitoring wells are routinely checked for sediment buildup using depth to bottom measurements and the integrity of the outer casing, lid, and lock. These monitoring wells are sampled every fifth quarter for 6 NYCRR Part 360 Modified Baseline Parameters for indication of contamination by the Landfill waste mass.

Overall, the monitoring well network is functioning as designed and the Town of Ramapo will continue the approved monitoring program.

4.3 IC/EC Certification

As required by DER-10, Section 6.3(a), the completed and signed NYSDEC IE/EC Certification Form is provided as Appendix B. All ICs/ECs are in place and functioning as designed. The leachate collection system is currently being evaluated in accordance with a Capture Zone Analysis Work Plan dated November 29, 2022.

5.0 MONITORING PLAN COMPLIANCE

The Landfill was granted a post-closure monitoring variance by the NYSDEC on October 27, 2003, reducing the monitoring frequency to once every fifth quarter. Monitoring includes collection of groundwater and leachate samples for analysis of 6 NYCRR Part 360 Modified Baseline parameters, as well as water level measurements from select monitoring wells and air quality monitoring. Monitoring wells and sample locations are shown on Figure 3. The following sections describe the monitoring requirements for air, groundwater, and leachate quality.

5.1 Air Quality Monitoring

Air quality monitoring includes field measurements of explosive gas, H₂S, and VOC concentrations in the headspaces of each monitoring well, leachate manhole A-5, lift stations A-10 and W-20, and ambient breathing space at the Baler Building and along the Landfill perimeter at designated locations (Figure 3). Results of the air quality monitoring are described in Section 3.1.

The air quality monitoring program meets the remedial objectives to evaluate the effectiveness of the selected remedy by providing a direct means to determine if Landfill gases are prevented from migration and buildup. The Town of Ramapo will continue air quality monitoring according to the approved SMP.

5.2 Groundwater Monitoring

The current groundwater monitoring program consists of sampling eight (8) “OS” monitoring wells, one (1) OS/I monitoring well, three (3) downgradient “I” monitoring wells, three (3) downgradient “R” monitoring wells, two (2) private water supply wells, and four (4) public municipal water supply wells. A monitoring well cluster (UP-OS, UP-I, and UP-R) was installed in 2016 to determine natural upgradient groundwater conditions. Static depth to water measurements are collected from locations shown on Figure 3 to determine groundwater flow patterns.

Overall, the groundwater monitoring program meets the remedial objectives by providing suitable means to determine the effectiveness of the selected remedy. The Town of Ramapo will continue groundwater monitoring according to the approved SMP.

5.3 Leachate Monitoring

Through June 2011, leachate and groundwater from the Landfill extraction well network were pumped to the Rockland County Sewer Treatment Plant located at 4 Route 340, Orangeburg, New York. Starting in June 2011, leachate/groundwater collected by the Landfill extraction wells has been pumped to the RCSD No. 1 Western Ramapo Treatment Plant in Hillburn, New York. Analytical testing of the Landfill leachate/groundwater occurs on a biannual basis from a manhole located upstream of the discharge to the leachate wet well.

Analytical results from August 20, 2009 through April 13, 2023 are summarized in Table 21. Reported parameter concentrations are compared with Maximum Concentration Limits set by RCSD No. 1 Western Ramapo Treatment Plant. There are no limit exceedances for any of the listed parameters between August 20, 2009 through April 13, 2023.

Leachate/groundwater extracted from the Landfill and discharged to the RCSD No. 1 Western Ramapo Treatment Plant meets the industrial permit requirements for samples collected from August 20, 2009 through April 13, 2023. Sampling of the discharge from the Landfill will continue on a semi-annual basis.

6.0 OPERATION AND MAINTENANCE PLAN COMPLIANCE

The Operation and Maintenance (O&M) Plan for the Landfill, outlined in the SMP, consists of the following components:

- Repair, if necessary, of the Landfill cover system in accordance with approved specification materials and methods.
- Annual mowing of the vegetated cover system.
- Investigation of landfill cover system for evidence of sloughing, cracks, settlement, erosion and deposition, stressed vegetation, and undesirable vegetation.
- Vector control.
- Integrity assessment of the gas venting system.
- Investigation of gas odors.
- Snow plowing and upkeep of the perimeter access road.
- Collection, removal, and disposal of leachate.
- Preventative maintenance of leachate pumps.
- Repair or replacement, if necessary, of monitoring wells.
- Annual or more frequent clearing of drainage swales, ditches, and downchutes.

Through May 15, 2023, the following O&M activities were performed:

- Routine and annual inspections of the Landfill cover system, surface water drainage features, monitoring wells, leachate collection system, and the Landfill property.
- Mowing of the Landfill cover system.
- Regular leachate removal from onsite extraction wells for treatment at RCSD No. 1.
- Integrity assessment of the monitoring network.
- Air, groundwater, and leachate quality monitoring.

Operation and maintenance of the property continues to protect human health and the overall integrity of the Landfill. There were minor deficiencies requiring attention as indicated in the Landfill Inspection Form in Appendix A. The components of the remedy subject to O&M requirements (Landfill cover, gas venting, leachate collection, and surface water management) are functioning as designed. Regular inspections performed by Town of Ramapo personnel continue to show compliance with the remedy determined for the Landfill.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The Landfill continues to comply with the required activities set forth in the SMP for this reporting period. The ICs and ECs implemented at the site continue to function as designed. The environmental monitoring plan for the Landfill is ongoing and remains in accordance with the approved variance granted by the NYSDEC in 2003. The Town of Ramapo will continue to perform regular inspections to maintain the integrity of the Landfill and surrounding property to protect human health and the environment.

The following conclusions are made based on observations and analytical results collected during the reporting period:

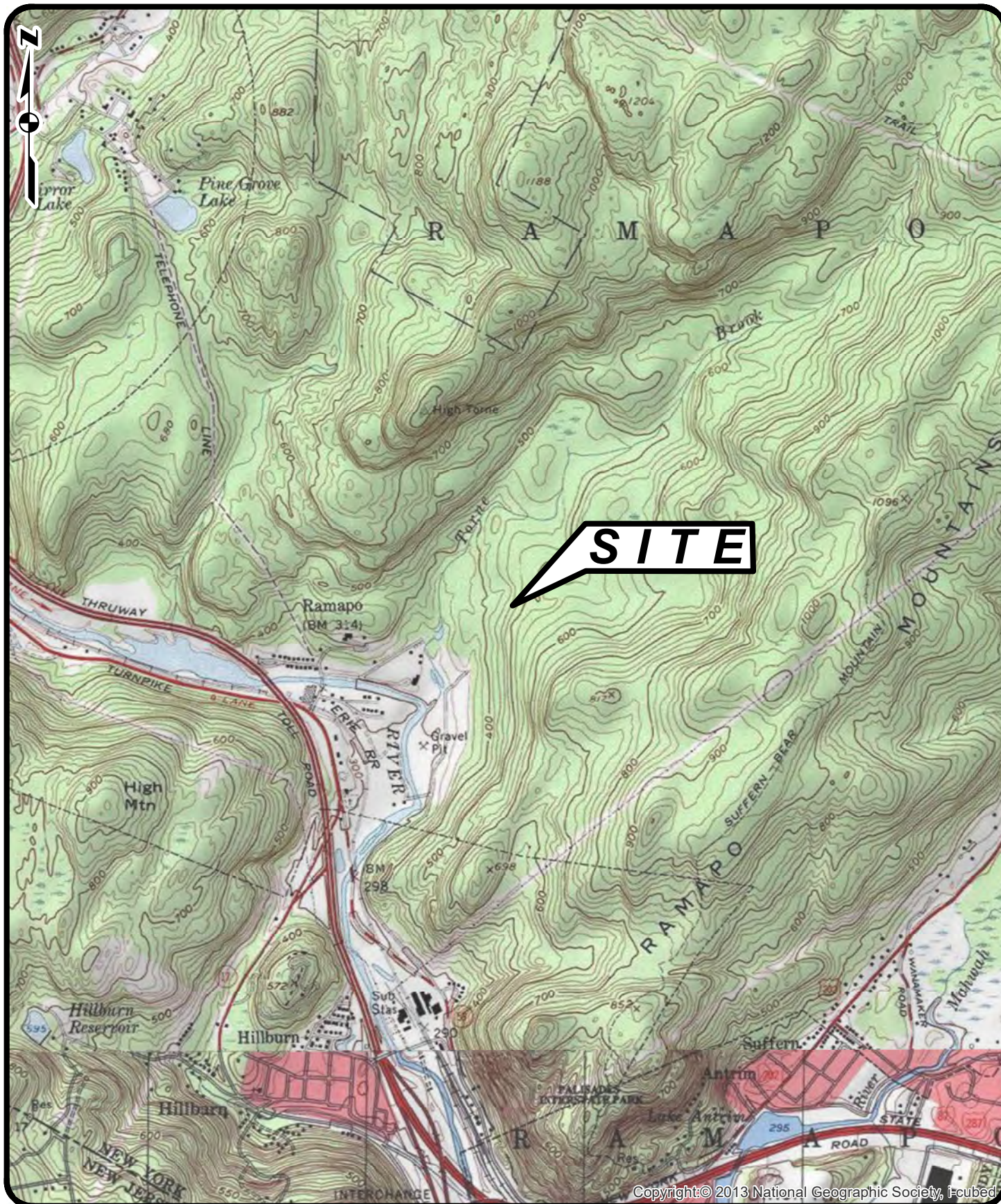
- The Landfill appears secure and stable, and the Landfill cover is intact with no evidence of stressed vegetation, leachate discharges, or damage due to settlement or active vectors.
- Three (3) damaged gas vents and two (2) angled gas vents were observed at the Landfill.
- The concrete collar for the manhole cover at MH E-6 is damaged and should be repaired.
- The May 3-5, 2023 air quality monitoring survey for explosive gas, H₂S, and VOCs indicated the Landfill is in compliance with the requirements set forth in 6 NYCRR 360-2.15(k)(4) and 2.17(f) (effective prior to 11/4/17).
- Groundwater flow direction in the overburden and bedrock aquifer systems is to the northwest and/or west towards Torne Brook. Groundwater gradients are similar in both aquifer systems and vertical gradients are consistent with historical trends.
- No site-related VOCs were detected in groundwater at or above the respective laboratory MDLs.
- No exceedances of USEPA MCLs were noted at the private water supply wells or public water supply wells. The ARAR for sodium was exceeded at all sampled public water supply wells (SVWC-93, SVWC-94, SVWC-95, and SVWC-96), which is consistent with historical results.
- Applicable TOGS 1.1.1 standards were exceeded for chromium, iron, manganese, magnesium, nickel, and sodium at one or more monitoring wells.
- Historical trends are relatively consistent with prior analytical results.
- The NYSDEC screening level for 1,4-Dioxane was exceeded in groundwater from monitoring well 9-R.
- The NYSDEC-PFAS screening level for PFOA was not exceeded in groundwater samples collected from any of the monitoring locations.
- The volume of leachate/groundwater pumped from Landfill extraction wells to the RCSD No. 1 Western Ramapo Treatment Plant during 2022 was approximately 14.92 million gallons, which is similar to historical volumes. The leachate collection system is currently being evaluated in accordance with a Capture Zone Analysis Work Plan dated November 29, 2022.
- There were no reported discharge limit exceedances for the leachate/groundwater extracted from the Landfill and pumped to the RCSD No. 1 Western Ramapo Treatment Plant.
- The next groundwater monitoring event will be conducted in the third quarter of 2024.

The following recommendations are made based on analytical results and observations during the reporting period:

- The damaged gas vents should be repaired.
- The damaged concrete collar for the manhole cover at MH E-6 should be repaired.
- Monitoring is recommended to continue in accordance with the SMP requirements.

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FIGURES



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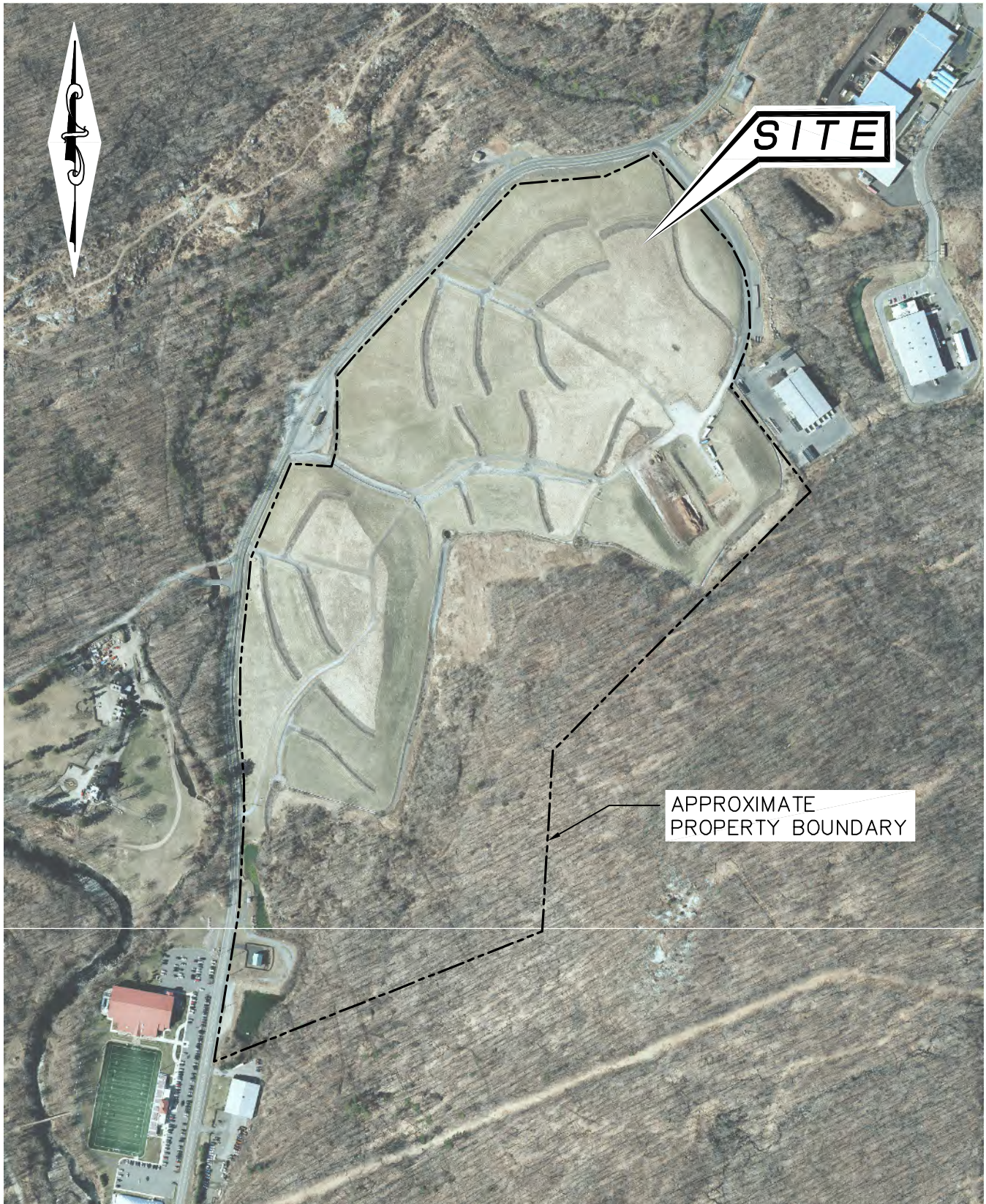
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

SITE LOCATION MAP TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., NY

PROJ.NO. 20010	DATE: 10/14/2020	SCALE: 1" = 2,000'	DWG.NO. 20010001G	FIGURE 1



MAP REFERENCE: NEW YORK STATEWIDE DIGITAL ORTHOIMAGERY PROGRAM, PHOTOGRAPHY CIRCA 2013.

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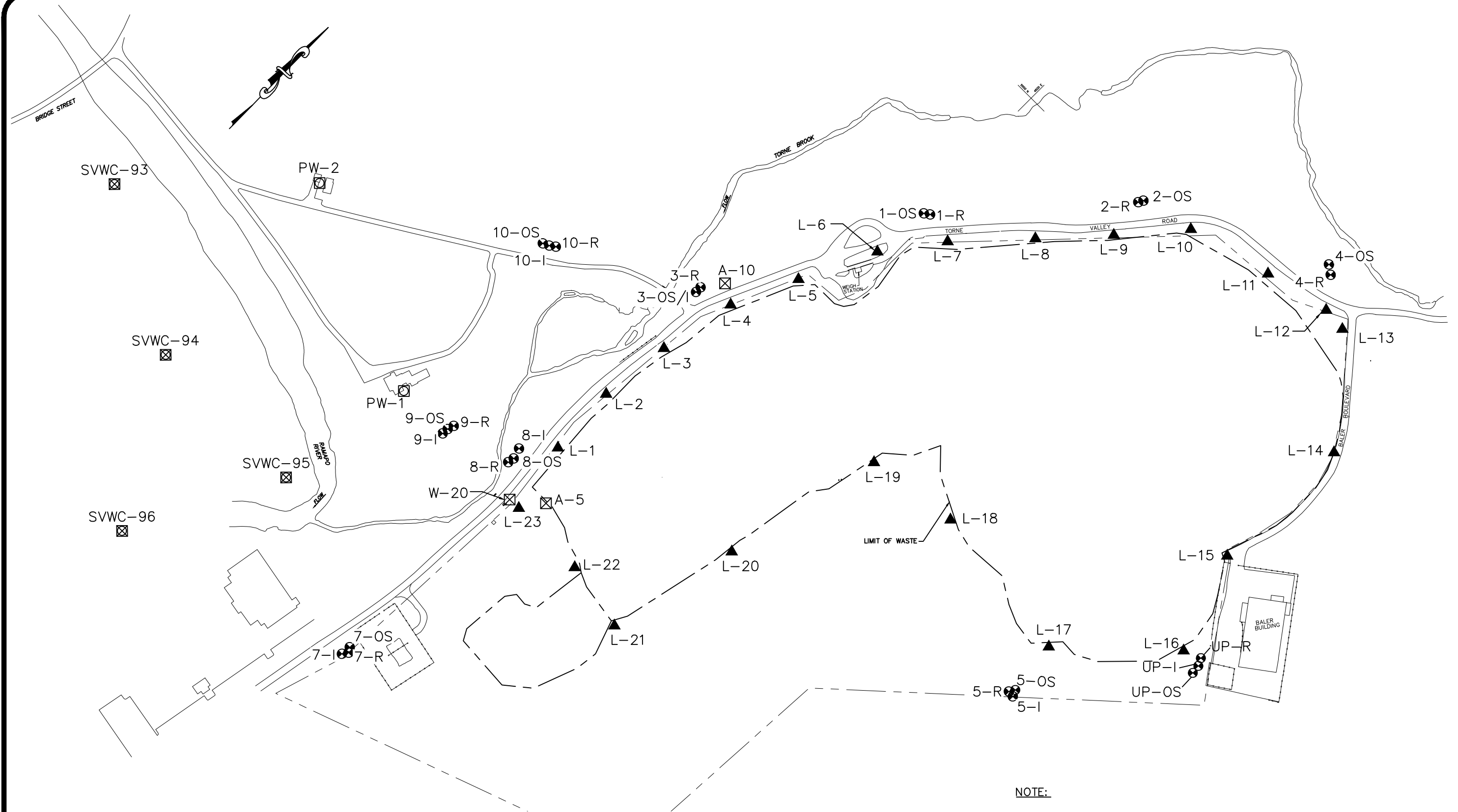
PROPERTY FEATURES
TOWN OF RAMAPO
LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

PROJ. No.: 20010	DATE: 6/24/14	SCALE: 1" = 500'	DWG. NO. 20010036	FIGURE 2

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LEGEND:

- UP-R ● MONITORING WELL CLUSTER (2016)
- 5-OS ● MONITORING WELL
- PW-1 □ EXISTING PRIVATE WATER SUPPLY WELL
- SVWC-93 ⊠ EXISTING SUPPLY WELL (UNITED WATER/SUEZ-NA)
- L-1 ▲ LANDFILL PERIMETER AIR MONITORING POINT
- A-10 ⊠ ON-SITE RECEPTOR STRUCTURE

NOTE:

1. BASE MAP FROM DWG. NO. 32, MODIFICATIONS TO LEACHATE COLLECTION SYSTEM PLAN, BY URS CONSULTANTS, INC., BUFFALO, NY, JUNE 1994.

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GROUNDWATER MONITORING WELLS AND
AIR QUALITY MONITORING LOCATIONS
TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

PROJ. No.: 20010 | DATE: 4/28/2017 | SCALE: 1" = 300' | DWG. NO. 20010037 | FIGURE 3

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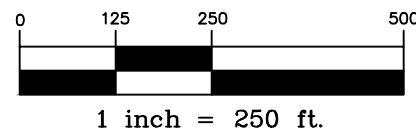


LEGEND:

- 18 APPROXIMATE PHOTOGRAPH LOCATION FOR 2023 PRR EVENT (LOOKING NORTH)

NOTES:

1. BASE MAP FROM DWG. NO. 31, SURFACE DRAINAGE PLAN, BY URS CONSULTANTS, INC., BUFFALO, NY, JUNE 1994.
2. INFORMATION SHOWN FOR EXISTING PIPE SIZES ARE AS PROVIDED B A.R. SPARACO, JR., P.L.S., POMONA, NEW YORK



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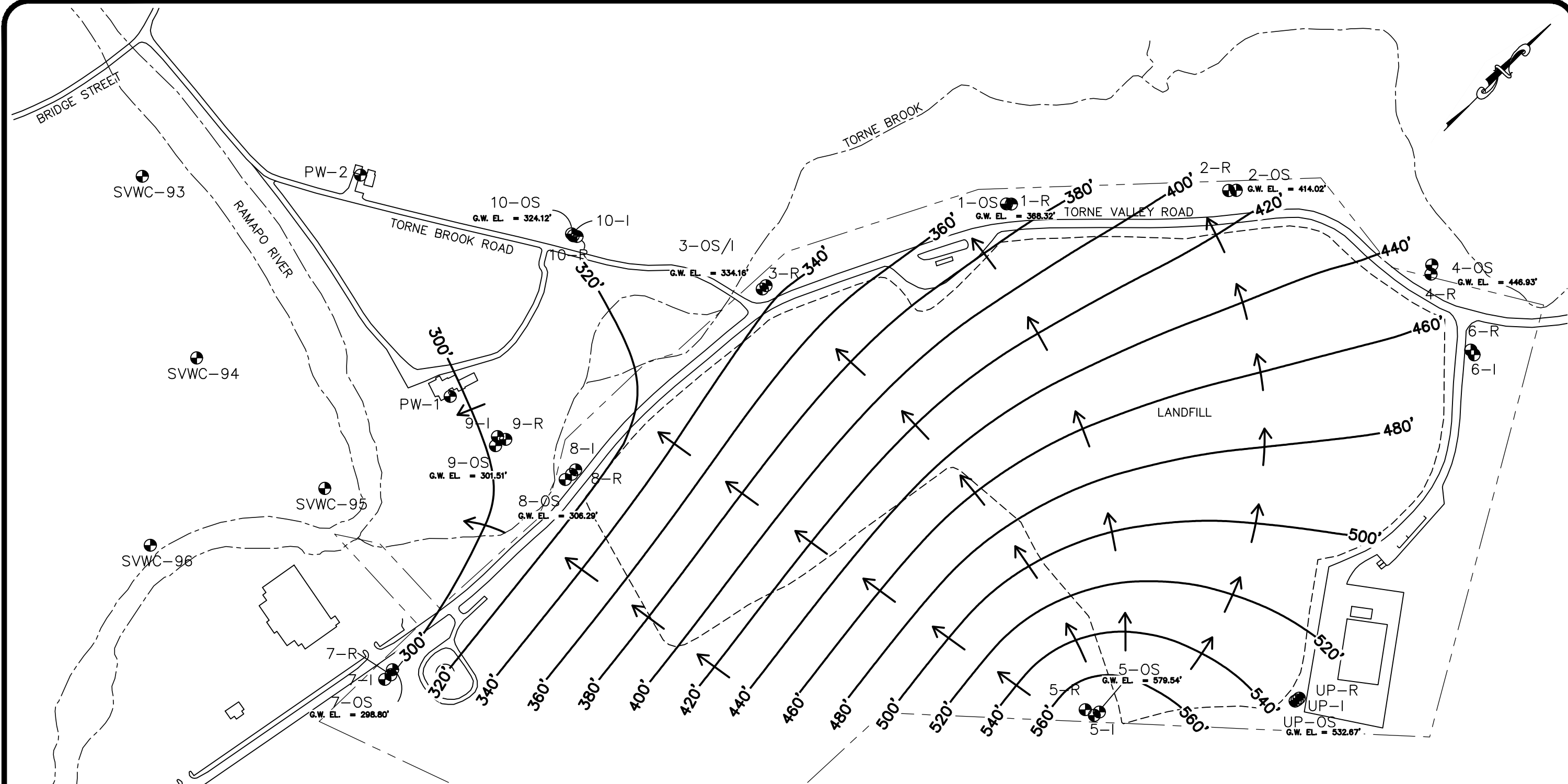
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SURFACE WATER DRAINAGE AND EROSION CONTROL FEATURES, WITH PHOTOGRAPH LOCATIONS
TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

PROJ. No.: 20010 | DATE: 5/9/2023 | SCALE: 1" = 250' | DWG. NO. 20010058 | FIGURE 4



LEGEND:

- GROUNDWATER ELEVATION CONTOUR
- ← GROUNDWATER FLOW DIRECTION
- - - - - APPROXIMATE LANDFILL COVER SYSTEM BOUNDARY
- - - - - APPROXIMATE LANDFILL PROPERTY BOUNDARY
- 1-OS
G.W. EL. = 368.32' MONITORING WELL
- GROUNDWATER ELEVATION FOR MAY 2023 MONITORING EVENT

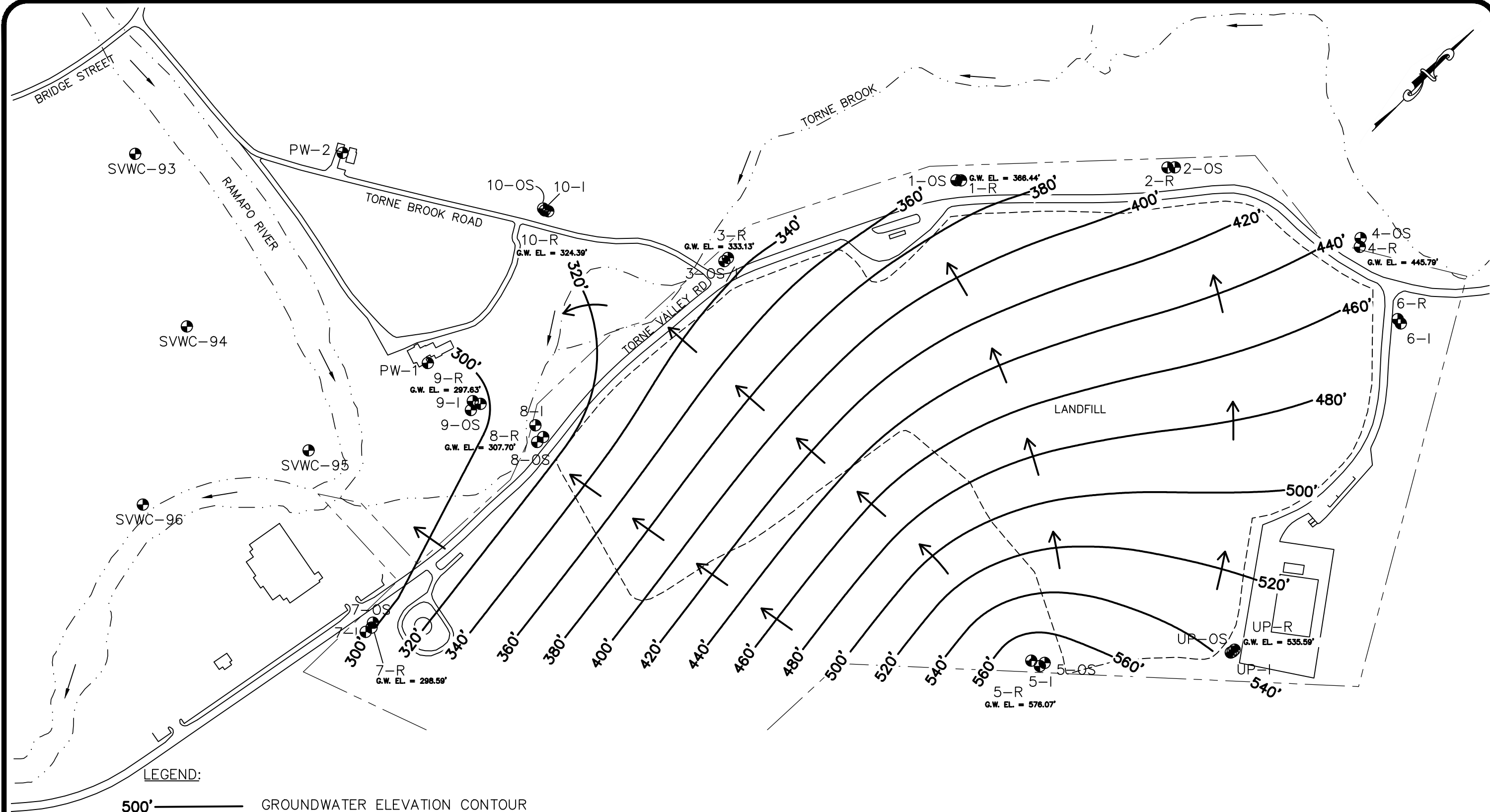
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SHALLOW OVERBURDEN AQUIFER GROUNDWATER
ELEVATION CONTOURS - MAY 3-5, 2023
TOWN OF RAMAPO
LANDFILL

TOWN OF RAMAPO ROCKLAND CO., N.Y.

PROJ. No.: 20010 | DATE: 5/10/2023 | SCALE: 1" = 300' | DWG. NO. 20010059 | FIGURE 5



LEGEND:

- 500' ——— GROUNDWATER ELEVATION CONTOUR
- ← GROUNDWATER FLOW DIRECTION
- - - - - APPROXIMATE LANDFILL COVER SYSTEM BOUNDARY
- . - . - APPROXIMATE LANDFILL PROPERTY BOUNDARY
- 1-R MONITORING WELL
- G.W. EL. = 366.44' GROUNDWATER ELEVATION FOR MAY 2023 MONITORING EVENT

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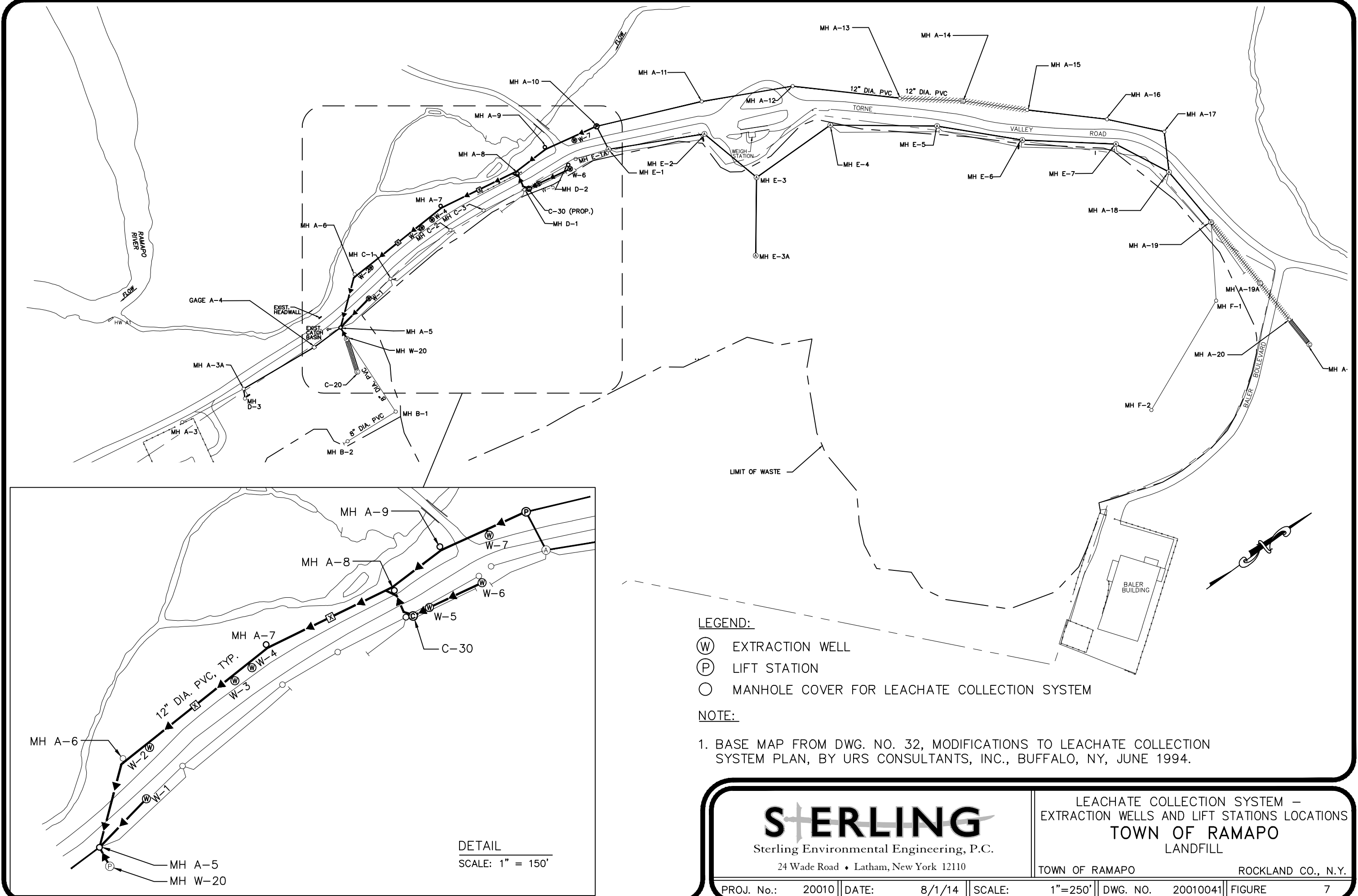
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BEDROCK AQUIFER GROUNDWATER ELEVATION
CONTOURS - MAY 3-5, 2023
TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO ROCKLAND CO., N.Y.

PROJ. No.: 20010 | DATE: 5/10/2023 | SCALE: 1" = 300' | DWG. NO. 20010060 | FIGURE 6

S:\Drawings\20010 - Town of Ramapo\20010041 - Leachate Collection System Plan.dwg 2/21/2017 2:21 PM



TABLES

TABLE 1

Summary of Air Monitoring Results (5/3/2023 - 5/5/2023)
Town of Ramapo Landfill

Monitoring Location ⁽¹⁾	LEL Reading (% LEL)	H₂S Reading (ppm)	VOC Reading (ppm)
Monitoring Wells:			
1-OS	0.0%	0.0	0.0
1-R	0.0%	0.0	0.0
2-OS	0.0%	0.0	0.0
2-R	0.0%	0.0	0.0
3-OS/I	0.0%	0.0	0.0
3-R	0.0%	0.0	0.0
4-OS	0.0%	0.0	0.0
4-I	0.0%	0.0	0.0
4-R	0.0%	0.0	0.0
5-OS	0.0%	0.0	0.0
5-R	0.0%	0.0	0.0
6-I	0.0%	0.0	0.0
6-R	0.0%	0.0	0.0
7-OS	0.0%	0.0	0.0
7-I	0.0%	0.0	0.0
7-R	0.0%	0.0	0.0
8-OS	0.0%	0.0	0.0
8-I	0.0%	0.0	0.0
8-R	0.0%	0.0	0.0
9-OS	0.0%	0.0	0.0
9-I	0.0%	0.0	0.0
9-R	0.0%	0.0	0.0
10-OS	0.0%	0.0	0.0
10-I	0.0%	0.0	0.0
10-R	0.0%	0.0	0.0
UP-OS	0.0%	0.0	0.0
UP-I	0.0%	0.0	0.0
UP-R	0.0%	0.0	0.0
Baler Building (Breathing Zone, North Corner)	0.0%	0.0	0.0
Baler Building (Breathing Zone, East Corner)	0.0%	0.0	0.0
Baler Building (Breathing Zone, South Corner)	0.0%	0.0	0.0
Baler Building (Breathing Zone, West Corner)	0.0%	0.0	0.0
Manhole A-5	0.0%	0.0	0.0
Lift Station A-10	0.0%	0.0	0.0
Lift Station W-20	0.0%	0.0	0.0
Landfill Perimeter (Breathing Zone, L1 through L23)	0.0%	0.0	0.0

NOTES:

LEL = Lower Explosive Limit

H₂S = Hydrogen Sulfide

VOCs = Volatile Organic Compounds measured using Multi-RAE meter.

ppm = parts per million

⁽¹⁾ See Figure 3 for Air Monitoring Locations

**Summary of Analytical Parameters and Method References
Town of Ramapo Landfill**

<u>Parameter</u>	<u>Document/Method No.</u>	<u>Reference</u>
Specific Conductance	120.1	1
Temperature	170.1	1
Static Water Level	---	---
Floater or Sinkers	---	---
pH	150.1	1
Eh	D1498	2
Field Observations	---	---
TKN	351.3	1
COD	5220D	1
Alkalinity	2320B	1
Hardness as CaCO ₃	130.1	1
Site Related Volatiles*:		
1, 1-Dichloroethane	624.1	1
Vinyl Chloride	624.1	1
Benzene	624.1	1
Chlorobenzene	624.1	1
	NYSDEC ASP (USEPA	
TAL Metals**	200.7/USEPA 200.8/USEPA	1
	245.1/USEPA 522)	
1,4-Dioxane	8270D-SIM	3
PFAS	USEPA 1633	4

References:

1. New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) 9/89, 12/91 Revisions.
 2. American Society for Testing & Materials, ASTM, 1989.
 3. NYSDEC Ambient Water Quality Guidance Values for 1,4 Dioxane and Human Health (0.35 µg/L).
 4. NYSDEC DER, Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), April 2023.
- Parameters will be measured by Field Personnel or Reference is not available.

Notes:

* Revised in Accordance with the NYSDEC's October 27, 2003 post-closure monitoring variance approval.

** Laboratory reporting limits (RL) must be equal to or less than the applicable water quality standard. Specifically, the RL for Antimony must be 3.0 µg/L or less and for Thallium must be 0.5 µg/L or less.

TABLE 3

Summary of Field Parameter Measurements (5/3/2023- 5/5/2023)
Town of Ramapo Landfill

Parameter		Static Water Level ¹	Specific Conductivity	Temperature	pH	ORP	Turbidity
Units		feet	mS/cm	degrees C	pH Units	mV	NTU
Title 6 Part 703.5 Groundwater Standard		---	---	---	6.5<pH< 8.5	--	5.0
Well Sample ID	Date						
1-OS	5/5/2023	10.89	0.641	9.5	6.43	125.5	3.75
1-R	5/5/2023	13.15	---	---	---	---	---
1-I	5/5/2023	10.16	---	---	---	---	---
2-OS	5/5/2023	8.72	0.819	9.50	6.78	184.0	5.10
2-I	5/5/2023	12.37	---	---	---	---	---
2-R	NA	---	---	---	---	---	---
3-OS/I	5/4/2023	11.61	0.487	10.4	6.38	200.4	3.42
3-R	5/4/2023	12.38	0.861	11.1	6.34	111.9	24.64
4-OS	5/5/2023	5.49	0.780	9.8	5.74	168.5	33.88
4-I	5/5/2023	9.10	---	---	---	---	---
4-R	5/5/2023	7.05	---	---	---	---	---
5-OS	5/5/2023	5.33	---	---	---	---	---
5-I	5/5/2023	23.98	---	---	---	---	---
5-R	5/5/2023	8.68	---	---	---	---	---
6-I	5/5/2023	15.29	---	---	---	---	---
6-R	5/5/2023	26.92	---	---	---	---	---
7-OS	5/5/2023	11.79	0.269	9.7	6.26	229.4	4.54
7-I	5/5/2023	11.31	---	---	---	---	---
7-R	5/5/2023	12.30	---	---	---	---	---
8-OS	5/4/2023	13.92	0.160	10.1	6.43	159.0	6.91
8-I	5/4/2023	14.85	0.989	11.8	6.70	3.6	12.76
8-R	5/4/2023	12.82	1.136	11.8	6.73	111.7	1.82
9-OS	5/4/2023	6.49	0.077	10.1	6.42	273.1	2.35
9-I	5/4/2023	8.81	0.109	10.8	6.12	261.3	1.76
9-R	5/4/2023	9.72	0.579	11.0	6.61	247.3	21.37
10-OS	5/3/2023	7.90	0.038	8.3	5.13	320.8	21.03
10-I	5/3/2023	7.21	0.095	8.9	6.40	230.0	1.44
10-R	5/3/2023	6.50	0.086	9.5	6.60	212.1	1.88
UP-OS	5/3/2023	6.22	0.215	8.3	8.21	191.6	61.79
UP-I	5/3/2023	7.06	0.160	9.2	7.58	173.2	144.93
UP-R	5/3/2023	0.00	0.113	9.9	7.87	193.2	4.40
PW-1	5/3/2023	---	0.155	12.4	7.14	273.3	1.55
PW-2	5/3/2023	---	0.215	13.0	6.28	326.2	0.44
SVWC-93	5/3/2023	---	0.376	9.0	7.02	270.7	2.10
SVWC-94	5/3/2023	---	0.395	8.0	6.39	273.8	0.41
SVWC-95	5/3/2023	---	0.376	9.8	6.26	295.8	0.80
SVWC-96	5/3/2023	---	0.438	12.1	6.84	271.5	0.74

NOTES :

¹ Measured from the top of the PVC or stainless steel well casing to water surface.

² Monitoring Well UP-R has artesian well characteristics. The static water level was exactly at the measuring point elevation.

Value in **BOLD** indicates an exceedance of applicable water quality standard or guidance value.

--- Denotes no standard or not measured.

TABLE 4

Summary of Groundwater Analytical Results (5/3/2023 - 5/5/2023)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	NYSDEC- PFAS	UP-OS	UP-I	UP-R	1-OS	2-OS	3-OS/I	4-OS	7-OS	8-OS	8-I
			5/3/2023	5/3/2023	5/3/2023	5/5/2023	5/5/2023	5/4/2023	5/5/2023	5/5/2023	5/4/2023	5/4/2023
LEACHATE INDICATOR PARAMETERS, mg/L												
Alkalinity, Total	---	---	108	66.9	40.9	273	382	233	82.3	122	52.4	352
Chemical Oxygen Demand	---	---	29	7.9 J	7.9 J	5.6 J	3.2 J	3.2 J	7.9 J	10	3.2 J	12
Hardness	---	---	108.8	74.86	45.36	190.2	338.5	188.5	135.2	112.7	50.12	378.3
Total Kjeldahl Nitrogen	---	---	0.251 J	0.218 J	0.302	0.378	0.205 J	0.258 J	0.088 J	0.137 J	0.185 J	1.38
VOLATILE ORGANIC COMPOUNDS, µg/L												
1,1-Dichloroethane	5	---	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Benzene	1	--	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chlorobenzene	5	---	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Vinyl Chloride	2	---	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Total VOCs	---	---	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4 DIOXANE, µg/L												
1,4-Dioxane	---	1	0.0326 U	0.0332 U	0.032 U	NS	NS	NS	NS	NS	NS	NS
PERFLUORINATED ALKYL ACIDS, ng/L												
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	---	---	1.25 U	1.3 U	1.24 U	NS	NS	NS	NS	NS	NS	NS
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	---	---	2.36 U	2.46 U	2.33 U	NS	NS	NS	NS	NS	NS	NS
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	---	---	1.59 U	1.65 U	1.57 U	NS	NS	NS	NS	NS	NS	NS
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	---	---	2.05 U	2.13 U	2.02 U	NS	NS	NS	NS	NS	NS	NS
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	---	---	8.88 U	9.24 U	8.77 U	NS	NS	NS	NS	NS	NS	NS
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	---	---	5.99 U	6.23 U	5.91 U	NS	NS	NS	NS	NS	NS	NS
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	---	---	2.5 U	2.61 U	2.47 U	NS	NS	NS	NS	NS	NS	NS
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	---	---	0.956 U	0.996 U	0.944 U	NS	NS	NS	NS	NS	NS	NS
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	---	---	1.25 U	1.3 U	1.24 U	NS	NS	NS	NS	NS	NS	NS
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	---	---	0.85 U	0.885 U	0.839 U	NS	NS	NS	NS	NS	NS	NS
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	---	---	0.698 U	0.727 U	0.689 U	NS	NS	NS	NS	NS	NS	NS
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	---	---	1.86 U	1.94 U	1.84 U	NS	NS	NS	NS	NS	NS	NS
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	---	---	0.82 U	0.853 U	0.809 U	NS	NS	NS	NS	NS	NS	NS
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	---	---	0.66 U	0.687 U	0.652 U	NS	NS	NS	NS	NS	NS	NS
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	---	---	3.57 U	3.71 U	3.52 U	NS	NS	NS	NS	NS	NS	NS
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	---	---	0.827 U	0.861 U	0.817 U	NS	NS	NS	NS	NS	NS	NS
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	---	---	1.79 U	1.86 U	1.77 U	NS	NS	NS	NS	NS	NS	NS
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	---	---	0.334 U	0.348 U	0.33 U	NS	NS	NS	NS	NS	NS	NS
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	---	---	0.433 U	0.45 U	0.427 U	NS	NS	NS	NS	NS	NS	NS
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	---	---	0.402 U	0.419 U	0.397 U	NS	NS	NS	NS	NS	NS	NS
Perfluorobutanesulfonic Acid (PFBS)	---	---	0.508 U	0.529 U	0.502 U	NS	NS	NS	NS	NS	NS	NS
Perfluorobutanoic Acid (PFBA)	---	---	0.972 U	1.01 U	0.959 U	NS	NS	NS	NS	NS	NS	NS
Perfluorodecanesulfonic Acid (PFDS)	---	---	0.349 U	0.363 U	0.345 U	NS	NS	NS	NS	NS	NS	NS
Perfluorodecanoic Acid (PFDA)	---	---	0.615 U	0.64 U	1.72	NS	NS	NS	NS	NS	NS	NS
Perfluorododecanesulfonic Acid (PFDoS)	---	---	0.577 U	0.6 U	0.57 U	NS	NS	NS	NS	NS	NS	NS
Perfluorododecanoic Acid (PFDoA)	---	---	0.698 U	0.727 U	0.689 U	NS	NS	NS	NS	NS	NS	NS
Perfluoroheptanesulfonic Acid (PFHpS)	---	---	0.41 U	0.427 U	0.405 U	NS	NS	NS	NS	NS	NS	NS
Perfluoroheptanoic Acid (PFHpA)	---	---	0.304 U	0.316 U	0.3 U	NS	NS	NS	NS	NS	NS	NS
Perfluorohexanesulfonic Acid (PFHxS)	---	---	0.364 U	0.379 U	0.36 U	NS	NS	NS	NS	NS	NS	NS
Perfluorohexanoic Acid (PFHxA)	---	---	0.448 U	0.466 U	0.442 U	NS	NS	NS	NS	NS	NS	NS
Perfluorononanesulfonic Acid (PFNS)	---	---	0.471 U	0.49 U	0.465 U	NS	NS	NS	NS	NS	NS	NS
Perfluorononanoic Acid (PFNA)	---	---	0.478 U	0.498 U	0.472 U	NS	NS	NS	NS	NS	NS	NS
Perfluorooctanesulfonamide (PFOSA)	---	---	0.41 U	0.427 U	0.405 U	NS	NS	NS	NS	NS	NS	NS
Perfluorooctanesulfonic Acid (PFOS)	---	10	0.691 U	0.719 U	0.682 U	NS	NS	NS	NS	NS	NS	NS
Perfluorooctanoic Acid (PFOA)	---	10	0.987 J	0.687 U	0.652 U	NS	NS	NS	NS	NS	NS	NS
Perfluoropentanesulfonic Acid (PFPeS)	---	---	0.266 U	0.276 U	0.262 U	NS	NS	NS	NS	NS	NS	NS
Perfluoropentanoic Acid (PFPeA)	---	---	0.812 U	0.845 U	0.802 U	NS	NS	NS	NS	NS	NS	NS
Perfluorotetradecanoic Acid (PFTeDA)	---	---	0.402 U	0.419 U	0.397 U	NS	NS	NS	NS	NS	NS	NS
Perfluorotridecanoic Acid (PFTrDA)	---	---	0.569 U	0.593 U	0.562 U	NS	NS	NS	NS	NS	NS	NS
Perfluoroundecanoic Acid (PFUnA)	---	---	0.66 U	0.687 U	0.652 U	NS	NS	NS	NS	NS	NS	NS
PFAS, Total	---	---	0.987	ND	1.72	NS	NS	NS	NS	NS	NS	NS

TABLE 4

Summary of Groundwater Analytical Results (5/3/2023 - 5/5/2023)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	NYSDEC- PFAS	8-R	9-OS	9-I	9-R	10-OS	10-I	DUP05032023	10-R	EB05032023	EB05042023
			5/4/2023	5/4/2023	5/4/2023	5/4/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023
LEACHATE INDICATOR PARAMETERS, mg/L												
Alkalinity, Total	---	---	487	26.5	25.3	166	ND	25.3	26.1	23.4	NS	NS
Chemical Oxygen Demand	---	---	10	2.7 U	3.2 J	10	2.7 U	2.7 U	2.7 U	3.2 J	NS	NS
Hardness	---	---	499.7	30.22	32.02	176	9.715	34.97	35.18	28.96	NS	NS
Total Kjeldahl Nitrogen	---	---	0.728	0.243 J	0.192 J	2.38	0.209 J	0.118 J	0.066 U	0.077 J	NS	NS
VOLATILE ORGANIC COMPOUNDS, µg/L												
1,1-Dichloroethane	5	---	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	NS	NS
Benzene	1	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	NS	NS
Chlorobenzene	5	---	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	NS	NS
Vinyl Chloride	2	---	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	NS	NS
Total VOCs	---	---	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
1,4 DIOXANE, µg/L												
1,4-Dioxane	---	1	NS	0.0332 U	0.0332 U	3.29	0.0346 U	0.032 U	0.0346 U	0.0332 U	NS	NS
PERFLUORINATED ALKYL ACIDS, ng/L												
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	---	---	NS	1.26 U	1.26 U	1.26 U	1.21 U	1.22 U	1.22 U	1.28 U	1.25 U	1.29 U
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	---	---	NS	2.37 U	2.37 U	2.36 U	2.28 U	2.3 U	2.3 U	2.42 U	2.35 U	2.43 U
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	---	---	NS	1.59 U	1.59 U	1.59 U	1.53 U	1.54 U	1.54 U	1.63 U	1.58 U	1.63 U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	---	---	NS	2.06 U	2.05 U	2.05 U	1.98 U	1.99 U	2 U	2.1 U	2.04 U	2.11 U
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	---	---	NS	8.92 U	8.9 U	8.9 U	8.57 U	8.64 U	8.65 U	9.11 U	8.84 U	9.15 U
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	---	---	NS	6.01 U	6 U	6 U	5.78 U	5.83 U	5.83 U	6.14 U	5.96 U	6.17 U
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	---	---	NS	2.52 U	2.51 U	2.51 U	2.42 U	2.44 U	2.44 U	2.57 U	2.49 U	2.58 U
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	---	---	NS	0.96 U	0.959 U	0.958 U	0.923 U	0.931 U	0.931 U	0.981 U	0.952 U	0.986 U
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	---	---	NS	1.26 U	1.26 U	1.26 U	1.21 U	1.22 U	1.22 U	1.28 U	1.25 U	1.29 U
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	---	---	NS	0.854 U	0.852 U	0.852 U	0.82 U	0.827 U	0.828 U	0.872 U	0.846 U	0.876 U
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	---	---	NS	0.701 U	0.7 U	0.7 U	0.674 U	0.68 U	0.68 U	0.716 U	0.695 U	0.72 U
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	---	---	NS	1.87 U	1.86 U	1.86 U	1.8 U	1.81 U	1.81 U	1.91 U	1.85 U	1.92 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	---	---	NS	0.823 U	0.822 U	0.822 U	0.791 U	0.798 U	0.798 U	0.841 U	0.816 U	0.845 U
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	---	---	NS	0.663 U	0.662 U	0.662 U	0.637 U	0.643 U	0.643 U	0.678 U	0.657 U	0.68 U
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	---	---	NS	3.58 U	3.58 U	3.58 U	3.44 U	3.47 U	3.47 U	3.66 U	3.55 U	3.68 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	---	---	NS	0.831 U	0.829 U	0.829 U	0.799 U	0.805 U	0.806 U	0.849 U	0.824 U	0.852 U
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	---	---	NS	1.8 U	1.8 U	1.8 U	1.73 U	1.74 U	1.74 U	1.84 U	1.78 U	1.84 U
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	---	---	NS	0.335 U	0.335 U	0.335 U	0.322 U	0.325 U	0.325 U	0.343 U	0.332 U	0.344 U
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	---	---	NS	0.434 U	0.434 U	0.434 U	0.418 U	0.421 U	0.421 U	0.444 U	0.431 U	0.446 U
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	---	---	NS	0.404 U	0.403 U	0.403 U	0.388 U	0.392 U	0.392 U	0.413 U	0.4 U	0.414 U
Perfluorobutanesulfonic Acid (PFBS)	---	---	NS	0.511 U	1.14 J	3.58	0.491 U	0.495 U	0.495 U	0.522 U	0.506 U	0.524 U
Perfluorobutanoic Acid (PFBA)	---	---	NS	0.976 U	3.12 J	25	0.938 U	0.946 U	0.946 U	0.997 U	0.967 U	1 U
Perfluorodecanesulfonic Acid (PFDS)	---	---	NS	0.351 U	0.35 U	0.35 U	0.337 U	0.34 U	0.34 U	0.358 U	0.348 U	0.36 U
Perfluorodecanoic Acid (PFDA)	---	---	NS	0.617 U	0.616 U	0.616 U	0.593 U	0.598 U	0.599 U	0.631 U	0.612 U	0.634 U
Perfluorododecanesulfonic Acid (PFDoS)	---	---	NS	0.579 U	0.578 U	0.578 U	0.557 U	0.561 U	0.562 U	0.592 U	0.574 U	0.594 U
Perfluorododecanoic Acid (PFDoA)	---	---	NS	0.701 U	0.7 U	0.7 U	0.674 U	0.68 U	0.68 U	0.716 U	0.695 U	0.72 U
Perfluoroheptanesulfonic Acid (PFHpS)	---	---	NS	0.412 U	0.411 U	0.411 U	0.396 U	0.399 U	0.399 U	0.421 U	0.408 U	0.422 U
Perfluoroheptanoic Acid (PFHpA)	---	---	NS	0.305 U	1.52	3.5	0.293 U	0.295 U	0.296 U	0.312 U	0.302 U	0.313 U
Perfluorohexanesulfonic Acid (PFHxS)	---	---	NS	0.366 U	0.365 U	1.6	0.352 U	0.354 U	0.355 U	0.374 U	0.363 U	0.375 U
Perfluorohexanoic Acid (PFHxA)	---	---	NS	0.45 U	1.67	6.77	0.432 U	0.436 U	0.436 U	0.46 U	0.446 U	0.461 U
Perfluorononanesulfonic Acid (PFNS)	---	---	NS	0.473 U	0.472 U	0.472 U	0.454 U	0.458 U	0.458 U	0.483 U	0.468 U	0.485 U
Perfluorononanoic Acid (PFNA)	---	---	NS	0.48 U	0.479 U	30.7	0.462 U	0.465 U	0.466 U	0.491 U	0.476 U	0.493 U
Perfluorooctanesulfonamide (PFOSA)	---	---	NS	0.412 U	0.411 U	0.411 U	0.396 U	0.399 U	0.399 U	0.421 U	0.408 U	0.422 U
Perfluorooctanesulfonic Acid (PFOS)	---	10	NS	1.07 JF	1.83	6.92	0.667 U	0.672 U	0.673 U	0.709 U	0.688 U	0.712 U
Perfluorooctanoic Acid (PFOA)	---	10	NS	0.762 J	2.66	9.28	0.637 U	0.643 U	0.643 U	0.678 U	0.657 U	0.68 U
Perfluoropentanesulfonic Acid (PFPeS)	---	---	NS	0.267 U	0.266 U	0.532 J	0.256 U	0.258 U	0.259 U	0.273 U	0.264 U	0.274 U
Perfluoropentanoic Acid (PFPeA)	---	---	NS	0.816 U	2.36 J	5.48	0.784 U	0.79 U	0.791 U	0.833 U	0.808 U	0.837 U
Perfluorotetradecanoic Acid (PFTeDA)	---	---	NS	0.404 U	0.403 U	0.403 U	0.388 U	0.392 U	0.392 U	0.413 U	0.4 U	0.414 U
Perfluorotridecanoic Acid (PFTeDA)	---	---	NS	0.572 U	0.571 U	0.57 U	0.55 U	0.554 U	0.554 U	0.584 U	0.567 U	0.587 U
Perfluoroundecanoic Acid (PFUnA)	---	---	NS	0.663 U	0.662 U	0.662 U	0.637 U	0.643 U	0.643 U	0.678 U	0.657 U	0.68 U
PFAS, Total	---	---	NS	1.832	14.3	93.362	ND	ND	ND	ND	ND	ND

TABLE 4

Summary of Groundwater Analytical Results (5/3/2023 - 5/5/2023)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	NYSDEC- PFAS	UP-OS	UP-I	UP-R	1-OS	2-OS	3-OS/I	4-OS	7-OS	8-OS	8-I
			5/3/2023	5/3/2023	5/3/2023	5/5/2023	5/5/2023	5/4/2023	5/5/2023	5/5/2023	5/4/2023	5/4/2023
TOTAL METALS, mg/L												
Aluminum	---	---	1.17	0.599	0.00499 J	0.0183	0.0463	0.00752 J	0.0204	0.017	0.00368 J	0.00327 U
Antimony	0.003	---	0.00042 U	0.00042 U	0.00042 U	0.00096 J	0.00043 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U
Arsenic	0.025	---	0.00038 J	0.00036 J	0.00016 U	0.00016 U	0.00026 J	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00242
Barium	1	---	0.01158	0.01189	0.0024	0.00995	0.03491	0.01433	0.02617	0.01326	0.00385	0.01841
Beryllium	0.003	---	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
Boron	1	---	0.007 J	0.004 J	0.004 J	0.047	0.13	0.067	0.008 J	0.042	0.0146 J	0.103
Cadmium	0.005	---	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U
Calcium	---	---	29.7	21.7	12	56.5	111	61.4	31.7	33.4	14.4	108
Chromium	0.05	---	0.00327	0.05443	0.00142	0.02308	0.01312	0.08466	0.02963	0.03431	0.07087	0.00058 J
Cobalt	---	---	0.00081	0.00385	0.00016 U	0.0006	0.00025 J	0.00035 J	0.00124	0.00018 J	0.00016 J	0.00828
Copper	0.2	---	0.00987	0.00573	0.00038 U	0.00166	0.00368	0.00081 J	0.00072 J	0.00096 J	0.00085 J	0.00045 J
Iron	0.3**	---	1.62	2.22	0.0357 J	0.377	0.207	0.409	0.765	0.22	0.504	5.1
Lead	0.025	---	0.00061 J	0.00038 J	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U
Magnesium	35	---	8.41	5.01	3.75	11.9	14.9	8.54	13.6	7.09	3.42	26.5
Manganese	0.3**	---	0.02715	0.03364	0.001	0.89	0.00743	0.04861	0.0381	0.00321	0.01707	2.557
Mercury	0.0007	---	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.0001 J	0.00009 J
Nickel	0.1	---	0.00218	0.108	0.00055 U	0.00337	0.00278	0.01541	0.03011	0.00305	0.00852	0.00626
Potassium	---	---	0.878	0.641	0.641	2.42	3.68	2.3	0.883	2.9	0.835	4.52
Selenium	0.01	---	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U
Silver	0.05	---	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Sodium	20	---	3.61	3.83	4.49	69.7	32.9	35.4	84.9	9.05	13	56.8
Thallium	0.0005	---	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U
Vanadium	---	---	0.00266 J	0.00332 J	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U
Zinc	2	---	0.00584 J	0.00543 J	0.00341 U	0.00341 U	0.00341 U	0.00341 U	0.00341 U	0.00341 U	0.00341 U	0.00341 U

TABLE 4

**Summary of Groundwater Analytical Results (5/3/2023 - 5/5/2023)
Town of Ramapo Landfill, Hillburn, New York**

ANALYTE	NY-AWQS	NYSDEC- PFAS	8-R	9-OS	9-I	9-R	10-OS	10-I	DUP05032023	10-R	EB01182022	EB01192022
			5/4/2023	5/4/2023	5/4/2023	5/4/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	5/3/2023	5/4/2022
TOTAL METALS, mg/L												
Aluminum	---	---	0.0105	0.00936 J	0.00922 J	0.0777	0.468	0.00964 J	0.00779 J	0.0284	NS	NS
Antimony	0.003	---	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00052 J	0.00175 J	0.00042 U	0.00042 U	NS	NS
Arsenic	0.025	---	0.00023 J	0.00016 U	0.00016 U	0.001	0.00018 J	0.00016 U	0.00016 U	0.00016 U	NS	NS
Barium	1	---	0.01121	0.00513	0.00479	0.03065	0.00789	0.00116	0.00113	0.00326	NS	NS
Beryllium	0.003	---	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.00013 J	0.0001 U	0.0001 U	0.0001 U	NS	NS
Boron	1	---	0.127	0.0149 J	0.0192 J	0.0832	0.003 J	0.008 J	0.007 J	0.009 J	NS	NS
Cadmium	0.005	---	0.00022	0.00005 U	0.00005 U	0.00141	0.00006 J	0.00005 U	0.00005 U	0.00005 U	NS	NS
Calcium	---	---	139	8.96	8.98	48.9	2.94	9.35	9.46	8.64	NS	NS
Chromium	0.05	---	0.00254	0.00074 J	0.02259	0.01297	0.00043 J	0.00037 J	0.00039 J	0.00434	NS	NS
Cobalt	---	---	0.00827	0.00016 U	0.00016 U	0.00426	0.00034 J	0.00016 U	0.00016 U	0.00018 J	NS	NS
Copper	0.2	---	0.00369	0.00059 J	0.00043 J	0.00191	0.00098 J	0.00038 U	0.00038 U	0.00041 J	NS	NS
Iron	0.3**	---	0.345	0.0191 U	0.168	5.62	0.27	0.0191 U	0.0191 U	0.0381 J	NS	NS
Lead	0.025	---	0.00034 U	0.00034 U	0.00034 U	0.00063 J	0.00034 U	0.00034 U	0.00034 U	0.00034 U	NS	NS
Magnesium	35	---	36.9	1.9	2.33	13.1	0.575	2.82	2.81	1.79	NS	NS
Manganese	0.3**	---	2.294	0.0008 J	0.1201	3.85	0.02591	0.00044 J	0.00056 J	0.0039	NS	NS
Mercury	0.0007	---	0.00014 J	0.00012 J	0.00009 J	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	NS	NS
Nickel	0.1	---	0.01305	0.001 J	0.00065 J	0.0536	0.00058 J	0.00055 U	0.00055 U	0.00197 J	NS	NS
Potassium	---	---	2.53	1.23	0.76	9.46	0.314	0.777	0.796	0.618	NS	NS
Selenium	0.01	---	0.00173 U	0.00195 J	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	NS	NS
Silver	0.05	---	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	NS	NS
Sodium	20	---	45.7	2.46	9.69	58.1	2.26	3.99	4.05	4.22	NS	NS
Thallium	0.0005	---	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	NS	NS
Vanadium	---	---	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	NS	NS
Zinc	2	---	0.00341 U	0.00341 U	0.00341 U	0.00507 J	0.00341 U	0.00341 U	0.00341 U	0.00341 U	NS	NS

Notes:

NY-AWQS: New York T.O.G.S. 1.1.1.1. Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004.

Bold = Value indicates reported concentration exceeds applicable water quality standards.

* Duplicate groundwater sample collected from bedrock monitoring well 10-I

** = The standard for the sum of iron and manganese is 0.5 mg/L.

--- Denotes no applicable water quality standard.

U = Analyte was not detected at or above laboratory method detection limit.

ND = Not Detected and No available Method Detection Limit (MDL) for this analyte.

^(a) = The laboratory Method Detection Limit (MDL) was higher than the NYTOGS 1.1.1.1. Groundwater Quality Standard.

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.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is approximate.

NS = Not sampled.

TABLE 5

Summary of Analytical Results for Downgradient Drinking Water Supply Wells (5/3/2023 - 5/5/2023)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS (1)	EPA-MCL (2)	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	FB05052023	
			5/3/2023	5/3/2023	5/4/2023	5/5/2023	5/5/2023	5/4/2023	5/5/2023	
LEACHATE INDICATOR PARAMETERS, mg/L										
Alkalinity, Total	---	---	28.7	66.9	48.9	44.3	58.5	57.4	NS	
Chemical Oxygen Demand	---	---	27	5.6 J	2.7 U	2.7 U	2.7 U	2.7 U	NS	
Hardness	---	---	29.5	88.2	63.6	65.54	64.02	72.9	NS	
Nitrogen, Total Kjeldahl	---	---	0.066 U	0.101 J	0.225 J	0.066 U	0.096 J	0.228 J	NS	
VOLATILE ORGANIC COMPOUNDS, µg/L										
1,1-Dichloroethane	5	---	0.16 U	0.16 U	0.16 U	0.7 U	0.7 U	0.16 U	NS	
Benzene	1	5	0.19 U	0.19 U	0.19 U	0.16 U	0.16 U	0.19 U	NS	
Chlorobenzene	5	100	0.16 U	0.16 U	0.16 U	0.7 U	0.7 U	0.16 U	NS	
Vinyl chloride	2	2	0.19 U	0.19 U	0.19 U	0.07 U	0.07 U	0.19 U	NS	
Total VOCs	---	---	ND	ND	ND	ND	ND	ND	NS	
1,4 DIOXANE, µg/L										
1,4-Dioxane	0.35	1	NS	NS	NS	0.0326 U	0.338	NS	NS	
PERFLUORINATED ALKYL ACIDS (PFAS), ng/L										
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	---	---	NS	NS	NS	1.28 UJ	1.25 UJ	NS	1.29 UJ	
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	---	---	NS	NS	NS	2.42 U	2.36 U	NS	2.44 U	
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	---	---	NS	NS	NS	1.62 U	1.58 U	NS	1.64 U	
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	---	---	NS	NS	NS	2.1 U	2.05 U	NS	2.12 U	
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	---	---	NS	NS	NS	9.1 U	8.88 U	NS	9.17 U	
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	---	---	NS	NS	NS	6.14 U	5.99 U	NS	6.18 U	
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	---	---	NS	NS	NS	2.57 U	2.5 U	NS	2.58 U	
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	---	---	NS	NS	NS	0.98 U	0.956 U	NS	0.987 U	
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	---	---	NS	NS	NS	1.28 UJ	1.25 UJ	NS	1.29 UJ	
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	---	---	NS	NS	NS	0.871 UJ	0.85 UJ	NS	0.878 UJ	
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	---	---	NS	NS	NS	0.715 U	0.698 U	NS	0.721 U	
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	---	---	NS	NS	NS	1.9 U	1.86 U	NS	1.92 U	
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	---	---	NS	NS	NS	0.84 UJ	0.819 UJ	NS	0.846 UJ	
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	---	---	NS	NS	NS	0.676 U	0.66 U	NS	0.682 U	
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	---	---	NS	NS	NS	3.66 U	3.57 U	NS	3.68 U	
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	---	---	NS	NS	NS	0.848 U	0.827 U	NS	0.854 U	
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	---	---	NS	NS	NS	1.84 U	1.79 U	NS	1.85 U	
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	---	---	NS	NS	NS	0.342 U	0.334 U	NS	0.345 U	
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	---	---	NS	NS	NS	0.443 U	0.432 U	NS	0.446 U	
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	---	---	NS	NS	NS	0.412 U	0.402 U	NS	0.415 U	
Perfluorobutanesulfonic Acid (PFBS)	---	---	NS	NS	NS	1.17 J	1.9	NS	0.525 U	
Perfluorobutanoic Acid (PFBA)	---	---	NS	NS	NS	0.995 U	2.12 J	NS	1 U	
Perfluorodecanesulfonic Acid (PFDS)	---	---	NS	NS	NS	0.358 U	0.349 U	NS	0.36 U	
Perfluorodecanoic Acid (PFDA)	---	---	NS	NS	NS	0.63 U	0.614 U	NS	0.635 U	
Perfluorododecanesulfonic Acid (PFDoS)	---	---	NS	NS	NS	0.591 U	0.577 U	NS	0.595 U	
Perfluorododecanoic Acid (PFDoA)	---	---	NS	NS	NS	0.715 U	0.698 U	NS	0.721 U	
Perfluoroheptanesulfonic Acid (PFHpS)	---	---	NS	NS	NS	0.42 UJ	0.41 UJ	NS	0.423 UJ	
Perfluoroheptanoic Acid (PFHpA)	---	---	NS	NS	NS	0.311 J	0.455 J	NS	0.313 U	
Perfluorohexanesulfonic Acid (PFHxS)	---	---	NS	NS	NS	0.544 J	0.683 J	NS	0.376 U	
Perfluorohexanoic Acid (PFHxA)	---	---	NS	NS	NS	1.01 J	0.986 J	NS	0.462 U	
Perfluorononanesulfonic Acid (PFNS)	---	---	NS	NS	NS	0.482 U	0.47 U	NS	0.486 U	
Perfluorononanoic Acid (PFNA)	---	---	NS	NS	NS	0.49 UJ	6.6	NS	0.494 UJ	
Perfluorooctanesulfonamide (PFOSA)	---	---	NS	NS	NS	0.42 U	0.41 U	NS	0.423 U	
Perfluorooctanesulfonic Acid (PFOS)	2.7	10	NS	NS	NS	2.18	2.58	NS	0.713 UJ	
Perfluorooctanoic Acid (PFOA)	6.7	10	NS	NS	NS	1.24 J	2.35	NS	0.682 U	
Perfluoropentanesulfonic Acid (PFPeS)	---	---	NS	NS	NS	0.272 U	0.266 U	NS	0.274 U	
Perfluoropentanoic Acid (PFPeA)	---	---	NS	NS	NS	1.01 J	0.91 J	NS	0.838 U	
Perfluorotetradecanoic Acid (PFTeDA)	---	---	NS	NS	NS	0.412 U	0.402 U	NS	0.415 U	
Perfluorotridecanoic Acid (PFTrDA)	---	---	NS	NS	NS	0.583 U	0.569 U	NS	0.588 U	
Perfluoroundecanoic Acid (PFUnA)	---	---	NS	NS	NS	0.676 U	0.66 U	NS	0.682 U	
PFAS, Total	---	---	NS	NS	NS	7.465	18.584	NS	ND	
TOTAL METALS, mg/L										
Aluminum	---	0.05-0.2**	0.0318 U	0.0318 U	0.0318 U	0.00557 J	0.00327 U	0.0318 U	NS	
Antimony	0.006	0.006	0.0004 U	0.0004 U	0.0004 U	0.00042 U	0.00042 U	0.0004 U	NS	
Arsenic	0.01	0.01	0.0002 U	0.0002 U	0.0002 U	0.00029 J	0.00016 U	0.0002 U	NS	
Barium	2.0	2.0	0.006	0.0013	0.0068	0.00939	0.00981	0.0091	NS	
Beryllium	0.004	0.004	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NS	
Boron	1	---	0.0234 J	0.0075 J	0.0261 J	0.016	0.02	0.0353	NS	
Cadmium	0.005	0.005	0.0001 U	0.0001 U	0.0001 U	0.00005 U	0.00005 U	0.0001 U	NS	
Calcium	---	---	8.06	29.6	17.4	18.1	17.8	20	NS	
Chromium	0.1	0.1	0.0004 J	0.0002 J	0.0002 U	0.00035 J	0.00027 J	0.0007 J	NS	
Cobalt	---	---	0.0017 U	0.0017 U	0.0017 U	0.00016 U	0.00016 U	0.0017 U	NS	
Copper	---	1.3	0.0304	0.0113	0.0027	0.00355	0.002	0.0025	NS	
Iron	0.3*	0.3**	0.009 U	0.024 J	0.009 U	0.0363 J	0.0289 J	0.009 U	NS	
Lead	---	0.015	0.0009 J	0.0003 U	0.0003 U	0.00034 U	0.00034 U	0.0003 U	NS	
Magnesium	---	---	2.28	3.49	4.88	4.94	4.74	5.57	NS	
Manganese	0.3*	0.05**	0.0016 U	0.0016 U	0.0016 U	0.01209	0.0342	0.0016 U	NS	
Mercury	0.002	0.002	0.0001 U	0.0001 U	0.0001 U	0.00009 U	0.00009 U	0.0001 U	NS	
Nickel	---	---	0.0006 U	0.0006 U	0.0006 J	0.00055 U	0.00055 U	0.0006 J	NS	
Potassium	---	---	1.1 J	1.08 J	1.85 J	1.47	1.53	1.8 J	NS	
Selenium	0.05	0.05	0.0017 U	0.0017 U	0.0017 U	0.00173 U	0.00173 U	0.0017 U	NS	
Silver	0.1	0.1**	0.0002 U	0.0002 U	0.0002 U	0.00016 U	0.00016 U	0.0002 U	NS	
Sodium	--- ⁴	--- ⁴	18.6	7.42	55.6	42.2	38.2	65.1	NS	
Thallium	0.002	0.002	0.0001 U	0.0001 U	0.0001 U	0.00014 U	0.00014 U	0.0001 U	NS	
Vanadium	---	---	0.0016 U	0.0016 U	0.0016 U	0.00157 U	0.00157 U	0.0016 U	NS	
Zinc	5.0	5.0**	0.0098	0.0157	0.0089	0.00341 U	0.00341 U	0.0047 J	NS	

Notes:

- (1): NY-AWQS: New York T.O.G.S. 1.1.1. Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004.
- (2): NYSDOH Part 5: NYSDOH Part 5, SubPart 5-1 Public Water Supply Standards: MCLs Tables 1 - 7; Effective October 1, 2007 / USEPA MCLs: USEPA - Primary Drinking Water Standards
- (3): NYSDEC: Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS).
- (4): While there is no Maximum Contaminant Level (MCL) for Sodium, people on severely restricted Sodium diets should consult with the County Health Department for guidance if reported Sodium concentration is higher than 20 mg/L.

Bold = Value indicates reported concentration exceeds applicable water quality standards.
J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is approximate.
U = Analyte was not detected at or above the laboratory method detection limit.
ND = Not Detected
NS = Not Sampled.

* = The standard for the sum of iron and manganese is 0.5 mg/L.
** = USEPA Secondary Drinking Water Standard. This standard is associated with aesthetic characteristics of the sample and not adverse health effects.
*** = NYSDEC Final Ambient Water Quality Guidance Values issued March 15, 2023
--- Denotes no applicable water quality standard.
Qualifiers in **Red** were modified based on Data Validation Review (performed by Alpha Geoscience) of May 2023 results.

Table 6

Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS/I	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96
DATE																															
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.04540	0.14700	0.01480	0.18300	0.30600	0.04650	NA	NA	NA	NA	NA	NA	0.02980	0.02630	0.03550	0.02910	0.02440	0.02550
Sep-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-00	10.80000	0.47000	17.80000	0.77000	0.38200	0.26800	6.64000	0.21700	30.80000	NA	2.90000	2.81000	0.12100 B	0.04950 B	1.27000	0.06220 B	1.30000	1.44000	0.21200	NA	NA	NA	NA	NA	NA	0.00980 U	0.00980 U	0.00980 U	0.00980 U	0.00980 U	0.00980 U
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dec-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-01	20.20000	4.99000	20.30000	0.06570 B	2.03000	0.82900	2.68000	0.03170 B	15.40000	NA	0.48300	2.79000 N	0.06150 B,N	0.59100 N	17.60000 N	0.48300 N	2.31000 N	12.70000 N	0.36800 N	NA	NA	NA	NA	NA	NA	0.01040 U	0.01040 U	0.01040 U	0.11300 B	0.23700	0.15000 B
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-02	13.60000	0.49500	6.05000	3.77000	0.19500 B	0.32500	1.41000	0.16400 B	NA	4.15000	6.21000	4.44000	0.01490 U	1.02000	1.47000	0.02170 B	0.48700	1.01000	0.01490 U	NA	NA	NA	NA	NA	NA	0.01490 U	0.01490 U	0.01490 U	0.01490 U	0.01490 U	0.01490 U
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr-03	NA	0.04850 B	20.30000	1.96000	2.74000	1.15000	6.95000	0.25500	NA	1.35000	1.11000	1.24000	NA	0.14900 B	6.82000	0.05420 B	0.96800	2.12000	0.03580 B	NA	NA	NA	NA	NA	NA	0.01580 U	0.01580 U	0.01580 U	0.01580 U	0.01580 U	0.01580 U
Mar-04	NA	NA	8.88000	NA	3.57000	NA	1.37000	NA	98.80000	NA	NA	25.00000	NA	0.04770 B	7.04000	0.01820 U	0.31100	0.96500	0.28600	NA	NA	NA	NA	NA	NA	0.01820 U	0.01820 U	0.01820 U	0.01820 U	0.01820 U	0.01820 U
Jun-05	0.76500	NA	1.19000	NA	0.01040 U	NA	0.38600	NA	NA	0.24700	NA	1.52000	NA	0.73500	0.18400 B	0.01040 U	0.29100	0.17300 B	0.02650 B	NA	NA	NA	NA	NA	NA	0.01040 U	0.01040 U	0.01040 U	0.01040 U	0.01040 U	0.01040 U
Sep-06	39.00000	NA	4.50000	NA	0.58000	NA	2.50000	NA	#####	NA	NA	11.00000	NA	0.14000	8.70000	1.20000	1.00000	12.00000	0.07300	NA	NA	NA	NA	NA	NA	0.07600	0.06700	0.06300	0.05600	0.03700	0.01400
Oct-07	47.00000	NA	12.00000	NA	0.52000	NA	9.80000	NA	0.37000	NA	NA	7.90000	NA	0.08900	10.00000	0.06600	4.00000	21.00000	0.14000	NA	NA	NA	NA	NA	NA	0.05000 U	0.05000 U	0.05000 U	0.05000 U	0.05000 U	0.05000 U
Mar-09	12.00000	NA	3.20000	NA	0.87000	NA	3.80000	NA	65.00000	NA	NA	4.00000	NA	0.10000 U	8.30000	0.10000 U	3.90000	13.00000	0.10000 U	NA	NA	NA	NA	NA	NA	0.10000 U	0.10000 U	0.10000 U	NA	0.10000 U	0.10000 U
May-10	14.60000	NA	3.20000	NA	0.62900	NA	2.35000	NA	#####	NA	NA	15.00000	NA	0.20000 U	5.97000	0.20000 U	2.43000	18.30000	0.49500	NA	NA	NA	NA	NA	NA	0.20000 U	0.20000 U	0.20000 U	NA	0.10500 U	0.20000 U
Sep-11	20.10000	0.28000	2.40000	0.12000 J	0.97000	0.25000	1.20000	NA	42.50000	1.10000	19.90000	12.80000	NA	0.11000 J	0.20000 U	0.20000 U	3.50000	21.90000	0.20000 U	NA	NA	NA	NA	NA	NA	0.20000 U	0.20000 U	0.20000 U	0.20000 U	NA	NA
Nov-12	12.90000	NA	1.60000	NA	0.17000 J	NA	4.40000	NA	42.00000	NA	NA	8.70000	NA	0.20000 U	0.23000	0.20000 U	0.52000	0.20000 U	0.20000 U	NA	NA	NA	NA	NA	NA	0.20000 U	0.20000 U	0.20000 U	0.20000 U	0.20000 U	NA
Mar-14	17.50000	NA	3.10000	NA	1.70000	NA	3.00000	NA	36.30000	NA	NA	17.80000	NA	ND	0.18000 J	ND	1.80000	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
Nov-14	NA	NA	NA	NA	NA	NA	0.00000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10000 U	1.58000	2.59000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	3.22000	NA	0.17600	NA	0.03600	NA	0.30400	NA	6.58000	NA	NA	0.72300	NA	0.00990 J	0.01800	0.00200 J	0.75000	0.00800 J	0.00800 J	0.60800	0.24000	0.09000	NA	NA	NA	0.02000 U	0.02000 U	0.02000 U	0.02000 U	0.02000 U	0.02000 U
Jan-17	0.91500	NA	0.13100	NA	0.01300	NA	0.03800	NA	NA	NA	NA	0.02900	NA	0.01700	0.00900 J	0.01100	0.00900 J	0.01500	0.01100	0.39000	0.01200	0.04000	0.15900	0.12000	0.13100	0.00300 U	0.00300 J	0.01000	0.00300 U	0.00300 U	0.00400 J
May-18	0.08500	NA	0.14000	NA	0.08350	NA	0.05020	NA	NA	NA	NA	0.05820	NA	0.00789 J	0.00934 J	0.00734 J	0.01980	0.01730	0.07100	0.44800	0.09200	0.41800	0.12200	1.54000	0.00462 J	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	
Jul-19	0.14100	NA	0.73500	NA	1.12000	NA	0.01840	NA	NA	NA	NA	0.11100	NA	0.00489 J	0.00327 U	0.00327 U	0.04080	0.00698 J	0.02540	0.26200	0.03840	0.03480	0.69900	0.04200	0.02250	0.00327 U	0.00391 J	0.00327 U	0.00327 U	0.00327 U	
Oct-20	0.13300	NA	0.10800	NA	0.97500	NA	0.05500 J	NA	NA	NA	NA	1.82000	NA	0.02160	0.00400 J	0.01600	0.00730 J	0.02010	0.00918 J	0.35900	0.01600	0.06360	0.04540	0.09550	0.00424 J	0.00327 U	0.00327 U	0.00327 U	0.00327 U	0.00327 U	
Jan-22	0.15000	NA	0.29200	NA	0.01240	NA	0.31400	NA	NA	NA	NA	0.02130	NA	0.00963 J	0.00327 U	0.03710	0.00758 J	0.07770	0.04200	1.58000	0.01540	0.04490	0.11300	0.05190	NA	0.03200 U	0.03200 U	0.03200 U	0.03200 U	0.03200 U	
May-23	0.01830	NA	0.04630	NA	0.00752 J	NA	0.02040	NA	NA	NA	NA	0.01700	NA	0.00368 J	0.00327 U	0.01050	0.00936 J	0.00922 J	0.07770	0.46800	0.00964 J	0.02840	1.17000	0.59900	0.00499 J	0.03180 U	0.03180 U	0.03180 U	0.00557 J	0.00327 U	

Notes:

ARAR Standard = None Listed; USEPA Secondary MCL = .05 mg/L; and, PART 5 MCL = Not Available

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or Secondary MCL/MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 6

Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

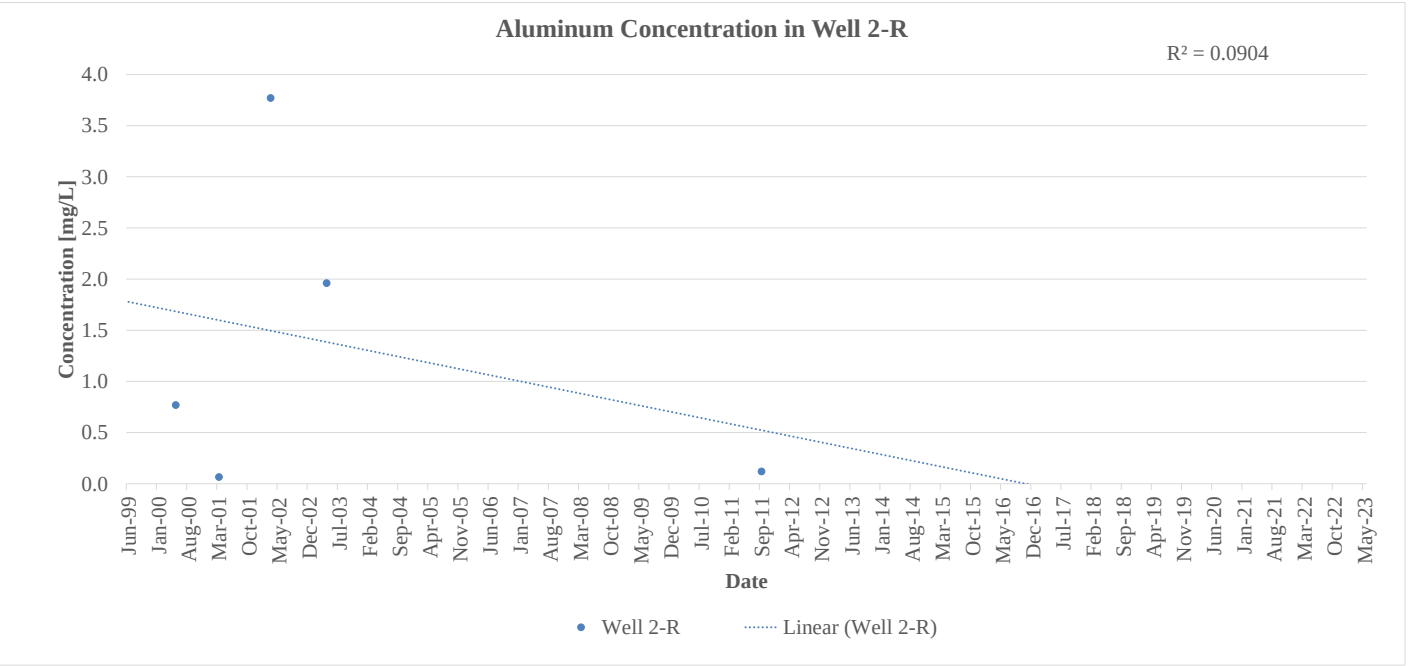
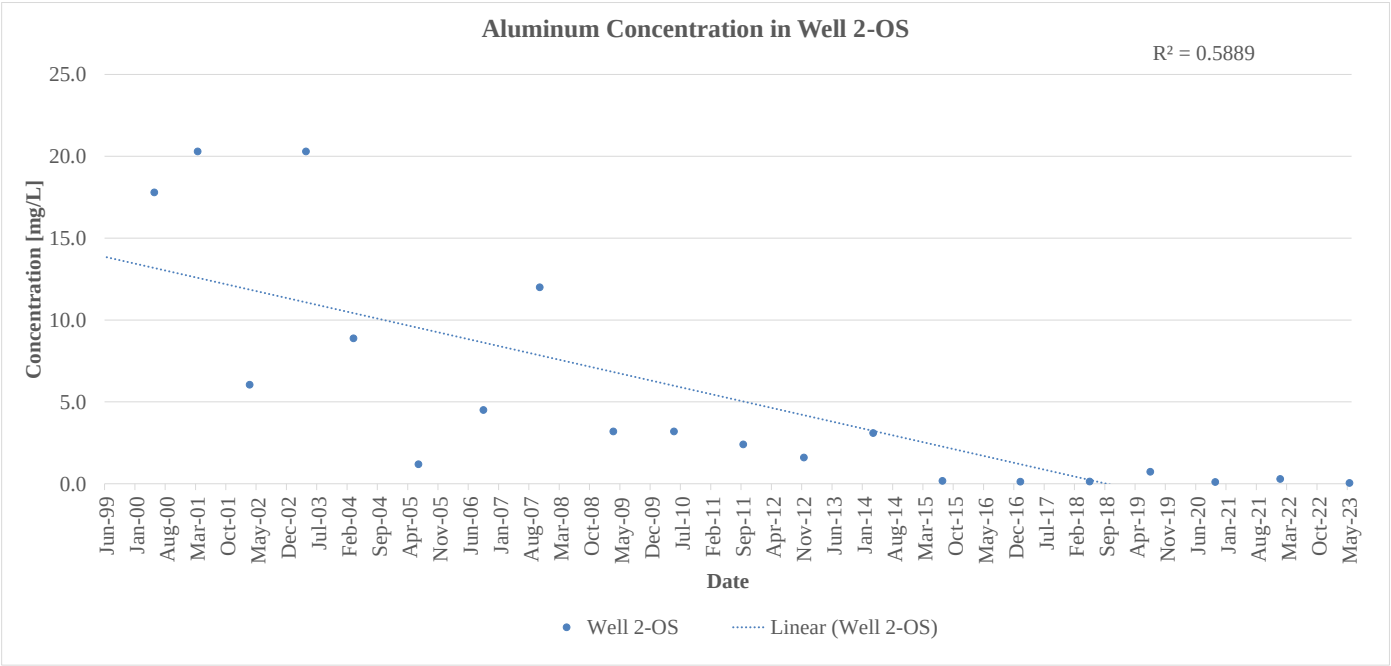
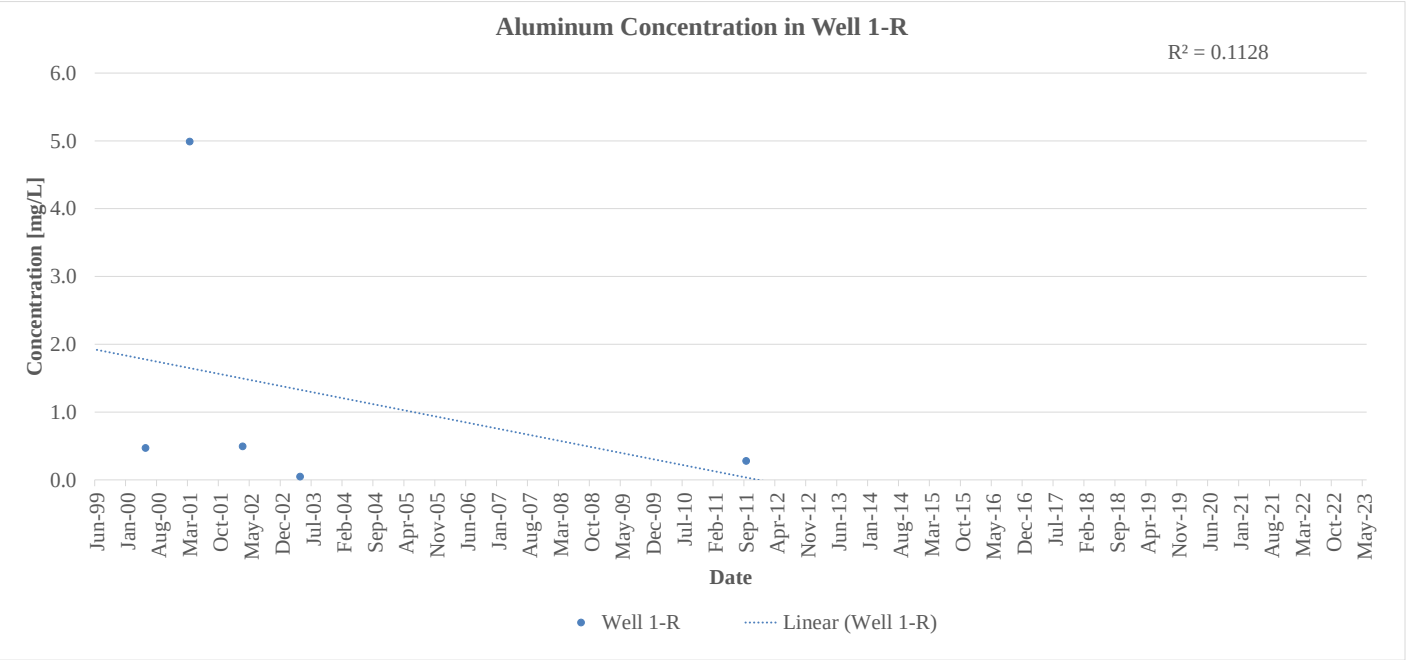
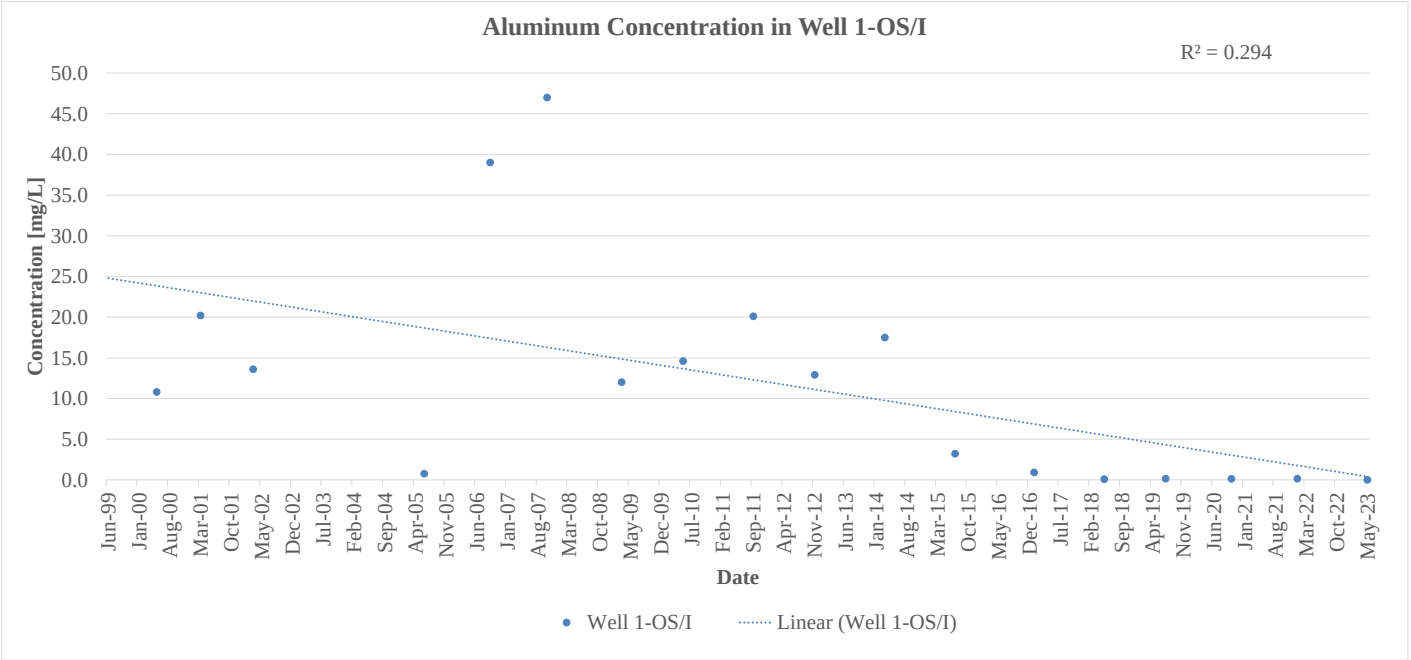


Table 6

Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

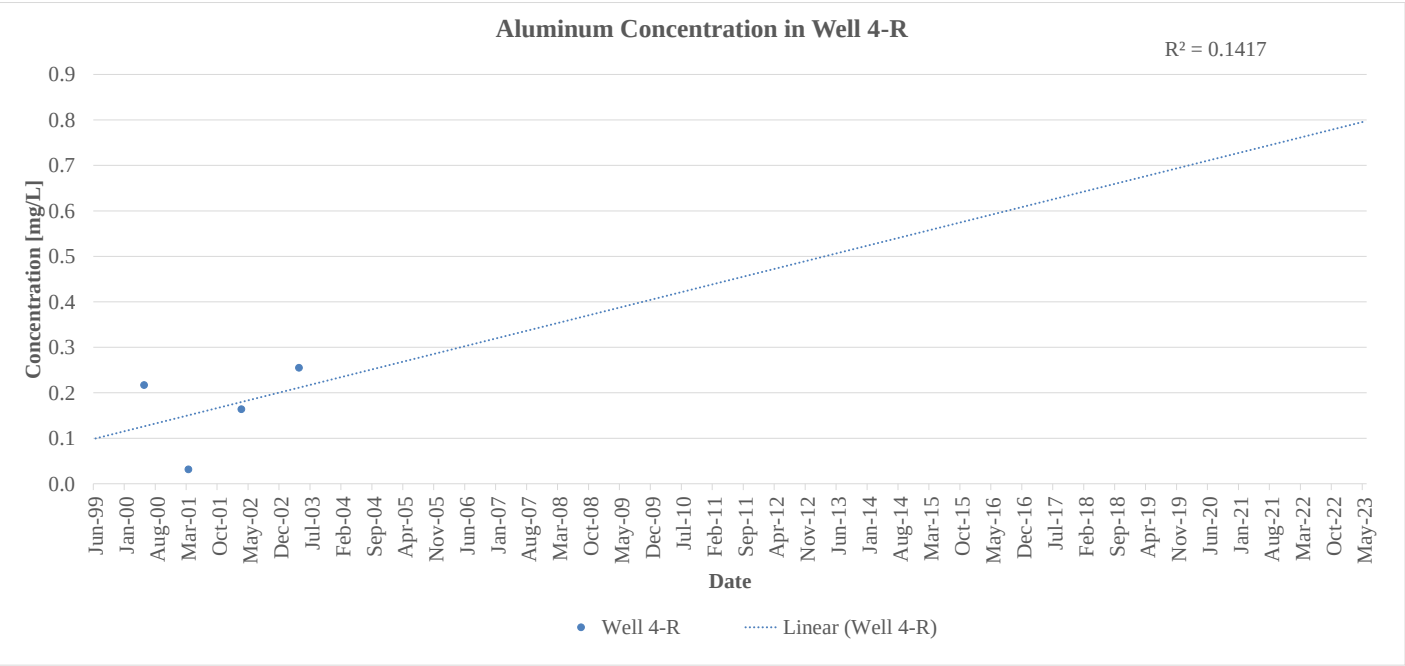
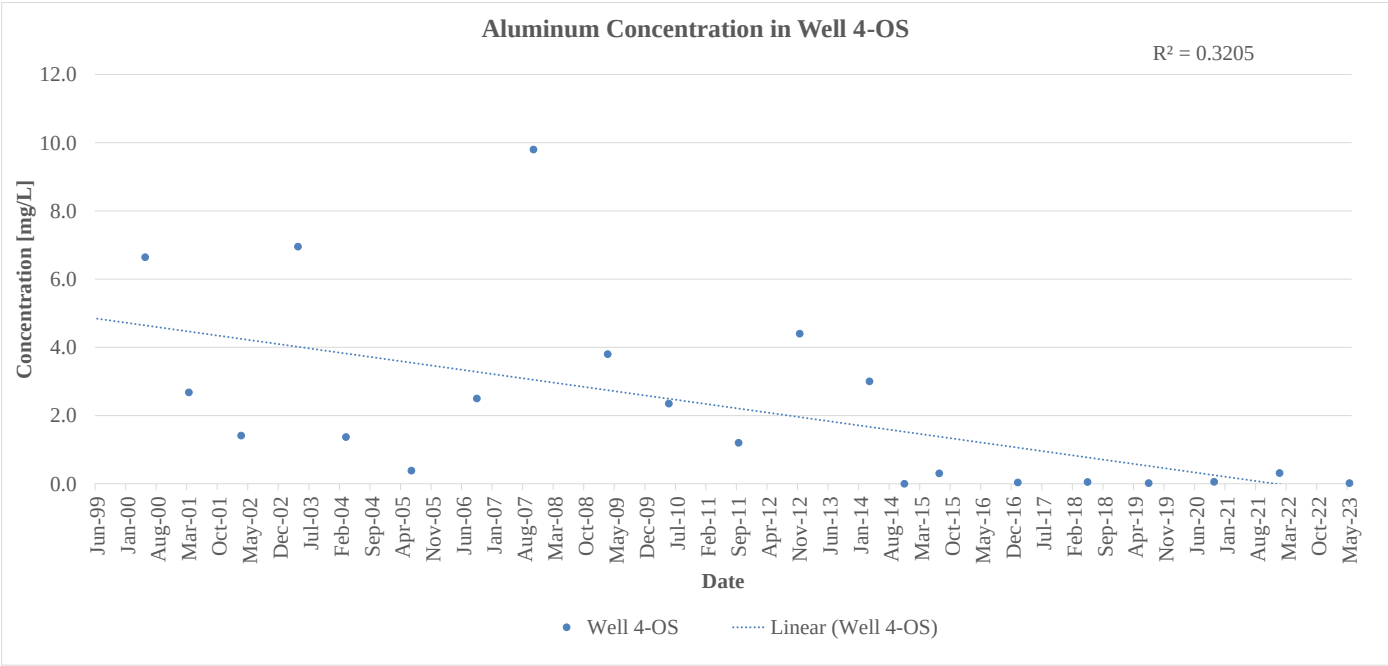
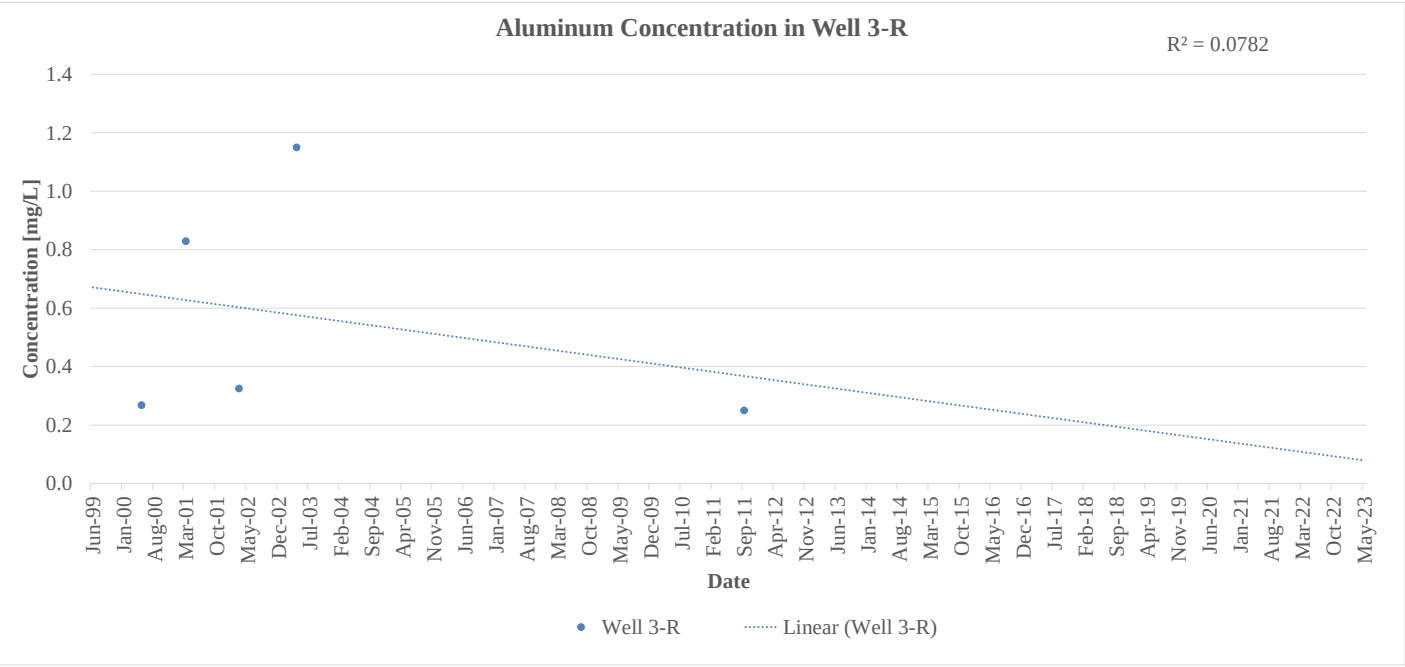
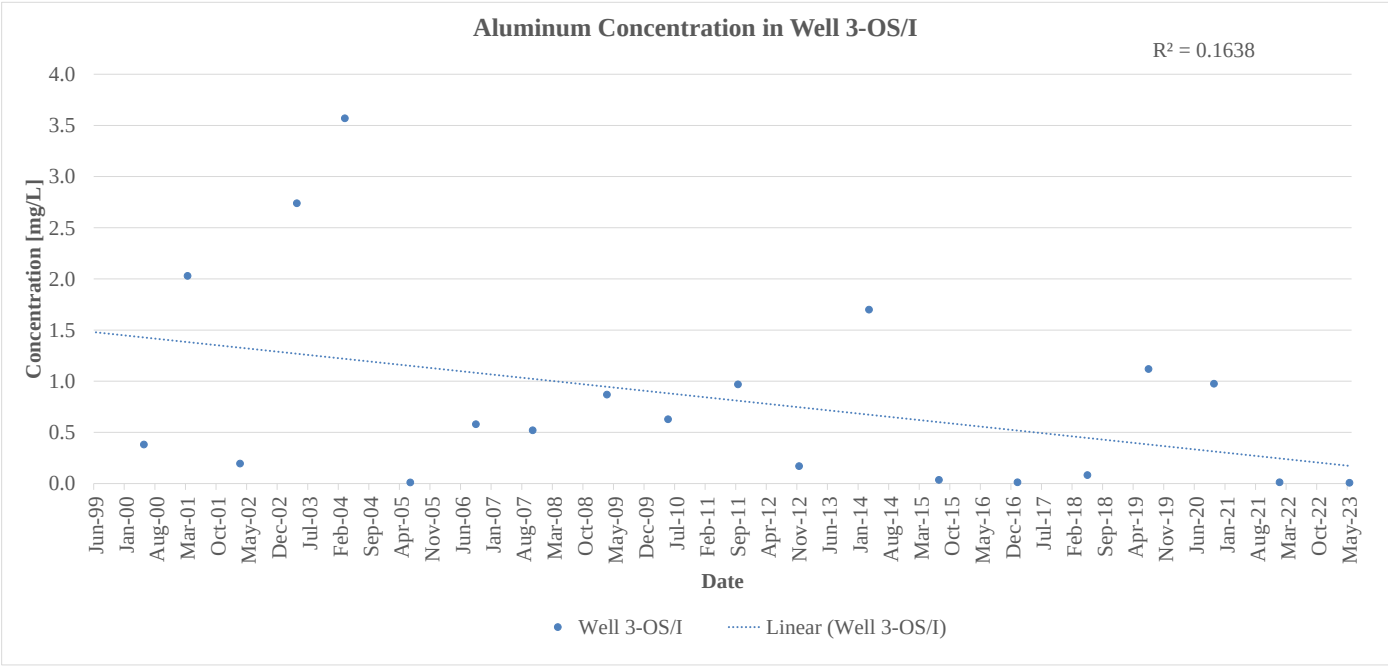


Table 6

Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

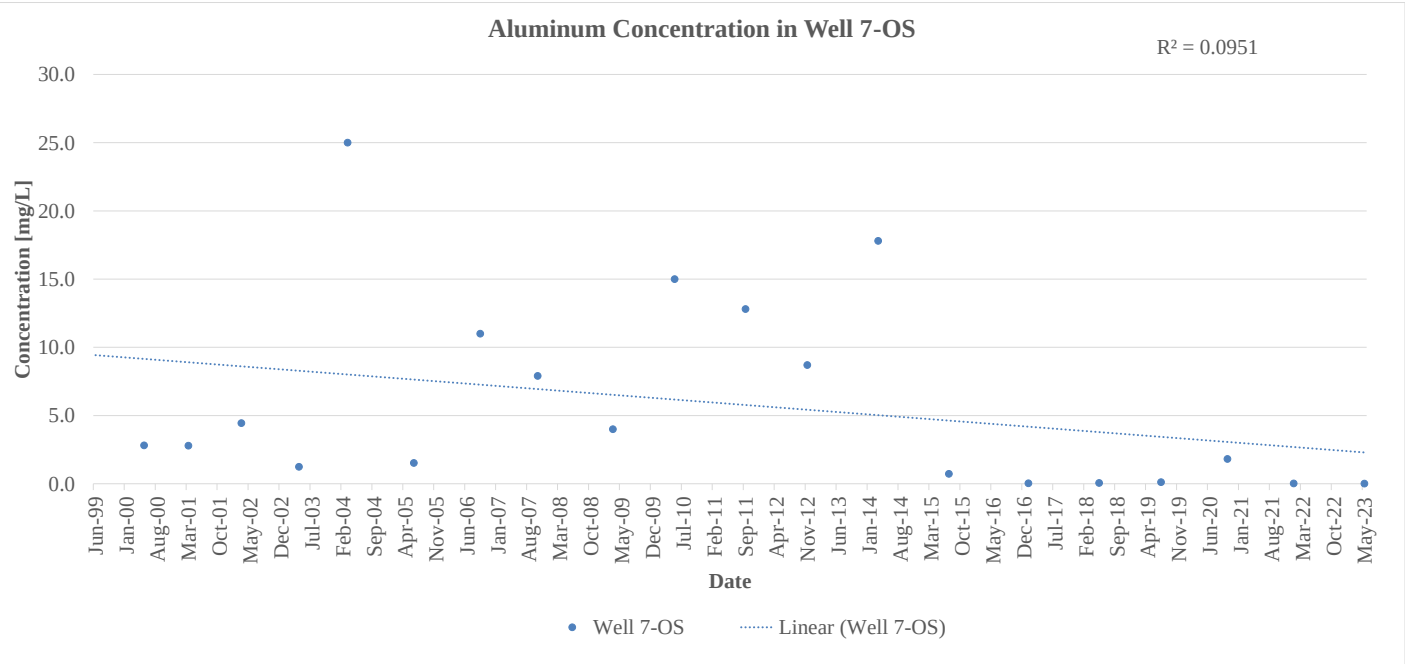
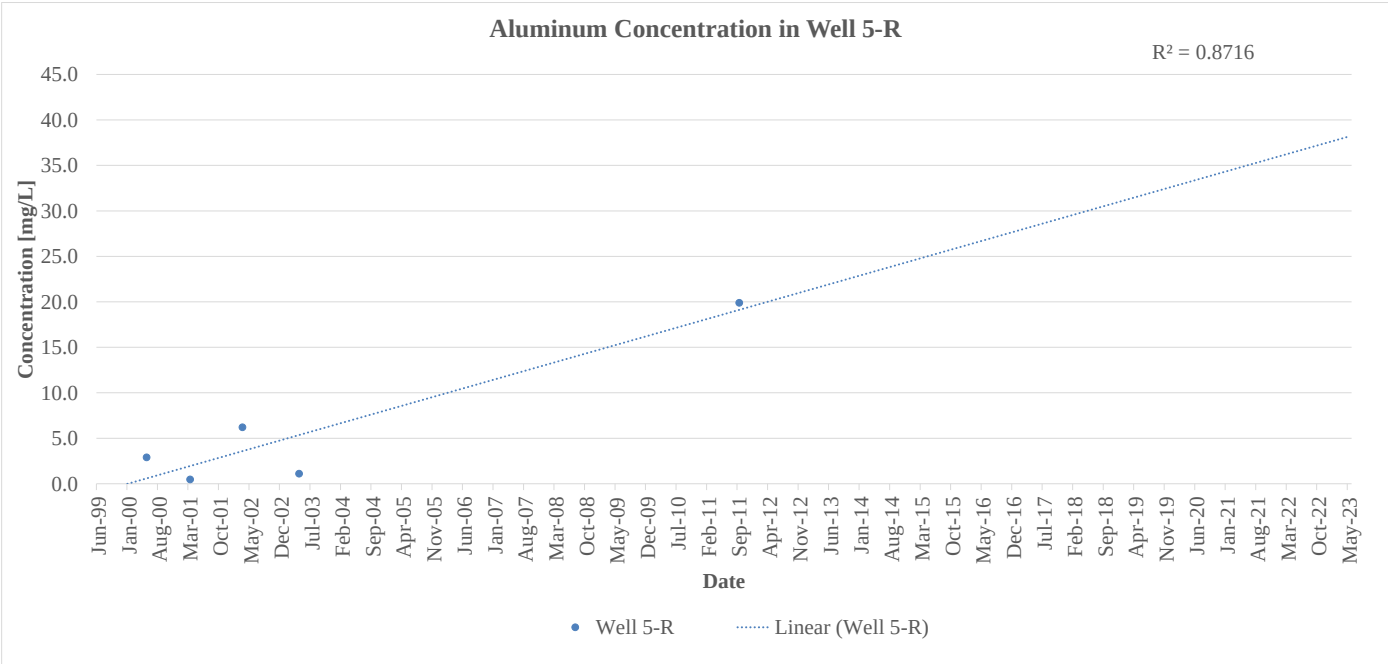
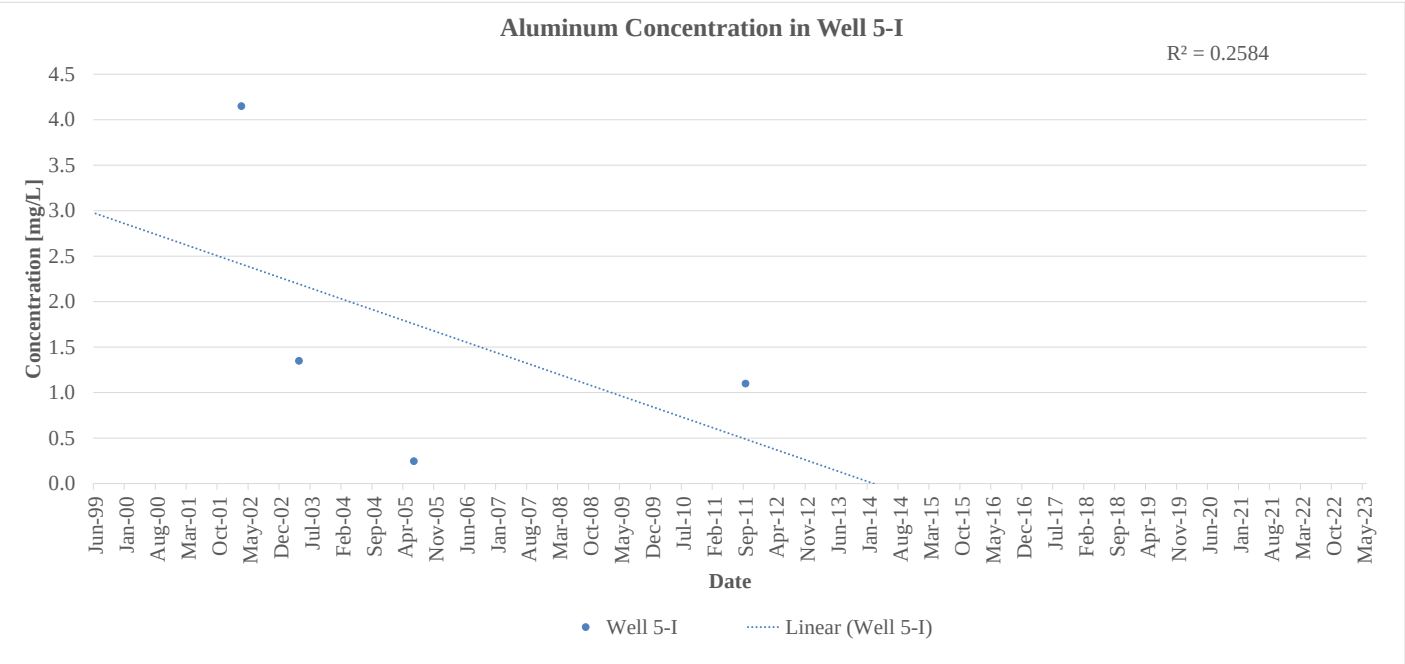
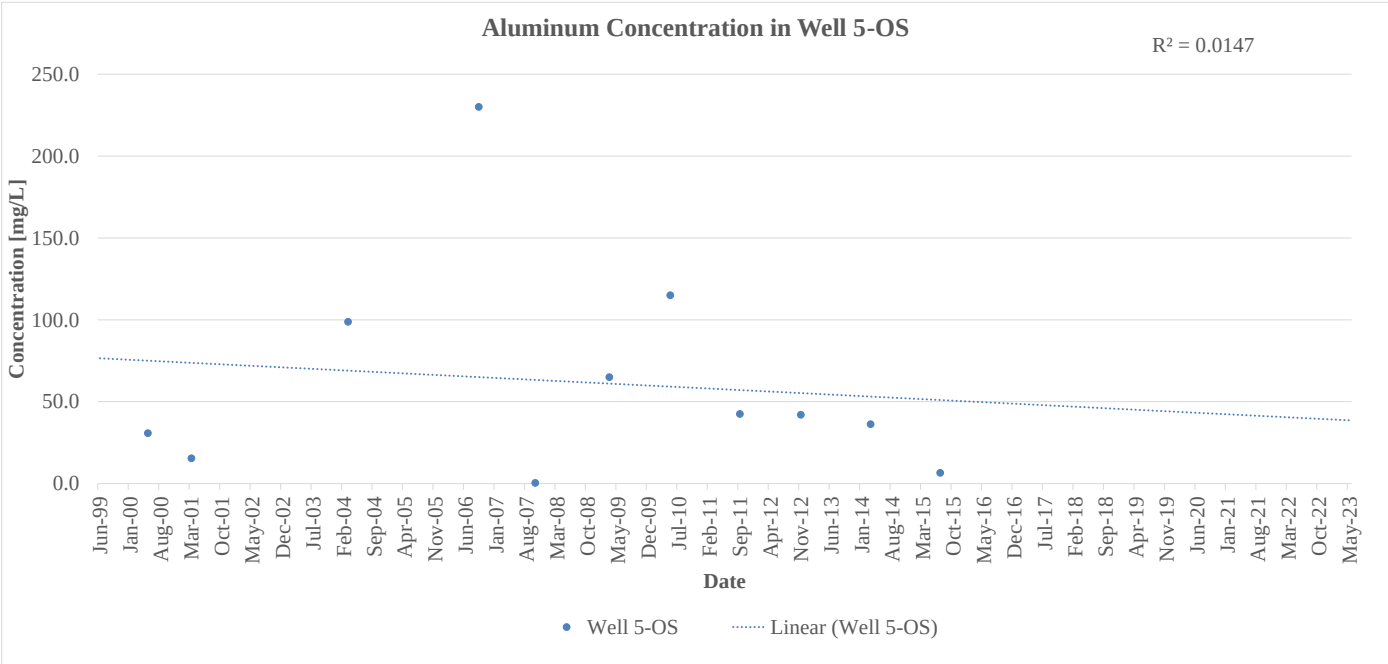


Table 6

Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

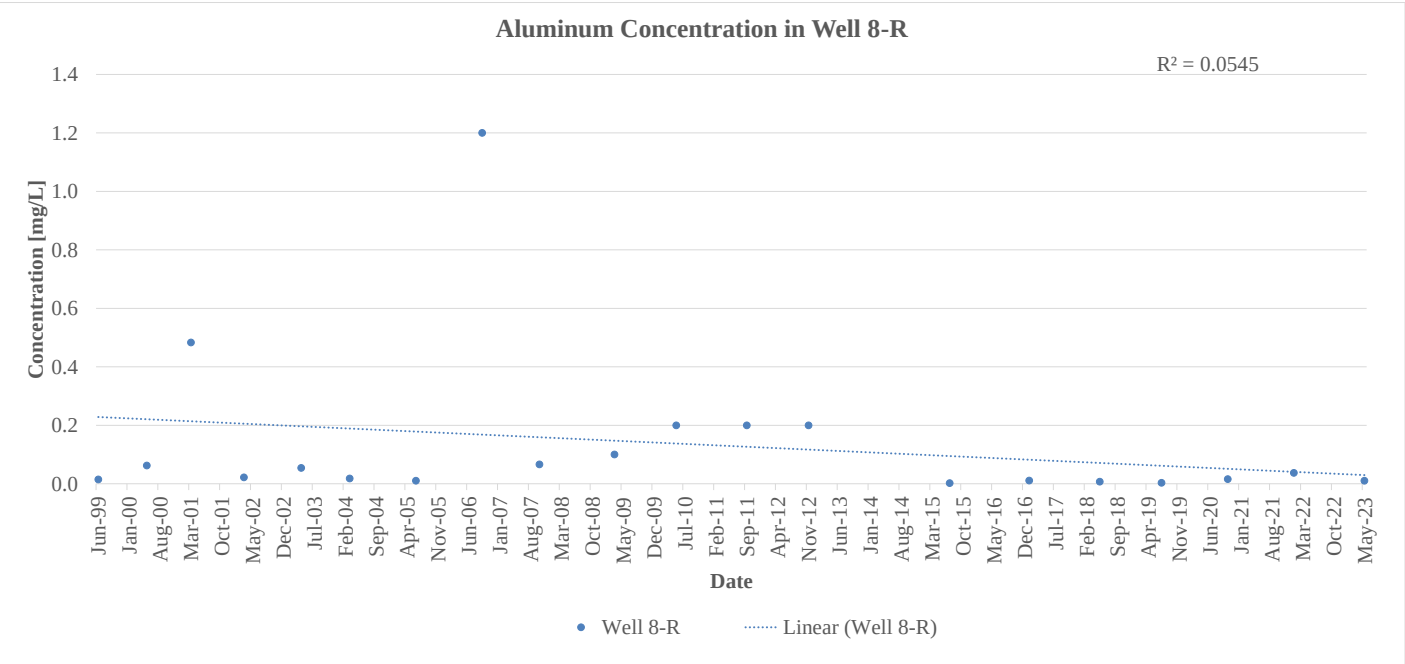
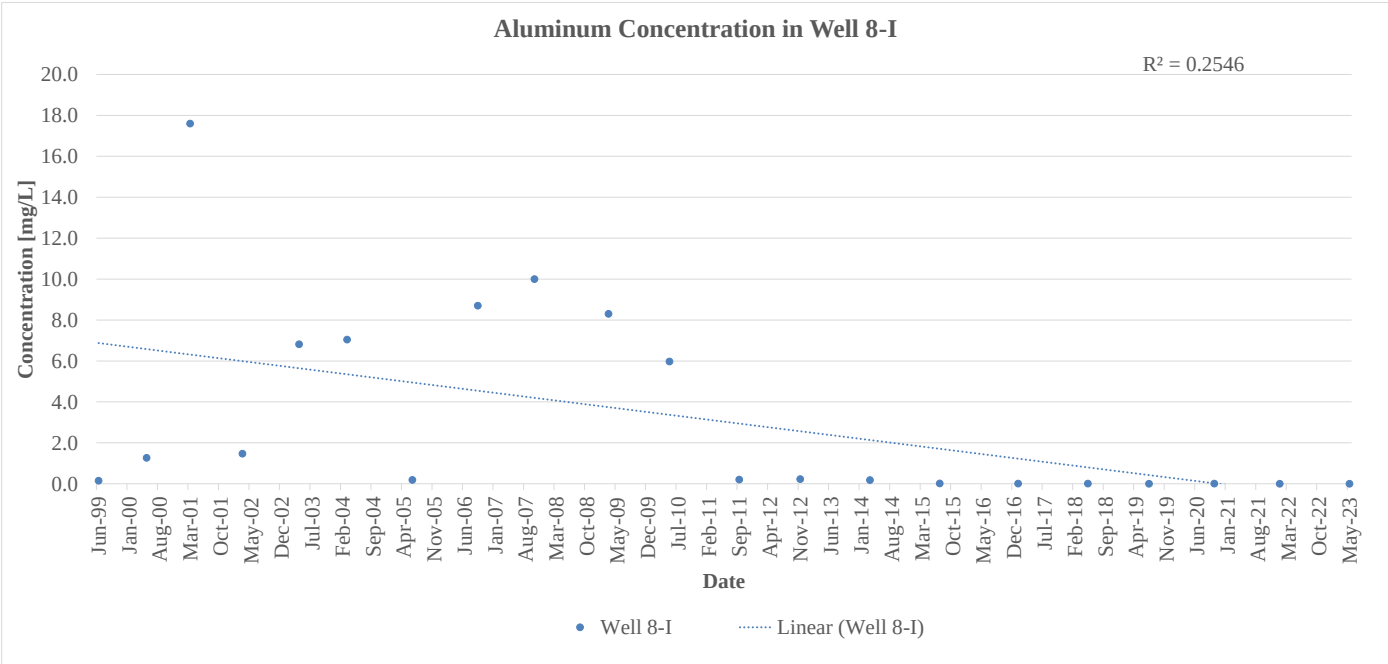
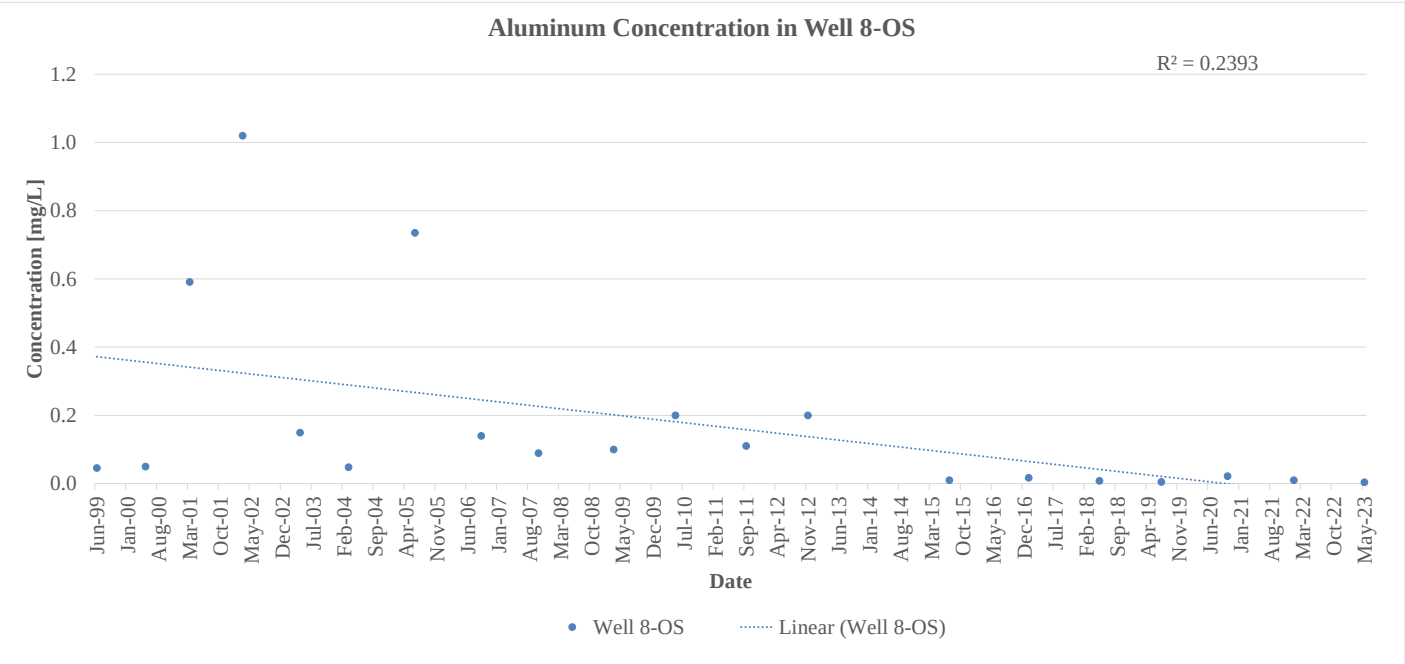
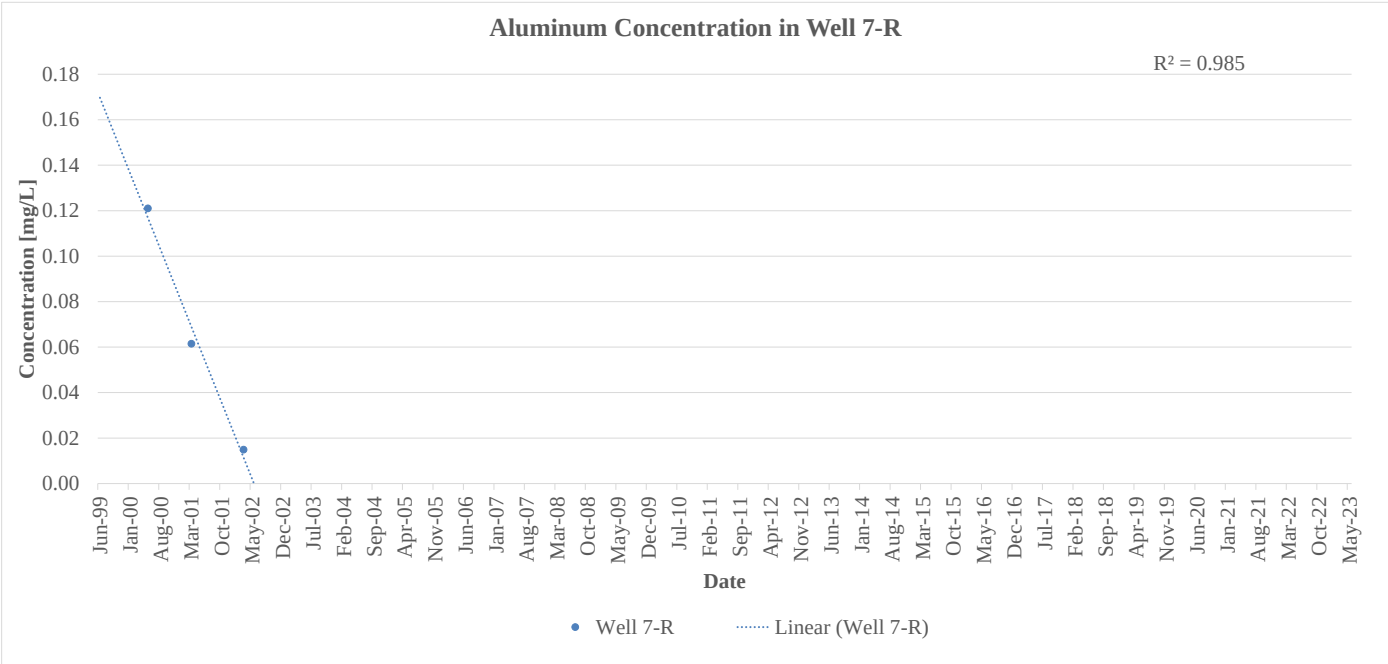


Table 6

Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

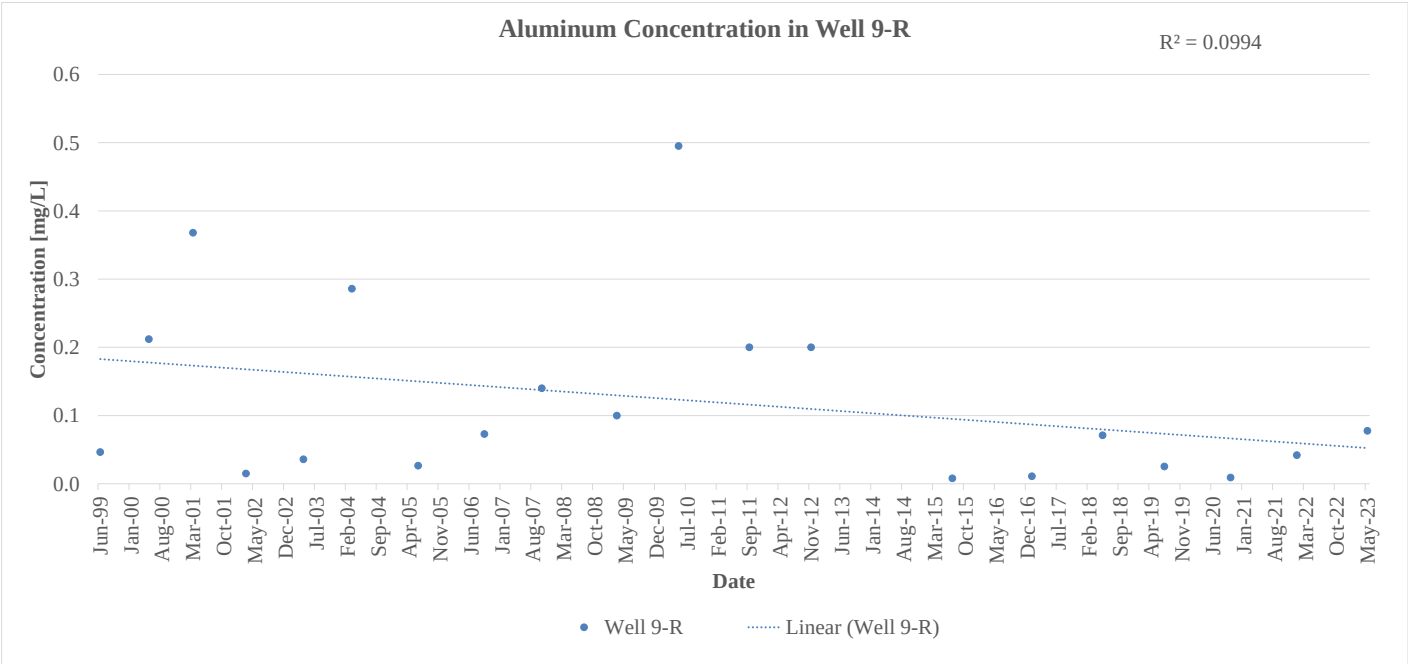
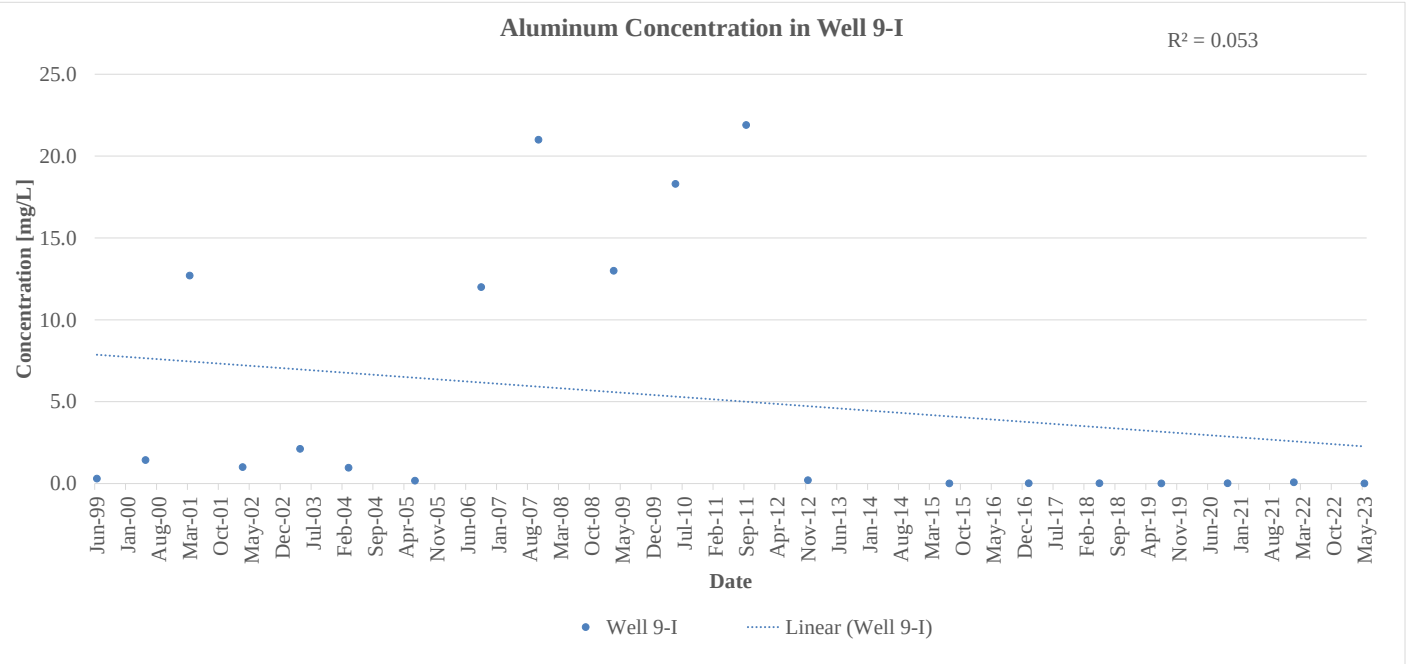
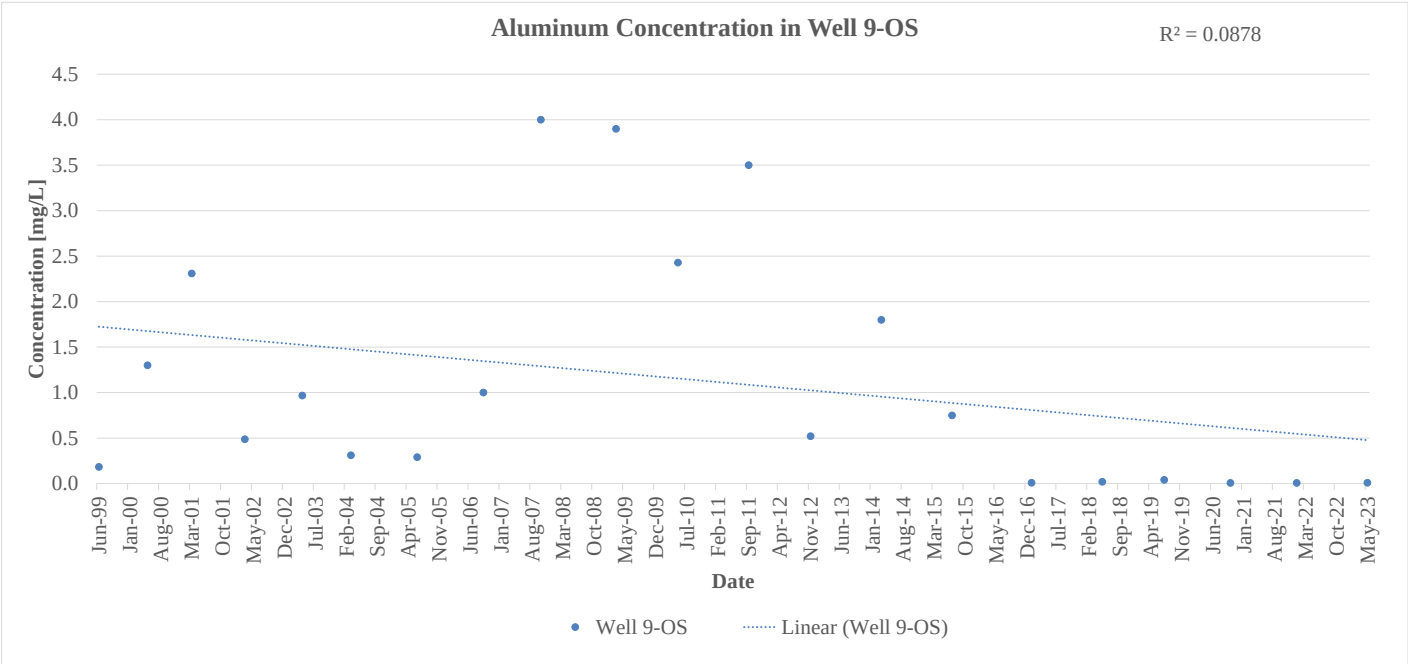


Table 7

Summary of Historical Groundwater Quality Results - Beryllium (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS/I	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0011	ND	0.0014	0.0013	0.0014	0.0013	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	
Sep-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
May-00	0.0003 B	0.0001 U	0.0008 B	0.0001 U	0.0001 U	0.0001 U	0.0004 B	0.0001 U	0.0015 B	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	NA	NA	NA	NA	0.0001 U	0.0001 U	0.0004 B	0.0001 U	0.0001 U	0.0001 U	0.0001 U	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dec-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-01	0.0011 B	0.0003 B	0.0009 B	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0010 B	NA	0.0005 B	0.0002 B	0.0002 U	0.0003 B	0.0011 B	0.0002 U	0.0004 B	0.0012 B	0.0009 B	NA	NA	NA	NA	NA	NA	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-02	0.0012 B	0.0004 U	0.0004 B	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	NA	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	NA	NA	NA	NA	NA	NA	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Apr-03	NA	0.0002 U	0.0010 B	0.0002 U	0.0002 U	0.0002 U	0.0004 B	0.0002 U	NA	0.0002 U	0.0002 U	0.0002 U	NA	0.0002 U	0.0004 B	0.0002 U	0.0002 U	0.0002 U	0.0002 U	NA	NA	NA	NA	NA	NA	0.0002 U	0.0003 B	0.0002 U	0.0002 U	0.0002 U	0.0002 U	
Mar-04	NA	NA	0.0005 B	NA	0.0003 U	NA	0.0004 U	NA	0.0049	NA	NA	0.0003 U	NA	0.0003 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U	NA	NA	NA	NA	NA	NA	0.0004 B	0.0003 U	0.0003 U	0.0003 U	0.0003 U	0.0003 U	
Jun-05	0.0004 U	NA	0.0004 U	NA	0.0004 U	NA	0.0004 U	NA	NA	0.0004 U	NA	0.0004 U	NA	0.0005 B	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	NA	NA	NA	NA	NA	NA	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	0.0004 U	
Sep-06	0.0022 J	NA	0.0004 J	NA	0.0002 J	NA	0.0004 J	NA	0.0130	NA	NA	0.0007 J	NA	0.0002 J	0.0007 J	0.0003 J	0.0001 J	0.0008 J	0.0010 U	NA	NA	NA	NA	NA	NA	0.0030 U	0.0001 J	0.0001 J	0.0030 U	0.0030 U	0.0030 U	
Oct-07	0.0026 J	NA	0.0007 J	NA	0.0001 J	NA	0.0006 J	NA	0.0030 U	NA	NA	0.0005 J	NA	0.0030 U	0.0007 J	0.0030 U	0.0003 J	0.0012 J	0.0001 J	NA	NA	NA	NA	NA	NA	NA	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U	
Mar-09	0.0006 J	NA	0.0030 U	NA	0.0030 U	NA	0.0030 U	NA	0.0032	NA	NA	0.0002 J	NA	0.0030 U	0.0005 J	0.0030 U	0.0003 J	0.0007 J	0.0030 U	NA	NA	NA	NA	NA	NA	0.0030 U	0.0030 U	0.0030 U	NA	0.0030 U	0.0030 U	
May-10	0.0007 J	NA	0.0002 J	NA	0.0020 U	NA	0.0002 J	NA	0.0055	NA	NA	0.0007 J	NA	0.0020 U	0.0004 J	0.0020 U	0.0020 U	0.0009 J	0.0020 U	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	0.0020 U	NA	0.0020 U	0.0020 U	
Sep-11	0.0009 J	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	NA	0.0024	0.0020 U	0.0014 J	0.0006 J	NA	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0018 J	0.0020 U	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	0.0020 U	0.0020 U	NA	NA	
Nov-12	0.0007 J	NA	0.0020 U	NA	0.0020 U	NA	0.0020 U	NA	0.0021	NA	NA	0.0005 J	NA	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	NA
Mar-14	0.0005 J	NA	0.0020 U	NA	0.0020 U	NA	0.0020 U	NA	0.0019 J	NA	NA	0.0006 J	NA	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	NA	NA	NA	NA	NA	NA	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0001 U	0.0001 U	0.0002 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	0.0002 J	NA	0.0002 U	NA	0.0002 U	NA	0.0002 U	NA	0.0011	NA	NA	0.0002 U	NA	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	NA	NA	NA	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	
Jan-17	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	NA	NA	NA	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 J	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	0.0001 U	0.0001 U		
May-18	0.0005 U	NA	0.0005 U	NA	0.0005 U	NA	0.0005 U	NA	NA	NA	NA	0.0005 U	NA	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0001 J	0.0005 U	0.0005 U	0.0005 U	NA	0.0005 U	NA	0.0005 U	NA	0.0005 U	0.0005 U		
Jul-19	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	NA	NA	NA	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 J	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	
Oct-20	0.0010 U	NA	0.0010 U	NA	0.0010 U	NA	0.0010 U	NA	NA	NA	NA	0.0010 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 J	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	
Jan-22	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	NA	NA	NA	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 J	0.0001 U	0.0001 U	0.0001 U	0.0002 J	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	
May-23	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	0.0001 U	NA	NA	NA	NA	0.0001 U	NA	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.00013 J	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	

Notes:

ARAR Standard = .003 mg/L; USEPA MCL = .004 mg/L; and, PART 5 MCL = .004 mg/L

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or Secondary MCL/MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 7

Summary of Historical Groundwater Quality Results - Beryllium (mg/L)
Town of Ramapo Landfill

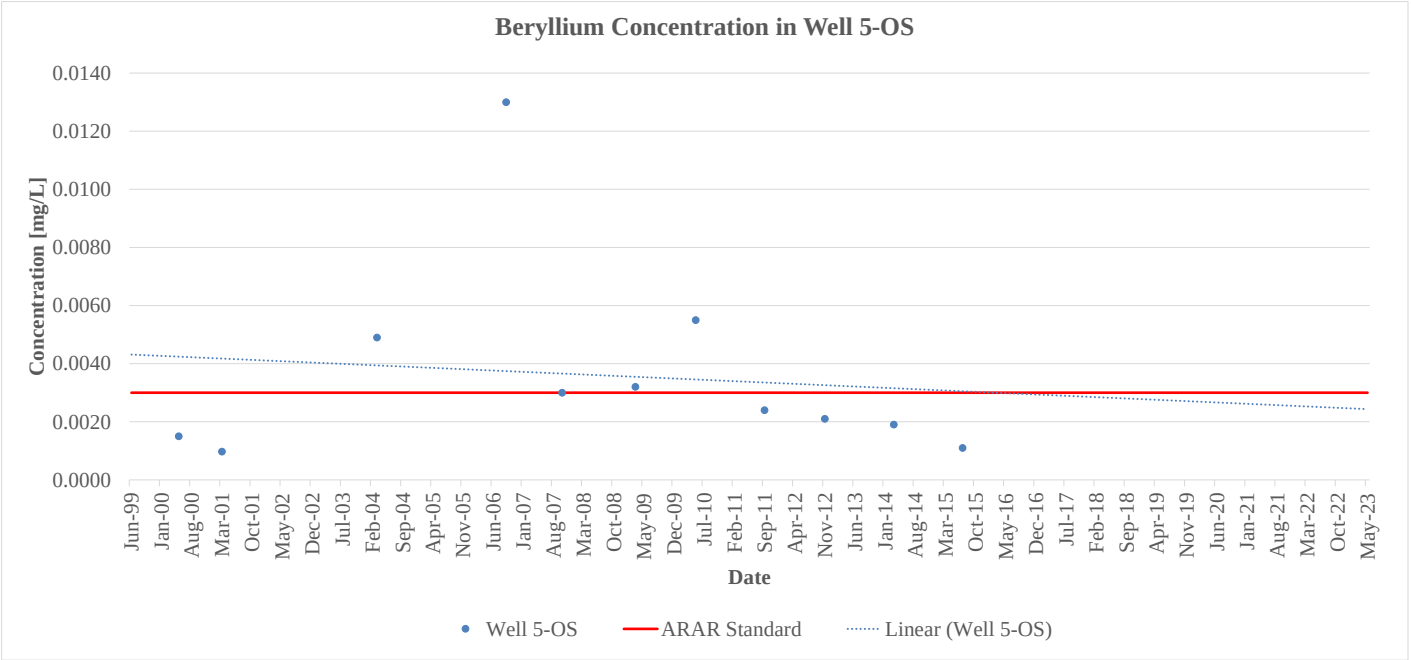


Table 8

Summary of Historical Groundwater Quality Results - Cadmium (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS/I	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	0.00130	0.00300	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	
Sep-99	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	0.00380	0.02420	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	
May-00	0.00092 B	0.00061 B	0.00240	0.00040 U	0.00040 U	0.00040 U	0.00045 B	0.00040 U	0.00130 B	NA	0.00140 B	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00940	NA	NA	NA	NA	NA	0.00040 U	0.00040 U	0.00061 B	0.0004 U	0.0004 U	0.0004 U	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00620 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	NA	NA	NA	NA	NA	0.00310 U	0.00310 U	0.00310 U	0.0031 U	0.0031 U	0.0031 U	
Dec-00	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00340 B	NA	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U	0.00310 U
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00081 B	0.00030 U	0.00088 B	NA	NA	NA	NA	NA	NA	0.00300 U	NA	NA	NA	NA	NA	
Mar-01	0.00120 B	0.00030 U	0.00130 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00031 B	NA	0.00042 B	0.00030 U	0.00030 U	0.00040 B	0.00120 B	0.00035 B	0.00042 B	0.00090 B	0.00170 B	NA	NA	NA	NA	NA	NA	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00091 B	0.00068 B	0.00030 U	0.00030 U	0.00030 U	0.00037 B	NA	NA	NA	NA	NA	NA	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	
Oct-01	0.00030 U	0.00030 U	0.00110 B	0.00036 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U	NA	0.00084 B	0.00030 U	0.00037 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	NA	NA	NA	NA	NA	NA	0.00030 U	0.00030 U	NA	NA	NA	NA	
Mar-02	0.00026 U	0.00026 U	0.00026 U	0.00066 B	0.00026 U	0.00026 U	0.00026 U	0.00026 U	NA	0.00026 U	0.00045 B	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	NA	NA	NA	NA	NA	NA	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	0.00026 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	NA	NA	NA	NA	NA	NA	0.00048 U	0.00048 U	0.00048 U	0.00240 B	0.00048 U	0.00048 U	
Oct-02	0.00048 U	0.00150 B	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	NA	0.00048 U	0.00048 U	0.00048 U	NA	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	NA	NA	NA	NA	NA	NA	NA	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U	0.00048 U
Apr-03	NA	0.00030 U	0.00170 B	0.00030 U	0.00120 B	0.00030 U	0.00033 B	0.00030 U	NA	0.00030 U	0.00030 U	0.00030 U	NA	0.00030 U	0.00055 B	0.00030 U	0.00030 U	0.00030 U	0.00030 U	NA	NA	NA	NA	NA	NA	NA	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U
Mar-04	NA	NA	0.00040 U	NA	0.00058	NA	0.00040 U	NA	0.00040 U	NA	NA	0.00210 B	NA	0.00042 B	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00090 B	NA	NA	NA	NA	NA	NA	NA	0.00088 B	0.00040 U	0.00040 U	0.00052 B	0.00040 U	0.00040 U
Jun-05	0.00080 U	NA	0.00080 U	NA	0.00160 B	NA	0.00080 U	NA	NA	0.00080 U	NA	0.00080 U	NA	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	NA	NA	NA	NA	NA	NA	NA	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Sep-06	0.00430	NA	0.00160	NA	0.00320	NA	0.00220	NA	0.01100	NA	NA	0.00100	NA	0.00092 J	0.00150	0.00120	0.00067 J	0.00073 J	0.00053 J	NA	NA	NA	NA	NA	NA	NA	0.00053 J	0.00062 J	0.00059 J	0.00100 U	0.00100 U	0.00100 U
Oct-07	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	NA	0.00100 U	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA	NA	NA	NA	NA	NA	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Mar-09	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	NA	0.00500 U	NA	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	NA	NA	NA	NA	NA	NA	NA	0.00500 U	0.00500 U	0.00500 U	NA	0.00500 U	0.00500 U
May-10	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00500 U	NA	NA	0.00100 U	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA	NA	NA	NA	NA	NA	NA	0.00100 U	0.00100 U	0.00100 U	NA	0.00100 U	0.00100 U
Sep-11	0.00067 J	0.00100 U	0.00100 U	0.00100 U	0.00047 J	0.00061 J	0.00100 U	NA	0.00042 J	0.00100 U	0.00220	0.00100 U	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA	NA	NA	NA	NA	NA	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA	NA
Nov-12	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00069	NA	NA	0.00100 U	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA	NA	NA	NA	NA	NA	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA
Mar-14	0.00066 J	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	NA	0.00100 U	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	NA	NA	NA	NA	NA	NA	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00200 U	0.00200 U	0.00200 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	0.00029	NA	0.00010 J	NA	0.00010 U	NA	0.00010 U	NA	0.00040	NA	NA	0.00010 J	NA	0.00010 U	0.00010 U	0.00010 U	0.00040	0.00010 U	0.00010 J	0.00010 U	0.00010 U	0.00010 U	NA	NA	NA	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	
Jan-17	0.00030	NA	0.00010 U	NA	0.00010 U	NA	0.00010 U	NA	NA	NA	NA	0.00010 U	NA	0.00010 U	0.00010 U	0.00018 J	0.00018 J	0.00060	0.00010 J	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
May-18	0.00020 U	NA	0.00020 U	NA	0.00012 J	NA	0.00020 U	NA	NA	NA	NA	0.00020 U	NA	0.00020 U	0.00020 U	0.00022 J	0.00020 U	0.00020 U	0.00030	0.00048	0.00012 J	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	
Jul-19	0.00014 J	NA	0.00005 U	NA	0.00017 J	NA	0.00005 U	NA	NA	NA	NA	0.00005 U	NA	0.00008 J	0.00005 U	0.00022 J	0.00032	0.00005 U	0.00071	0.00005 U	0.00005 U	0.00017 J	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	
Oct-20	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	0.00100 U	NA	NA	NA	NA	0.00100 U	NA	0.00005 U	0.00005 U	0.00029	0.00005 U	0.00005 U	0.00045	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	
Jan-22	0.00005 U	NA	0.00005 U	NA	0.00005 U	NA	0.00005 U	NA	NA	NA	NA	0.00005 U	NA	0.00005 U	0.00005 U	0.00029	0.00011 J	0.00020	0.00101	0.00007 J	0.00005 U	0.00005 U	0.00005 U	0.00005 U	NA	0.00010 U	0.00010 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	
May-23	0.00005 U	NA	0.00005 U	NA	0.00005 U	NA	0.00005 U	NA	NA	NA	NA	0.00005 U	NA	0.00005 U	0.00005 U	0.00022	0.00005 U	0.00005 U	0.00141	0.00006 J	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00010 U	0.00010 U	0.00010 U	0.00005 U	0.00005 U	0.00010 U	

Notes:

ARAR Standard = .005 mg/L; USEPA MCL = .005 mg/L; and, Part 5 MCL = .005 mg/L

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or Secondary MCL/MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 8

Summary of Historical Groundwater Quality Results - Cadmium (mg/L)
Town of Ramapo Landfill

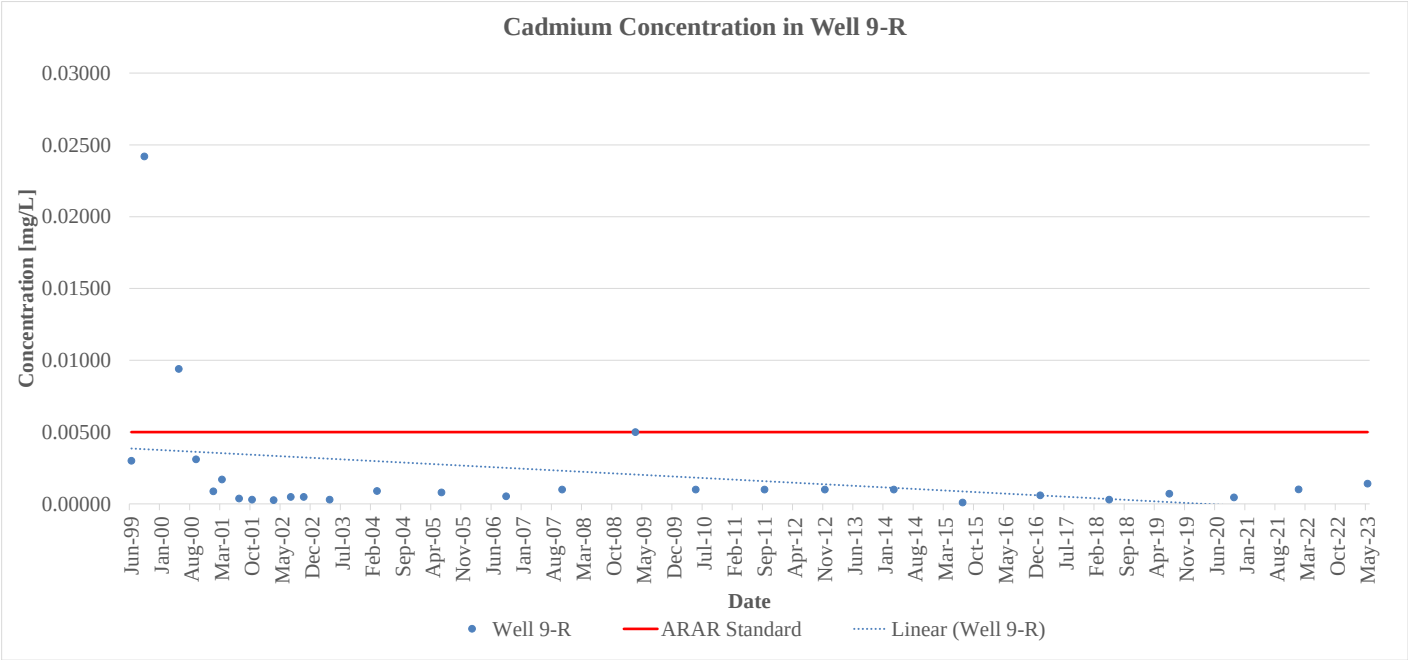


Table 9

Summary of Historical Groundwater Quality Results - Copper (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS/I	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01200	0.03720	0.01270	0.00950	0.01000	0.01280	NA	NA	NA	NA	NA	NA	0.09720	0.02910	0.02580	0.03230	0.02580	0.02910	
Sep-99	0.10400	0.01060	0.02340	ND	0.00780	0.02380	0.07980	0.01730	NA	0.00600	0.01010 B	0.03450	0.00580	0.00720	0.01820	0.02350	ND	0.00870	0.01910	NA	NA	NA	NA	NA	NA	0.03970	0.00750	NA	NA	NA	NA	
May-00	0.06800	0.00680 B	0.05690	0.00630 B	0.01350 B	0.00520 B	0.01910 B	0.00200 U	0.05390	NA	0.00920 B	0.01080 B	0.00440 B	0.00210 B	0.00340 B	0.00540 B	0.00200 U	0.00310 B	0.00390 B	NA	NA	NA	NA	NA	NA	0.09910	0.01860 B	0.00310 B	0.00560 B	0.00350 B	0.00400 B	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01810 B	0.01850 B	0.02290 B	0.00210 U	0.00340 B	0.00500 B	NA	NA	NA	NA	NA	NA	0.17300	0.03960	0.00320 B	0.00490 B	0.00210 U	0.00510 B	
Dec-00	0.04930	0.00500 B	0.04510	0.01540 B	0.01000 B	0.00820 B	0.01580 B	0.00350 B	0.14200	NA	0.00660 B	0.02450 B	0.00490 B	0.01170 B	0.03040	0.02620	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01940 B	0.01030 B	0.00710 B	0.00700 B	0.01780 B	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00630 B	0.00340 B	0.00270 B	NA	NA	NA	NA	NA	NA	0.05270	NA	NA	NA	NA	NA	
Mar-01	0.07500	0.03690	0.05730	0.00160 U	0.01020 B	0.00460 B	0.00830 B	0.00160 U	0.02620	NA	0.00320 B	0.00800 B	0.00160 U	0.00530 B	0.05380	0.02990	0.00430 B	0.02950	0.00310 B	NA	NA	NA	NA	NA	NA	0.05910	0.00720 B	0.00170 B	0.00700 B	0.00420 B	0.00280 B	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00330 B	0.02030 B	0.00950 B	0.00240 B	0.00340 B	0.00430 B	NA	NA	NA	NA	NA	NA	0.05360	0.02130 B	0.00390 B	0.00410 B	0.00270 B	0.00400 B	
Oct-01	0.02220 B	0.01540 B	0.03900	0.00190 B	0.00800 B	0.00240 B	0.00520 B	0.00340 B	NA	0.02180 B	0.00560 B	0.02590	0.00710 B	0.00590 B	0.00160 U	0.00460 B	0.00890 B	0.00400 B	0.00160 U	NA	NA	NA	NA	NA	NA	0.06490	0.08060	NA	NA	NA	NA	
Mar-02	0.04740	0.01710 B	0.01650 B	0.01920 B	0.00500 B	0.00300 U	0.00300 U	0.00300 U	NA	0.00500 B	0.02390 B	0.00780 B	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	NA	NA	NA	NA	NA	NA	0.05760	0.01780 B	0.00300 U	0.00360 B	0.00680 B	0.00820 B	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00690 U	0.01580 B	0.00810 B	0.00690 U	0.00690 U	0.00690 U	NA	NA	NA	NA	NA	NA	0.12100	0.01300 B	0.00690 U	0.00690 U	0.00690 U	0.00690 U	
Oct-02	0.08630	0.02040 B	0.08340	0.00690 U	0.03160	0.00880 B	0.04540	0.00690 U	NA	0.00690 U	0.00690 U	0.03950	NA	0.01290 B	0.01410 B	0.02200 B	0.00690 U	0.00690 U	0.00690 U	NA	NA	NA	NA	NA	NA	0.05060	0.01840 B	0.00690 U	0.00690 U	0.00790 B	0.00690 U	
Apr-03	NA	0.00360 B	0.05530	0.01130 B	0.05990	0.00530 B	0.01760 B	0.00310 B	NA	0.00420 B	0.00560 B	0.00440 B	NA	0.00300 B	0.01860 B	0.00460 B	0.00280 U	0.00530 B	0.00280 U	NA	NA	NA	NA	NA	NA	0.05870	0.01390 B	0.00640 B	0.00440 B	0.00400 B	0.00360 B	
Mar-04	NA	NA	0.02540	NA	0.01370 B	NA	0.00740 B	NA	0.18300	NA	NA	0.05160	NA	0.00170 B	0.01420 B	0.00180 B	0.00160 U	0.00280 B	0.00220 B	NA	NA	NA	NA	NA	NA	0.05950	0.01740 B	0.01060 B	0.00980 B	0.00560 B	0.00540 B	
Jun-05	0.02590	NA	0.01590 B	NA	0.05180	NA	0.00420 B	NA	NA	0.00290 B	NA	0.00520 B	NA	0.03210	0.00120 U	0.00300 B	0.00120 U	0.00120 U	0.00120 U	NA	NA	NA	NA	NA	NA	0.08340	0.19700	0.00390 B	0.00540 B	0.00300 B	0.00390 B	
Sep-06	0.13000	NA	0.01500	NA	0.06900	NA	0.01000	NA	0.50000	NA	NA	0.02800	NA	0.00200 J	0.02300	0.08400	0.00360 J	0.02700	0.01000 U	NA	NA	NA	NA	NA	NA	0.06900	0.05000	0.00760 J	0.00700 J	0.00610 J	0.00680 J	
Oct-07	0.14000	NA	0.03500	NA	0.02700	NA	0.02300	NA	0.01000 U	NA	NA	0.01800	NA	0.01000 U	0.02900	0.00290 J	0.01400	0.04400	0.01000 U	NA	NA	NA	NA	NA	NA	0.06000	0.20000	0.00800 J	0.01200	0.00440 J	0.00430 J	
Mar-09	0.03300	NA	0.02100	NA	0.04400	NA	0.01100	NA	0.11000	NA	NA	0.01000	NA	0.01100	0.02700	0.00500 J	0.01600	0.02700	0.01000 U	NA	NA	NA	NA	NA	NA	0.10000	0.06100	0.00390 J	NA	0.00540 J	0.00630 J	
May-10	0.05760	NA	0.03600	NA	0.02110	NA	0.00740 J	NA	0.20200	NA	NA	0.03090	NA	0.00170 J	0.01240	0.01000 J	0.00720 J	0.03300 B	0.01000 U	NA	NA	NA	NA	NA	NA	0.11700	0.05340	0.01930	NA	0.01120	0.00850 J	
Sep-11	0.16000	0.01500	0.03400	0.00180 J	0.20000	0.03400	0.00420 J	NA	0.07200	0.00290 J	0.05300	0.03200	NA	0.00920 J	0.01000 U	0.01000 U	0.00670 J	0.04800	0.01000 U	NA	NA	NA	NA	NA	NA	0.08700	0.01600	0.00460 J	0.00390 J	NA	NA	
Nov-12	0.04800	NA	0.01100	NA	0.05500	NA	0.01400	NA	0.08500	NA	NA	0.02700	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	0.25000	0.02600	0.00310 J	0.00540 J	0.00410	NA
Mar-14	0.09000	NA	0.03400	NA	0.02800	NA	0.01200	NA	0.06600	NA	NA	0.03900	NA	0.00260 J	0.00240 J	0.00400 J	0.00380 J	ND	ND	NA	NA	NA	NA	NA	NA	0.16000	0.06300	0.00790 J	0.00800 J	0.01100	0.00810 J	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00500 U	0.00500 U	0.33100	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	0.09526	NA	0.00520	NA	0.00470	NA	0.00340	NA	0.03760	NA	NA	0.02000	NA	0.00280	0.00030 U	0.00080 J	0.00400	0.00030 U	0.00030 J	0.01200	0.00150	0.00120	NA	NA	NA	0.11100	0.02400	0.00832	0.00752	0.00250	0.00766	
Jan-17	0.04290	NA	0.01190	NA	0.00540	NA	0.00090 J	NA	NA	NA	NA	0.00230	NA	0.00380	0.00060 J	0.00210	0.00050 J	0.00080 J	0.00170	0.00150	0.00096 J	0.00290	0.01340	0.00380	0.00310	0.09180	0.05560	0.00980	0.00490	0.00530	0.00700	
May-18	0.00460	NA	0.01132	NA	0.03248	NA	0.00088 J	NA	NA	NA	NA	0.00101	NA	0.00100 U	0.00100 U	0.00510	0.00100 U	0.00058 J	0.00181	0.00123	0.00093 J	0.00461	0.00051 J	0.02028	0.00100 U	0.32020	0.05288	0.00279	0.00463	0.00510	0.00601	
Jul-19	0.00455	NA	0.00315	NA	0.05900	NA	0.00085 J	NA	NA	NA	NA	0.00143	NA	0.00134	0.00038 U	0.00166	0.00754	0.00084 J	0.00242	0.00106	0.00102	0.00267	0.00766	0.00097 J	0.00075 J	0.06062	0.02332	0.00339	0.00313	0.00430	0.00262	
Oct-20	0.00300 J	NA	0.02000	NA	0.01800	NA	0.00200 U	NA	NA	NA	NA	0.01200	NA	0.00161	0.00038 U	0.00402	0.00040 J	0.00081 J	0.00191	0.00099 J	0.00038 U	0.00154	0.00057 J	0.00146	0.00038 U	0.03185	0.00851	0.00339	0.00330	0.02050	0.00673	
Jan-22	0.00199	NA	0.00927	NA	0.00142	NA	0.00911	NA	NA	NA	NA	0.00070 J	NA	0.00457	0.00038 U	0.00505	0.00067 J	0.00065 J	0.00192	0.00524	0.00038 U	0.00092 J	0.00081 J	0.00103	NA	0.09380	0.00740	0.00262	0.00362	0.03104	0.00465	
May-23	0.00166	NA	0.00368	NA	0.00081 J	NA	0.00072 J	NA	NA	NA	NA	0.00096 J	NA	0.00085 J	0.00045 J	0.00369	0.00059 J	0.00043 J	0.00191	0.00098 J	0.00038 U	0.00041 J	0.00987	0.00573	0.00038 U	0.03040	0.01130	0.00270	0.00355	0.00200	0.00250	

Notes:

ARAR Standard = 0.2 mg/L; MCL Guidance = 1.3 mg/L*; and, Part 5 MCL = Not Available

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

* USEPA National Secondary Drinking Water Regulation

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or Secondary MCL/MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 9

Summary of Historical Groundwater Quality Results - Copper (mg/L)
Town of Ramapo Landfill

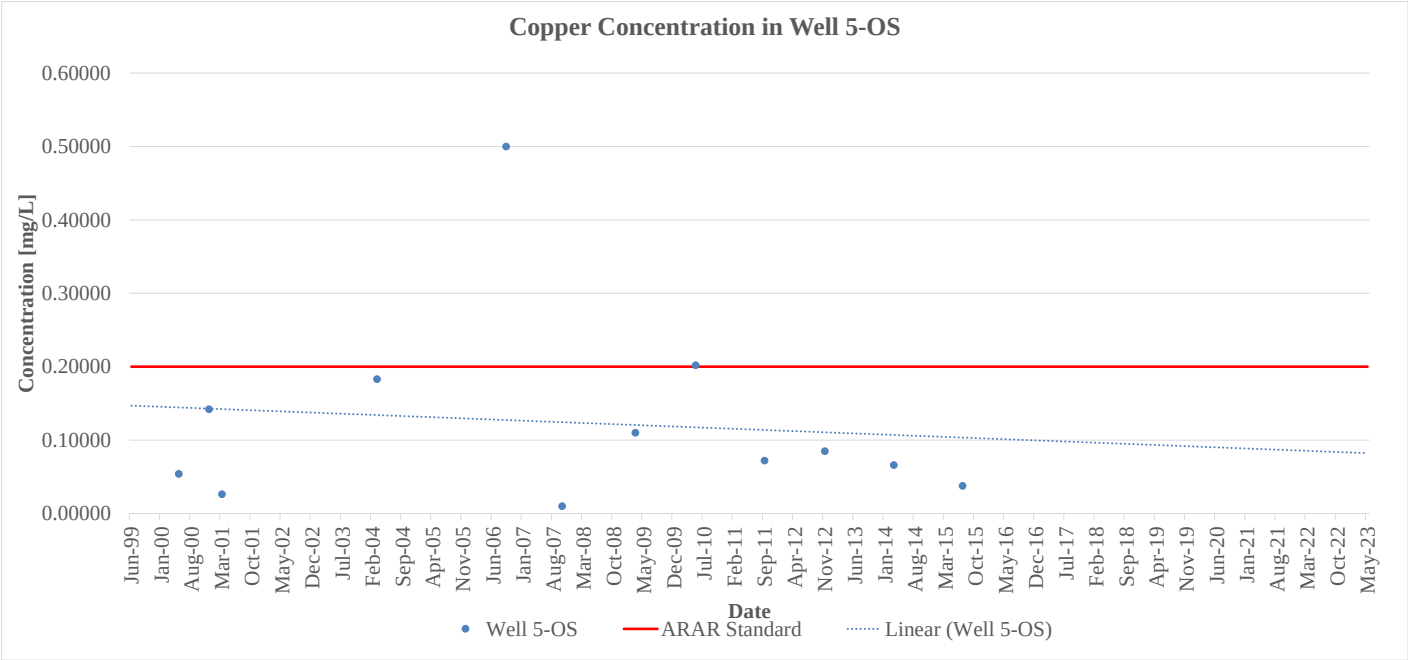


Table 10

Summary of Historical Groundwater Quality Results - Antimony (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND		
Sep-99	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA		
May-00	0.02910 B	0.00340 U	0.00340 U	0.00340 U	0.00480 B	0.00340 U	0.00340 U	0.00340 U	0.00340 U	NA	0.00340 U	0.00340 U	0.00340 U	0.00340 U	0.00340 U	0.00340 U	0.00340 U	0.00340 U	NA	NA	NA	NA	NA	NA	0.00340 U	0.00340 U	0.00340 U	0.00340 U	0.00340 U	0.00340 U		
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01100 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U	NA	NA	NA	NA	NA	NA	NA	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U	
Dec-00	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00820 B, N	0.00550 U	0.00550 U	0.00550 U	0.00550 U	NA	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U	0.00550 U
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00470 U	0.00470 U	NA	NA	NA	NA	NA	NA	NA	0.00470 U	NA	NA	NA	NA	NA	
Mar-01	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00950 B, N	0.00470 U	0.00470 U	0.00470 U	0.00470 U	NA	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	NA	NA	NA	NA	NA	NA	NA	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	NA	NA	NA	NA	NA	NA	NA	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	
Oct-01	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00940 B	0.00470 U	0.00470 U	0.00470 U	NA	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	0.00470 U	NA	NA	NA	NA	NA	NA	NA	0.00470 U	0.00470 U	NA	NA	NA	NA	
Mar-02	0.01270 B	0.01050 B	0.01400 B	0.01380 B	0.01510 B	0.01190 B	0.00740 U	0.00970 B	NA	0.00740 U	0.00740 U	0.01320 B	0.01300 B	0.00740 U	0.01090 B	0.01200 B	0.00740 U	0.00740 U	NA	NA	NA	NA	NA	NA	NA	0.00740 U	0.00930 B	0.00800 B	0.01140 B	0.00740 U	0.00740 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00530 U	0.00530 U	0.00530 U	0.00530 U	0.00530 U	NA	NA	NA	NA	NA	NA	NA	0.00530 U	0.00530 U	0.00810 B	0.00530 U	0.00530 U	0.00530 U	
Oct-02	0.01500 B, N	0.00560 B, N	0.03300 B, N	0.00530 U	0.02540 B, N	0.00550 B, N	0.00530 U	0.00530 U	NA	0.00530 U	0.00530 U	0.00530 U	NA	0.00530 U	0.00530 U	0.00630 B, N	0.00530 U	0.00530 U	NA	NA	NA	NA	NA	NA	NA	0.00530 U	0.00530 U	0.01720 B, N	0.00550 B, N	0.00530 U	0.00530 U	
Apr-03	NA	0.00500 U	0.00500 U	0.00500 U	0.07760	0.00500 U	0.00500 U	0.00500 U	NA	0.00500 U	0.00500 U	0.00500 U	NA	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	NA	NA	NA	NA	NA	NA	NA	0.00500 U	0.00930 B	0.00500 U	0.00500 U	0.00500 U	0.00500 U	
Mar-04	NA	NA	0.00710 U	NA	0.00580 U	NA	0.00710 U	NA	0.00710 U	NA	NA	0.00580 U	NA	0.00580 U	0.00580 U	0.00580 U	0.00580 U	0.00580 U	NA	NA	NA	NA	NA	NA	NA	0.00580 U	0.00580 U	0.00580 U	0.00580 U	0.00580 U	0.00580 U	
Jun-05	0.00012 U	NA	0.00012 U	NA	0.00012 U	NA	0.00012 U	NA	NA	0.00012 U	NA	0.00012 U	NA	0.00013 B	0.00012 U	0.00012 U	0.00015 B	0.00012 U	NA	NA	NA	NA	NA	NA	NA	0.00012 U	0.00012 U	0.00014 B	0.00012 U	0.00012 U	0.00012 U	
Sep-06	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	NA	NA	NA	NA	NA	NA	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	
Oct-07	0.00960	NA	0.00240 J	NA	0.00840	NA	0.00180 J	NA	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	0.00300 U	0.00300 U	0.00200 J	0.00300 U	NA	NA	NA	NA	NA	NA	NA	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U
Mar-09	0.06000 U	NA	0.06000 U	NA	0.06000 U	NA	0.06000 U	NA	0.06000 U	NA	NA	0.06000 U	NA	0.06000 U	0.06000 U	0.06000 U	0.06000 U	0.06000 U	NA	NA	NA	NA	NA	NA	NA	0.06000 U	0.06000 U	0.06000 U	NA	0.06000 U	0.06000 U	
May-10	0.00380	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00500 U	NA	NA	0.00300 U	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	NA	NA	NA	NA	NA	NA	NA	0.00300 U	0.00300 U	0.00300 U	NA	0.00300 U	0.00300 U	
Sep-11	0.00830	0.00067 J	0.00040 J	0.00300 U	0.00082 J	0.01500 U	0.00024 J	NA	0.00300 U	0.00300 U	0.00041 J	0.00020 J	NA	0.00300 U	0.00300 U	0.00300 U	0.00015 J	0.01500 U	NA	NA	NA	NA	NA	NA	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	NA	NA	
Nov-12	0.00300	NA	0.00030 J	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	0.00300 U	0.00300 U	0.00024 J	0.00300 U	NA	NA	NA	NA	NA	NA	NA	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	NA
Mar-14	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	NA	0.00300 U	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	NA	NA	NA	NA	NA	NA	NA	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00230 U	0.00230 U	0.00230 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	0.00401	NA	0.00010 J	NA	0.00010 J	NA	0.00010 U	NA	0.00010 U	NA	NA	0.00010 J	NA	0.00010 J	0.00010 U	0.00010 J	0.00010 J	0.00010 U	NA	0.00010 J	0.00010 J	0.00090 J	NA	NA	NA	0.00010 U	0.00014 J	0.00014 J	0.00032 J	0.00016 J	0.00011 J	
Jan-17	0.00230 J	NA	0.00060 J	NA	0.00060 J	NA	0.00040 U	NA	NA	NA	NA	0.00050 J	NA	0.00070 J	0.00120 J	0.00090 J	0.00040 U	0.00040 U	NA	0.00040 U	0.00040 U	0.00070 J	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00040 U	0.00070 J	0.00040 U	0.00040 U	0.00040 U	
May-18	0.00131 J	NA	0.00100 J	NA	0.00056 J	NA	0.00400 U	NA	NA	NA	NA	0.00400 U	NA	0.00400 U	0.00400 U	0.00400 U	0.00077 J	0.00113 J	0.00154 J	0.00043 J	0.00450 U	0.00400 U	0.00116 J	0.00043 J	0.00382 J	0.00081 J	0.00059 J	0.00094 J	0.00065 J	0.00058 J	0.00043 J	
Jul-19	0.00108 J	NA	0.00042 U	NA	0.00042 U	NA	0.00042 U	NA	NA	NA	NA	0.00042 U	NA	0.00042 U	0.00042 U	0.00042 U	0.00248 J	0.00103 J	0.00080 J	0.00042 U	0.00042 U	0.00140 J	0.00042 U	0.00042 U	0.00172 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	
Oct-20	0.00700 U	NA	0.00700 U	NA	0.00700 U	NA	0.00700 U	NA	NA	NA	NA	0.00700 U	NA	0.00354 J	0.00042 U	0.00048 J	0.00042 U	0.00042 U	0.00074 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00194 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	
Jan-22	0.00044 J	NA	0.00067 J	NA	0.00042 U	NA	0.00042 U	NA	NA	NA	NA	0.00042 U	NA	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	NA	0.00210 J	0.00120 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	
May-23	0.00096 J	NA	0.00043 J	NA	0.00042 J	NA	0.00042 U	NA	NA	NA	NA	0.00042 U	NA	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00052 J	0.00175 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00040 U	0.00040 U	0.00040 U	0.00042 U	0.00042 U	0.00040 U	

Notes:

ARAR Standard = .003 mg/L; USEPA MCL = .006 mg/L; and, Part 5 MCL = .006 mg/L

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level; USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 10
Summary of Historical Groundwater Quality Results - Antimony (mg/L)
Town of Ramapo Landfill

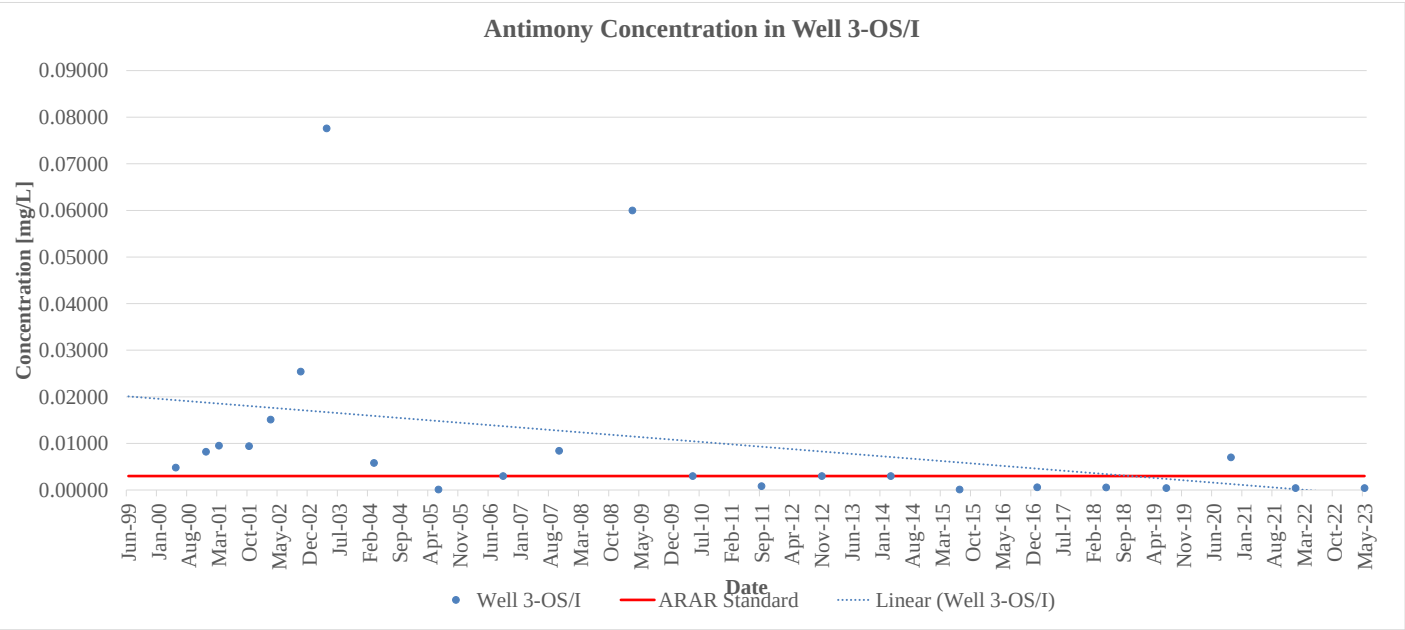
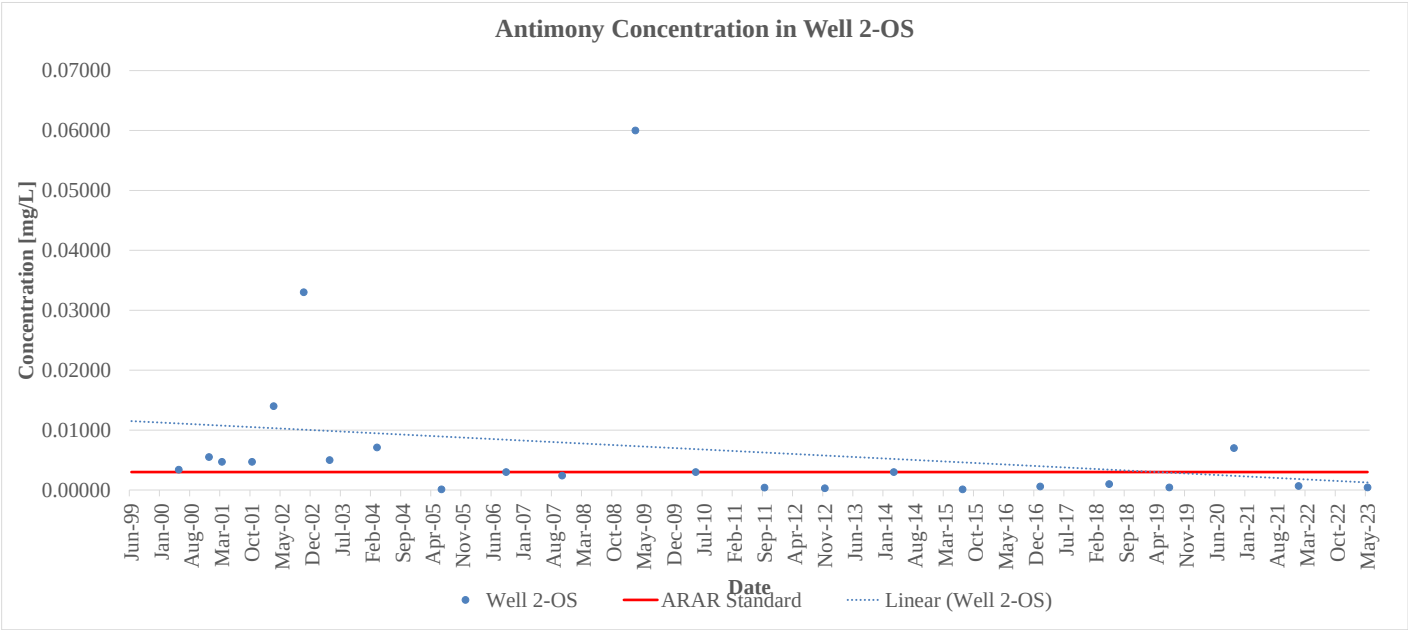
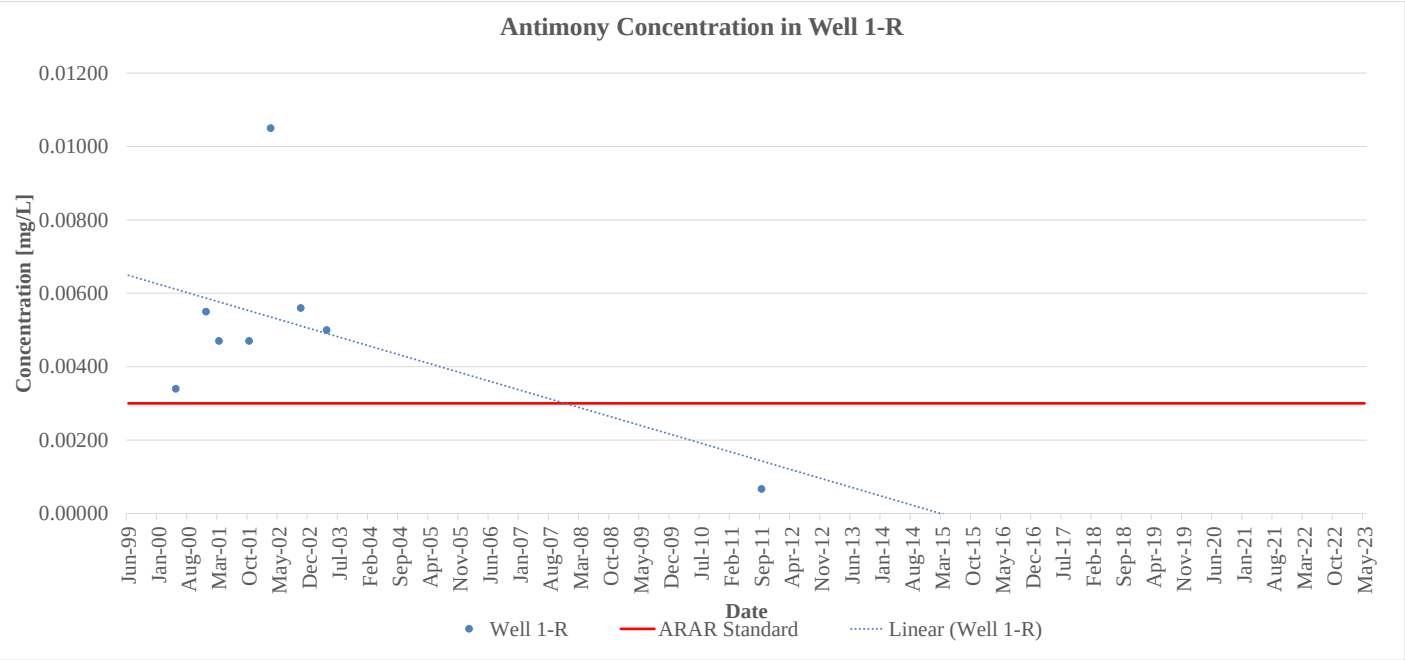
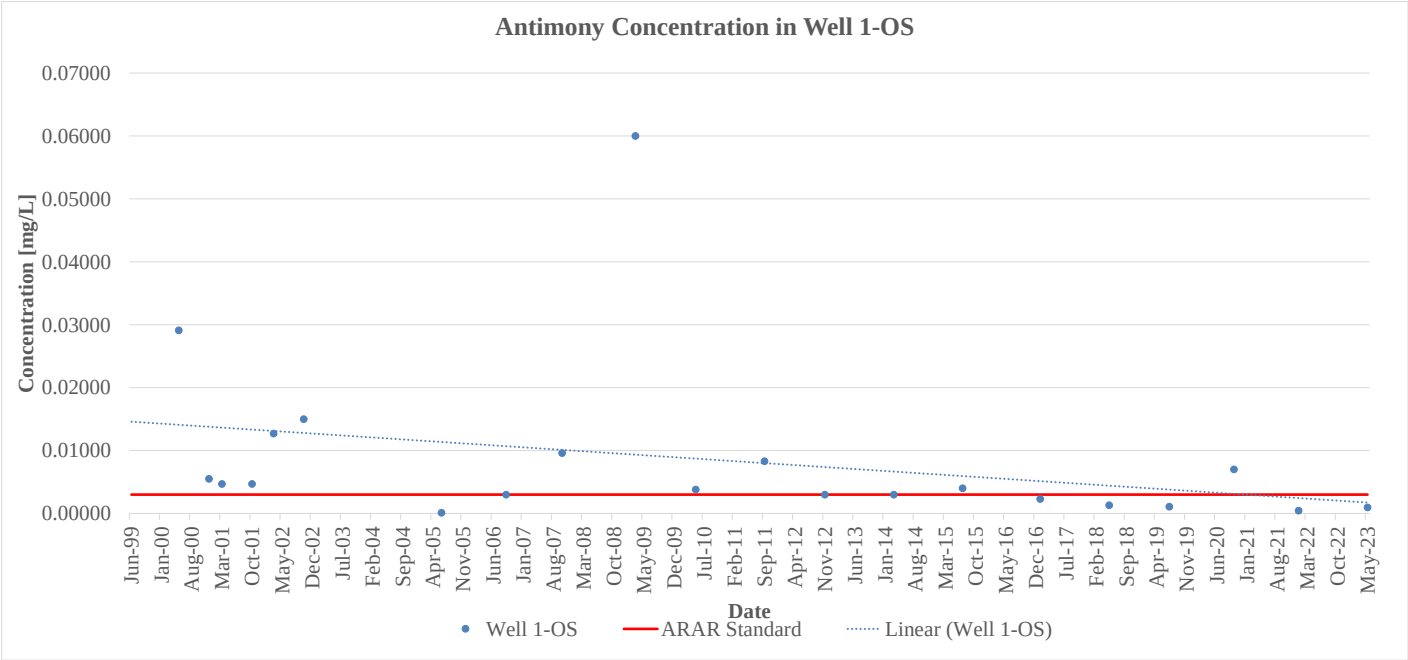


Table 10
Summary of Historical Groundwater Quality Results - Antimony (mg/L)
Town of Ramapo Landfill

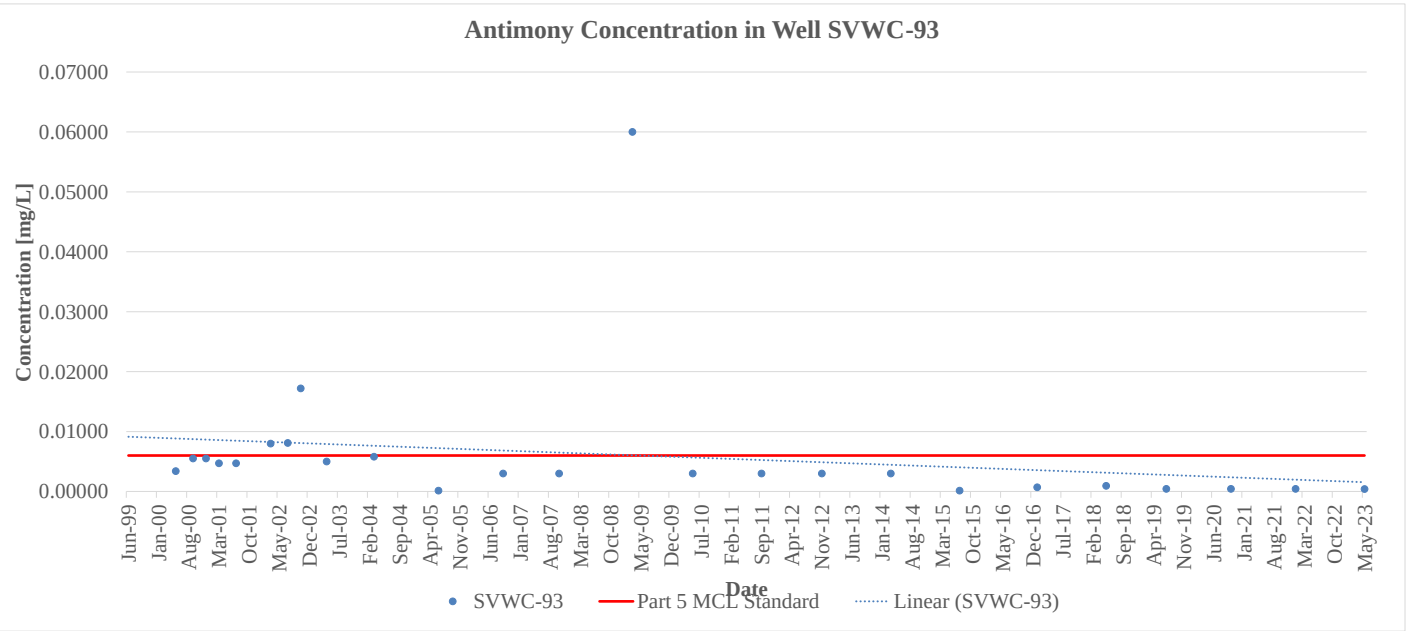
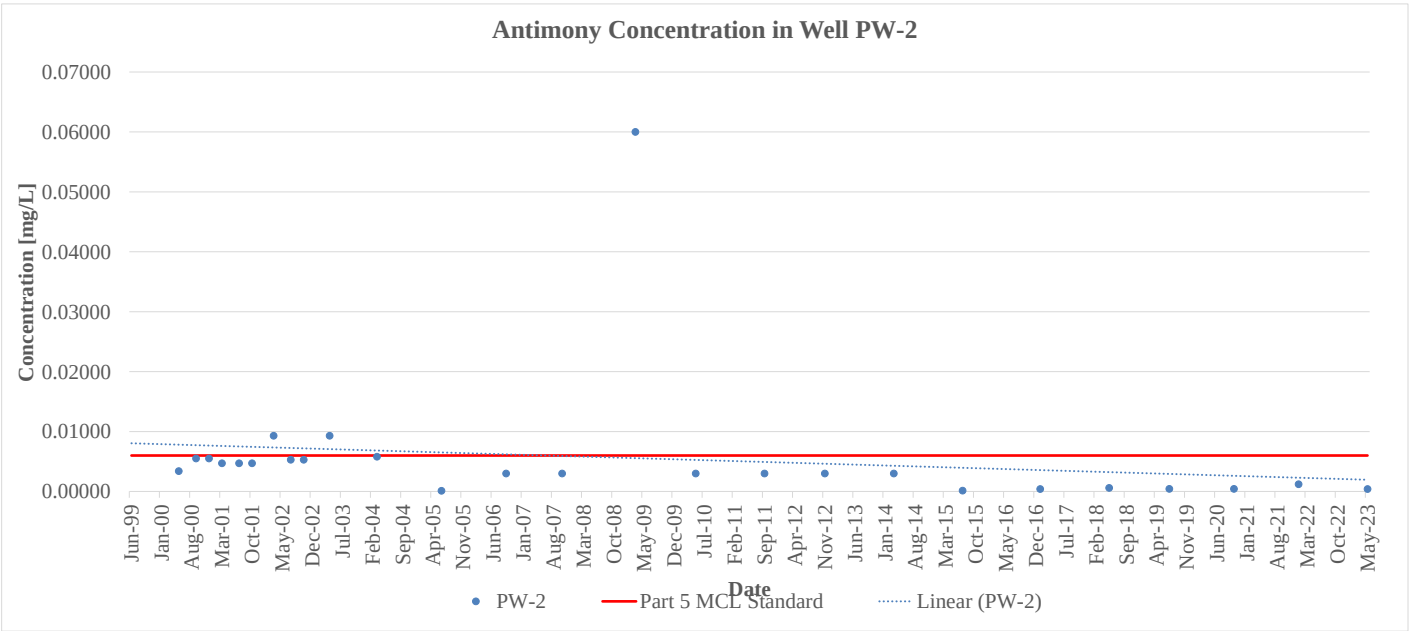
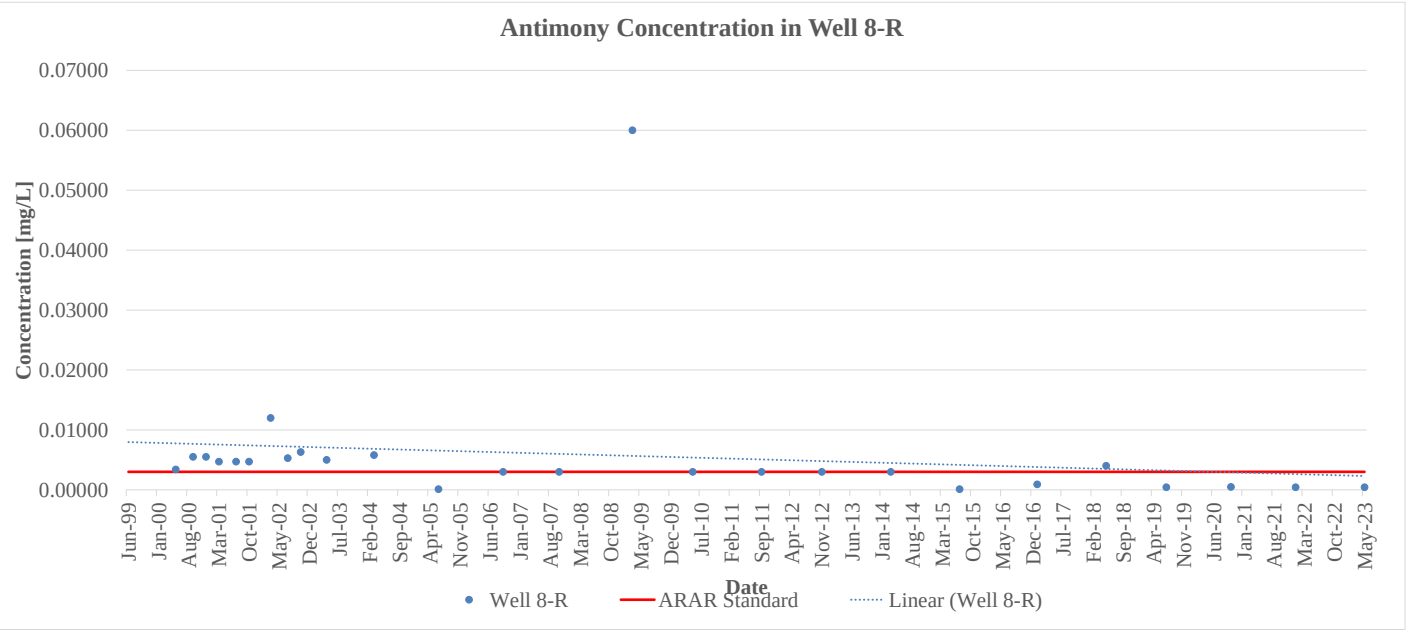
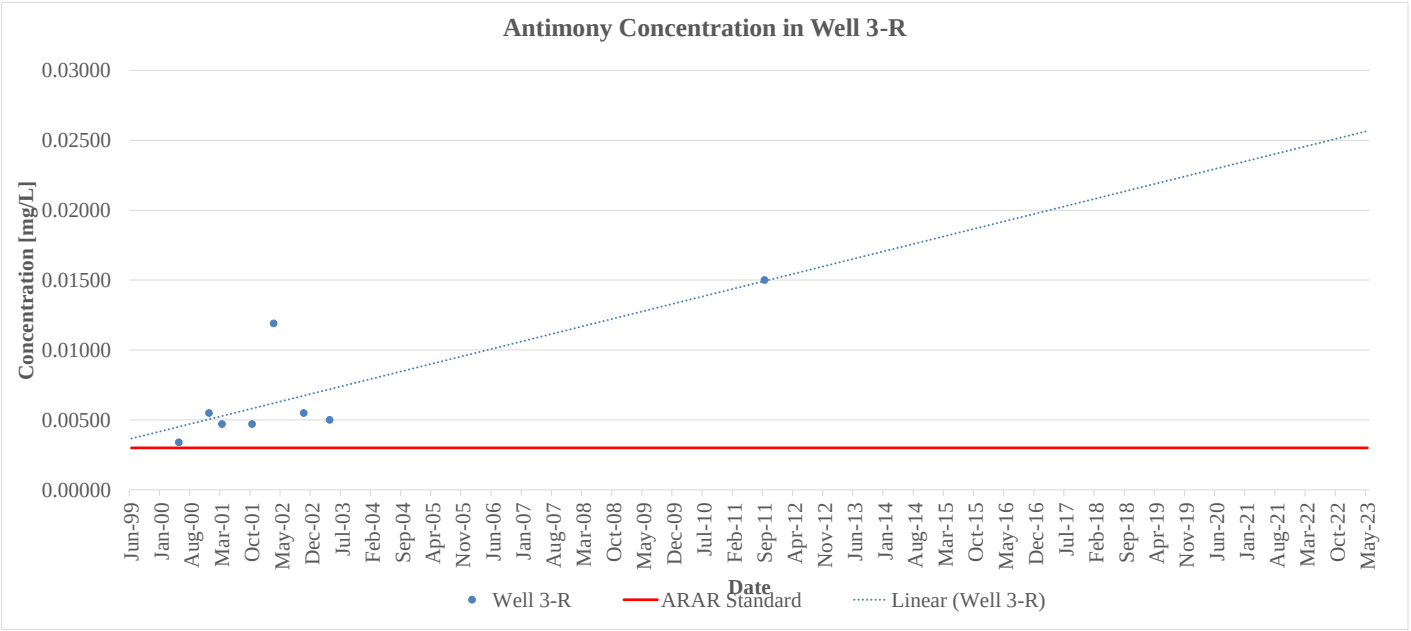


Table 10
Summary of Historical Groundwater Quality Results - Antimony (mg/L)
Town of Ramapo Landfill

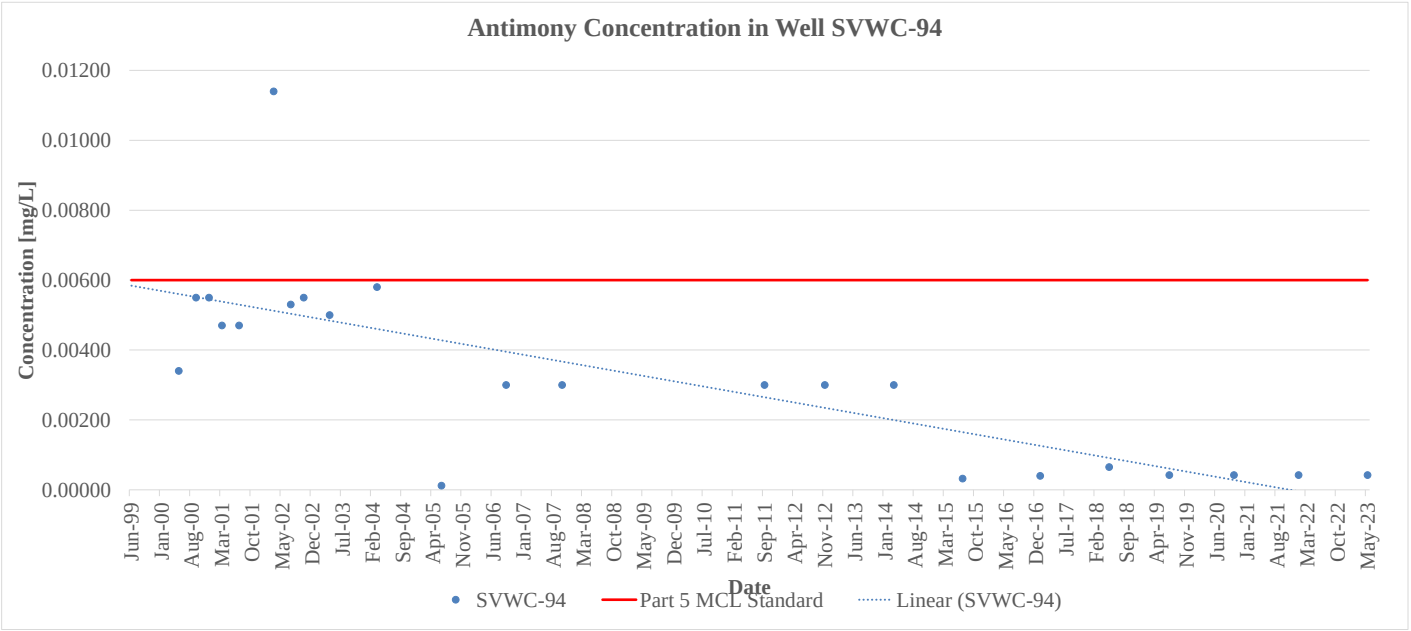


Table 11

Summary of Historical Groundwater Quality Results - Arsenic (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01170	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	0.00970	0.00710	ND	ND	ND	ND	
Sep-99	0.01140	ND	ND	ND	ND	0.00790	0.00850	ND	NA	ND	ND	ND	ND	ND	ND	0.00620	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	
May-00	0.00730 B	0.00260 U	0.00660 B	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00320 B	NA	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00660 B	0.00260 U	0.00260 U	0.00260 U	0.00260 U	NA	NA	NA	NA	NA	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01390 B	0.01180	0.00180 U	0.00180 U	0.00180 U	0.00770 B	NA	NA	NA	NA	NA	0.00180 U	0.00180 U	0.00180 U	0.00180 U	0.00180 U	0.00180 U	0.00180 U	
Dec-00	0.01180	0.00180 U	0.00940 B	0.00180 U	0.00180 U	0.00180 U	0.00180 U	0.00330 B	0.01680	NA	0.00180 U	0.00340 B	0.00180 U	0.00260 B	0.01000 B	0.00180 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00180 U	0.00180 U	0.00180 U	0.00180 U	0.00180 U	0.00180 U
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00220 U	0.00220 U	0.00300 B	NA	NA	NA	NA	NA	NA	0.00220 U	NA	NA	NA	NA	NA	
Mar-01	0.01350	0.00370 B	0.01050	0.00220 U	0.00220 U	0.00220 U	0.00260 B	0.00220 U	0.00390 B	NA	0.00220 U	0.00220 U	0.00220 U	0.00260 B	0.01340	0.00220 U	0.00220 U	0.00580 B	0.00630 B	NA	NA	NA	NA	NA	NA	0.00220 U	0.00220 U	0.00220 U	0.00220 U	0.00220 U	0.00220 U	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00220 U	0.01050	0.00220 U	0.00220 U	0.00220 U	0.00370 B	NA	NA	NA	NA	NA	NA	0.00220 U	0.00220 U	0.00220 U	0.00220 U	0.00220 U	0.00220 U	
Oct-01	0.00590 B	0.00260 B	0.00840 B	0.00220 U	0.00220 U	0.00220 U	0.00220 U	0.00220 U	NA	0.00270 B	0.00220 U	0.00260 B	0.00220 U	0.00240 B	0.00690 B	0.00220 U	0.00220 U	0.00220 U	0.00400 B	NA	NA	NA	NA	NA	NA	0.00220 U	0.00220 U	NA	NA	NA	NA	
Mar-02	0.00910 B	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	NA	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00970 B	0.00340 B	0.00260 U	0.00260 U	0.00260 U	NA	NA	NA	NA	NA	NA	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00390 B	0.01020	0.00270 B	0.00260 U	0.00260 U	0.00550 B	NA	NA	NA	NA	NA	NA	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	
Oct-02	0.09130	0.00400 B	0.01330	0.00260 U	0.00260 U	0.00260 U	0.00750 B	0.00260 U	NA	0.00260 U	0.00260 U	0.00520 B	NA	0.00260 U	0.00520 B	0.00260 U	0.00260 U	0.00260 U	0.00260 U	NA	NA	NA	NA	NA	NA	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	0.00260 U	
Apr-03	NA	0.00240 U	0.01030	0.00240 U	0.00540 B	0.00240 U	0.00400 B	0.00440 B	NA	0.00240 U	0.00240 U	0.00240 U	NA	0.00240 U	0.00750 B	0.00240 U	0.00240 U	0.00240 U	0.00370 B	NA	NA	NA	NA	NA	NA	0.00240 U	0.00270	0.00240 U	0.00240 U	0.00240 U	0.00240 U	
Mar-04	NA	NA	0.00740 B	NA	0.00190 U	NA	0.00270 U	NA	0.03040	NA	NA	0.00980 B	NA	0.00190 U	0.00890 B	0.00190 U	0.00190 U	0.00190 U	0.00340 B	NA	NA	NA	NA	NA	NA	0.00560 B	0.00190 U	0.00190 U	0.00290 B	0.00190 U	0.00190 U	
Jun-05	0.00810 B	NA	0.00400 B	NA	0.00310 U	NA	0.00310 U	NA	NA	0.00310 U	NA	0.00310 N	NA	0.00370 B, N	0.00860 B, N	0.00310 U	0.00310 U	0.00310 U	0.00310 U	NA	NA	NA	NA	NA	NA	0.00310 U	0.00310 U	0.00420 B, N	0.00310 U	0.00310 U	0.00310 U	
Sep-06	0.04300	NA	0.00280 J	NA	0.00690	NA	0.00280 J	NA	0.03300	NA	NA	0.00470 J	NA	0.00500 U	0.02600	0.00310 J	0.00500 U	0.00450 J	0.00590	NA	NA	NA	NA	NA	NA	0.00500 U	0.00500 U	0.00120 J	0.00500 U	0.00200 J	0.00130 J	
Oct-07	0.03100	NA	0.00620	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	NA	0.00500 U	NA	0.00500 U	0.01500	0.00500 U	0.00420 J	0.00440 J	0.00610	NA	NA	NA	NA	NA	NA	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	
Mar-09	0.00710 J	NA	0.01000 U	NA	0.01000 U	NA	0.01000 U	NA	0.00980 J	NA	NA	0.01000 U	NA	0.01000 U	0.01200	0.01000 U	0.01000 U	0.01000 U	0.00570 J	NA	NA	NA	NA	NA	NA	0.10000 U	0.01000 U	0.01000 U	NA	0.01000 U	0.01000 U	
May-10	0.01120	NA	0.01000 U	NA	0.01000 U	NA	0.01000 U	NA	0.01550	NA	NA	0.01000 U	NA	0.01000 U	0.01010	0.01000 U	0.01000 U	0.01000 U	0.00840 J	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	NA	0.01000 U	0.01000 U	
Sep-11	0.04000	0.01000 U	0.01000 U	0.01000 U	0.05300	0.00730 J	0.01000 U	NA	0.00950 J	0.01000 U	0.01000 U	0.01000 U	NA	0.01000 U	0.00610 J	0.01000 U	0.01000 U	0.00760 J	0.00790 J	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	NA	
Nov-12	0.01800	NA	0.01000 U	NA	0.01500	NA	0.00980 J	NA	0.00930 J	NA	NA	0.00880 J	NA	0.01000 U	0.01200	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	
Mar-14	0.01400	0.00000	0.01000 U	NA	0.01000 U	NA	0.01000 U	NA	0.00670 J	NA	NA	0.00930 J	NA	0.01000 U	0.01100	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	0.00732	NA	0.00070	NA	0.00030 J	NA	0.00070	NA	0.00310	NA	NA	0.00100	NA	0.00040 J	0.00680	0.00060	0.00100	0.00010	0.00380	0.00020 J	0.00020 J	0.00020 J	NA	NA	NA	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00022 J	0.00020 U	
Jan-17	0.00310	NA	0.00100	NA	0.00020 U	NA	0.00020 J	NA	NA	NA	NA	0.00020 J	NA	0.00020 J	0.00380	0.00060	0.00020 U	0.00020 U	0.00060	0.00040 J	0.00020 U	0.00020 U	0.00030 J	0.00047 J	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U		
May-18	0.00051	NA	0.00122	NA	0.00087	NA	0.00018 J	NA	NA	NA	NA	0.00050 U	NA	0.00050 U	0.00432	0.00028 J	0.00050 U	0.00050 U	0.02354	0.00050 U	0.00050 U	0.00050 U	0.00058	0.00042 J	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U		
Jul-19	0.00138	NA	0.00191	NA	0.00148	NA	0.00016 U	NA	NA	NA	NA	0.00035 J	NA	0.00017 J	0.00454	0.00034 J	0.00039 J	0.00016 U	0.00142	0.00036 J	0.00016 U	0.00016 U	0.00050	0.00045 J	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U		
Oct-20	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	0.00200 U	NA	NA	NA	NA	0.00200 U	NA	0.00022 J	0.00447	0.00067	0.00016 U	0.00016 U	0.00046 J	0.00021 J	0.00016 U	0.00016 U	0.00035 J	0.00041 J	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U		
Jan-22	0.00021 J	NA	0.00084	NA	0.00019 J	NA	0.00073	NA	NA	NA	NA	0.00016 U	NA	0.00049 J	0.00317	0.00171	0.00016 U	0.00016 U	0.00038 J	0.00041 J	0.00016 U	0.00016 U	0.00016 U	0.00037 J	NA	0.00020 U	0.00020 U	0.00016 U	0.00016 U	0.00016 U		
May-23	0.00016 U	NA	0.00026 J	NA	0.00016 U	NA	0.00016 U	NA	NA	NA	NA	0.00016 U	NA	0.00016 U	0.00242	0.00023 J	0.00016 U	0.00016 U	0.00100	0.00018 J	0.00016 U	0.00016 U	0.00038 J	0.00036 J	0.00016 U	0.00020 U	0.00020 U	0.00020 U	0.00029 J	0.00016 U	0.00020 U	

Notes:

ARAR Standard = 0.025 mg/L; USEPA MCL = 0.01 mg/L; and, Part 5 MCL = 0.01 mg/L.

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level; USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 11
Summary of Historical Groundwater Quality Results - Arsenic (mg/L)
Town of Ramapo Landfill

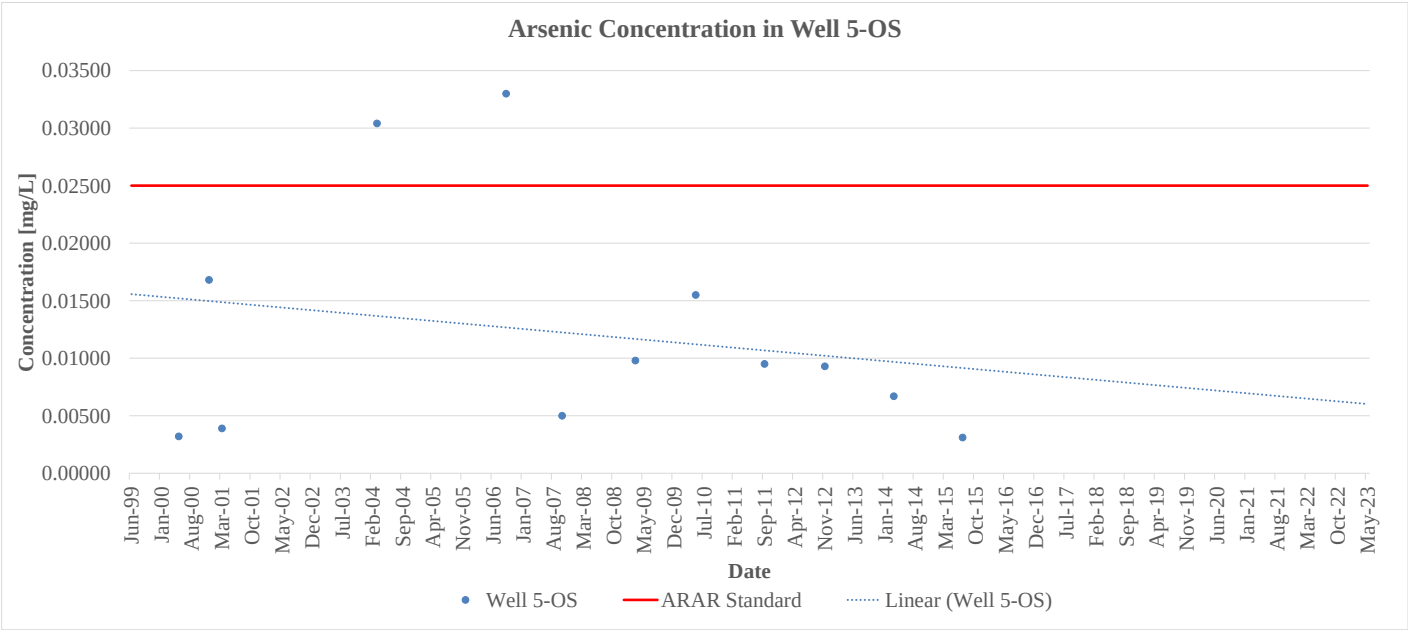
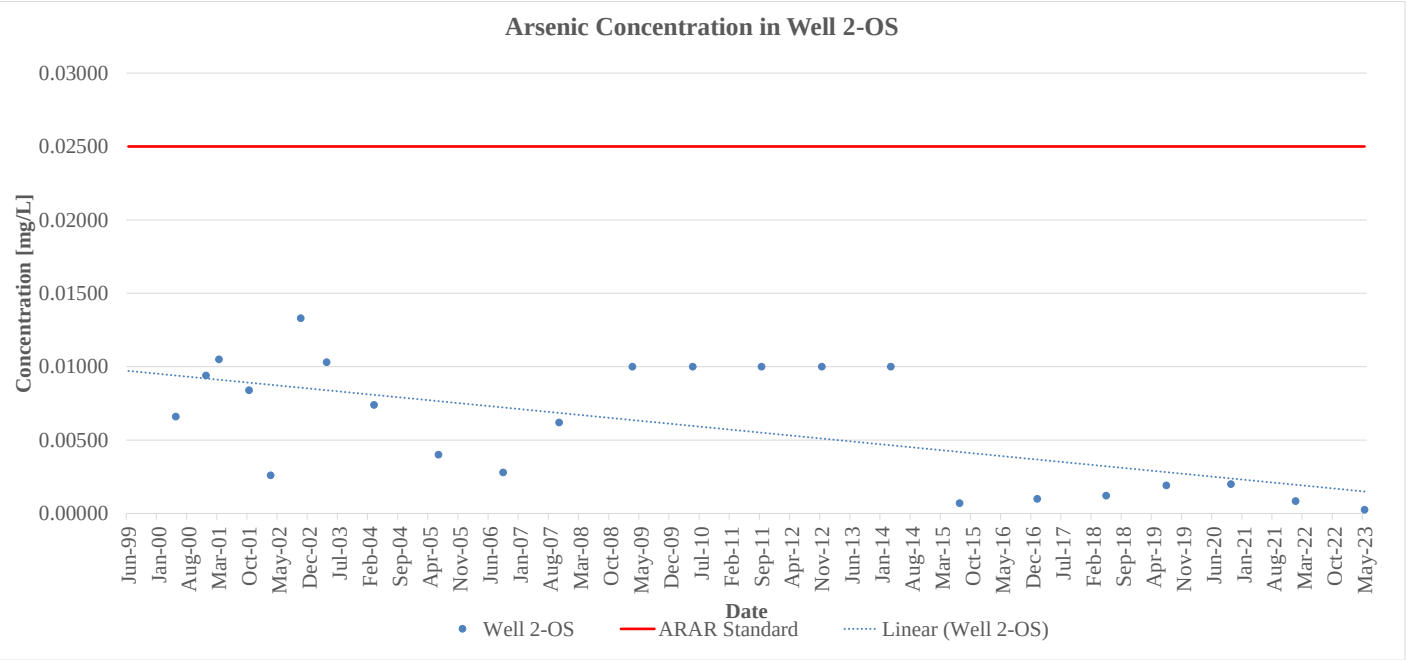
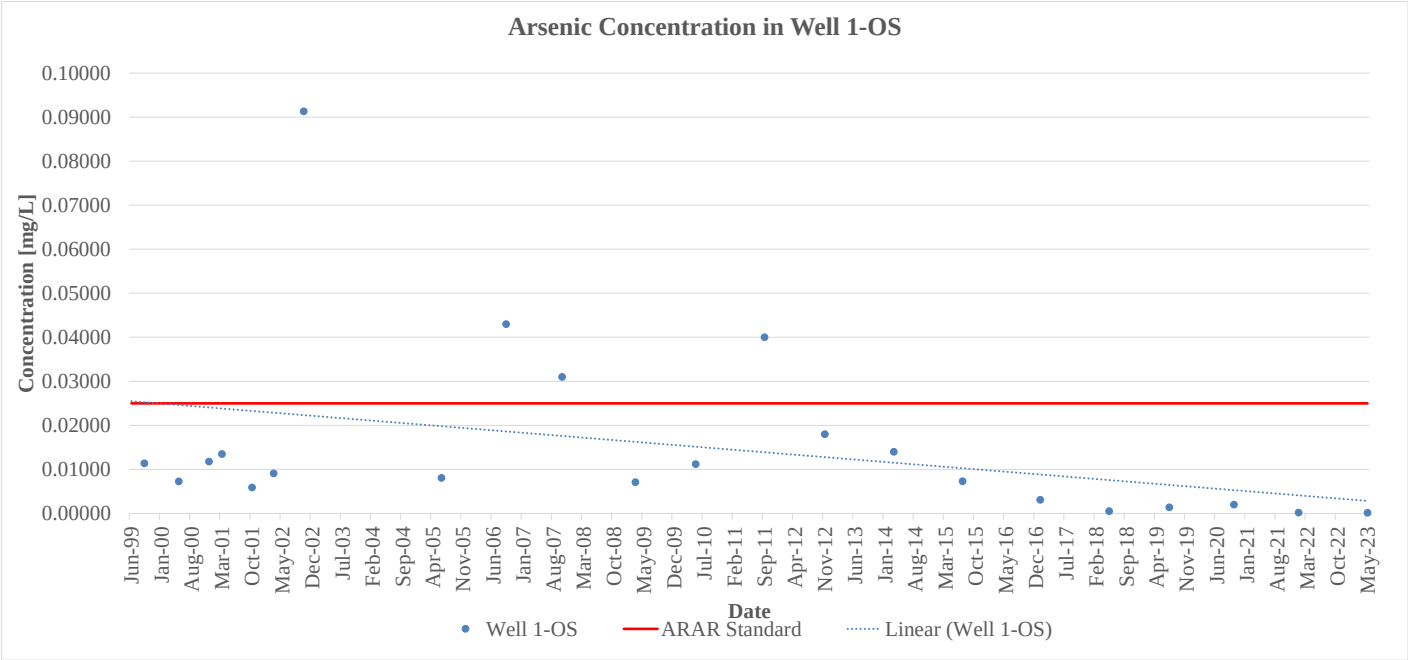


Table 12

Summary of Historical Groundwater Quality Results - Chromium (mg/L)
Town of Ramapo Landfill

Well ID DATE	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02020	0.05680	0.00200	0.00110	0.00680	0.01500	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	
Sep-99	1.85000	0.07340	0.28500	ND	0.32100	0.07570	0.08770	ND	NA	0.01060	0.00270	0.05920	ND	0.03100	ND	ND	ND	ND	0.04730	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	
May-00	2.10000	0.05860	0.41500	0.00400 B	0.68700	0.05120	0.03680	0.00050 U	0.06930	NA	0.01470	0.20000	0.00050 U	0.03010	0.01000	0.00110 B	0.03450	0.01080	0.00300 B	NA	NA	NA	NA	NA	0.00075 B	0.00050 U	0.00050 U	0.00053 B	0.00050 U	0.00050 U		
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.01690 B	0.01730	0.00220 B	0.00740 B	0.00500 B	0.00160 B	NA	NA	NA	NA	NA	NA	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	
Dec-00	0.40500	0.00980 B	0.12000	0.00470 B	0.45300	0.21300	0.01790	0.00090 U	0.16500	NA	0.00720 B	0.03470	0.00090 U	0.00880 B	0.02290	0.00360 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00090 U	0.00140 B	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02010	0.00410 B	0.00240 B	NA	NA	NA	NA	NA	NA	0.00090 U	NA	NA	NA	NA	NA	
Mar-01	0.25300	0.11900	0.12800	0.00090 U	0.52200	0.12400	0.01320	0.00090 U	0.03860	NA	0.00390 B	0.05190	0.00090 U	0.02580	0.04990	0.00770 B	0.01700	0.02880	0.00410 B	NA	NA	NA	NA	NA	NA	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00655 B	0.01990	0.00556 B	0.00090 U	0.00235 B	0.00112 B	NA	NA	NA	NA	NA	NA	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	
Oct-01	0.02060	0.04710	0.08710	0.00390 B	0.46700	0.01270	0.00400 B	0.00220 B	NA	0.00330 B	0.00330 B	0.04840	0.00230 B	0.02060	0.00230 B	0.00390 B	0.01740	0.00120 B	0.00190 B	NA	NA	NA	NA	NA	NA	0.00120 B	0.00180 B	NA	NA	NA	NA	
Mar-02	0.06010	0.01020	0.03560	0.00960 B	0.25700	0.03350	0.00870 B	0.00083 U	NA	0.01050	0.02460	0.02210	0.00083 U	0.01640	0.00480 B	0.00120 B	0.01250	0.00240 B	0.00083 U	NA	NA	NA	NA	NA	NA	0.00083 U	0.00083 U	0.00083 U	0.00083 U	0.00083 U	0.00083 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00570 B	0.00950 B	0.00170 B	0.00520 B	0.00380 B	0.00083 U	NA	NA	NA	NA	NA	NA	0.00083 U	0.00083 U	0.00083 U	0.00083 U	0.00083 U	0.00083 U	
Oct-02	0.38600 E	0.08290 E	2.04000 E	0.00460 B, E	1.40000 E	0.03120 E	0.03500 E	0.00130 B, E	NA	0.00120 B, E	0.00990 B, E	0.10800 E	NA	0.03380 E	0.00950 B, E	0.00610 B, E	0.00970 B, E	0.00083 U	0.00083 U	NA	NA	NA	NA	NA	NA	0.00083 U	0.00083 U	0.00083 U	0.00083 U	0.00083 U	0.00083 U	
Apr-03	NA	0.00080 U	0.08980	0.00480 B	4.25000	0.08680	0.01790	0.00080 U	NA	0.00560 B	0.00560 B	0.03600	NA	0.01040	0.01550	0.00080 U	0.01920	0.00420 B	0.00080 U	NA	NA	NA	NA	NA	NA	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	
Mar-04	NA	NA	0.08710	NA	0.81600	NA	0.00940 B	NA	0.23700	NA	NA	0.13300	NA	0.01030	0.01940	0.00200 B	0.01040	0.00280 B	0.00260 B	NA	NA	NA	NA	NA	NA	0.00130 B	0.00150 B	0.00140 B	0.00190 B	0.00150 B	0.00120 B	
Jun-05	0.03140	NA	0.10100	NA	2.02000	NA	0.05670	NA	NA	0.00560 B	NA	0.00570 B	NA	0.02960	0.00330 B	0.00250 B	0.00240 B	0.00140 B	0.00190 B	NA	NA	NA	NA	NA	NA	0.00090 U	0.00090 U	0.00090 U	0.00093 B	0.00090 U	0.00094 B	
Sep-06	2.40000	NA	0.12000	NA	7.20000	NA	1.30000	NA	0.69000	NA	NA	0.08700	NA	0.14000	0.03000	0.04200	0.05500	0.03600	0.00410 J	NA	NA	NA	NA	NA	NA	0.00270 J	0.00280 J	0.00320 J	0.00200 J	0.01000 U	0.01000 U	
Oct-07	0.53000	NA	0.25000	NA	3.40000	NA	0.27000	NA	0.03200	NA	NA	0.09600	NA	0.08500	0.04100	0.01100	0.33000	0.15000	0.00430 J	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	
Mar-09	0.14000	NA	0.48000	NA	3.90000	NA	0.23000	NA	0.17000	NA	NA	0.06100	NA	0.68000	0.02700	0.01100	0.30000	0.03800	0.01000 U	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	NA	0.01000 U	0.01000 U	
May-10	1.99000	NA	0.72200	NA	2.57000	NA	0.52200	NA	0.27800	NA	NA	0.15800	NA	0.15200	0.01400	0.00400 U	0.17600	0.05390	0.00250 J	NA	NA	NA	NA	NA	NA	0.00400 U	0.00400 U	0.00400 U	NA	0.00400 U	0.00400 U	
Sep-11	11.10000	0.97000	1.00000	0.00270 J	29.70000	2.60000	0.29000	NA	0.12000	0.01100	0.09300	0.48000	NA	1.50000	0.00400 U	0.00400 U	0.43000	0.38000	0.00400 U	NA	NA	NA	NA	NA	NA	0.00400 U	0.00400 U	0.00400 U	0.00400 U	0.00400 U	NA	
Nov-12	2.40000	NA	0.28000	NA	4.10000	NA	1.70000	NA	0.13000	NA	NA	0.23000	NA	0.14000	0.00290 J	0.00400 U	0.10000	0.00260 J	0.00400 U	NA	NA	NA	NA	NA	NA	0.00400 U	0.00400 U	0.00400 U	0.00400 U	0.00400 U	NA	
Mar-14	5.20000	NA	1.10000	NA	2.80000	NA	0.54000	NA	0.09600	NA	NA	0.30000	NA	0.08500	0.00370 J	ND	0.29000	0.01100	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00200 U	0.00200 U	0.00330 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	6.60400	NA	0.06220	NA	0.22880	NA	0.13290	NA	0.04060	NA	NA	0.25420	NA	0.23040	0.00280	0.00240	0.05670	0.00250	0.00240	0.00240	0.00150 J	0.00790	NA	NA	NA	0.00027 J	0.00024 J	0.00021 J	0.00054 J	0.00200 U	0.00023 J	
Jan-17	1.25900	NA	0.22920	NA	0.59490	NA	0.21000	NA	NA	NA	NA	0.13150	NA	0.29670	0.00270	0.01920	0.00370	0.03680	0.01300	0.00040 J	0.00190	0.00520	0.00200	0.00200	0.00330	0.00040 J	0.00030 J	0.00130	0.00130	0.00040 J	0.00040 J	
May-18	0.06024	NA	0.01030	NA	3.37500	NA	0.15660	NA	NA	NA	NA	0.01874	NA	0.00377	0.00088 J	0.00101	0.00400	0.04467	0.04600	0.00035 J	0.00071 J	0.18110	0.00059 J	0.01138	0.00121	0.00030 J	0.00022 J	0.00031 J	0.00023 J	0.00031 J	0.00040 J	
Jul-19	0.30830	NA	0.00229	NA	8.58000	NA	0.07353	NA	NA	NA	NA	0.01642	NA	0.01270	0.00064 J	0.04565	0.01202	0.01542	0.00546	0.00017 U	0.00026 J	0.01136	0.00253	0.00194	0.00732	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00018 J	
Oct-20	0.31800	NA	0.09400	NA	3.19000	NA	0.10600	NA	NA	NA	NA	0.57300	NA	0.06122	0.00104	0.05239	0.00081 J	0.04680	0.00355	0.00031 J	0.00034 J	0.02904	0.00132	0.02597	0.00201	0.00035 J	0.00017 U	0.00018 J	0.00017 U	0.00027 J	0.00040 J	
Jan-22	0.05443	NA	0.03354	NA	0.15410	NA	0.99920	NA	NA	NA	NA	0.00441	NA	0.36240	0.00317	0.01692	0.01594	0.01218	0.00155	0.00157	0.00048 J	0.00795	0.00143	0.00428	NA	0.00030 J	0.00020 U	0.00052 J	0.00017 U	0.00020 J	0.00017 U	
May-23	0.02308	NA	0.01312	NA	0.08466	NA	0.02963	NA	NA	NA	NA	0.03431	NA	0.07087	0.00058 J	0.00254	0.00074 J	0.02259	0.01297	0.00043 J	0.00037 J	0.00434	0.00327	0.05443	0.00142	0.00040 J	0.00020 J	0.00020 U	0.00035 J	0.00027 J	0.00070	

Notes:

ARAR Standard = 0.05 mg/L; USEPA MCL = 0.1 mg/L; and, Part 5 MCL = 0.1 mg/L

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 12
Summary of Historical Groundwater Quality Results - Chromium (mg/L)
Town of Ramapo Landfill

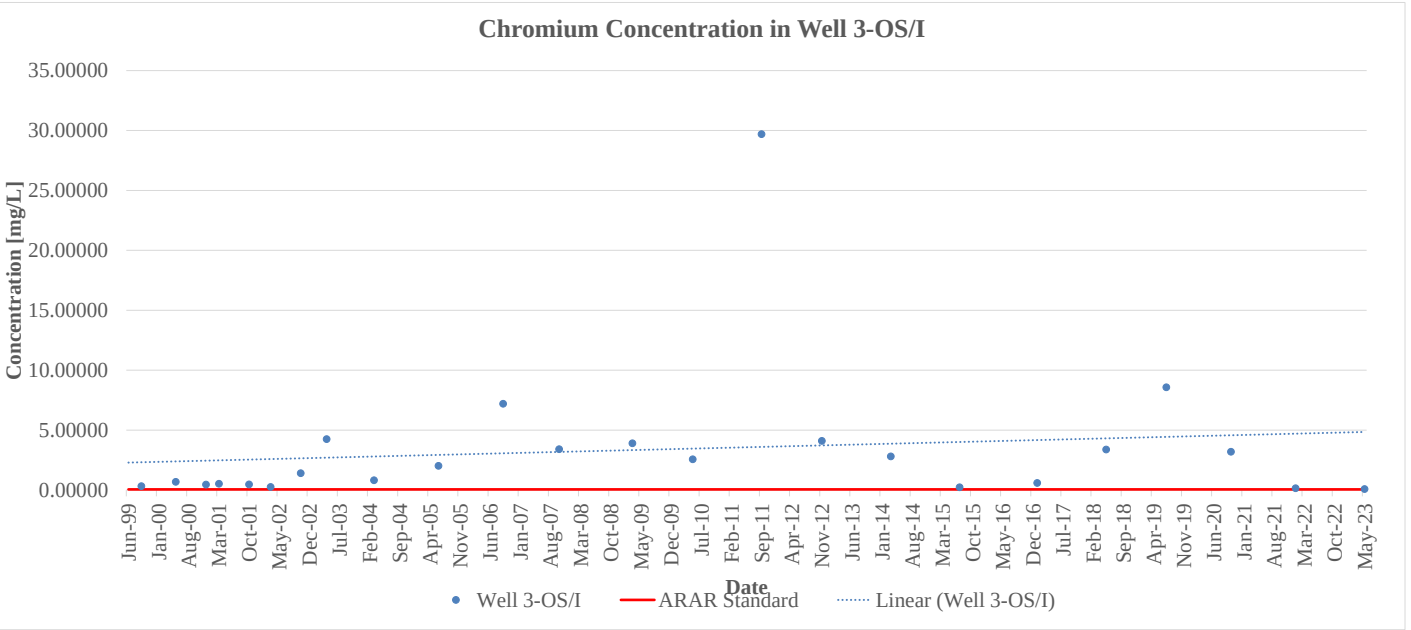
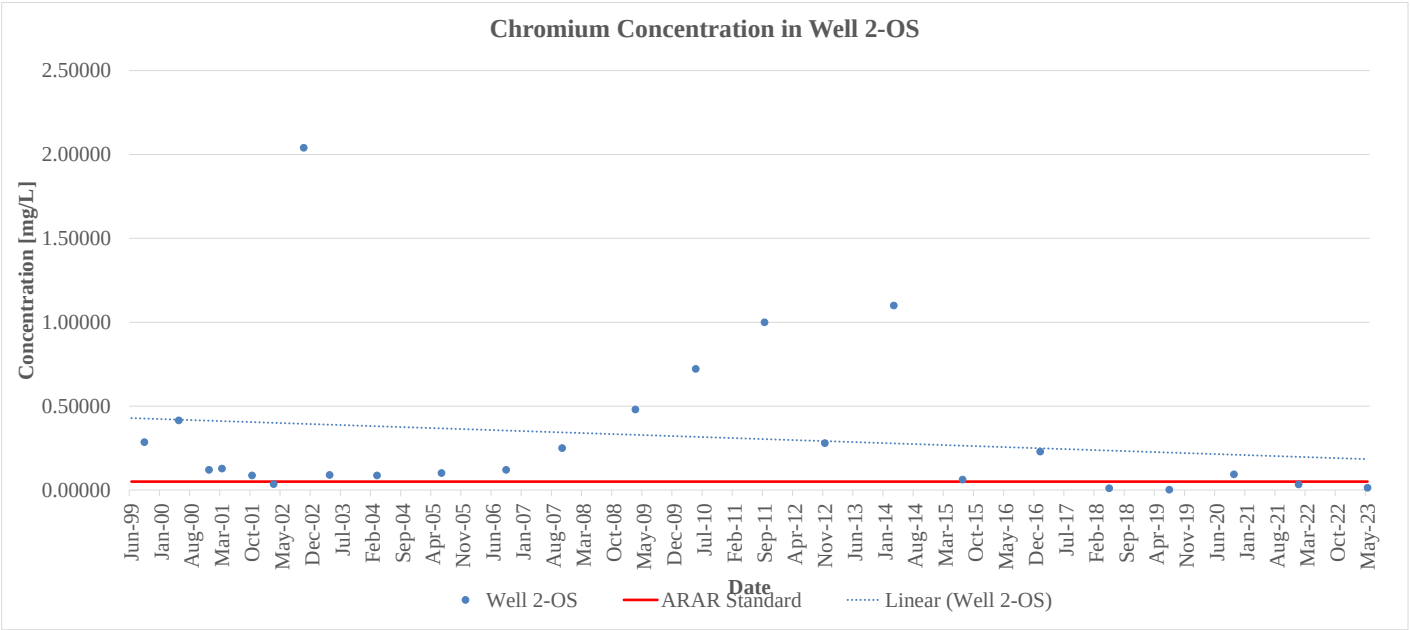
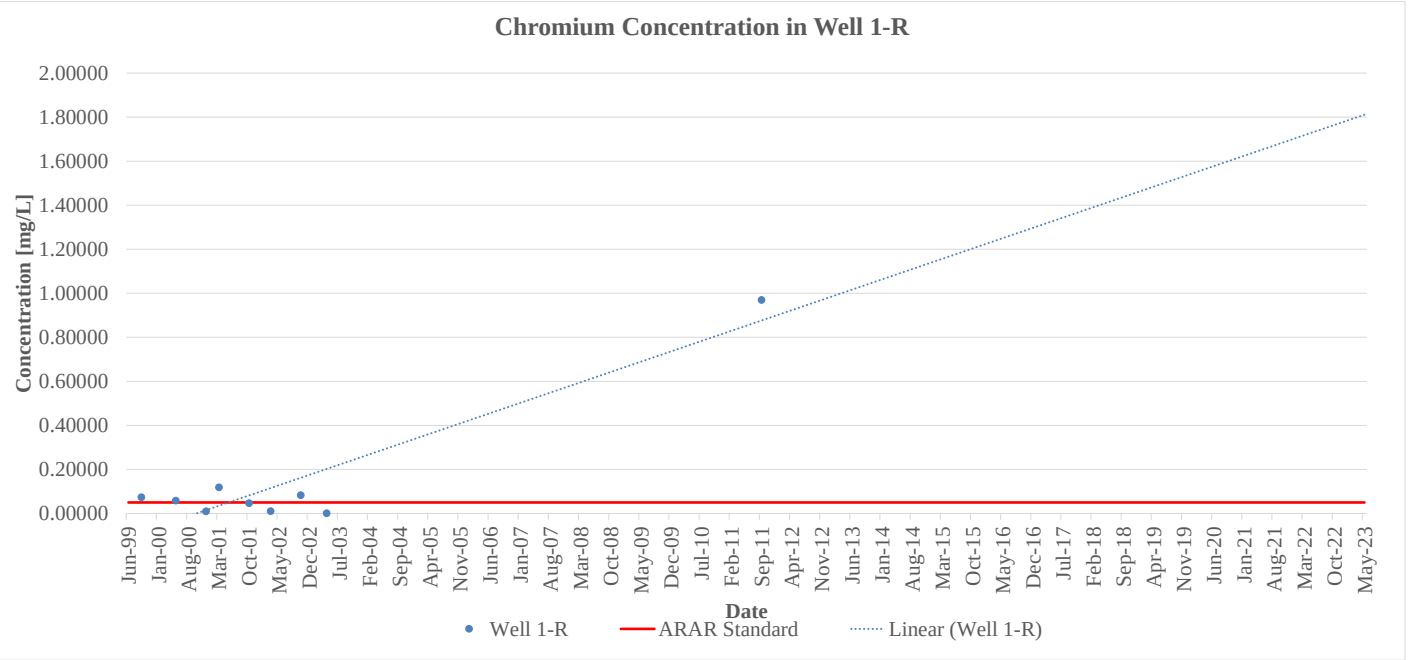
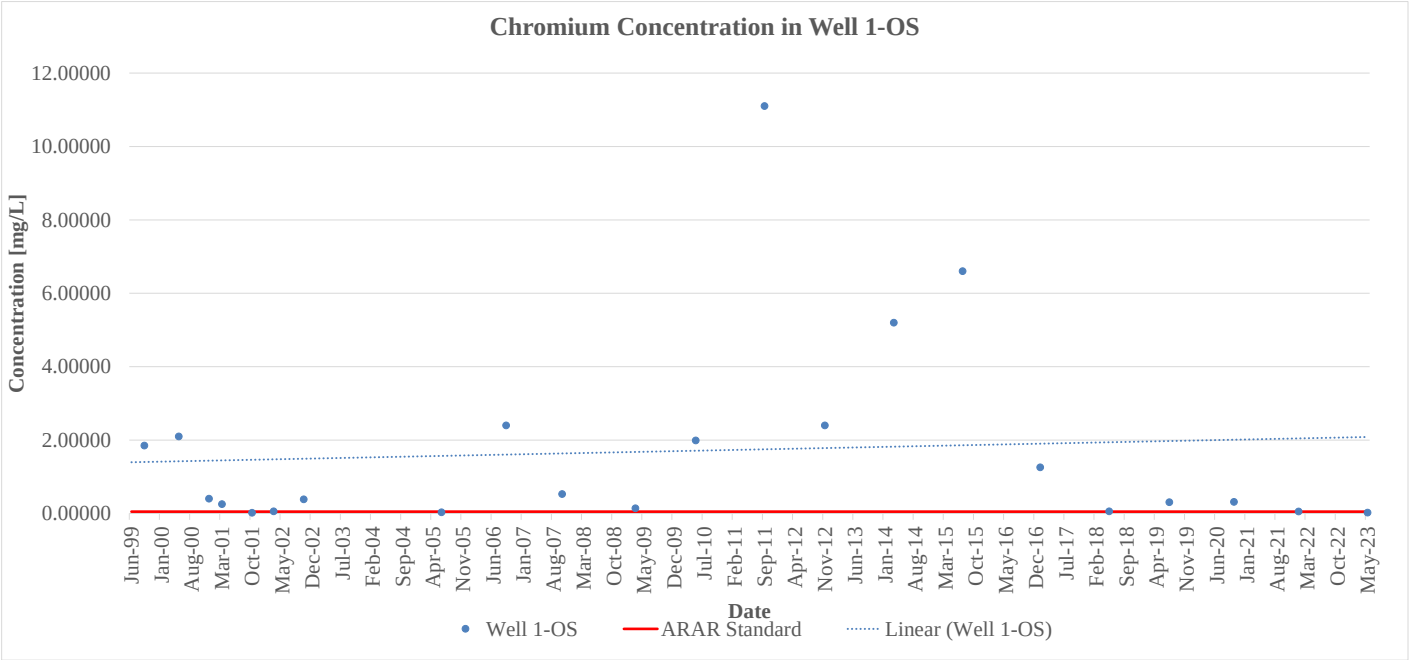


Table 12

Summary of Historical Groundwater Quality Results - Chromium (mg/L)
Town of Ramapo Landfill

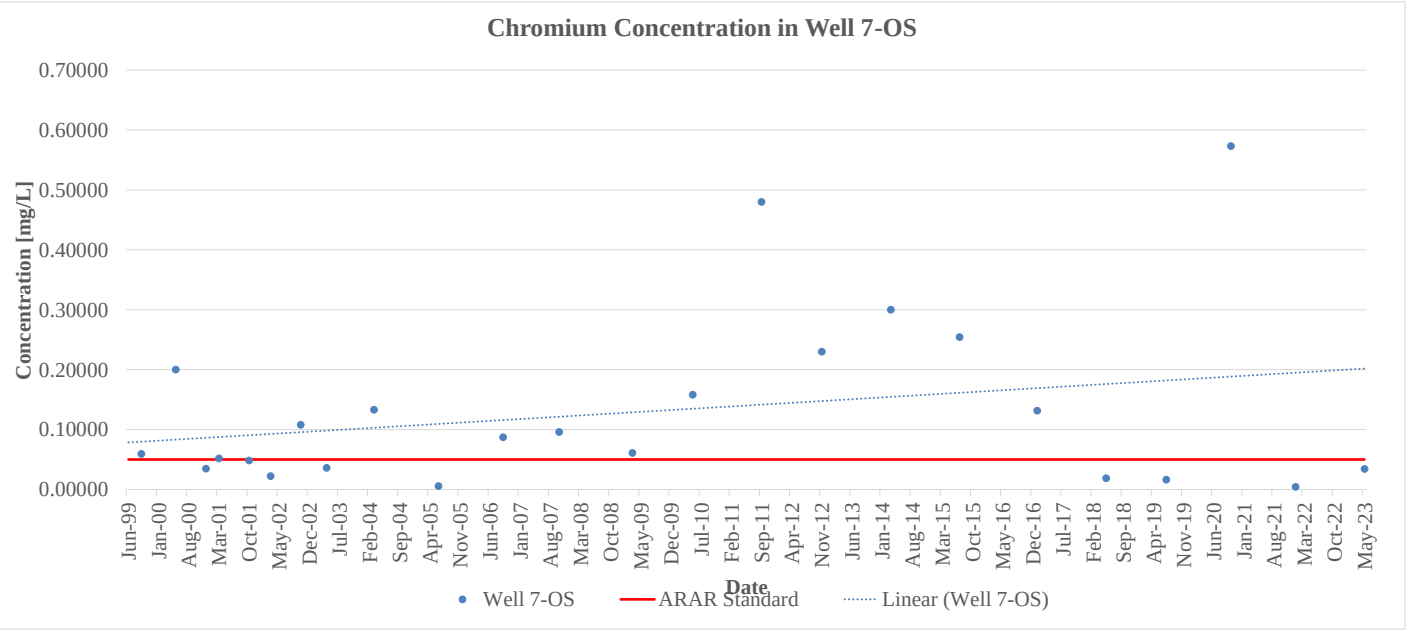
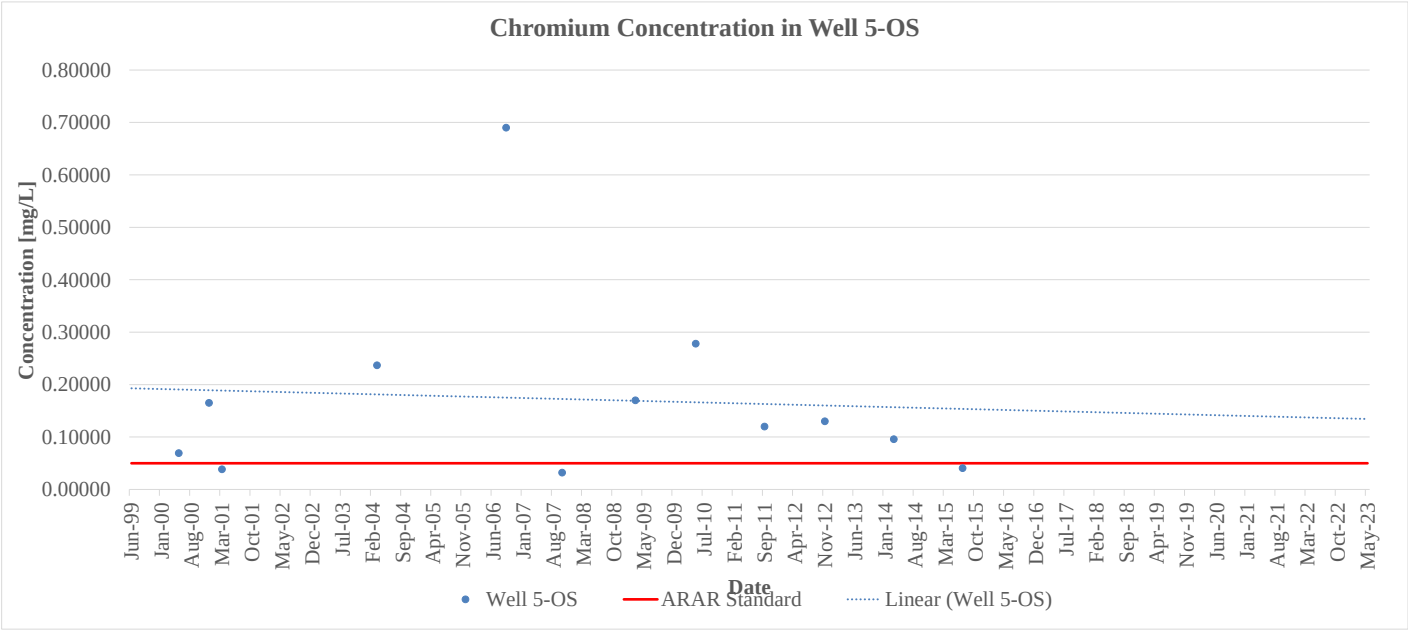
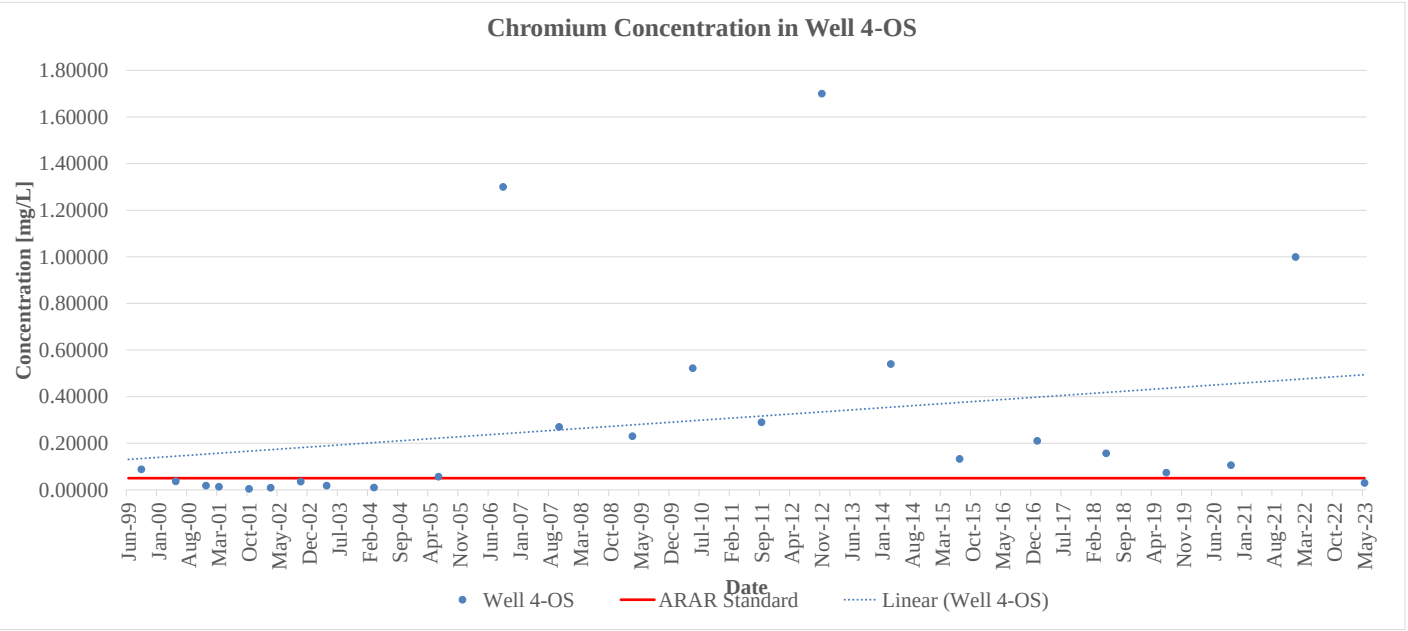
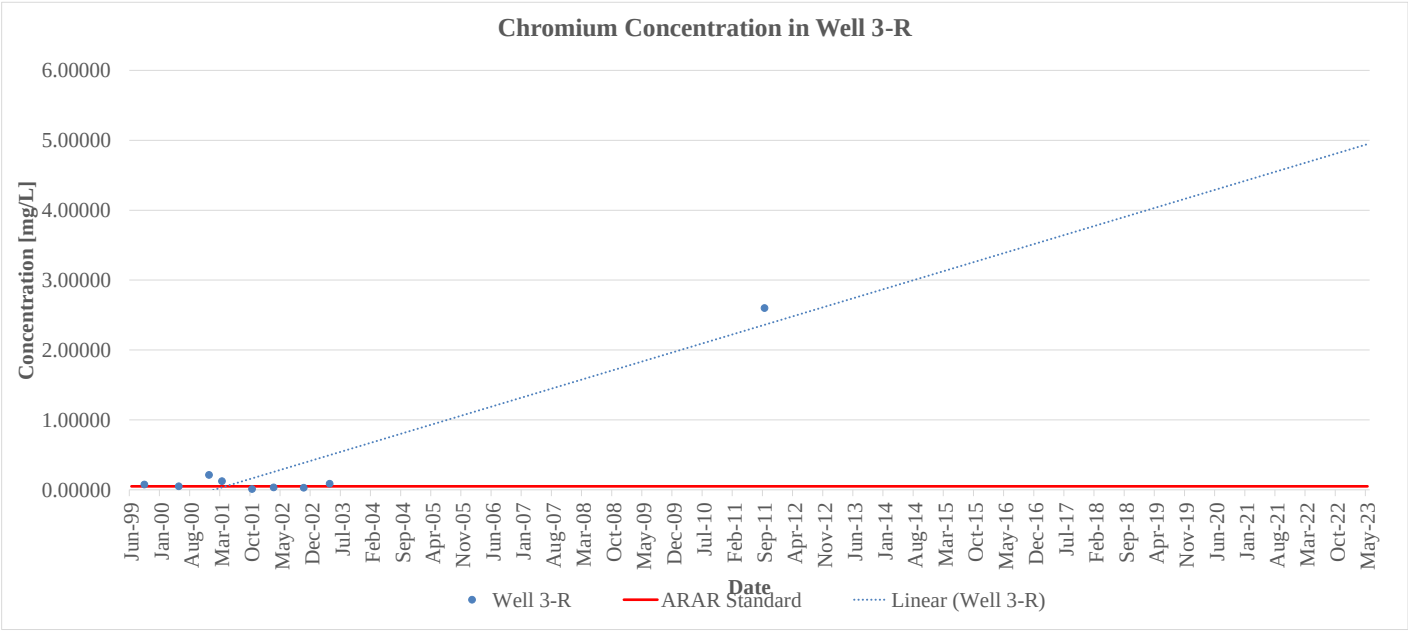


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Summary of Historical Groundwater Quality Results - Chromium (mg/L)
Town of Ramapo Landfill

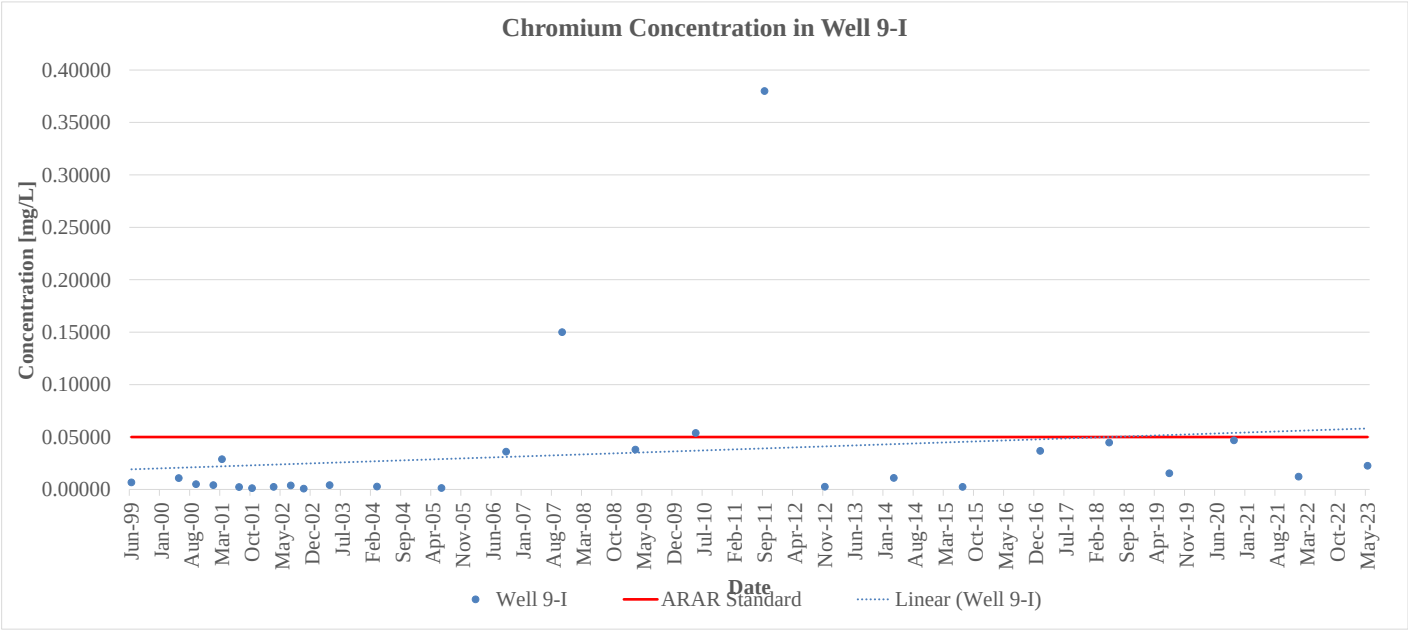
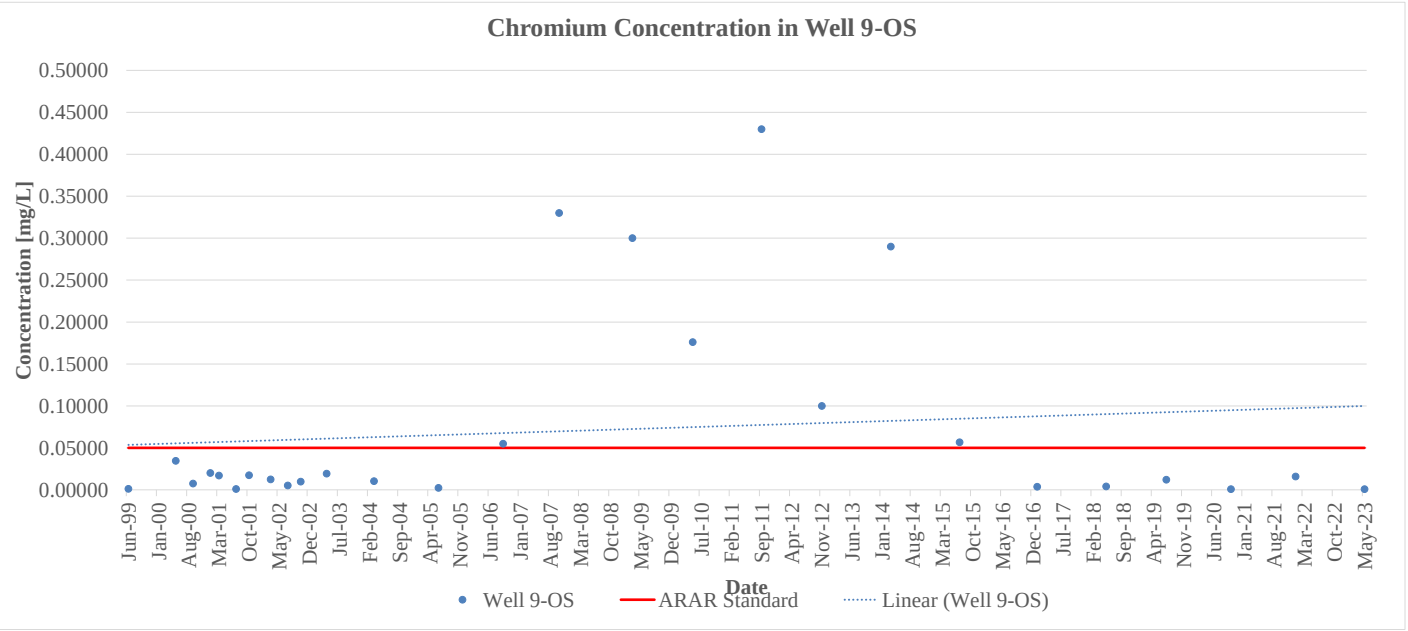
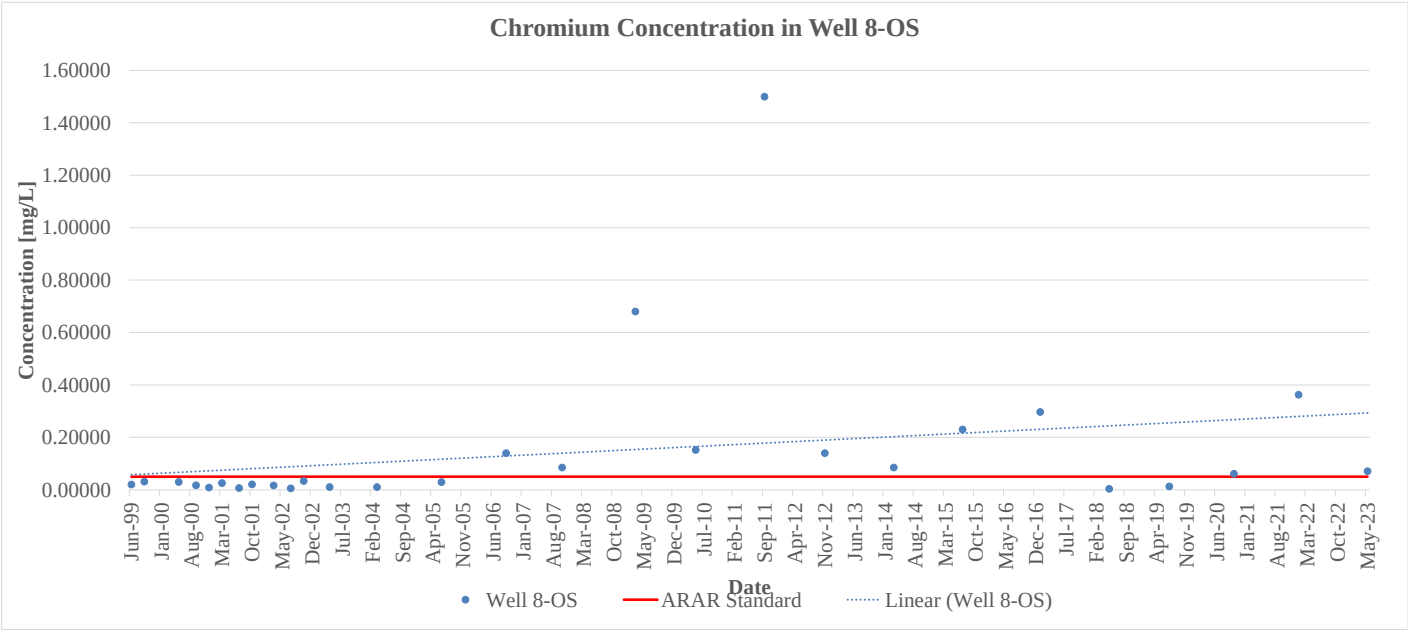


Table 13

Summary of Historical Groundwater Quality Results - Iron (mg/L)
Town of Ramapo Landfill

Well ID DATE	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.473	19.100	1.140	0.515	0.949	4.360	NA	NA	NA	NA	NA	NA	0.163	0.114	0.169	0.083	0.090	0.068
Sep-99	76.200	1.420	6.910	2.640	1.990	8.770	50.200	7.500	NA	0.700	0.040	11.300	ND	0.747	4.270	5.260	0.198	ND	3.110	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
May-00	40.500	0.867	32.900	1.790	3.310	1.610	16.300	5.900	41.500	NA	5.000	4.300	0.128	1.200	9.870	1.180	1.880	2.820	1.340	NA	NA	NA	NA	NA	NA	0.018 B	0.059 B	0.009 B	0.004 B	0.023 B	0.005 B
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.900	22.900	2.230	2.230	3.920	9.110	NA	NA	NA	NA	NA	NA	0.003 U	0.037 B	0.004 B	0.003 U	0.003 U	0.003 U
Dec-00	43.800 E	0.990 E	32.800 E	1.440 E	3.620 E	3.020 E	11.300 E	7.240 E	101.000 E	NA	2.370 E	12.400 E	0.310 E	4.450 E	26.400 E	2.580 E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.062 B,E	0.037 B,E	0.021 B,E	0.014 B,E	0.053 B,E
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.640	2.570	8.280	NA	NA	NA	NA	NA	NA	0.005 B	NA	NA	NA	NA	NA
Mar-01	54.100	15.700	37.700	0.337	5.810	4.400	7.690	4.220	22.800	NA	0.826	4.170 N	0.213	6.020 N	47.600 N	2.500 N	3.660 N	24.000 N	8.080 E	NA	NA	NA	NA	NA	NA	0.015 B	0.011 B	0.062 B	0.022 B	0.025 B	0.028 B
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.460	27.600	1.680	0.003 U	2.350	8.320	NA	NA	NA	NA	NA	NA	0.561	0.026 B	0.029 B	0.007 B	0.103	0.019 B
Oct-01	16.400 E	6.260 E	24.500 E	0.299	4.090 E	1.140 E	1.760 E	3.850 E	NA	0.186 E	0.096 E	10.400 E	0.022 B,E	4.600 E	6.560 E	1.770 E	3.780 E	0.145 E	8.150 E	NA	NA	NA	NA	NA	NA	0.016 B	0.059 B,E	NA	NA	NA	NA
Mar-02	35.200	1.330	10.500	6.830	1.810	2.020	4.310	3.250	NA	5.490	10.300	6.790	0.073	3.060	16.700	2.110	0.896	2.000	5.980	NA	NA	NA	NA	NA	NA	0.008 B	0.036 B	0.005 U	0.011 B	0.013 B	0.005 U
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.540 *	16.700 *	1.580 *	0.789 *	3.290 *	7.110 *	NA	NA	NA	NA	NA	NA	0.008 *B	0.017 *B	0.019 B	0.007 U	0.009 B	0.007 U
Oct-02	127.000 E	41.600 E	48.200 E	1.760 E	30.800 E	13.300 E	32.800 E	4.520 E	NA	0.061 E	1.230 E	21.200 E	NA	6.600 E	17.600 E	1.490 E	0.500 E	0.040 B,E	6.140 E	NA	NA	NA	NA	NA	NA	0.024 B,E	0.033 B,E	0.939 E	0.053 B,E	0.091 E	0.011 B,E
Apr-03	NA	0.374	40.700	2.550	31.800	4.830	14.100	6.250	NA	1.910	1.760	1.850	NA	2.490	21.400	0.969	1.600	3.710	5.720	NA	NA	NA	NA	NA	NA	0.009 B	0.025 B	0.024 B	0.020 B	0.056 B	0.007 B
Mar-04	NA	NA	14.700	NA	12.900	NA	3.050	NA	150.000	NA	NA	38.500	NA	1.030	29.700	1.160	0.506	1.630	4.890	NA	NA	NA	NA	NA	NA	0.020 B	0.028 B	0.203	0.030 B	0.157	0.017 U
Jun-05	54.200 N	NA	0.144 N	NA	60.500 N	NA	1.230	NA	NA	0.124 N	NA	1.310	NA	3.150	13.900	0.751	0.453	0.318	6.430	NA	NA	NA	NA	NA	NA	0.019 B	0.115	0.014 B	0.008	0.017 B	0.008 U
Sep-06	120.000	NA	12.000	NA	77.000	NA	12.000	NA	410.000	NA	NA	17.000	NA	1.200	43.000	4.700	1.600	24.000	7.000	NA	NA	NA	NA	NA	NA	0.015 J	0.034 J	0.021 J	0.050 U	0.260	0.050 U
Oct-07	160.000	NA	31.000	NA	25.000	NA	24.000	NA	NA	0.850	NA	13.000	NA	0.780	39.000	1.300	6.300	41.000	8.500	NA	NA	NA	NA	NA	NA	0.017 J	0.130	0.046 J	0.012 J	0.076	0.050 U
Mar-09	38.000	NA	12.000	NA	30.000	NA	10.000	NA	110.000	NA	NA	5.800	NA	3.800	33.000	1.300	7.800	23.000	9.400	NA	NA	NA	NA	NA	NA	0.012 J	0.140	0.029 J	NA	0.033 J	0.016 J
May-10	44.100 B	NA	22.700	NA	24.000 B	NA	6.830	NA	176.000	NA	NA	19.300 B	NA	1.070 B	27.000 B	0.563 B	4.640 B	30.300 B	12.500 B	NA	NA	NA	NA	NA	NA	0.023 B,J	0.071 B	0.050 U	NA	0.030 B,J	0.598 B
Sep-11	82.000	8.600 B	16.000	0.260	158.000	18.000	3.500	NA	66.500	1.300	28.100 B	19.300	NA	6.500	12.600 B	0.350 B	7.500 B	40.100 B	7.300 B	NA	NA	NA	NA	NA	NA	0.028 B,J	0.080 B	0.140 B	0.090 B	NA	NA
Nov-12	45.200	NA	6.600	NA	34.800	NA	18.500	NA	68.500	NA	NA	14.300	NA	0.950	15.800	0.300	1.300	0.075	5.400	NA	NA	NA	NA	NA	NA	0.055	0.250	0.050 U	0.050 U	0.050 U	NA
Mar-14	66.000	NA	17.900	NA	16.600	NA	8.900	NA	53.500	NA	NA	24.500	NA	0.540	14.400	0.210	3.700	0.100	6.800	NA	NA	NA	NA	NA	NA	0.034 J	0.110	ND	ND	ND	ND
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.114	0.997	2.010	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	53.600	NA	2.310	NA	2.750	NA	2.500	NA	7.800	NA	NA	5.570	NA	1.280	11.600	0.311	1.760	0.023 J	9.270	0.273	0.331	0.085	NA	NA	NA	0.030 J	0.090	0.020 U	0.020 U	0.480	0.020 U
Jan-17	10.400	NA	3.670	NA	8.560	NA	1.160	NA	NA	NA	NA	0.806	NA	2.140	9.520	0.373	0.042 J	0.241	0.968	0.186	0.022 J	0.111	0.219	0.165	0.463	0.048 J	0.066	0.034 J	0.047 J	0.104	0.076
May-18	0.533	NA	0.324	NA	25.200	NA	1.140	NA	NA	NA	NA	0.265	NA	0.056	10.200	0.294	0.067	0.347	22.800	0.275	0.133	0.765	0.435	3.230	0.055	0.193	0.148	0.036 J	0.050 U	0.022 J	0.020 J
Jul-19	7.150	NA	3.710	NA	37.600	NA	0.633	NA	NA	NA	NA	0.348	NA	0.240	8.930	0.195	0.270	0.113	1.650	0.019 J	0.095	0.078	1.150	0.106	0.200	0.021 J	0.032 J	0.019 U	0.054	0.054	0.019 U
Oct-20	9.660	NA	1.050	NA	13.600	NA	1.180	NA	NA	NA	NA	5.310	NA	0.552	9.630	1.560	0.026 J	0.305	0.533	0.181	0.039 J	0.151	0.062	0.266	0.025 J	0.029 J	0.047 J	0.019 U	0.019 U	0.019 U	0.030 J
Jan-22	0.450	NA	0.849	NA	1.210	NA	6.580	NA	NA	NA	NA	0.045 J	NA	2.190	7.520	2.460	0.102	0.229	0.569	1.960	0.027 J	0.070	0.167	0.233	NA	0.010 J	0.104	0.019 U	0.019 U	0.019 U	0.019 U
May-23	0.377	NA	0.207	NA	0.409	NA	0.765	NA	NA	NA	NA	0.220	NA	0.504	5.100	0.345	0.019 U	0.168	5.620	0.270	0.0191 U	0.0381 J	1.620	2.220	0.0357 J	0.009 U	0.024 J	0.009 U	0.0363 J	0.0289 J	0.009 U

Notes:

ARAR Standard = 0.3 mg/L; USEPA Secondary MCL = Not Available; and, Part 5 MCL = 0.3 mg/L

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Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

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Table 13

Summary of Historical Groundwater Quality Results - Iron (mg/L)
Town of Ramapo Landfill

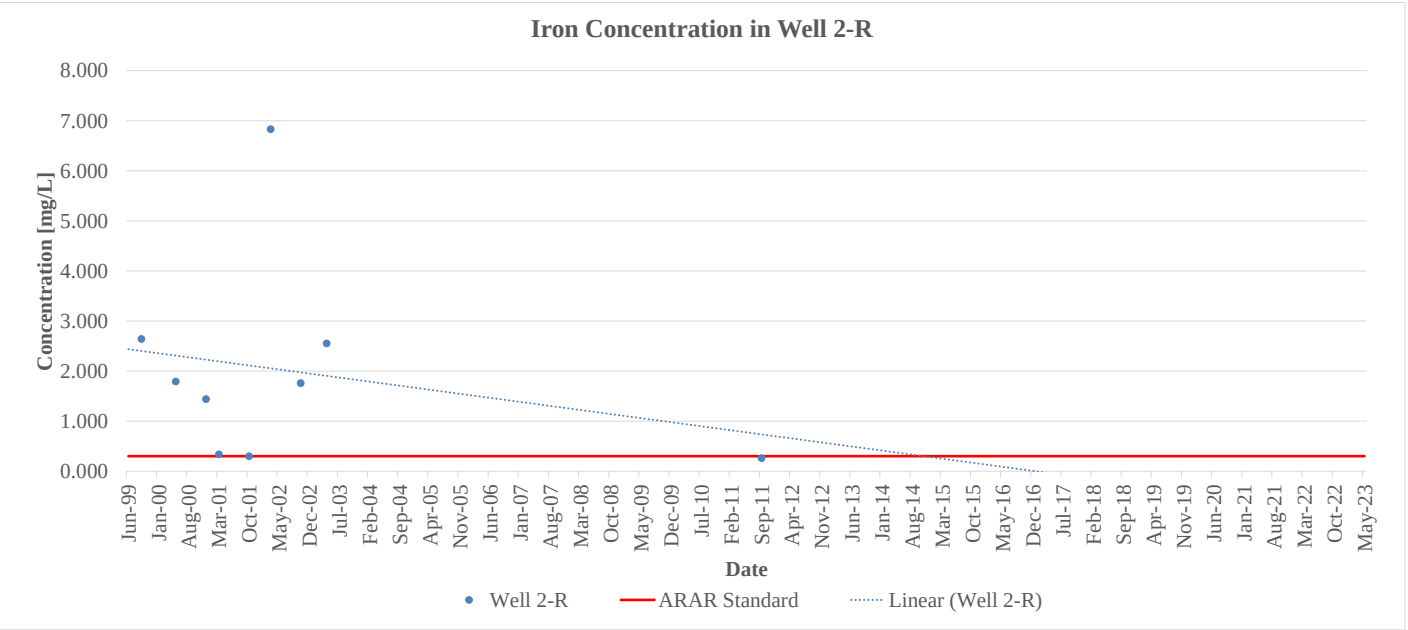
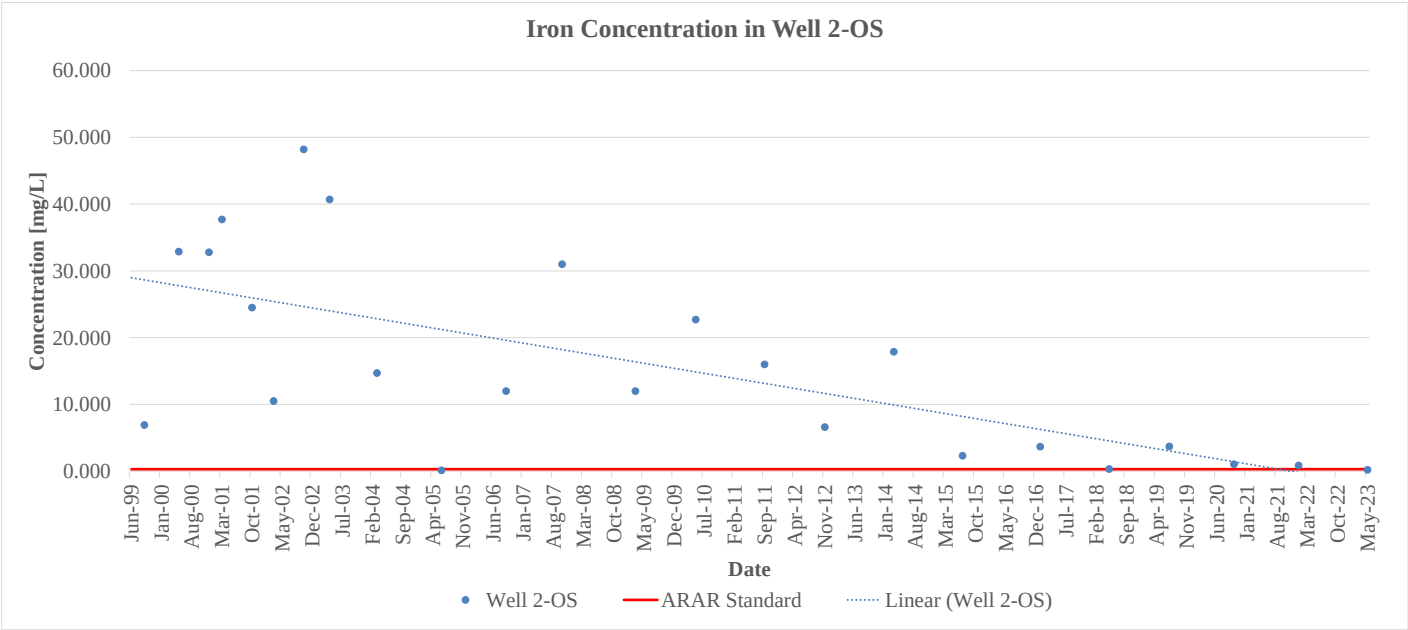
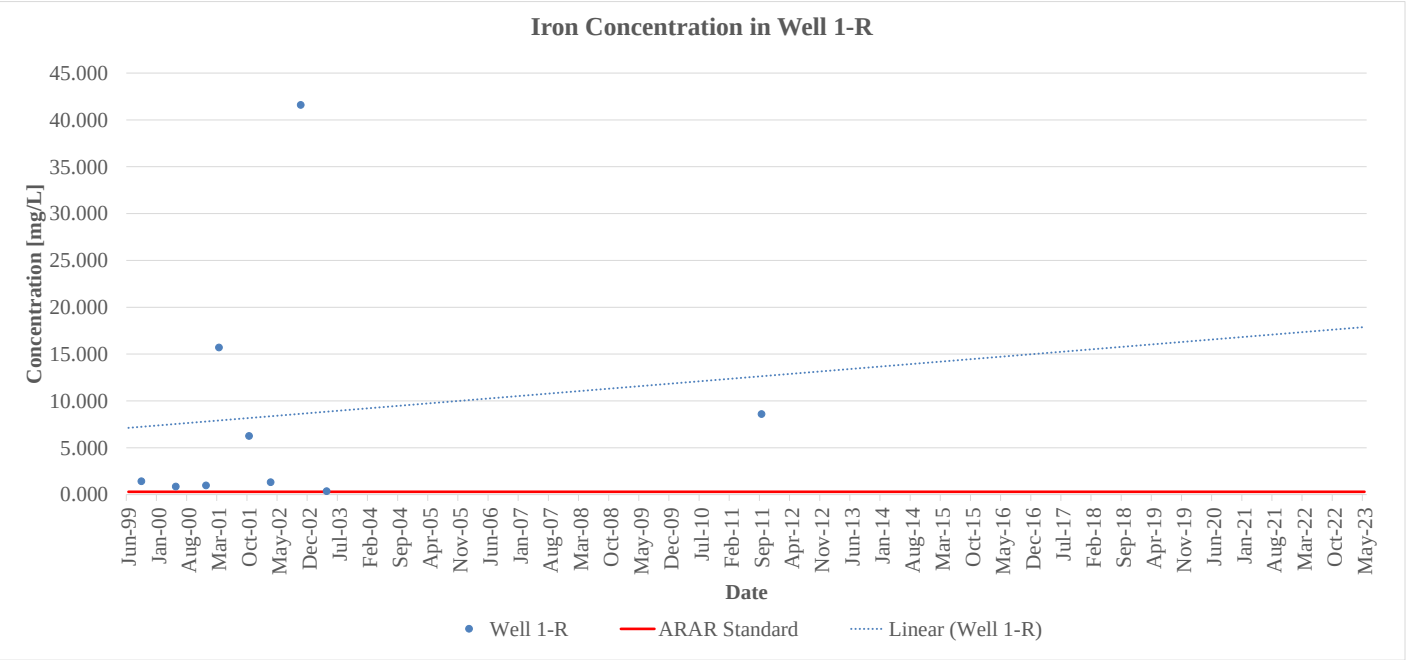
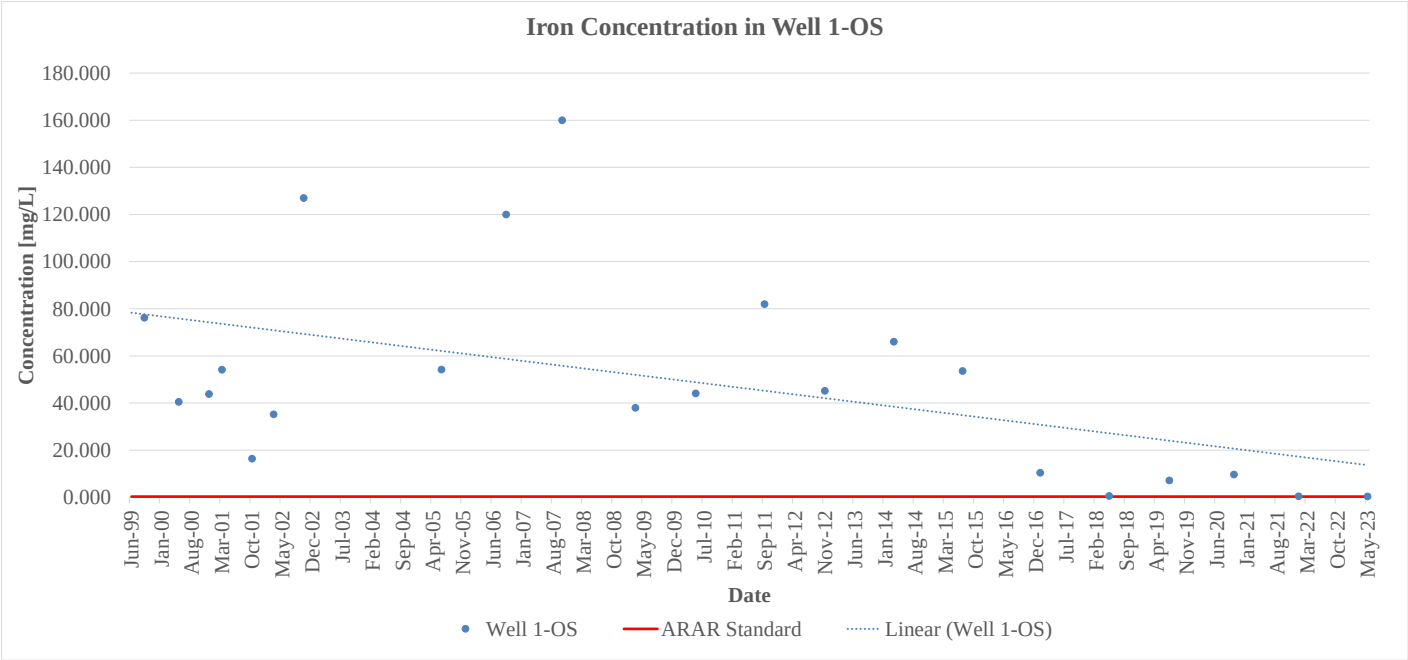


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Town of Ramapo Landfill

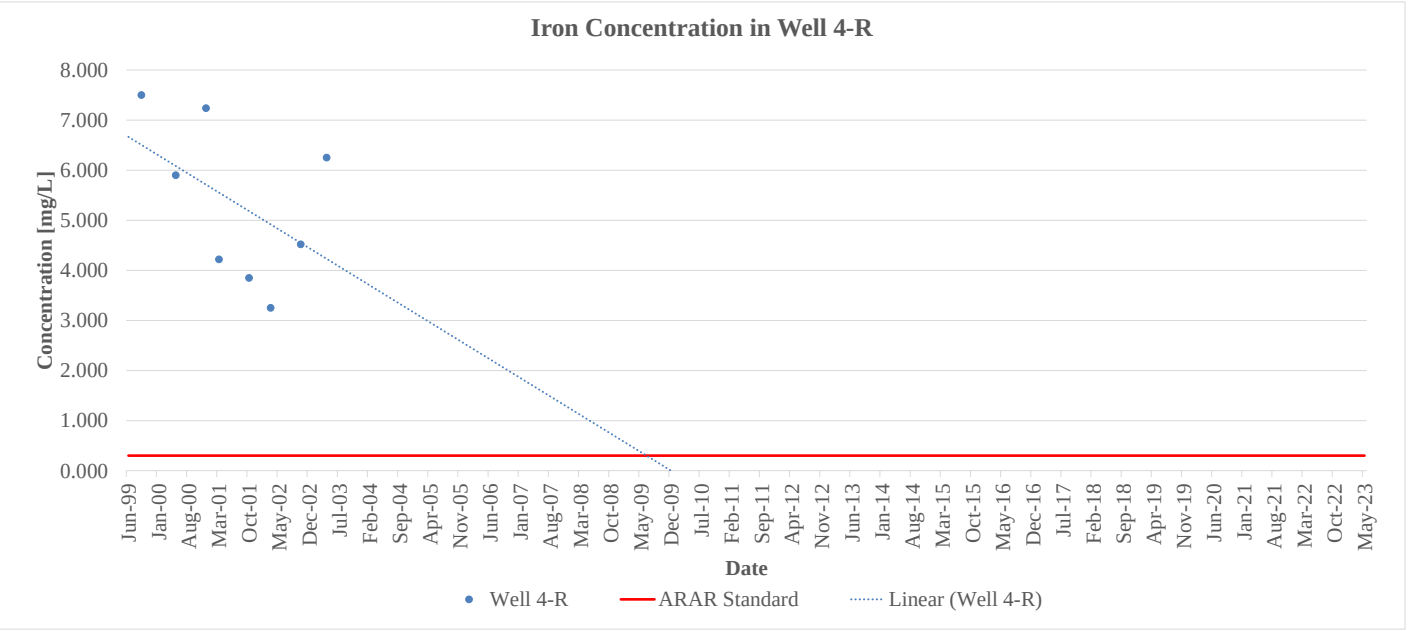
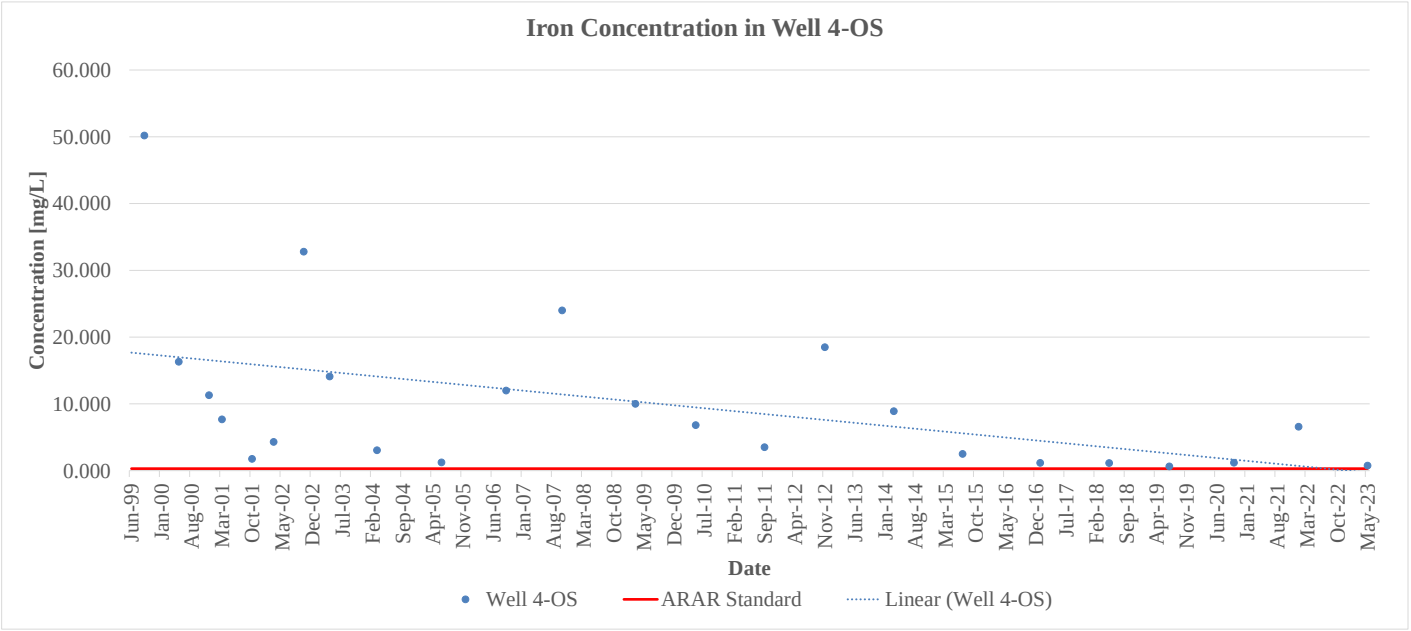
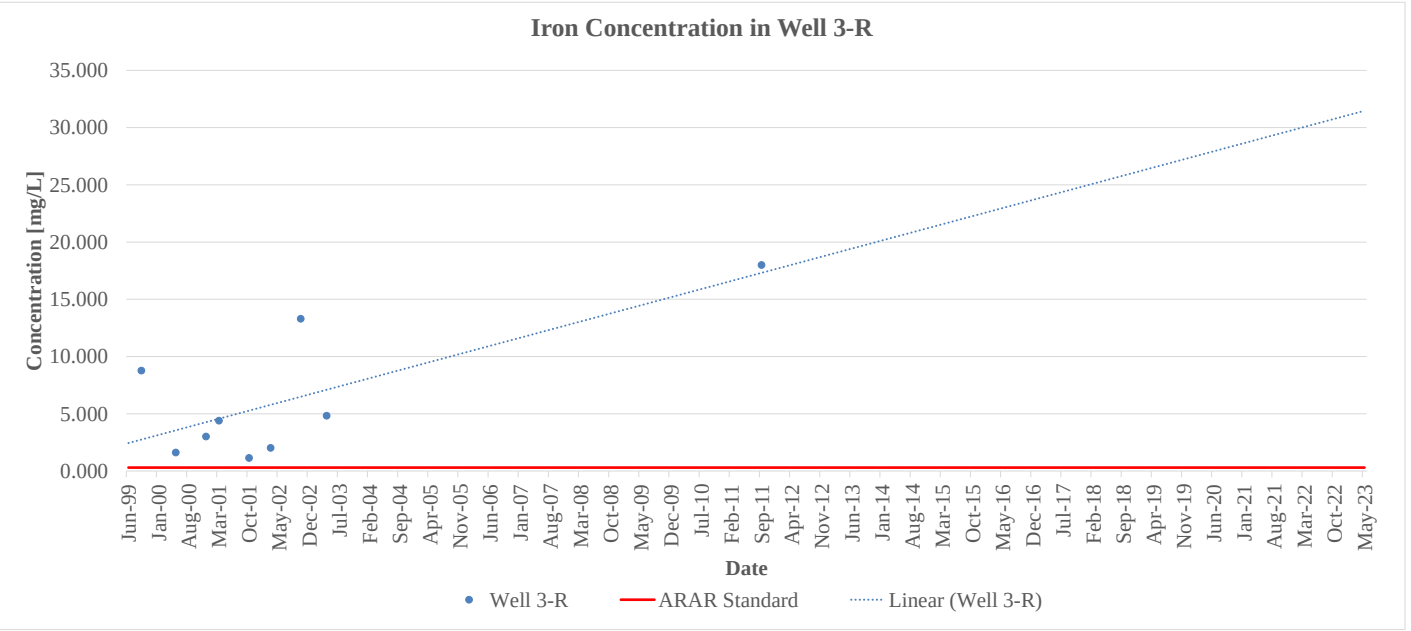
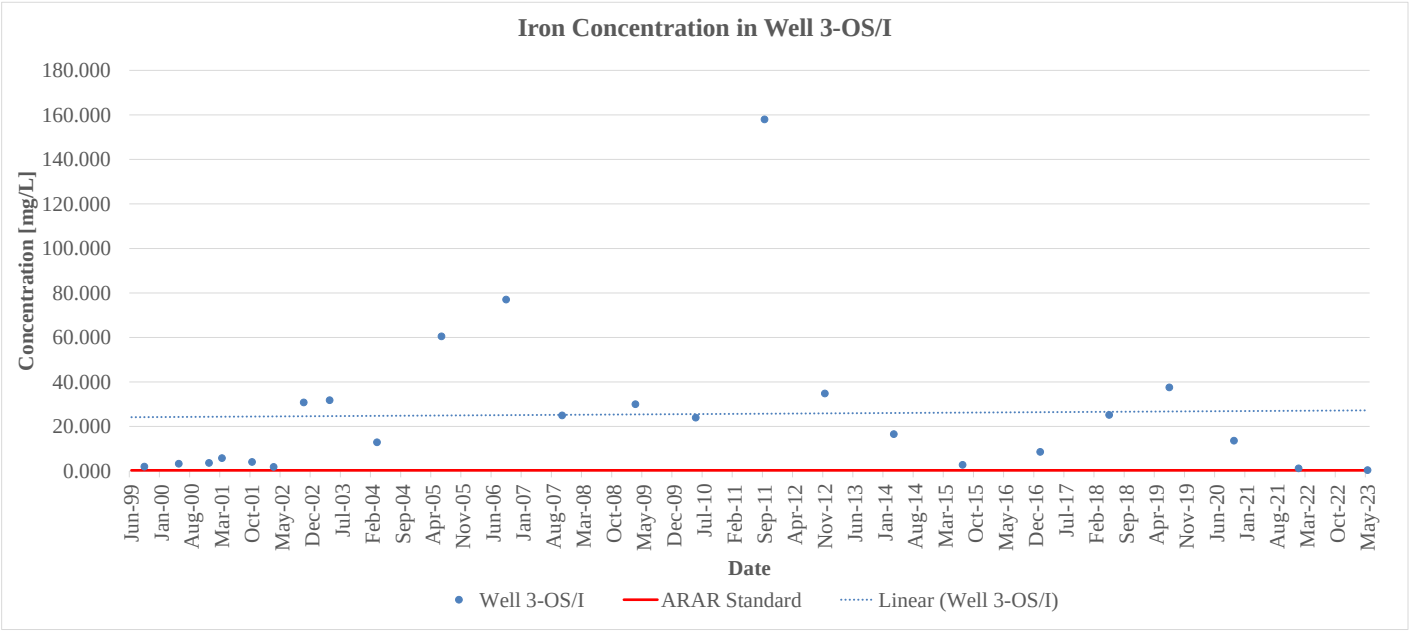


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Town of Ramapo Landfill

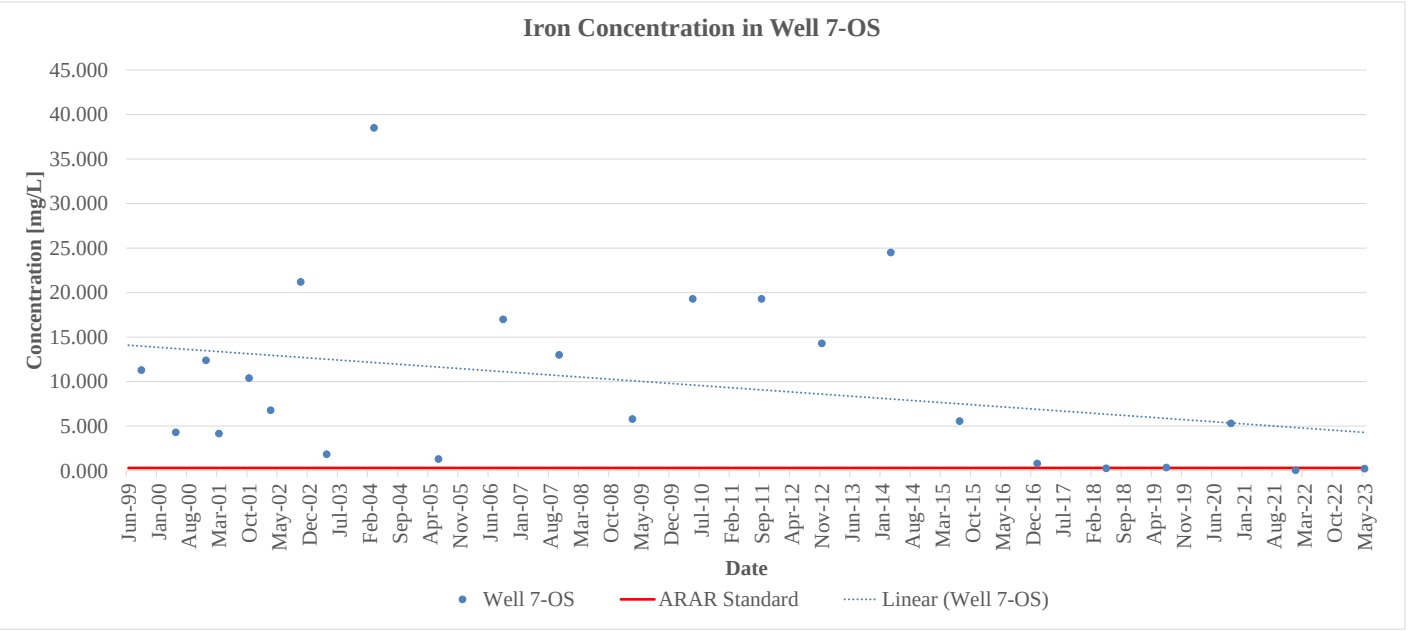
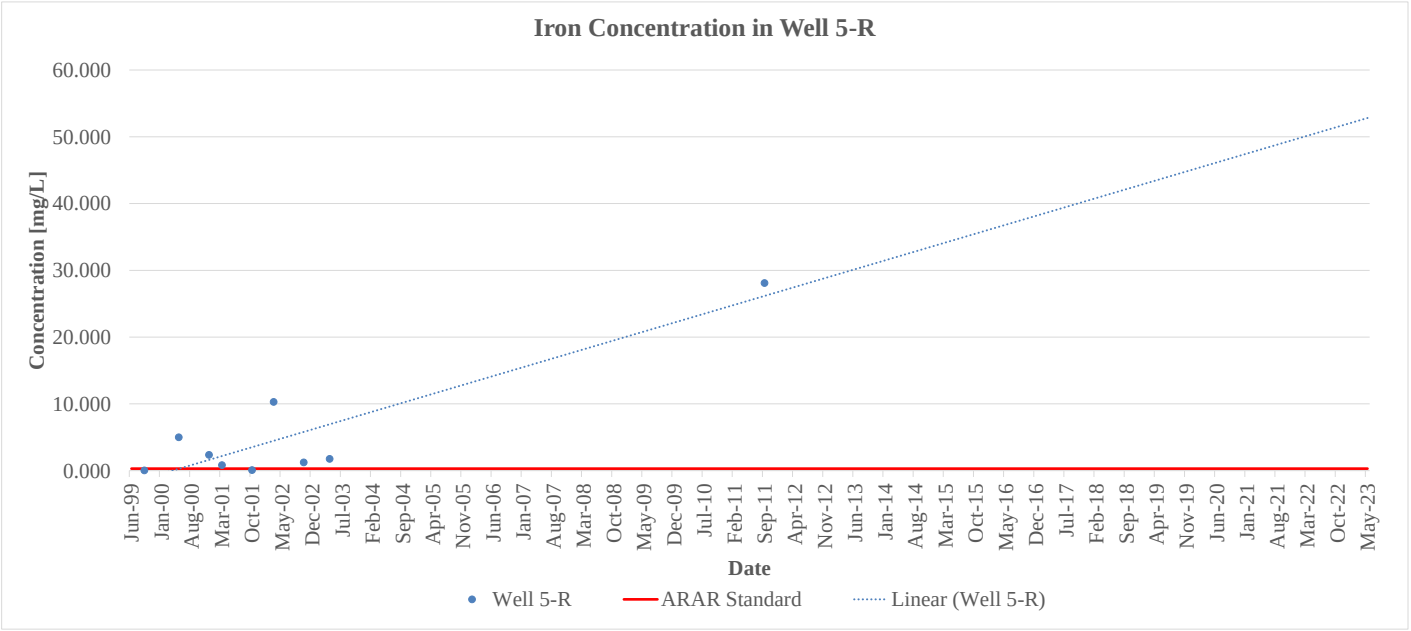
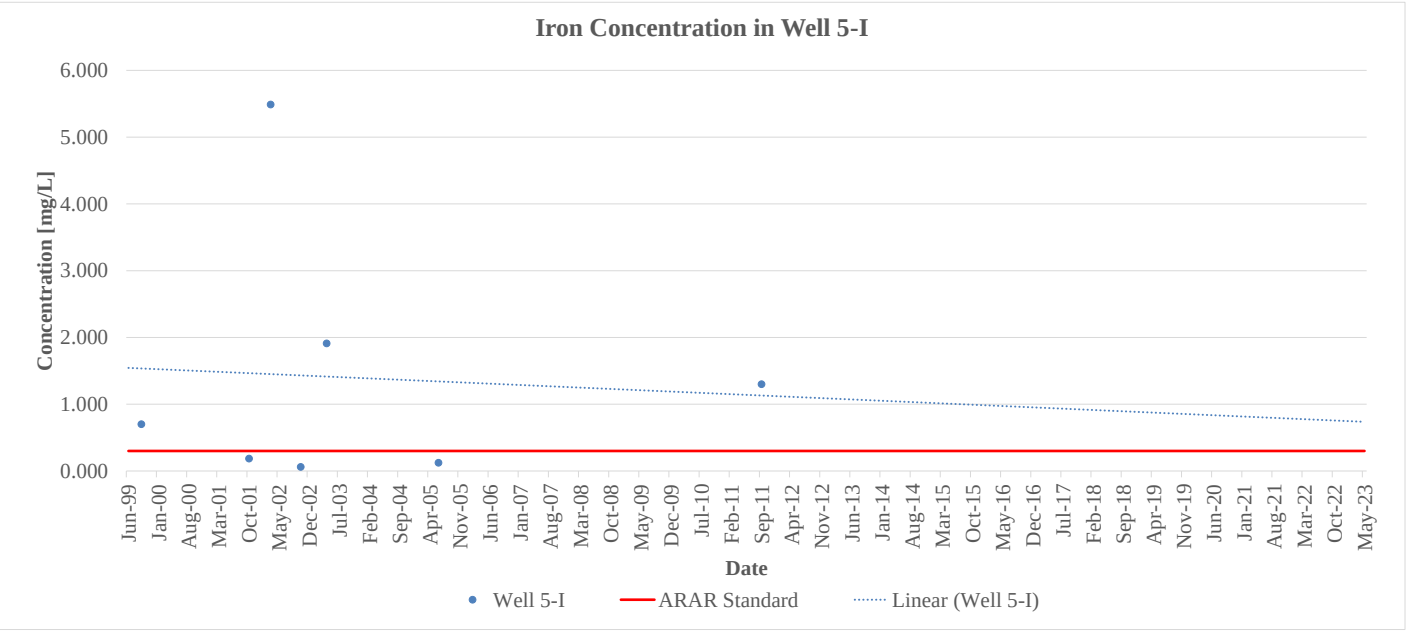
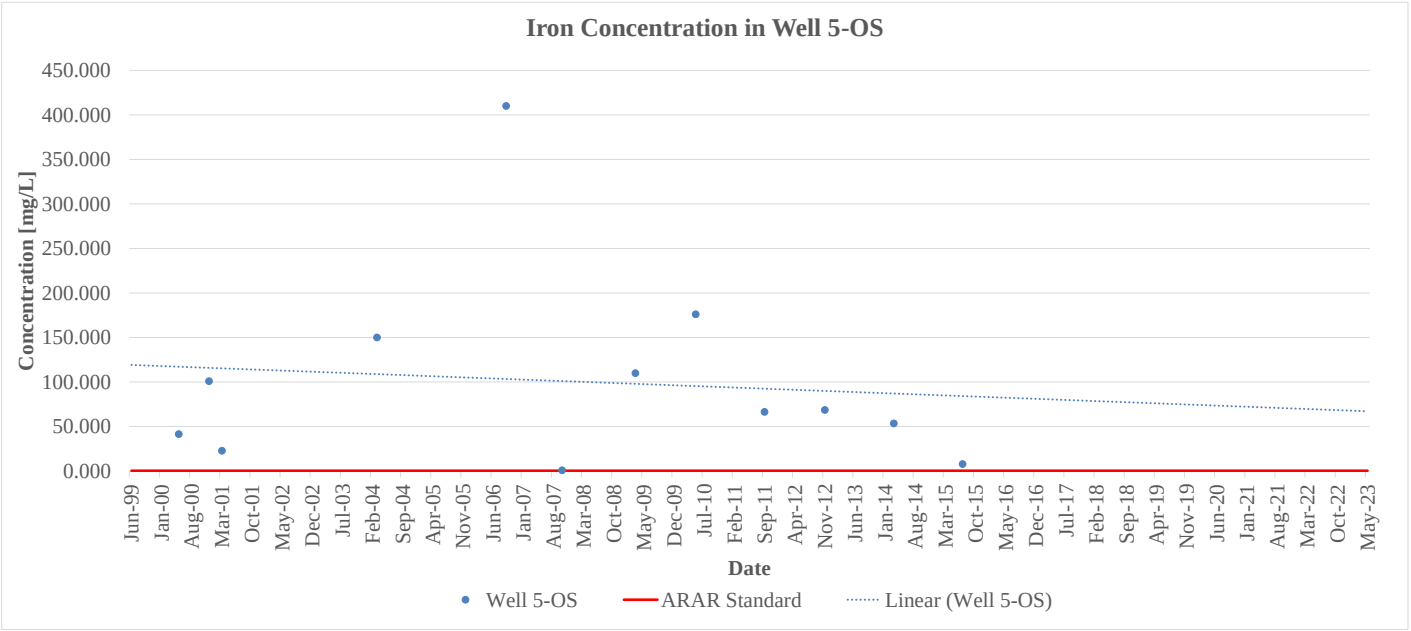


Table 13
Summary of Historical Groundwater Quality Results - Iron (mg/L)
Town of Ramapo Landfill

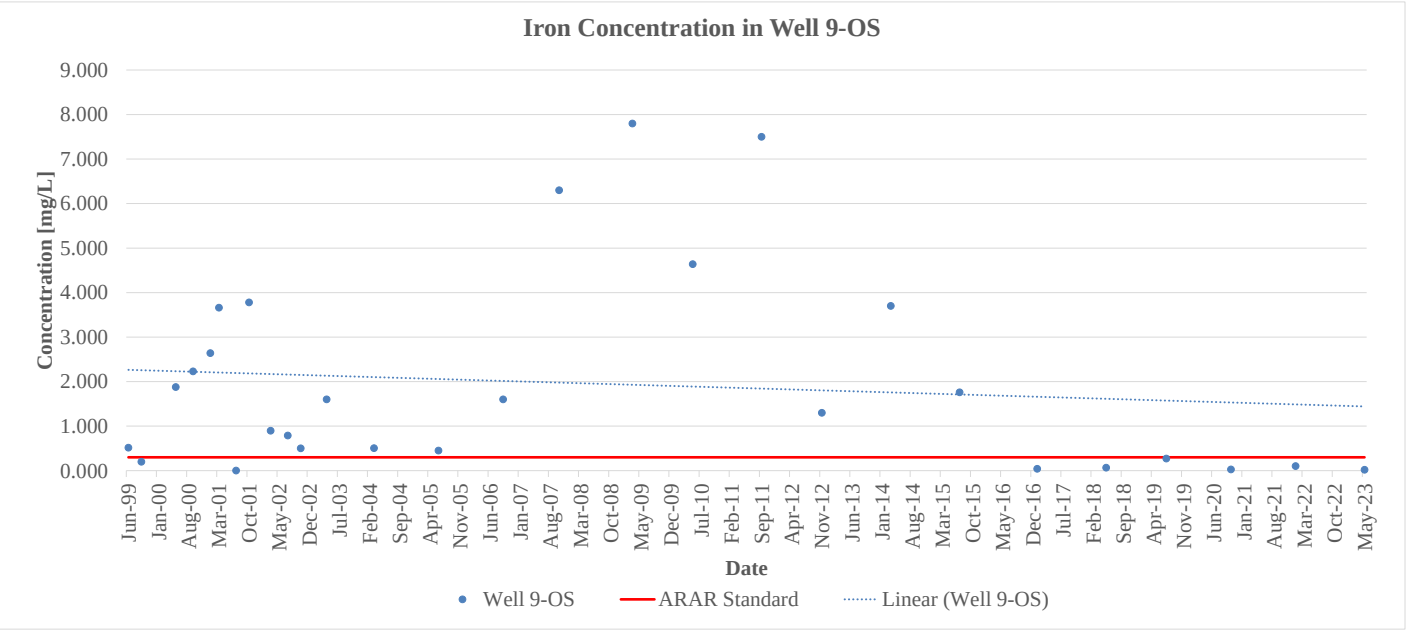
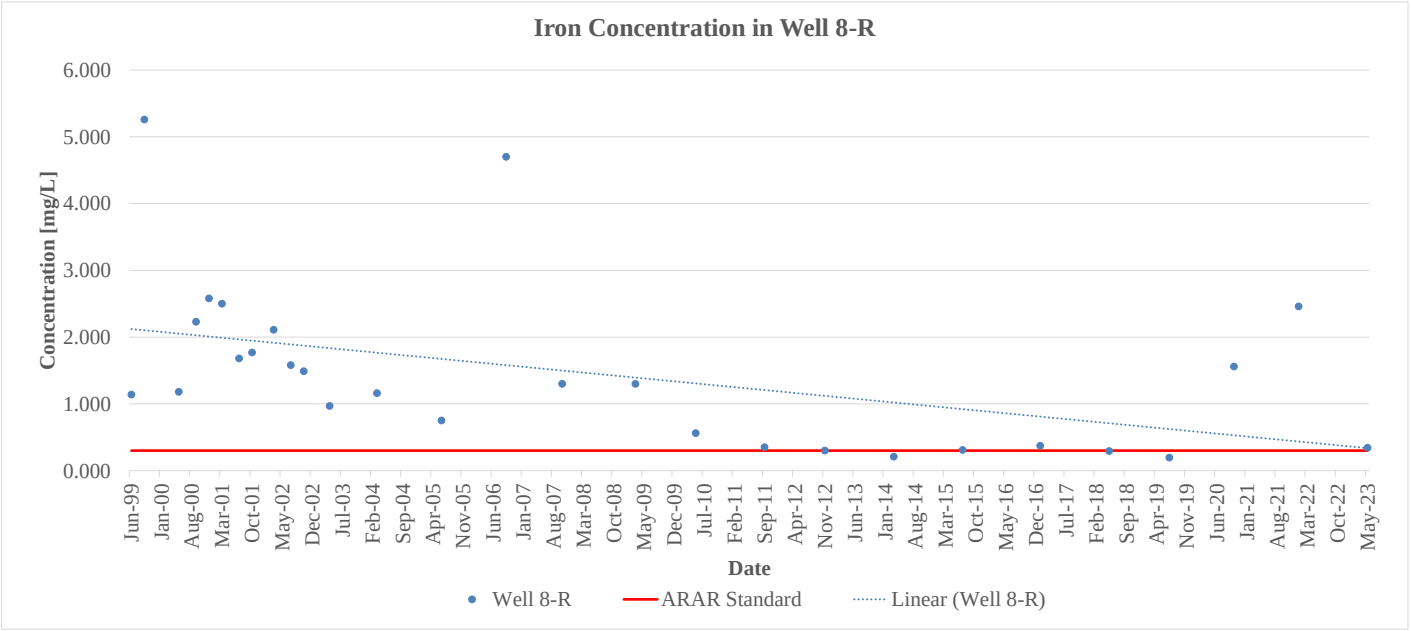
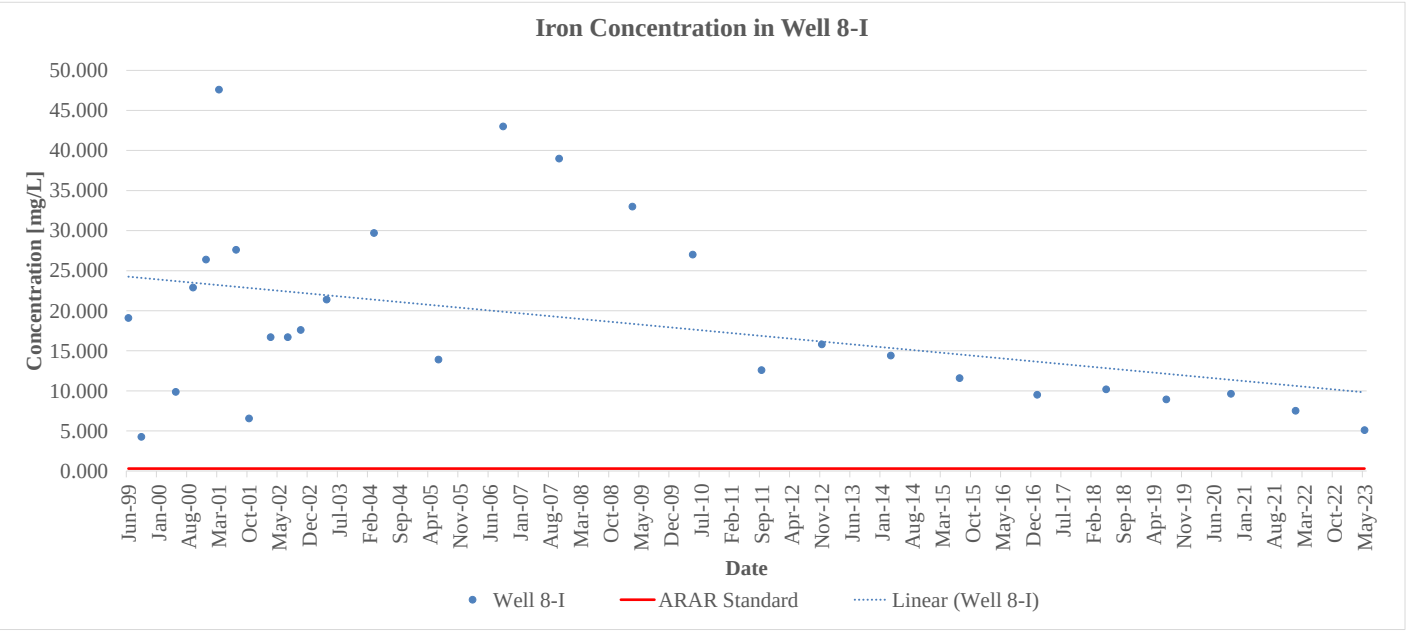
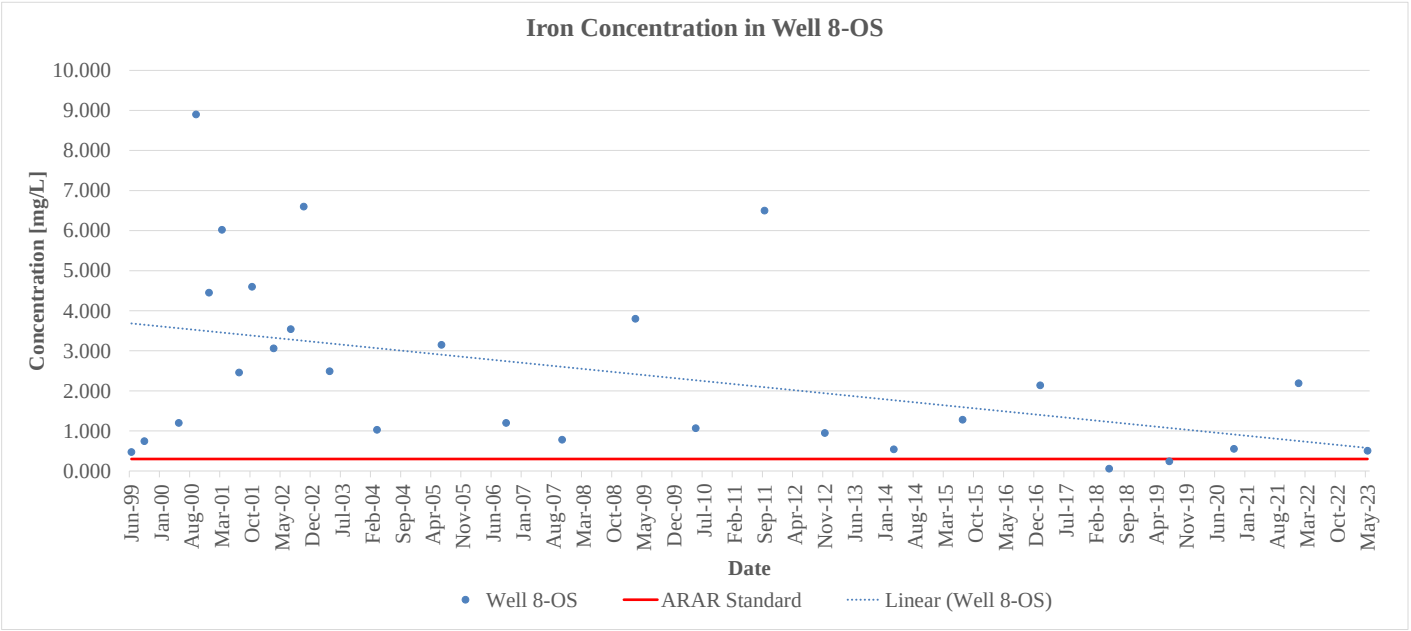


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Summary of Historical Groundwater Quality Results - Iron (mg/L)
Town of Ramapo Landfill

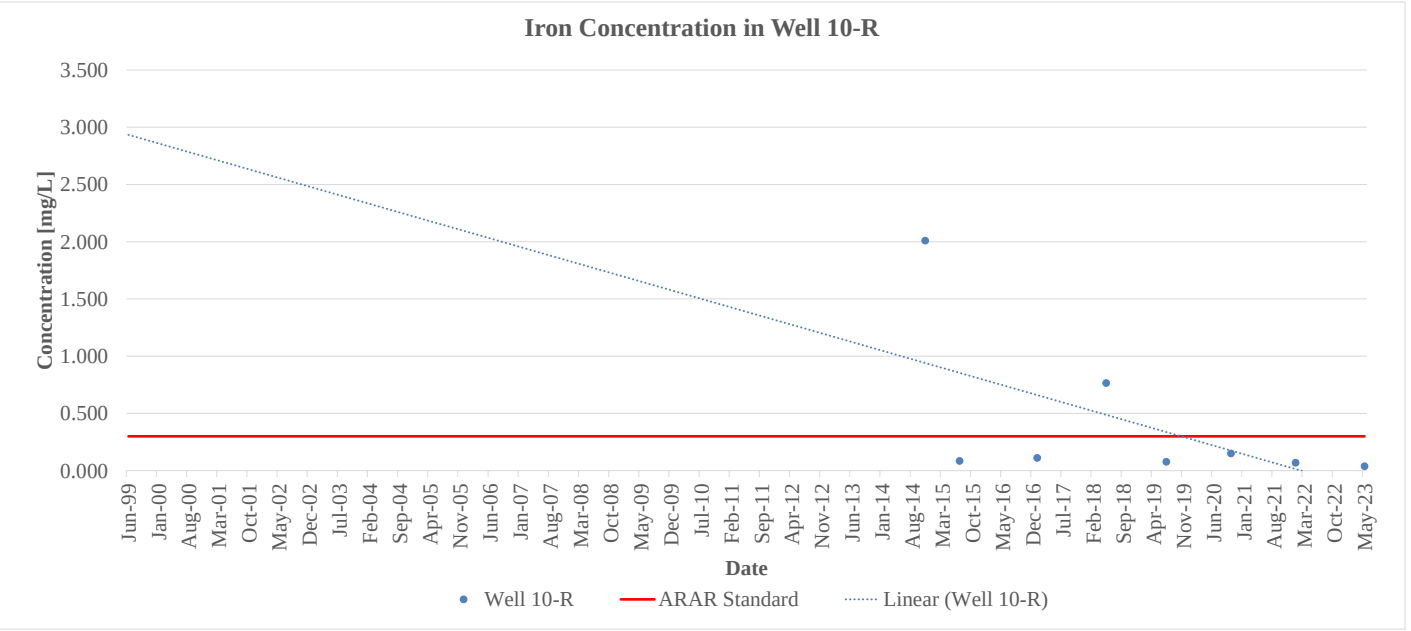
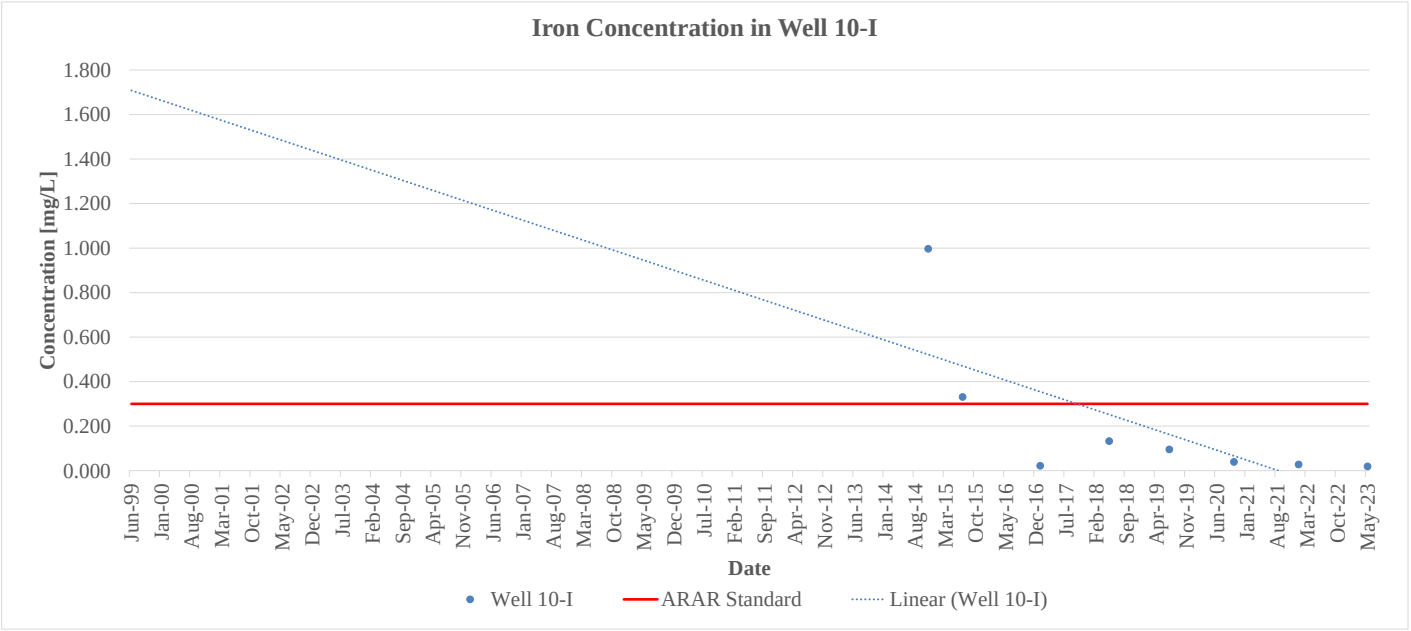
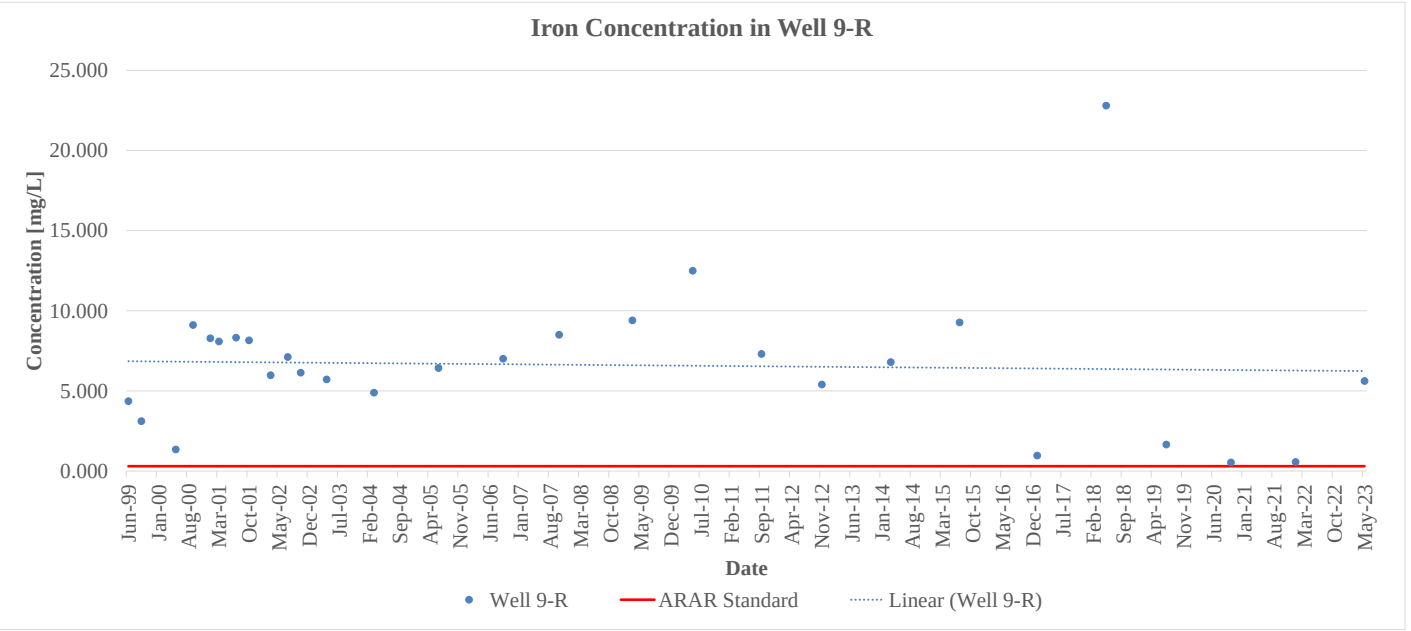
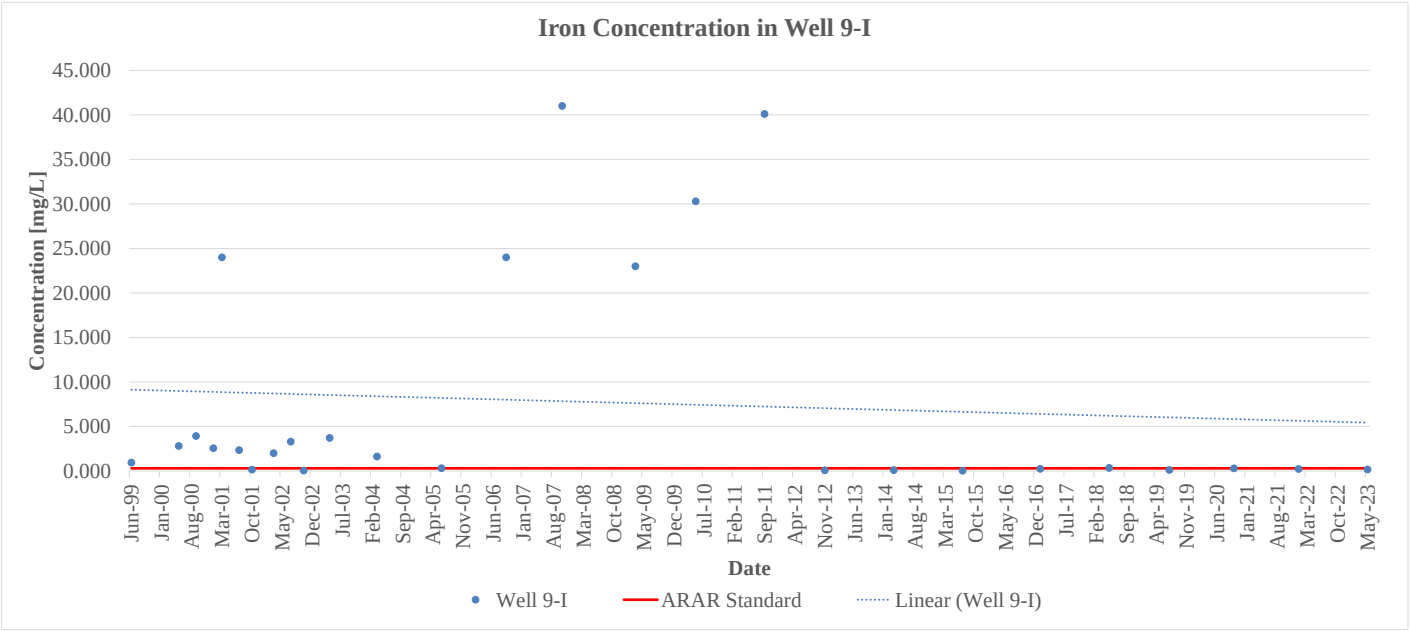


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Town of Ramapo Landfill

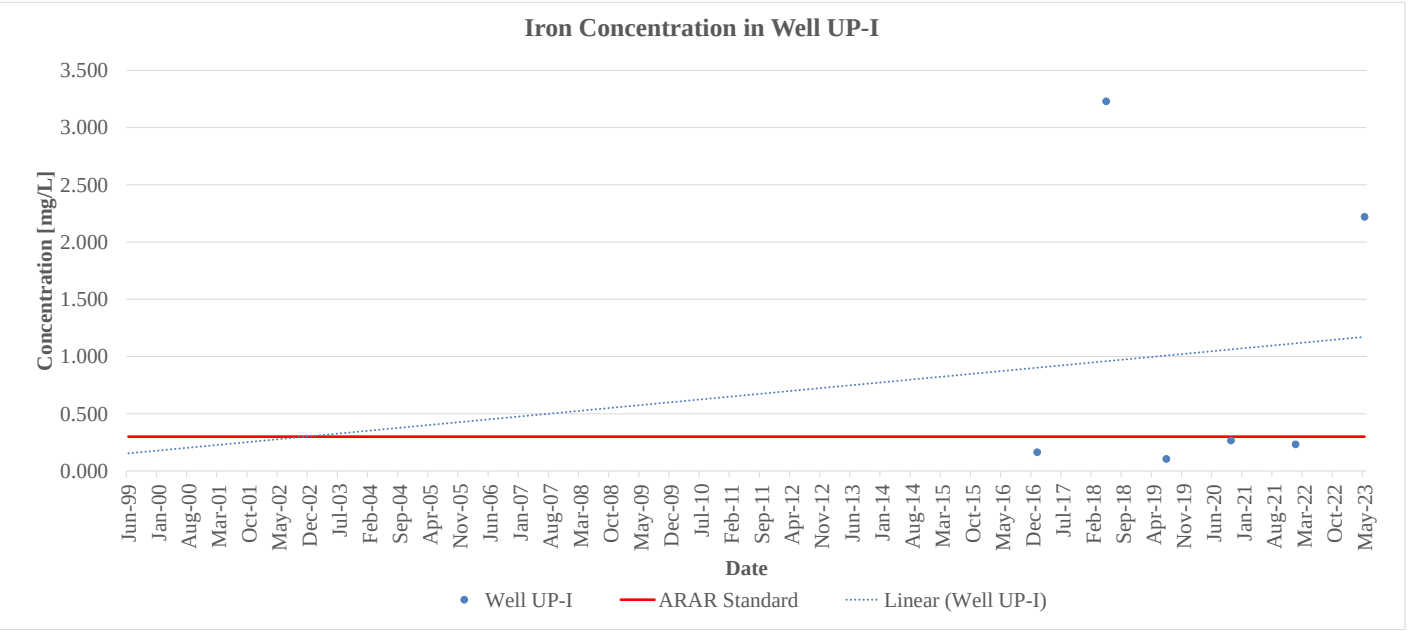
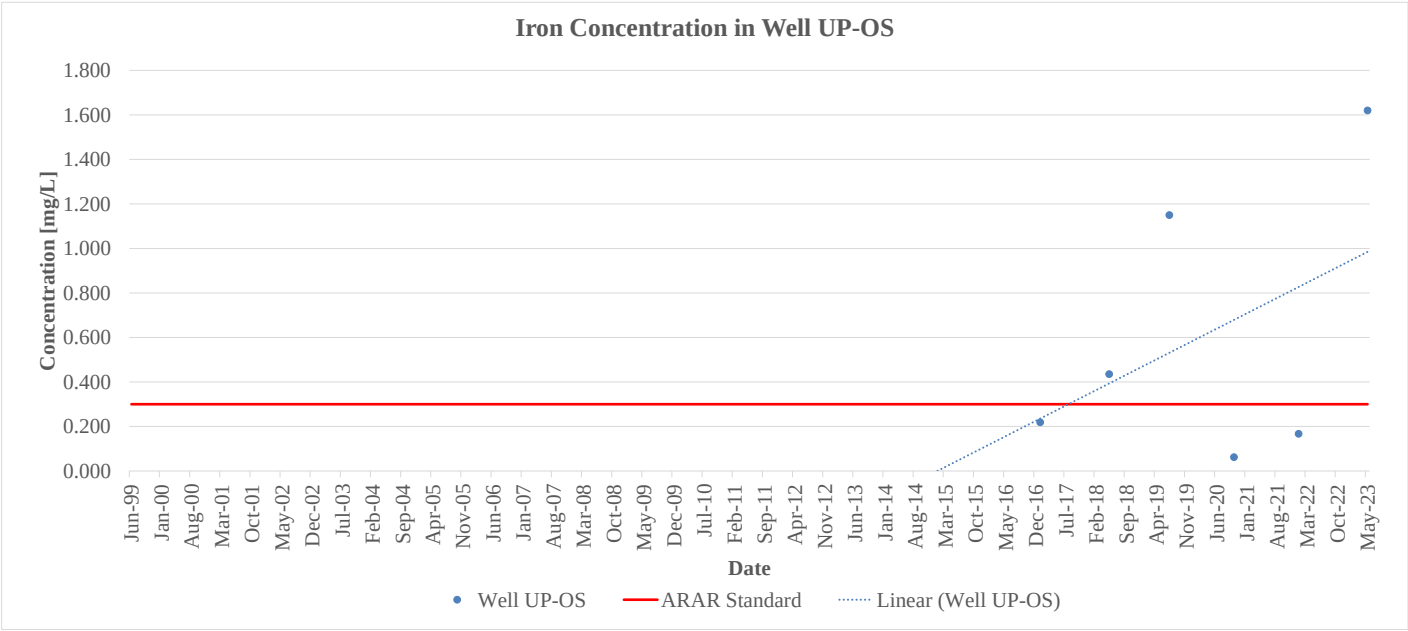


Table 14

Summary of Historical Groundwater Quality Results - Lead (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.00550	0.00250	ND	ND	ND	NA	NA	NA	NA	NA	NA	0.00250	ND	0.00270	ND	ND	ND	
Sep-99	0.01010	ND	0.00400	ND	ND	ND	0.01230	ND	NA	ND	ND	0.00490	ND	ND	ND	0.01080	ND	ND	ND	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	
May-00	0.00580	0.00150 U	0.03800	0.00150 U	0.00150 U	0.00180 B	0.00230 B	0.00150 U	0.00540	NA	0.00150 U	0.00150 U	0.00150 U	0.00150 U	0.00150 U	0.00150 U	0.00180 B	0.00230 B	NA	NA	NA	NA	NA	NA	0.00680	0.00230 B	0.00230 B	0.00150 U	0.00150 U	0.00150 U		
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00340 U	0.00480	0.00440	0.00260 B	0.00190 B	0.00170 U	NA	NA	NA	NA	NA	NA	0.00890	0.00510	0.00280 B	0.00250 B	0.00170 U	0.00200 B	
Dec-00	0.00660	0.00170 U	0.03220	0.00170 U	0.00170 U	0.00200 B	0.00170 U	0.00240 B	0.01760	NA	0.00170 U	0.00570	0.00170 U	0.00170 U	0.00360	0.00170 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00430	0.00200 U	0.00200 U	NA	NA	NA	NA	NA	NA	0.00410	NA	NA	NA	NA	NA	
Mar-01	0.01430	0.00510	0.04590	0.00250 B	0.00530	0.00470	0.00320	0.00260 B	0.00590	NA	0.00390	0.00200 U	0.00200 U	0.00200 U	0.00680	0.00200 U	0.00200 U	0.00460	0.00220 B	NA	NA	NA	NA	NA	NA	0.00230 B	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00200 U	0.00330	0.00200 U	0.00600	0.00200 U	0.00200 U	NA	NA	NA	NA	NA	NA	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	
Oct-01	0.00500 B	0.00220 B	0.02520	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	NA	0.00200 U	0.00200 U	0.00710	0.00200 U	0.00200 U	0.00200 U	0.00220	0.00200 U	0.00200 U	0.00200 U	NA	NA	NA	NA	NA	NA	0.00290 B	0.00400 B	NA	NA	NA	NA	
Mar-02	0.00860	0.00330 B	0.01000	0.00480 B	0.00290 U	0.00290 U	0.00290 U	0.00290 U	NA	0.00290 U	0.00300 B	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	NA	NA	NA	NA	NA	NA	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	NA	NA	NA	NA	NA	NA	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	
Oct-02	0.01030 N	0.00480 B,N	0.03130 N	0.00290 U	0.00390 B,N	0.00420 B,N	0.00710 N	0.00290 U	NA	0.00290 U	0.00290 U	0.00720 N	NA	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	NA	NA	NA	NA	NA	NA	0.00350 B,N	0.00290 U	0.00290 U	0.00290 U	0.00290 U	0.00290 U	
Apr-03	NA	0.00220 U	0.04110	0.00220 U	0.00670	0.00220 U	0.00260 B	0.00230 B	NA	0.00220 U	0.00220 U	0.00220 U	NA	0.00220 U	0.00350 B	0.00300 B	0.00220 U	0.00220 U	0.00220 U	NA	NA	NA	NA	NA	NA	0.00520	0.00230 B	0.00220 U	0.00220 U	0.00220 U	0.00220 U	
Mar-04	NA	NA	0.01830 N	NA	0.00220 B	NA	0.00770 N	NA	0.03400 N	NA	NA	0.01280	NA	0.00110 U	0.00300	0.00110 U	0.00110 U	0.00110 U	0.00110 U	NA	NA	NA	NA	NA	NA	0.00490	0.00110 U	0.00110 U	0.00110 U	0.00110 U	0.00110 U	
Jun-05	0.00580	NA	0.00760	NA	0.00310	NA	0.00190 U	NA	NA	0.00190 U	NA	0.00250 B	NA	0.00190 U	0.00190 U	0.00350	0.00190 U	0.00190 U	0.00190 U	NA	NA	NA	NA	NA	NA	0.00190 U	0.00190 U	0.00200 B	0.00190 U	0.00190 U	0.00190 U	
Sep-06	0.09400	NA	0.00910	NA	0.00110 J	NA	0.00120 J	NA	0.06700	NA	NA	0.00630	NA	0.00500 U	0.00350 J	0.00400 J	0.00100 J	0.00350 J	0.00500 U	NA	NA	NA	NA	NA	NA	0.00500 U	0.00210 J	0.00500 U	0.00500 U	0.00500 U	0.00500 U	
Oct-07	0.04400	NA	0.02200	NA	0.00500 U	NA	0.00420 J	NA	0.00500 U	NA	NA	0.00500 U	NA	0.00500 U	0.00500 U	0.00610	0.00460 J	0.00500 U	0.00500 U	NA	NA	NA	NA	NA	NA	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	
Mar-09	0.00630 J	NA	0.00570 J	NA	0.01000 U	NA	0.01000 U	NA	0.01200	NA	NA	0.01000 U	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	NA	0.01000 U	0.01000 U	
May-10	0.01830	NA	0.00490 J	NA	0.00500 U	NA	0.00500 U	NA	0.02330	NA	NA	0.00600	NA	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00360 J	0.00500 U	NA	NA	NA	NA	NA	NA	0.00500 U	0.00500 U	0.00500 U	NA	0.00500 U	0.00500 U	
Sep-11	0.04300	0.00320 J	0.00460 J	0.00500 U	0.00500 U	0.00530	0.00500 U	NA	0.01600	0.00500 U	0.01900	0.00690	NA	0.00500 U	0.00500 U	0.00500 U	0.00500	0.01400	0.00500 U	NA	NA	NA	NA	NA	NA	0.00560	0.00500 U	0.00500 U	0.00500 U	NA	NA	
Nov-12	0.02000	NA	0.00500 U	NA	0.00500 U	NA	0.00500 U	NA	0.01100	NA	NA	0.00330 J	NA	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	NA	NA	NA	NA	NA	NA	0.01700	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	
Mar-14	0.02500	NA	0.00490 J	NA	ND	NA	ND	NA	0.00780	NA	NA	0.00940	NA	ND	ND	ND	0.00350 J	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00340 U	0.00340 U	0.00340 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	0.01055	NA	0.00110	NA	0.00010 U	NA	0.00070 J	NA	0.00400	NA	NA	0.00130	NA	0.00010 U	0.00010 U	0.00010 U	0.00160	0.00010 U	0.00020 J	0.00020 J	0.00070 J	0.00010 U	NA	NA	NA	0.00783	0.00041 J	0.00020 U	0.00078 J	0.00026 J	0.00049 J	
Jan-17	0.00260	NA	0.00060 J	NA	0.00030 U	NA	0.00030 U	NA	NA	NA	NA	0.00030 U	NA	0.00030 U	0.00030 U	0.00050 J	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00050 J	0.00030 U	0.00030 U	0.00030 U	0.00420	0.00090 J	0.00030 U	0.00030 U	0.00030 U	0.00040 J	
May-18	0.00100 U	NA	0.00051 J	NA	0.00100 U	NA	0.00100 U	NA	NA	NA	NA	0.00100 U	NA	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00163	0.00100 U	0.00100 U	0.00058 J	0.00100 U	0.00084 J	0.00100 U	0.00509	0.00394	0.00100 U	0.00100 U	0.00038 J	0.00100 U	
Jul-19	0.00226	NA	0.00269	NA	0.00111	NA	0.00100 U	NA	NA	NA	NA	0.00059 J	NA	0.00034 U	0.00034 U	0.00034 J	0.01474 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00395	0.00096 J	0.00034 U	0.00034 U	0.00053 J	0.00513	0.00034 U	0.00034 U	0.00034 U	0.00034 U	
Oct-20	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	0.00300 U	NA	NA	NA	NA	0.00300 U	NA	0.00034 U	0.00034 U	0.00227	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00125	0.00034 U	0.00034 U	0.00034 U	0.00071 J	0.00034 U	0.00034 U	0.00034 U	0.00063 J	0.00034 U	
Jan-22	0.00034 U	NA	0.00095 J	NA	0.00034 U	NA	0.00034 U	NA	NA	NA	NA	0.00034 U	NA	0.00034 U	0.00034 U	0.00425	0.00034 U	0.00034 U	0.00034 U	0.00044 J	0.00034 U	0.00034 U	0.00034 U	NA	0.00760	0.00030 U	0.00034 U	0.00034 U	0.00061 J	0.00034 U		
May-23	0.00034 U	NA	0.00034 U	NA	0.00034 U	NA	0.00034 U	NA	NA	NA	NA	0.00034 U	NA	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00034 U	0.00063 J	0.00034 U	0.00034 U	0.00061 J	0.00038 J	0.00034 U	0.00090 J	0.00030 U	0.00030 U	0.00034 U	0.00034 U	0.00030 U		

Notes:

ARAR Standard = 0.025 mg/L; USEPA MCL = 0.015 mg/L; and, PART 5 MCL = Not Available

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 14

Summary of Historical Groundwater Quality Results - Lead (mg/L)
Town of Ramapo Landfill

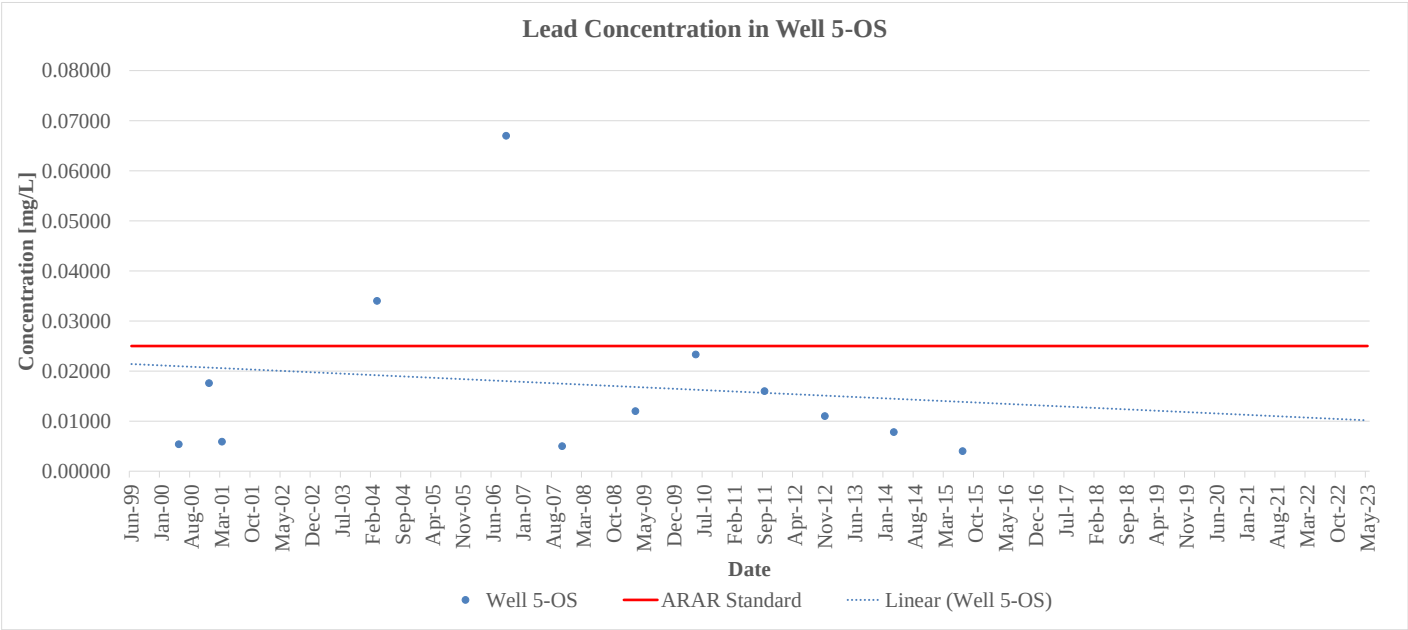
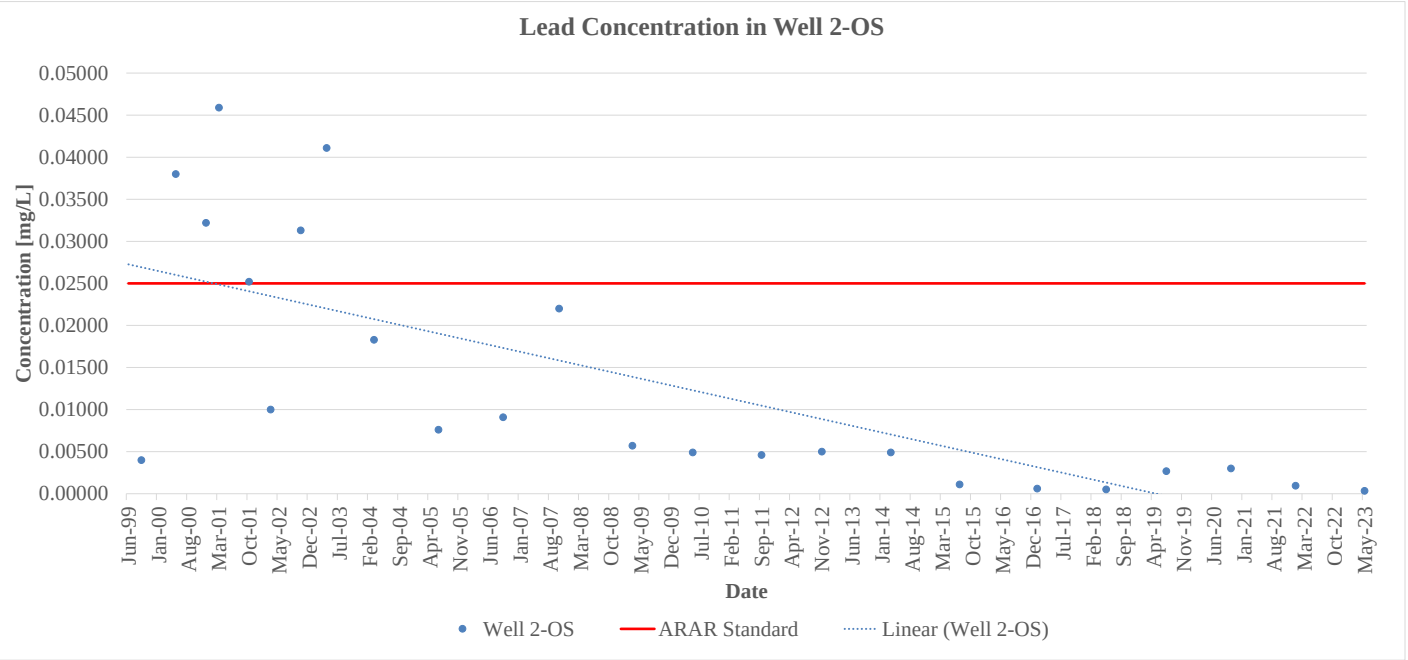
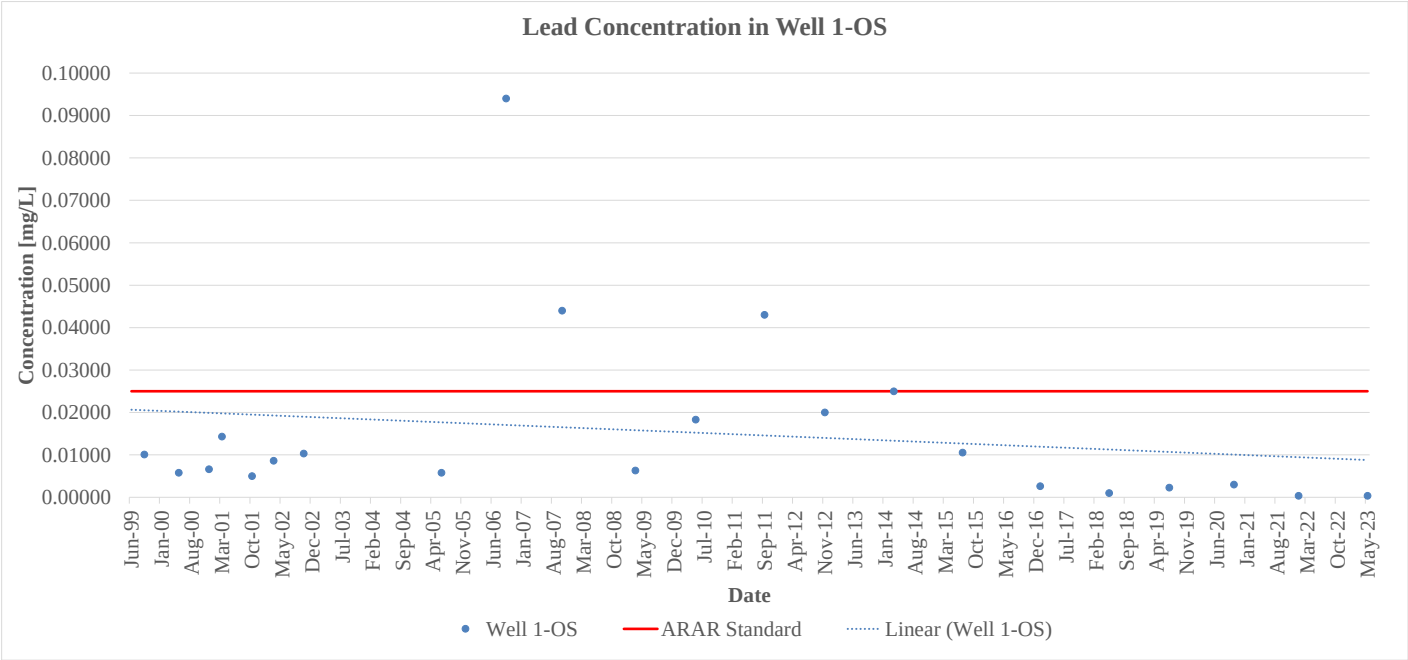


Table 15

Summary of Historical Groundwater Quality Results - Magnesium (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.47	4.87	32.90	3.11	3.04	3.72	NA	NA	NA	NA	NA	NA	2.29	5.31	4.19	4.94	5.01	5.35	
Sep-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	0.01	NA	NA	NA	NA	NA	
May-00	21.70	20.30	27.70	15.50	14.10	24.50	8.31	18.80	10.10	NA	5.85	12.10	17.60	1.49 B	6.10	32.90	1.76 B	2.05 B	6.16	NA	NA	NA	NA	NA	2.78 B	4.26 B	3.78 B	4.40 B	4.99 B	5.33		
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dec-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-01	24.10	16.20	29.50	12.10	14.80	18.20	6.24	15.80	6.57	NA	4.50 B	13.60	17.80	5.25	30.30	39.30	2.09 B	5.64	9.85	NA	NA	NA	NA	NA	NA	2.78 B	4.19 B	6.12	6.36	6.83	5.55	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-02	23.10	6.73	23.50	12.90	16.60	18.00	6.50	14.80	NA	6.67	7.06	12.50	13.90	3.10	17.30	38.90	2.16	4.17	8.46	NA	NA	NA	NA	NA	NA	4.34	4.51	8.88	9.23	6.48	7.84	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Apr-03	NA	19.60	25.10	12.90	15.40	18.00	9.08	16.40	NA	5.57	4.74 B	8.23	NA	4.39 B	18.90	39.50	1.99 B	2.94 B	7.46	NA	NA	NA	NA	NA	NA	3.96 B	4.00 B	5.06	5.89	5.30	5.48	
Mar-04	NA	NA	21.00	NA	13.20	NA	18.50	NA	32.10	NA	NA	11.60	NA	8.75	34.10	41.00	1.42 B	1.53 B	5.85	NA	NA	NA	NA	NA	NA	2.68 B	4.23 B	5.90	6.76	5.79	5.23	
Jun-05	14.00	NA	15.60	NA	10.70	NA	17.10	NA	NA	4.51 B	NA	11.50	NA	2.95 B	31.00	43.00	1.95 B	2.23 B	8.52	NA	NA	NA	NA	NA	NA	5.07	2.32 B	6.17	6.52	6.03	6.25	
Sep-06	28.00	NA	18.00	NA	13.00	NA	18.00	NA	80.00	NA	NA	9.80	NA	4.20	21.00	44.00	2.00	5.10	8.30	NA	NA	NA	NA	NA	NA	2.70	3.20	5.20	5.30	5.10	4.90	
Oct-07	30.00	NA	22.00	NA	14.00	NA	20.00	NA	4.60	NA	NA	10.00	NA	5.10	18.00	39.00	2.50	7.90	9.30	NA	NA	NA	NA	NA	NA	2.30	2.40	6.10	5.90	6.50	5.80	
Mar-09	20.00	NA	18.00	NA	12.00	NA	11.00	NA	21.00	NA	NA	12.00	NA	9.10	16.00	40.00	3.30	5.90	11.00	NA	NA	NA	NA	NA	NA	2.80	2.90	5.90	NA	6.70	6.30	
May-10	22.60	NA	14.80	NA	11.20	NA	15.00	NA	36.50	NA	NA	13.50	NA	5.77	23.60	40.70	2.49	6.30	13.70	NA	NA	NA	NA	NA	NA	4.16	3.43	4.56	NA	5.53	5.24	
Sep-11	16.20	20.30	14.60	14.70	9.70	16.00	14.60	NA	13.50	5.10	12.80	8.00	NA	4.10	16.90	41.40	2.60	7.60	10.00	NA	NA	NA	NA	NA	NA	10.10	2.90	3.80	3.60	NA	NA	
Nov-12	14.50	NA	16.10	NA	10.50	NA	12.20	NA	14.70	NA	0.00	13.10	NA	4.10	23.30	42.90	1.40	1.90	9.00	NA	NA	NA	NA	NA	NA	2.50	3.20	3.90	4.10	6.70	NA	
Mar-14	17.60	NA	18.10	NA	12.50	NA	12.40	NA	12.70	NA	NA	14.00	NA	4.60	29.30	43.30	2.20	1.60	10.40	NA	NA	NA	NA	NA	NA	2.30	2.50	7.50	8.00	8.20	7.30	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.64	4.38	0.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	13.60	NA	18.80	NA	12.70	NA	17.30	NA	5.71	NA	NA	8.68	NA	4.48	28.10	41.50	3.35	2.49	13.20	0.57	2.86	2.27	NA	NA	NA	4.60	3.40	5.50	5.40	5.20	6.90	
Jan-17	11.10	NA	17.60	NA	12.40	NA	18.60	NA	NA	NA	NA	9.98	NA	4.98	5.12	47.40	2.07	1.53	13.20	0.62	2.50	1.87	6.77	4.43	3.39	2.39	2.58	7.24	6.38	6.62	7.21	
May-18	16.70	NA	16.70	NA	11.30	NA	12.30	NA	NA	NA	NA	10.70	NA	1.30	29.00	43.00	1.60	3.46	9.52	0.71	2.13	2.32	1.26	4.86	3.78	4.74	2.20	4.62	5.36	5.83	6.29	
Jul-19	17.40	NA	18.20	NA	10.60	NA	35.90	NA	NA	NA	NA	10.70	NA	11.20	27.80	45.40	1.48	1.60	7.50	0.43	2.72	2.02	8.13	4.58	3.55	3.18	3.26	5.84	6.19	5.52	5.46	
Oct-20	14.50	NA	11.20	NA	11.30	NA	18.00	NA	NA	NA	NA	8.95	NA	6.62	18.40	66.80	1.46	1.94	10.10	0.50	2.81	1.97	7.20	4.84	3.77	2.07	3.81	8.06	7.89	7.76	7.07	
Jan-22	10.50	NA	15.70	NA	12.80	NA	14.40	NA	NA	NA	NA	8.80	NA	7.05	24.80	41.70	1.16	1.96	9.87	0.85	2.48	1.71	7.63	4.89	NA	1.86	3.45	4.92	5.56	6.27	5.92	
May-23	11.90	NA	14.90	NA	8.54	NA	13.60	NA	NA	NA	NA	7.09	NA	3.42	26.50	36.90	1.90	2.33	13.10	0.575	2.82	1.79	8.41	5.01	3.75	2.28	3.49	4.88	4.94	4.74	5.57	

Notes:

ARAR Guidance Value = 35 mg/L; USEPA MCL = Not Available; and, Part 5 MCL = Not Available

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

Table 15
Summary of Historical Groundwater Quality Results - Magnesium (mg/L)
Town of Ramapo Landfill

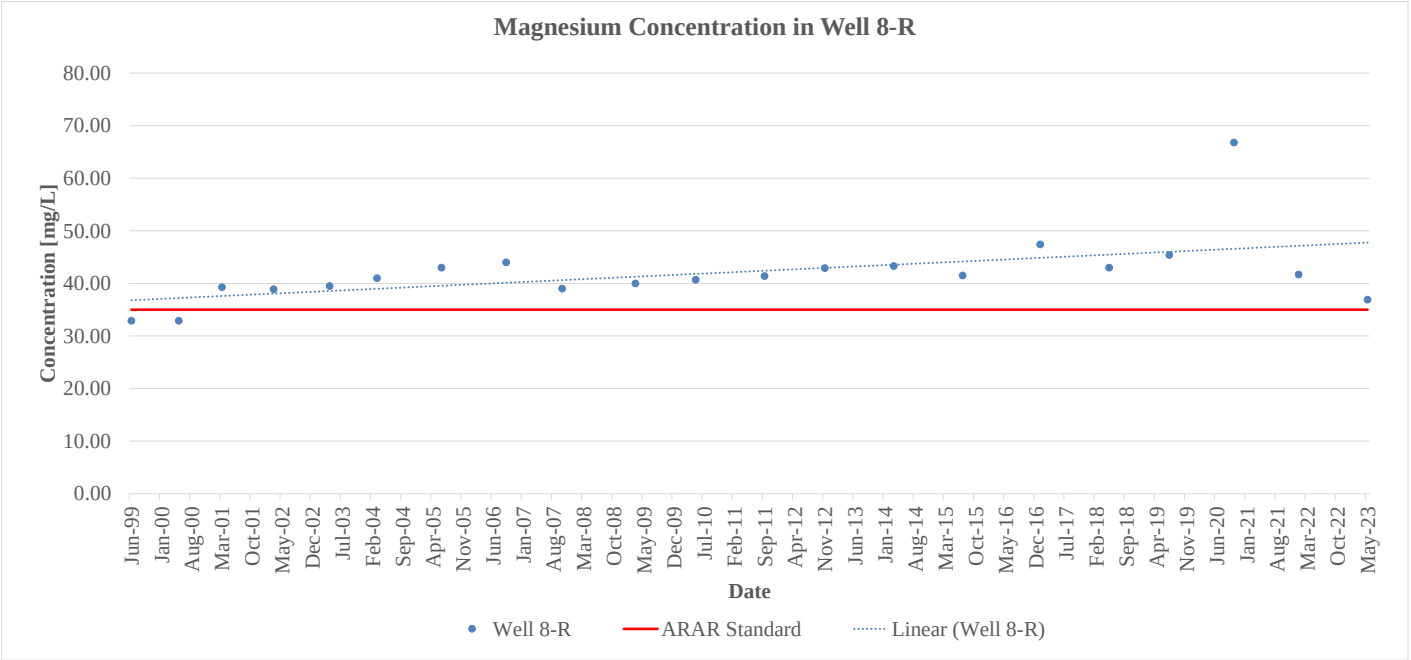
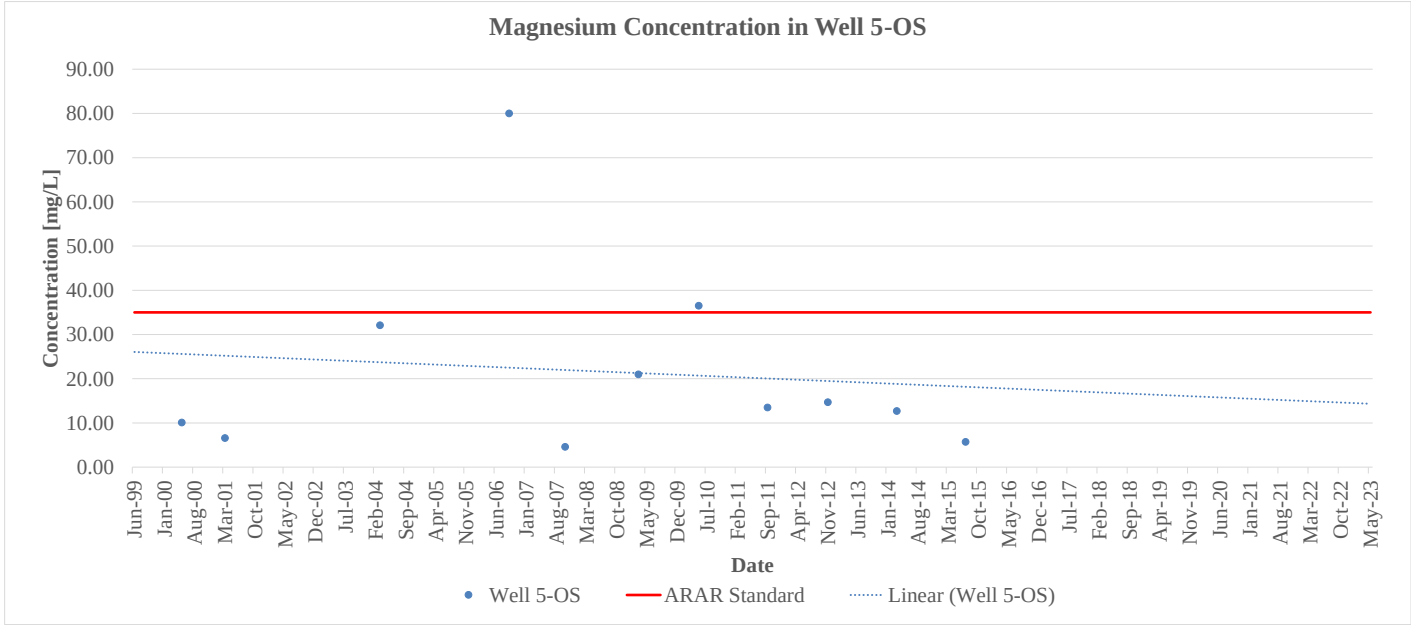


Table 16

Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

Well ID DATE	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.40000	1.05000	1.90000	0.01510	0.01800	1.62000	NA	NA	NA	NA	NA	NA	0.00190	0.00660	0.00250	0.00430	0.04060	0.00160	
Sep-99	9.83000	0.59900	0.93600	0.74400	0.57700	15.10000	1.72000	1.18000	NA	0.02720	0.00120	0.75500	0.09850	0.86000	1.57000	2.78000	0.01170	0.00540	1.32000	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	
May-00	5.74000	0.23600	4.11000	0.49700	5.72000	14.20000	1.34000	1.32000	0.53300	NA	0.06930	0.30500	0.25700	0.52500	0.78900	2.64000	0.04010	0.10900	1.50000	NA	NA	NA	NA	NA	NA	0.00081 B	0.00180 B	0.00049 B	0.00360 B	0.04040	0.00020 U	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.82000	2.81000	2.39000	0.05460	0.06670	3.02000	NA	NA	NA	NA	NA	NA	0.00074 B	0.00250 B	0.00210 B	0.00710 B	0.04970	0.00070 U	
Dec-00	5.81000	0.15800	3.37000	0.24700	5.07000	13.10000	1.93000	1.24000	1.08000	NA	0.03300	1.27000	0.36000	2.41000	2.56000	2.12000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00390 B	0.00070 U	0.00960 B	0.04750	0.00070 U	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.05890	0.04920	3.10000	NA	NA	NA	NA	NA	NA	NA	0.00140 B	NA	NA	NA	NA	
Mar-01	4.94000	2.07000	3.45000	0.14200	3.75000	10.40000	0.44000	1.04000	0.32300	NA	0.01310 B	0.63800 N	0.37900 N	6.76000 N	3.43000	2.25000 N	0.09320 N	0.56100 N	2.86000 N	NA	NA	NA	NA	NA	NA	NA	0.01360 B	0.00600 B	0.00220 B	0.00470 B	0.04980	0.00060 U
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.80000	2.99000 N	2.64000	0.00060 U	0.03800	2.96000	NA	NA	NA	NA	NA	NA	NA	0.00435 B	0.00196 B	0.00060 U	0.00267 B	0.14300	0.00060 U
Oct-01	5.31000	0.90900	3.83000	0.10600	2.04000	12.70000	0.83900	1.07000	NA	0.00270 B	0.00220 U	0.66800	0.37500	6.34000	1.76000	2.06000	0.07760	0.00490 B	3.08000	NA	NA	NA	NA	NA	NA	0.00220 U	0.00470 B	NA	NA	NA	NA	
Mar-02	6.24000	0.10400	2.30000	0.61600	2.80000	9.95000	0.75900	1.11000	NA	0.13200	0.15400	0.59200	0.29200	1.62000	3.67000	1.93000	0.02470	0.04460	2.49000	NA	NA	NA	NA	NA	NA	0.00140 U	0.00600 B	0.00140 U	0.00690 B	0.06820	0.00140 U	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.39000	2.39000	2.16000	0.01900	0.07580	2.74000	NA	NA	NA	NA	NA	NA	NA	0.00190 U	0.00690 B	0.00190 U	0.00460 B	0.07740	0.00190 U
Oct-02	8.16000 E	1.65000 E	6.94000 E	0.40400 E	13.40000 E	19.40000 E	3.79000 E	0.95300 E	NA	0.00370 B,E	0.02170 E	1.73000 E	NA	6.95000 E	2.98000 E	1.98000 E	0.01050 E	0.00410 B,E	2.88000 E	NA	NA	NA	NA	NA	NA	NA	0.00210 B,E	0.00330 B,E	0.00740 B	0.00190 U	0.06170	0.00340 B
Apr-03	NA	0.17700	3.10000	0.15700	24.80000	12.10000	0.62000	1.18000	NA	0.06360	0.02950	0.12400	NA	0.89400	3.14000	2.05000	0.03560	0.05230	2.63000	NA	NA	NA	NA	NA	NA	NA	0.00080 U	0.00390 B	0.00080 U	0.00610 B	0.08000	0.00080 U
Mar-04	NA	NA	2.30000	NA	7.20000	NA	0.33800	NA	2.04000	NA	NA	2.14000	NA	1.59000	4.65000	2.15000	0.00440 B	0.01900	1.98000	NA	NA	NA	NA	NA	NA	NA	0.00090 U	0.00090 U	0.00090 U	0.00330 B	0.08800	0.00090 U
Jun-05	4.72000	NA	0.77800	NA	6.45000	NA	0.70000	NA	NA	0.01360	NA	0.22200	NA	0.69100	3.09000	2.19000	0.02770	0.01160	2.73000	NA	NA	NA	NA	NA	NA	NA	0.00210 U	0.00210 U	0.00210 U	0.00650 B	0.08600	0.00210 U
Sep-06	2.80000	NA	1.90000	NA	9.20000	NA	0.86000	NA	5.10000	NA	NA	1.30000	NA	0.11000	1.90000	2.20000	0.05100	0.29000	2.80000	NA	NA	NA	NA	NA	NA	NA	0.00075 J	0.00140 J	0.00062 J	0.00320 J	0.02500 J	0.05000 U
Oct-07	5.10000	NA	3.50000	NA	4.40000	NA	2.70000	NA	0.01400 J	NA	NA	0.92000	NA	2.00000	2.20000	1.90000	0.14000	0.56000	2.90000	NA	NA	NA	NA	NA	NA	NA	0.05000 U	0.00560 J	0.05000 U	0.00380 J	0.09600	0.05000 U
Mar-09	9.00000	NA	2.20000	NA	14.00000	NA	0.40000	NA	1.00000	NA	NA	0.45000	NA	0.61000	3.10000	1.90000	0.15000	0.29000	3.70000	NA	NA	NA	NA	NA	NA	NA	0.05000 U	0.00180 J	0.05000 U	NA	0.14000	0.05000 U
May-10	14.80000 B	NA	1.68000	NA	2.46000 B	NA	0.22300	NA	2.23000	NA	NA	1.71000 B	NA	0.39900 B	4.59000 B	1.96000 B	0.09010 B	0.39200 B	4.03000 B	NA	NA	NA	NA	NA	NA	NA	0.00120 J,B	0.00310 B	0.00030 J,B	NA	0.11000 B	0.02200 B
Sep-11	8.30000 B	1.50000 B	0.78000 B	0.53000 B	4.50000 B	41.40000 B	0.16000 B	NA	0.83000 B	0.02600 B	0.64000 B	1.20000 B	NA	0.70000 B	3.50000 B	2.10000 B	0.11000 B	0.59000 B	2.70000 B	NA	NA	NA	NA	NA	NA	NA	0.00210 J,B	0.00240 J,B	0.00180 J,B	0.00150 J,B	NA	NA
Nov-12	11.60000 B	NA	0.98000 B	NA	2.80000 B	NA	0.56000 B	NA	0.66000 B	NA	NA	1.40000 B	NA	0.28000 B	3.50000 B	2.00000 B	0.01900 B	0.00380 B	2.30000 B	NA	NA	NA	NA	NA	NA	NA	0.00130 J,B	0.00260 J,B	0.00089 J,B	0.00075 J,B	0.20000 B	NA
Mar-14	16.90000 B	NA	1.90000 B	NA	2.90000 B	NA	0.74000 B	NA	0.62000 B	NA	NA	1.50000	NA	0.10000 B	3.30000 B	1.90000 B	0.05100	0.00400	3.10000	NA	NA	NA	NA	NA	NA	NA	0.00160 J	0.04100	ND	ND	0.13000	ND
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02630	0.02890	0.19000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	12.55000	NA	0.36330	NA	0.27130	NA	0.27590	NA	0.06510	NA	NA	0.17300	NA	0.17840	2.56000	2.16200	0.04700	0.03180	4.45800	0.03290	0.00830	0.01580	NA	NA	NA	0.00200 U	0.00200 U	0.00200 U	0.00200 U	1.81000	0.00200 U	
Jan-17	2.47900	NA	0.08680	NA	0.52000	NA	0.02390	NA	NA	NA	NA	0.01900	NA	0.06560	1.55800	0.26290	0.00170	0.00230	1.65900	0.02230	0.00130	0.01620	0.01540	0.01090	0.00450	0.00110	0.00096 J	0.00100	0.00050 J	0.06750	0.00040 U	
May-18	0.19880	NA	0.00910	NA	1.12100	NA	0.03413	NA	NA	NA	NA	0.04218	NA	0.00143	3.72000	2.42200	0.00135	0.02618	2.94800	0.02864	0.00302	0.03608	0.08050	0.15970	0.00098 J	0.00238	0.00234	0.00075 J	0.00100 U	0.04209	0.00100 U	
Jul-19	0.77230	NA	0.45360	NA	3.72800	NA	0.21190	NA	NA	NA	NA	0.07451	NA	2.31800	3.19800	0.12700	0.00903	0.03312	1.45000	0.02476	0.00106	0.01807	0.03922	0.00339	0.00703	0.00101	0.00171	0.00063 J	0.00123	0.04306	0.00053 J	
Oct-20	13.00000	NA	0.02600	NA	1.50000	NA	0.46300	NA	NA	NA	NA	0.58600	NA	0.18350	3.47900	0.57740	0.00063 J	0.00587	1.13700	0.02056	0.00047 J	0.02264	0.00157	0.00561	0.00077 J	0.00049 J	0.00049 J	0.00044 U	0.00075 J	0.06270	0.00044 U	
Jan-22	2.21500	NA	0.05451	NA	0.10740	NA	0.07359	NA	NA	NA	NA	0.01006	NA	0.22680	3.12900	4.15200	0.00210	0.00503	2.01900	0.05222	0.00044 U	0.00594	0.00426	0.00371	NA	0.00200 U	0.00500 J	0.00044 U	0.00044 U	0.03345	0.00044 U	
May-23	0.89	NA	0.00743	NA	0.04861	NA	0.03810	NA	NA	NA	NA	0.00321	NA	0.01707	2.55700	2.29400	0.00080 J	0.12010	3.85	0.02591	0.00044 J	0.00390	0.02715	0.03364	0.00100	0.00160 U	0.00160 U	0.00160 U	0.01209	0.03420	0.00160 U	

Notes:

ARAR Standard = 0.3 mg/L; USEPA Secondary MCL = Not Available; and, Part 5 MCL = 0.3 mg/L

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level; USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

E = Indicates an estimated value because of the possible presence of interference.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 16
Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

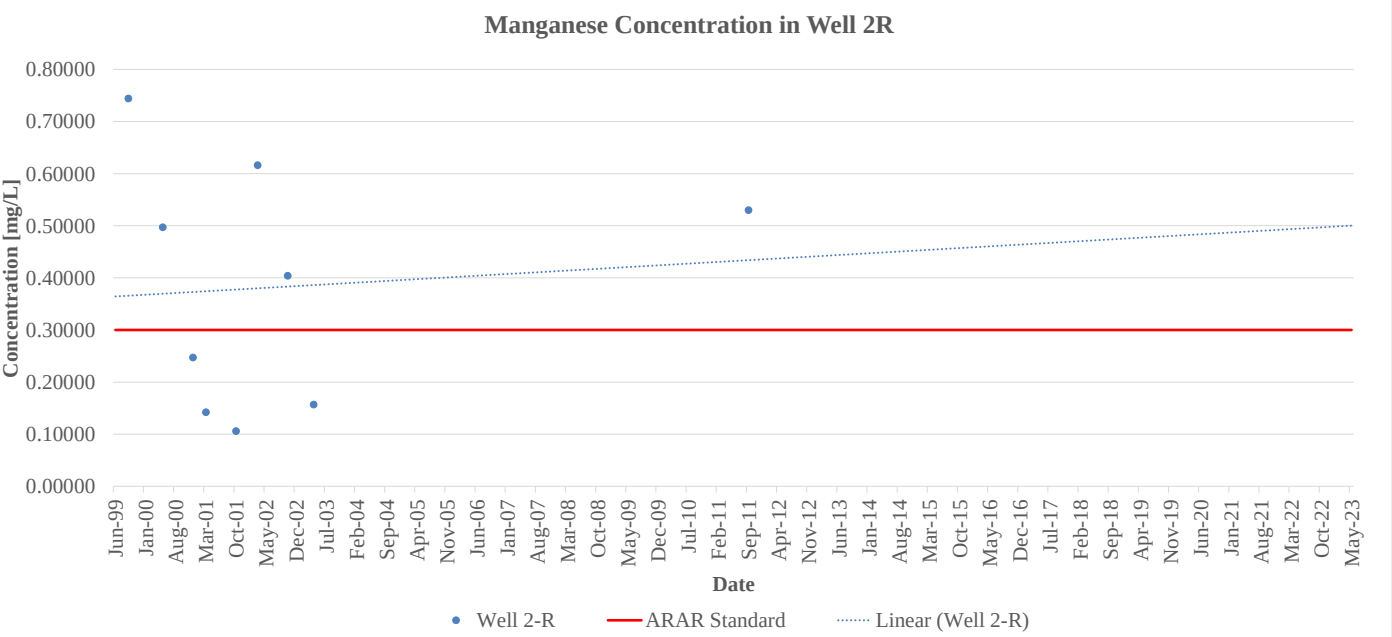
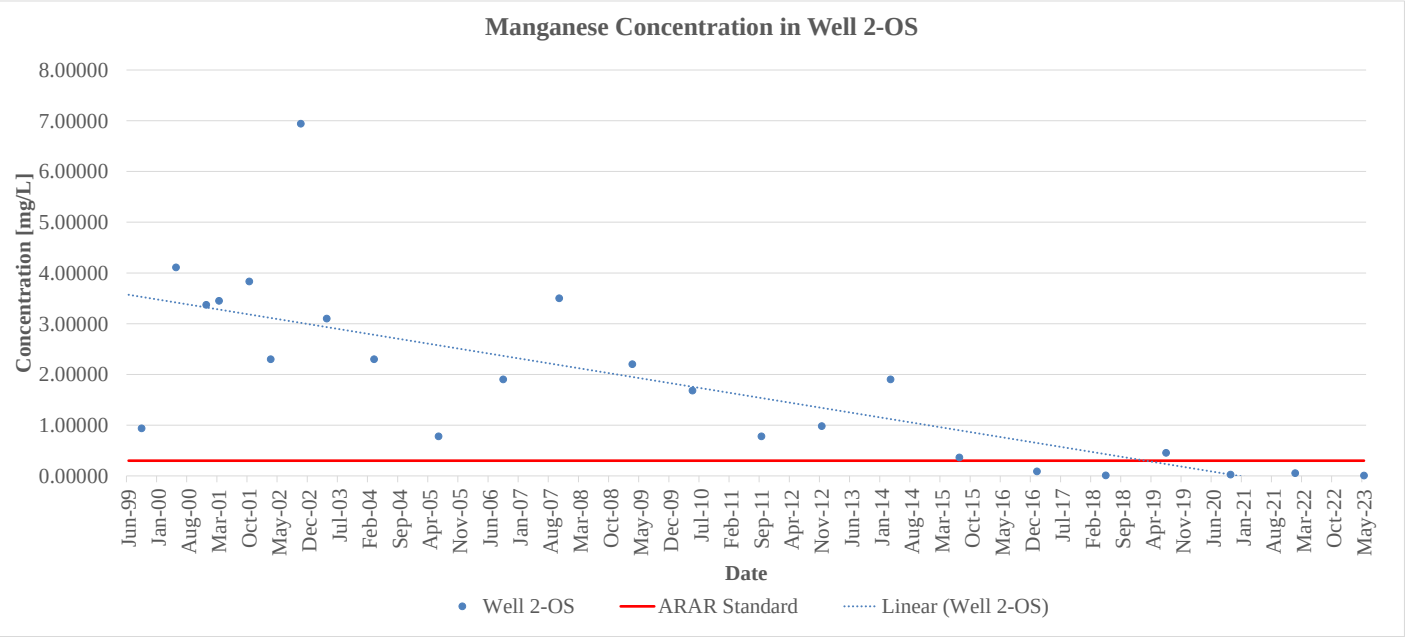
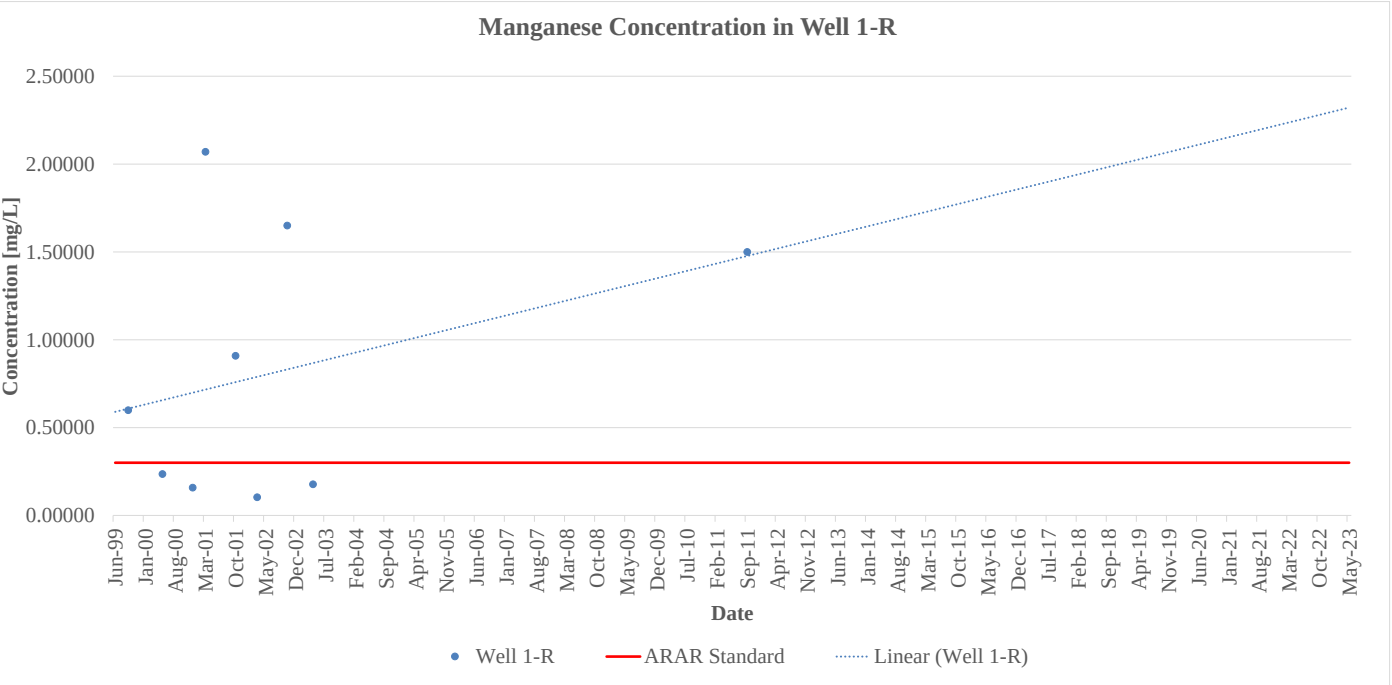
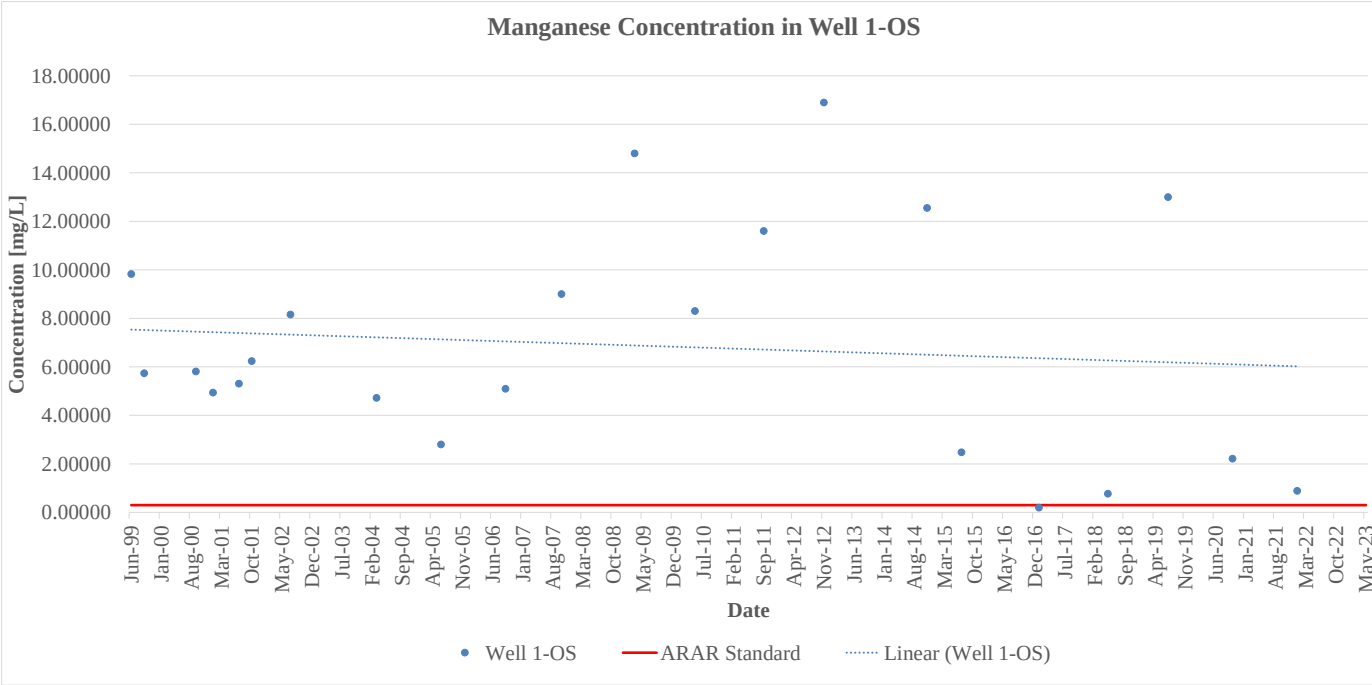


Table 16

Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

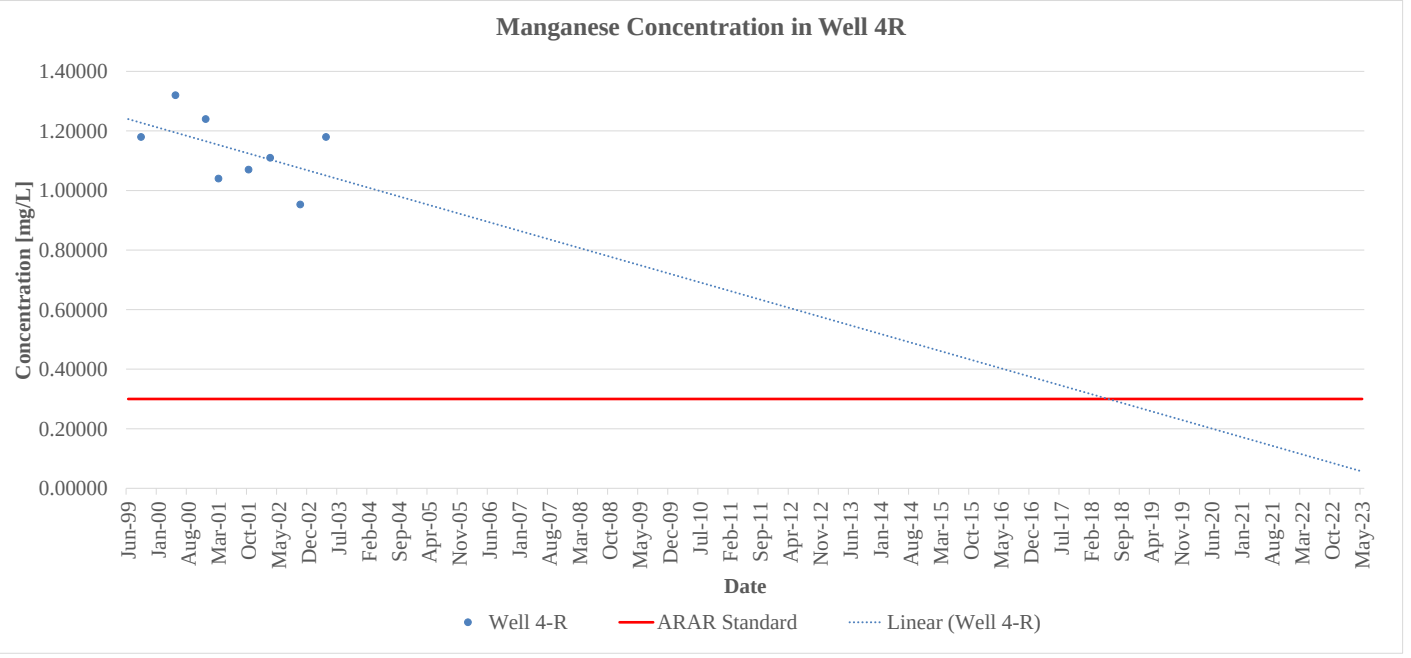
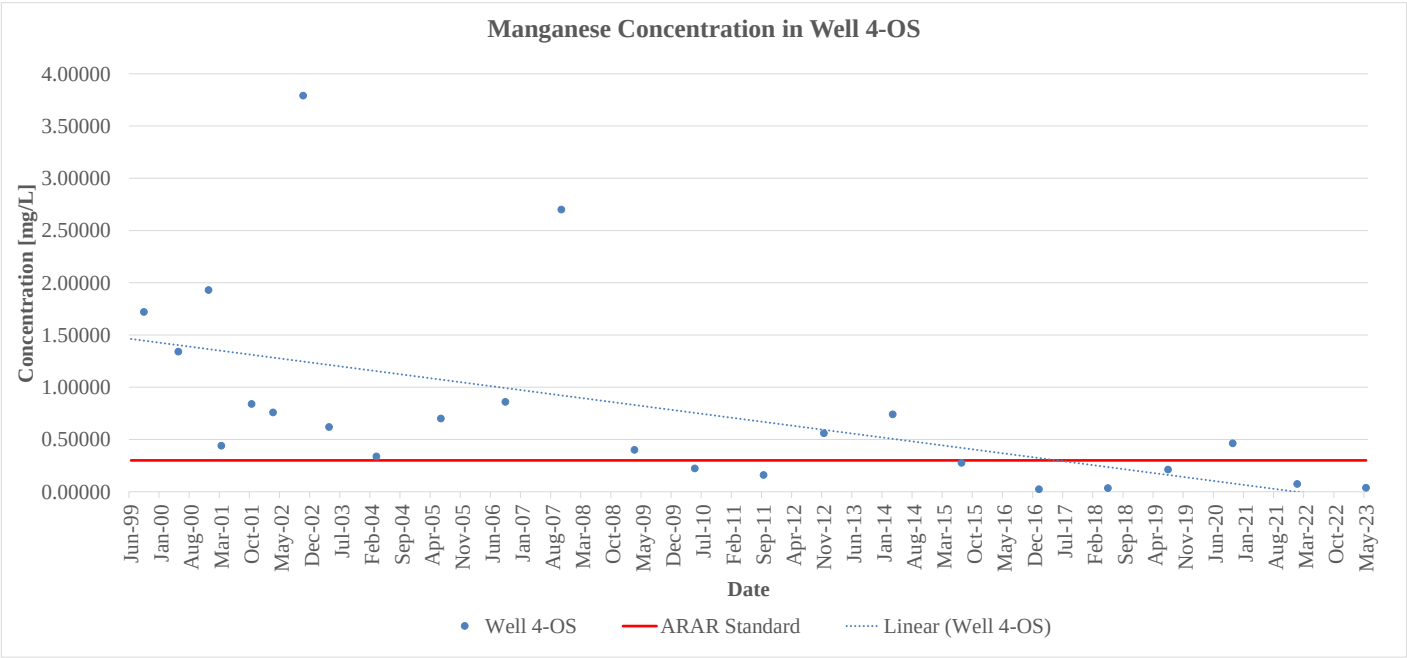
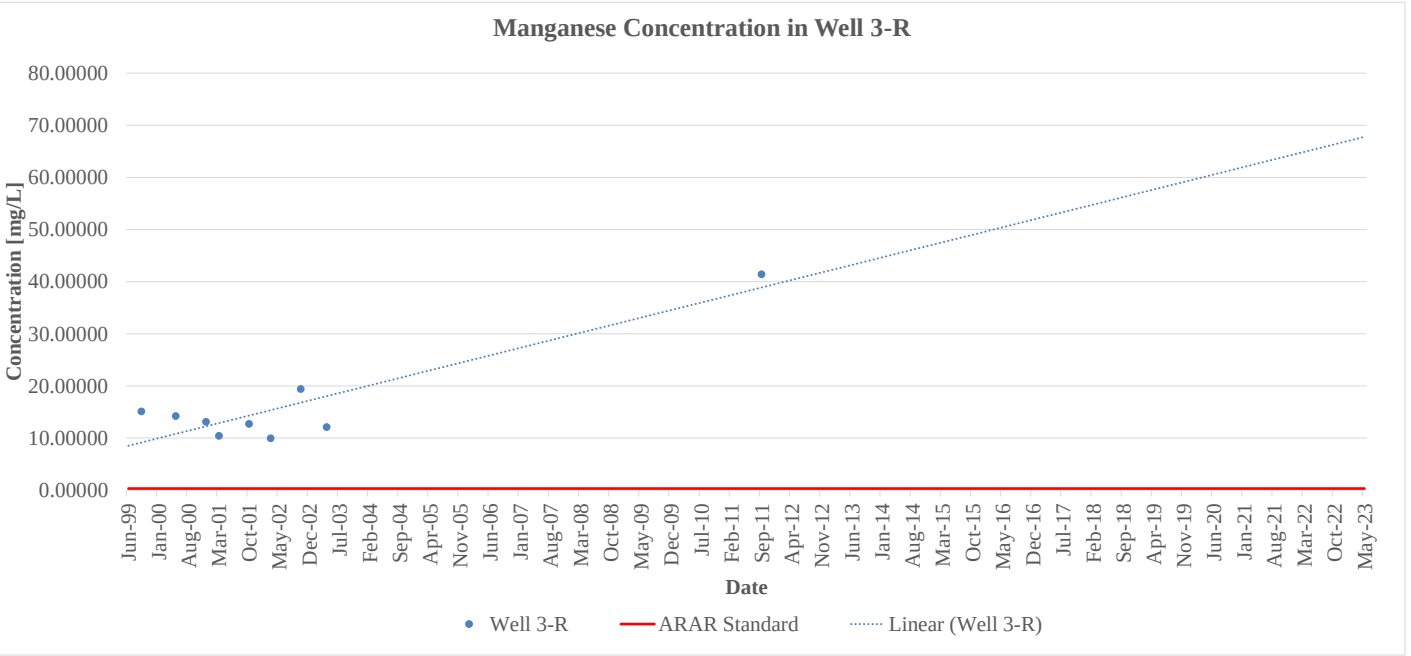
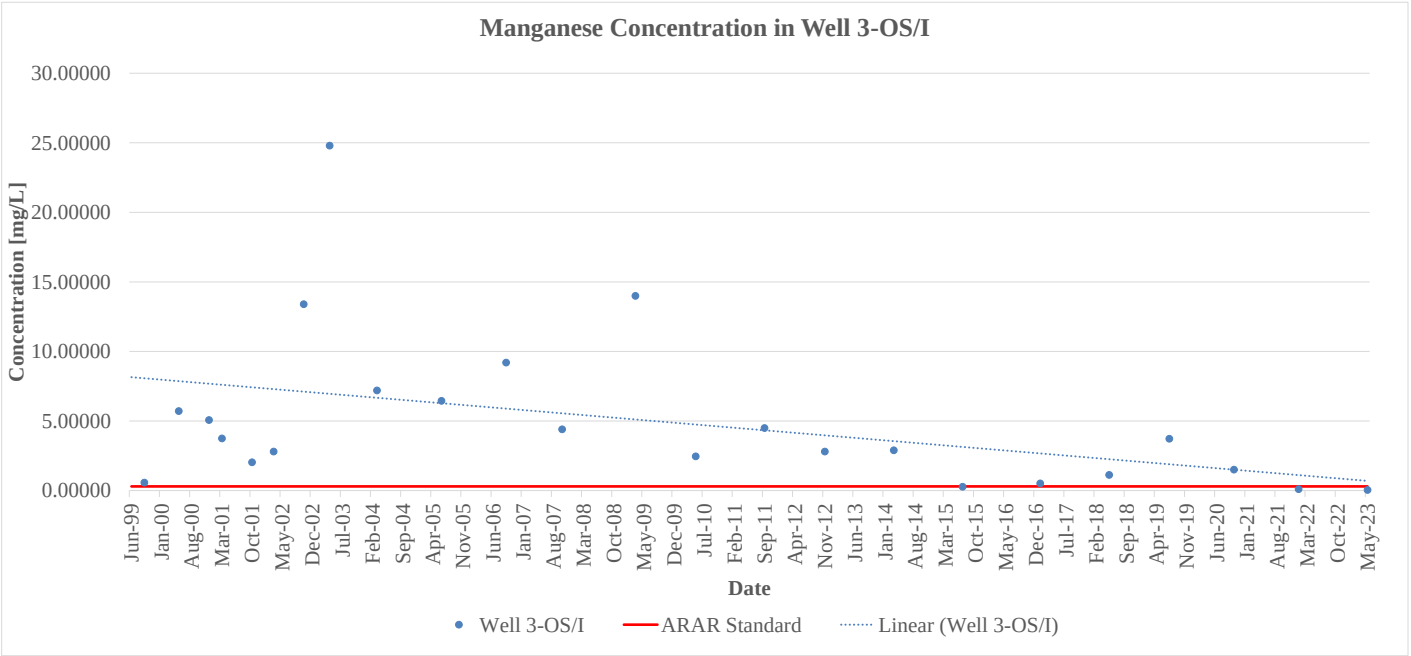


Table 16

Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

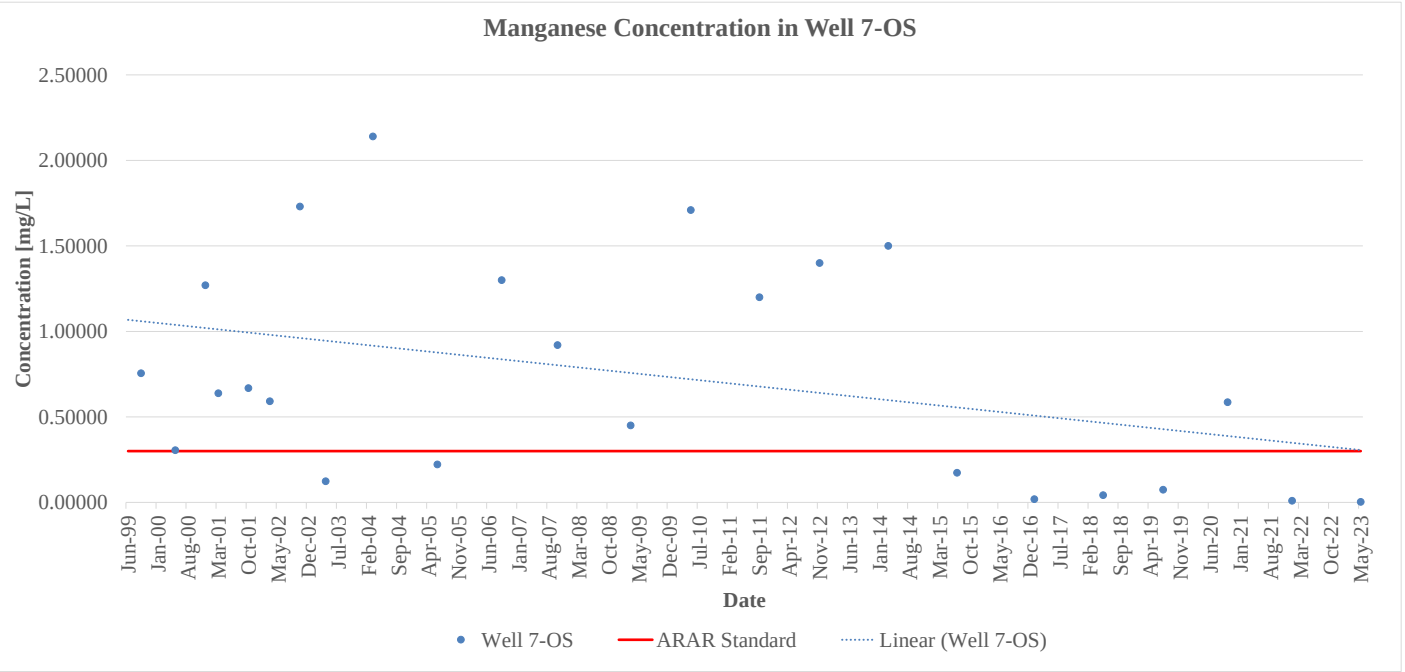
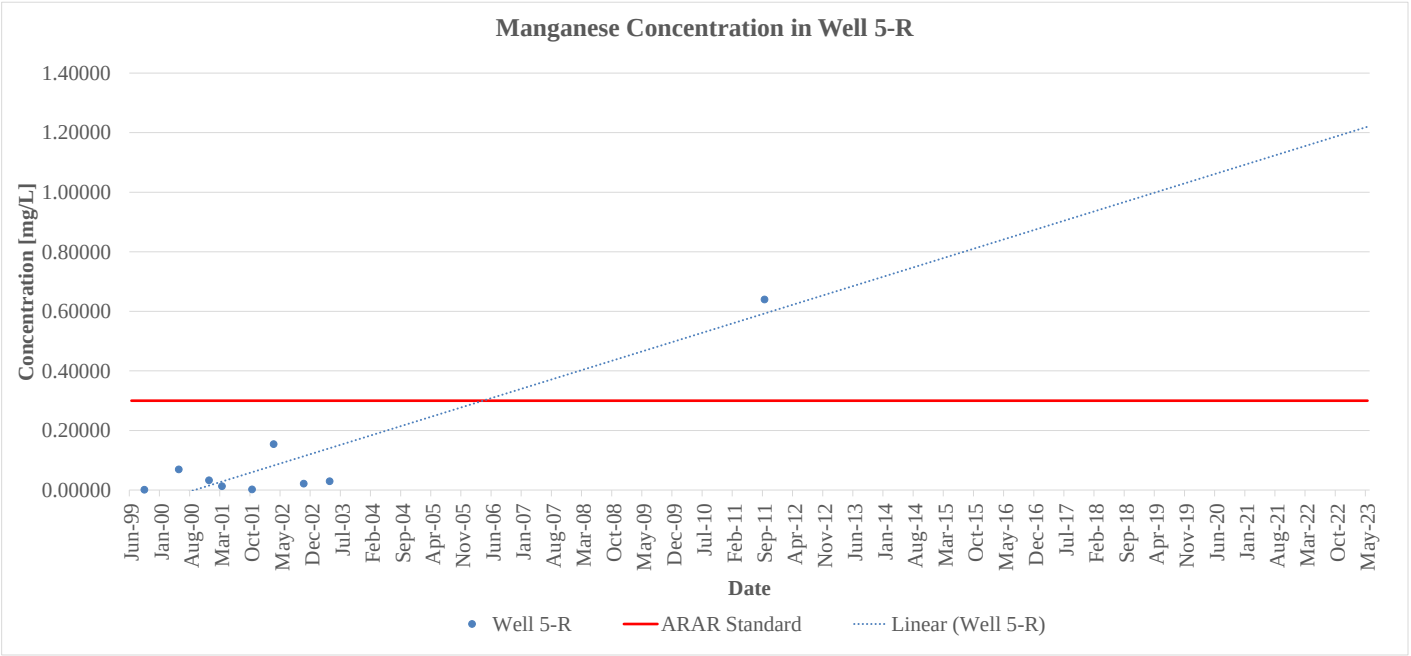
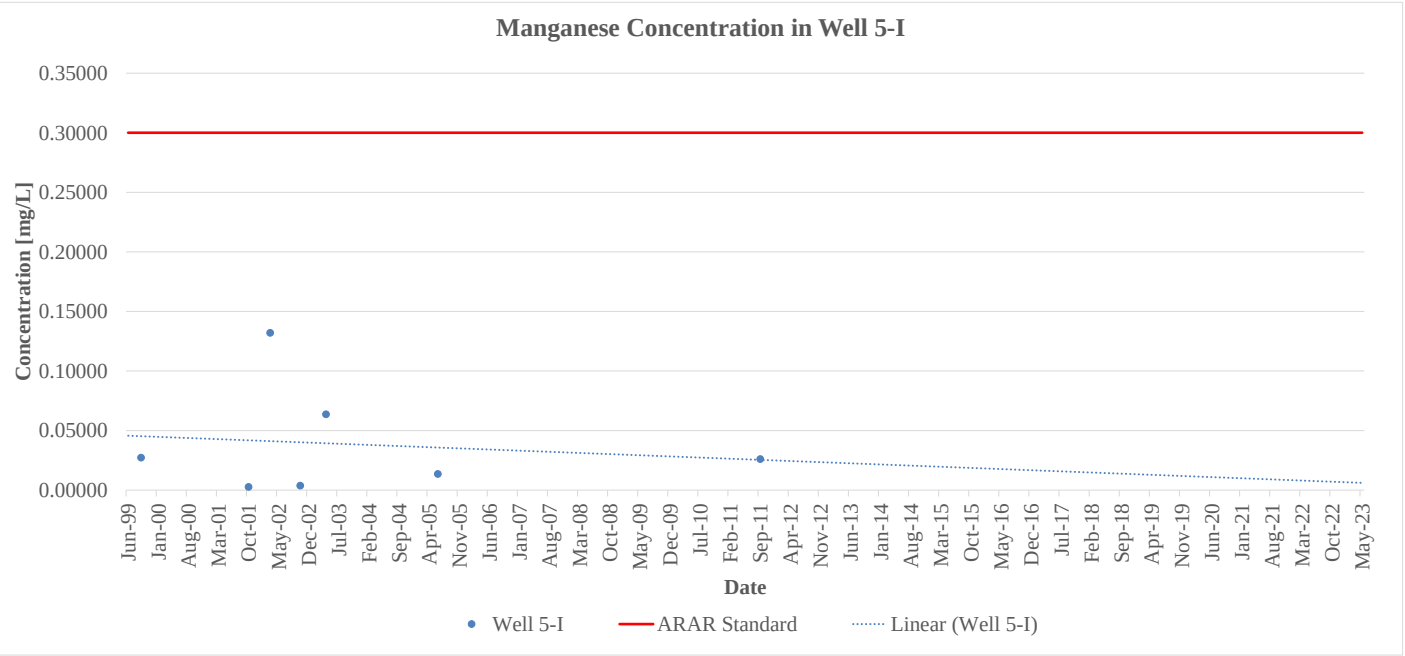
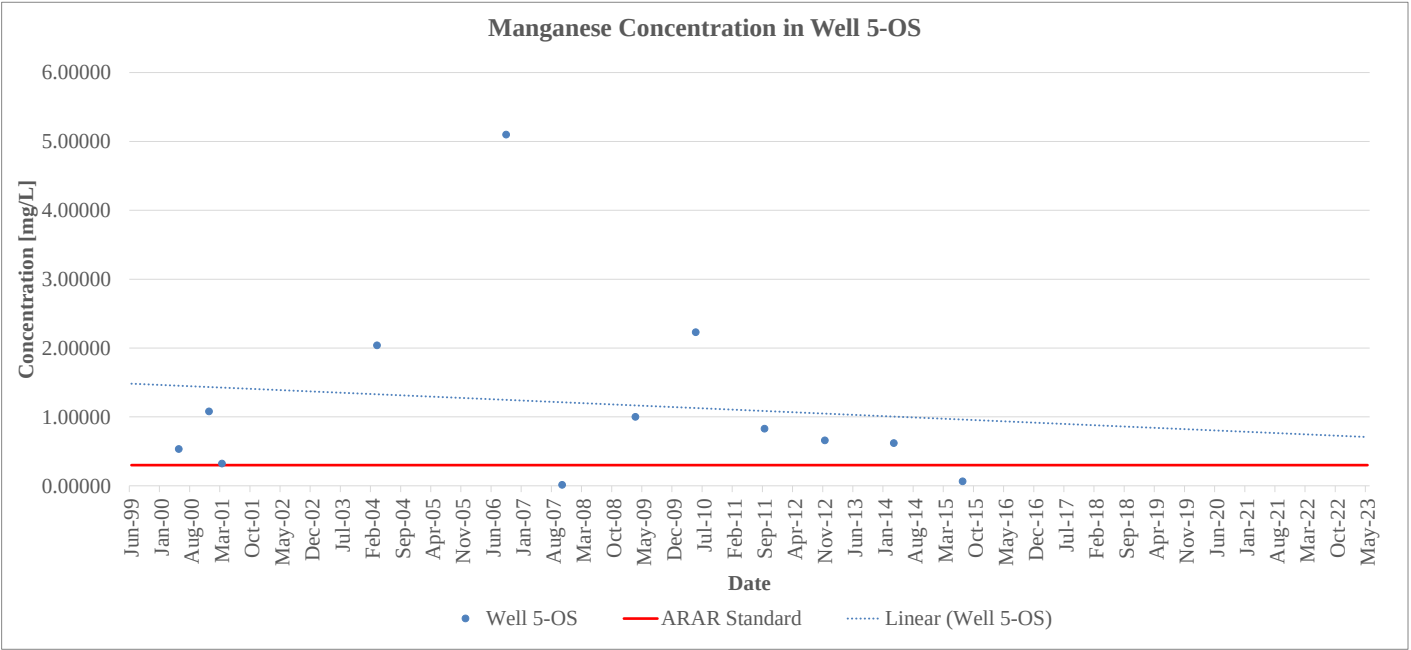


Table 16
Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

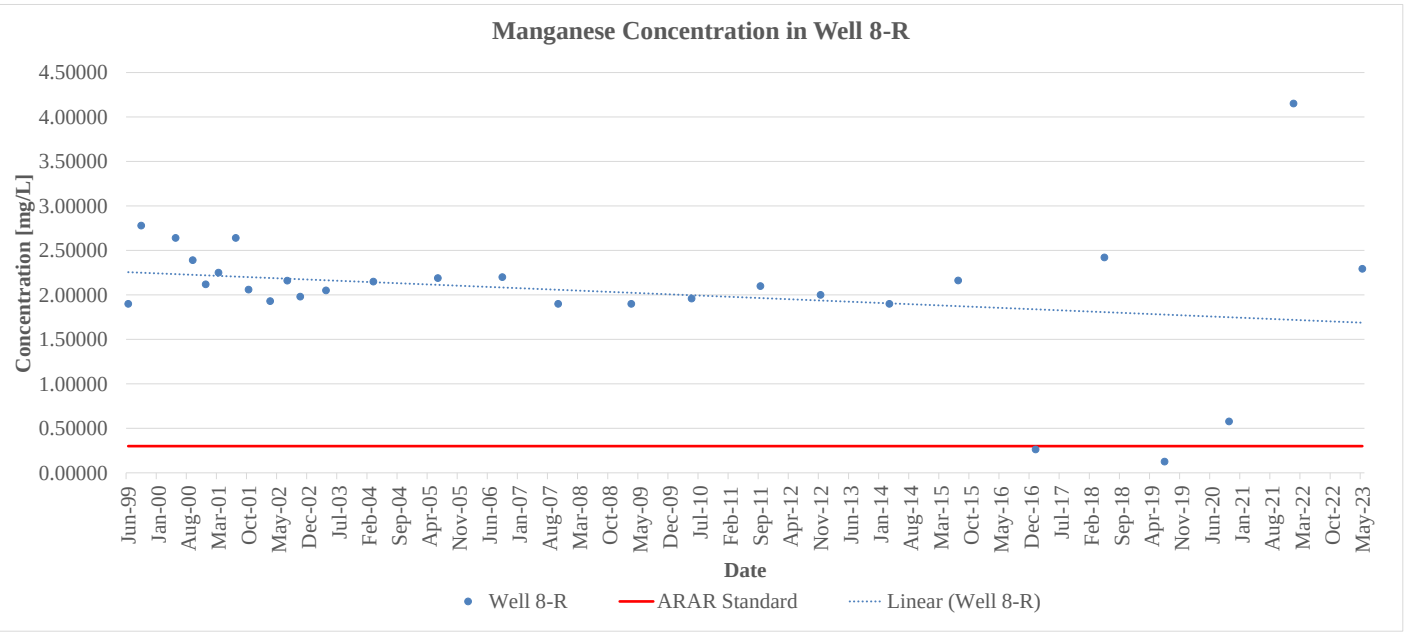
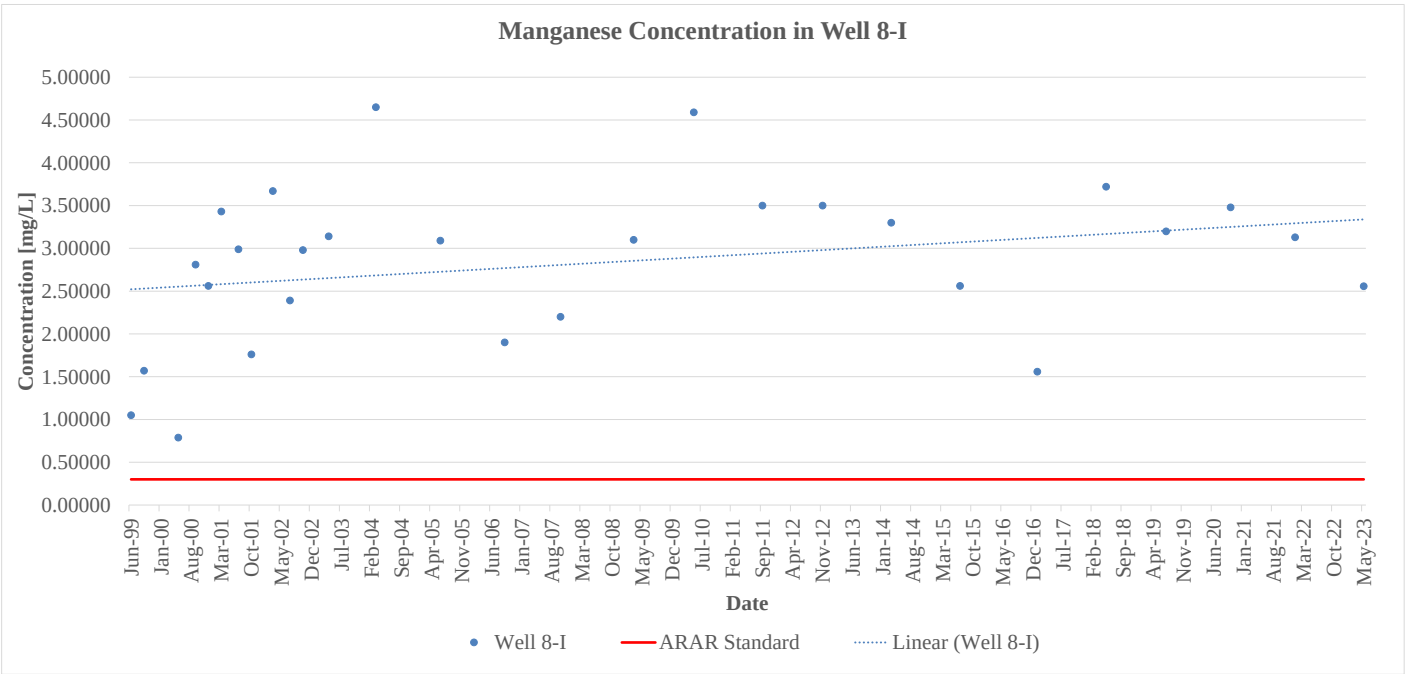
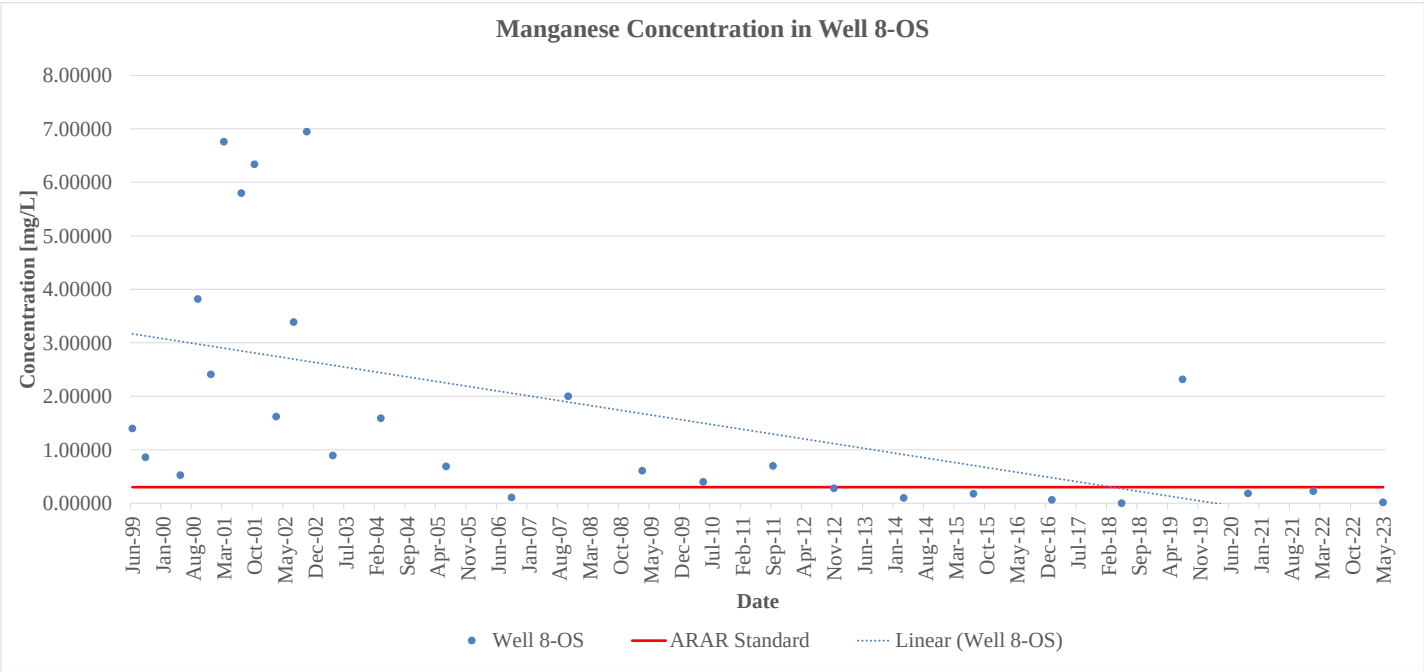
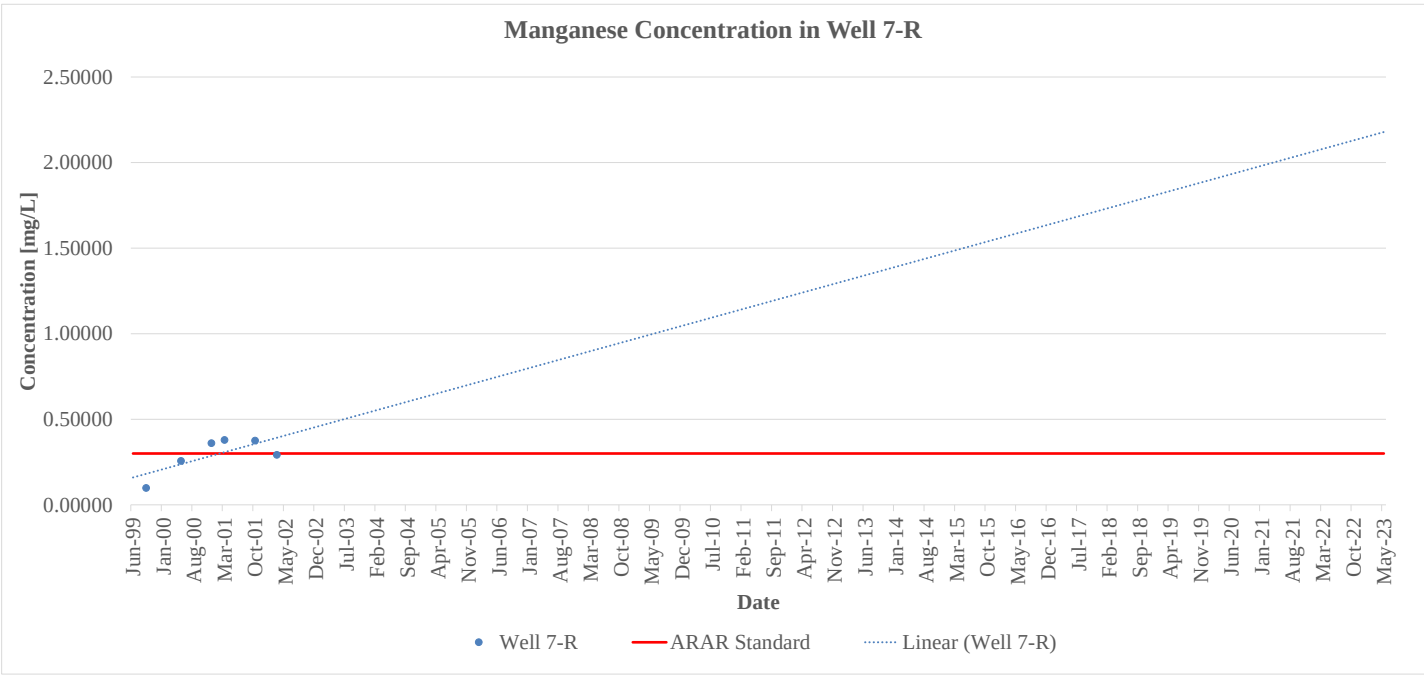


Table 16

Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

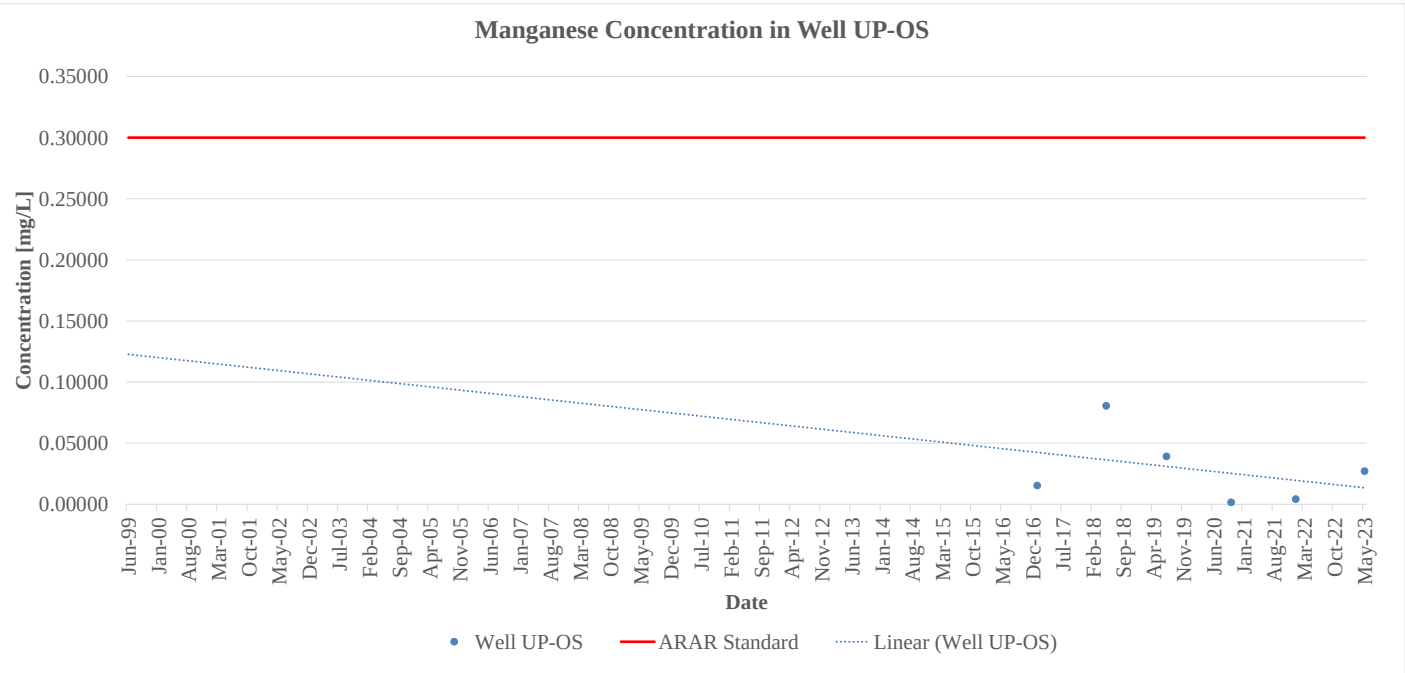
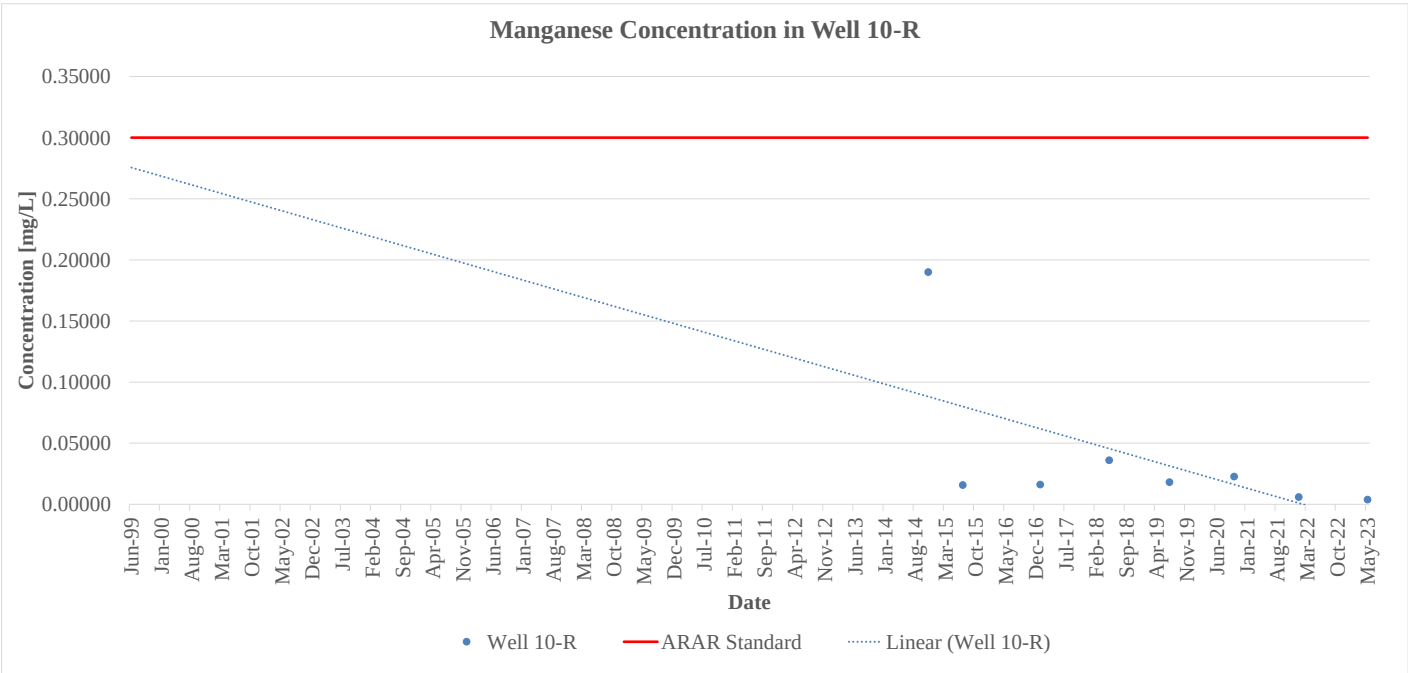
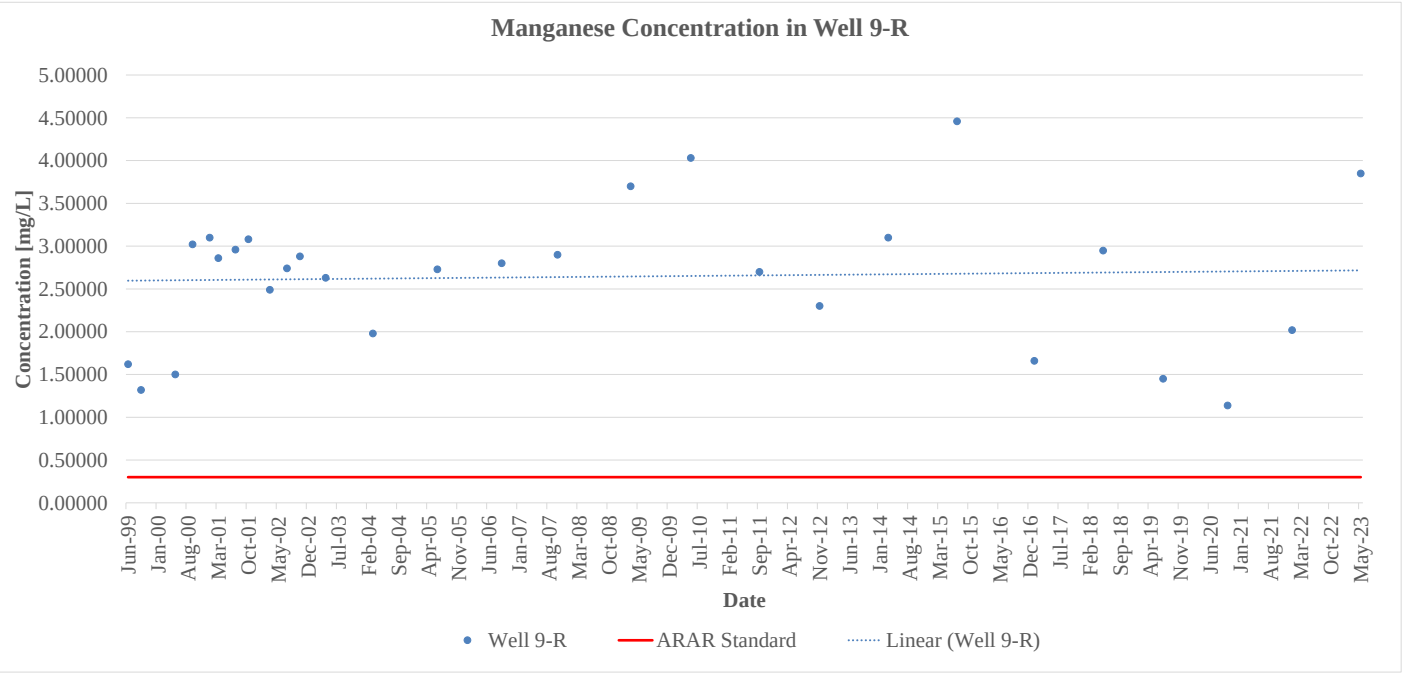
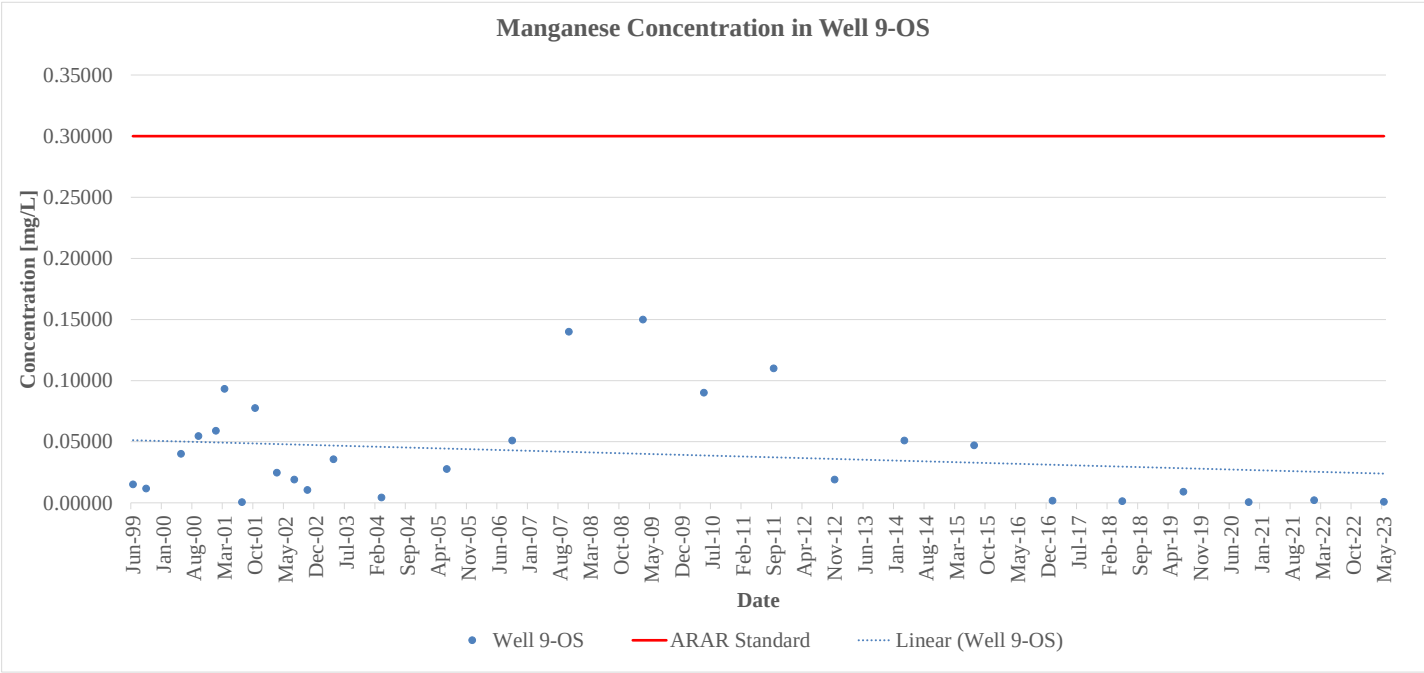


Table 16

Summary of Historical Groundwater Quality Results - Manganese (mg/L)
Town of Ramapo Landfill

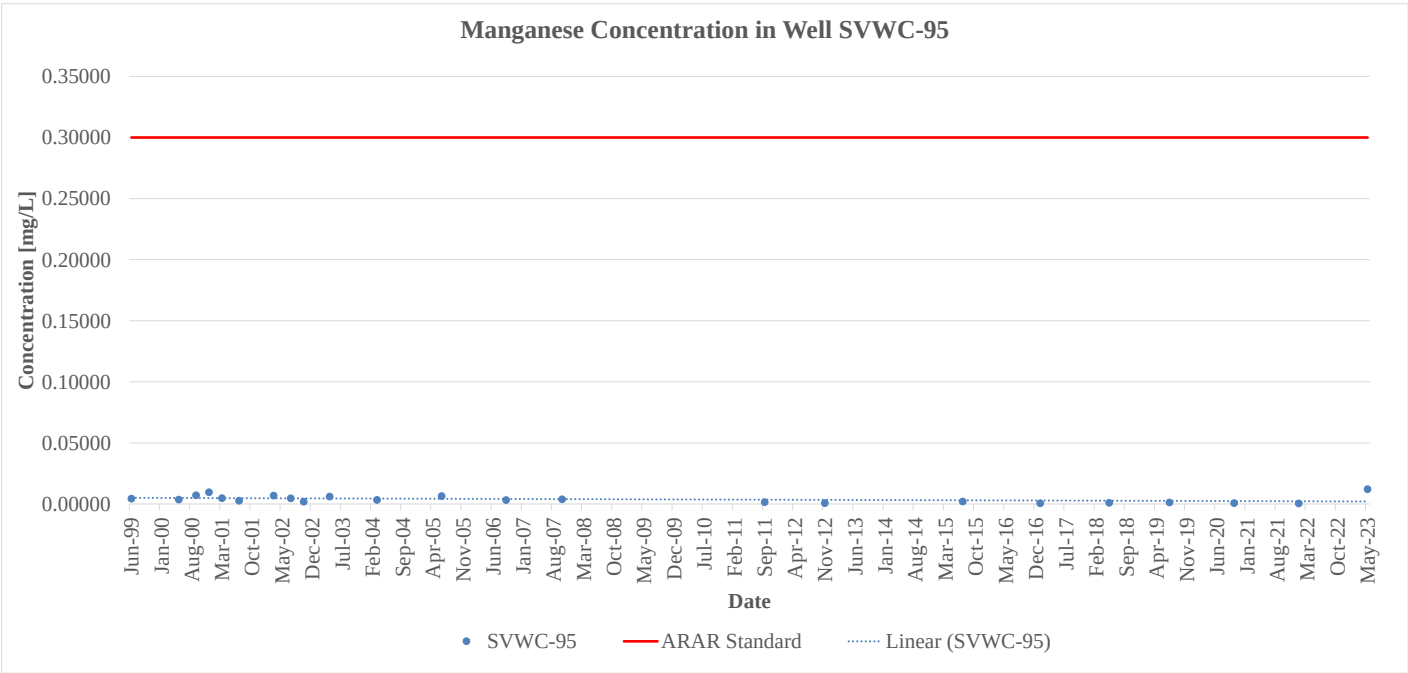
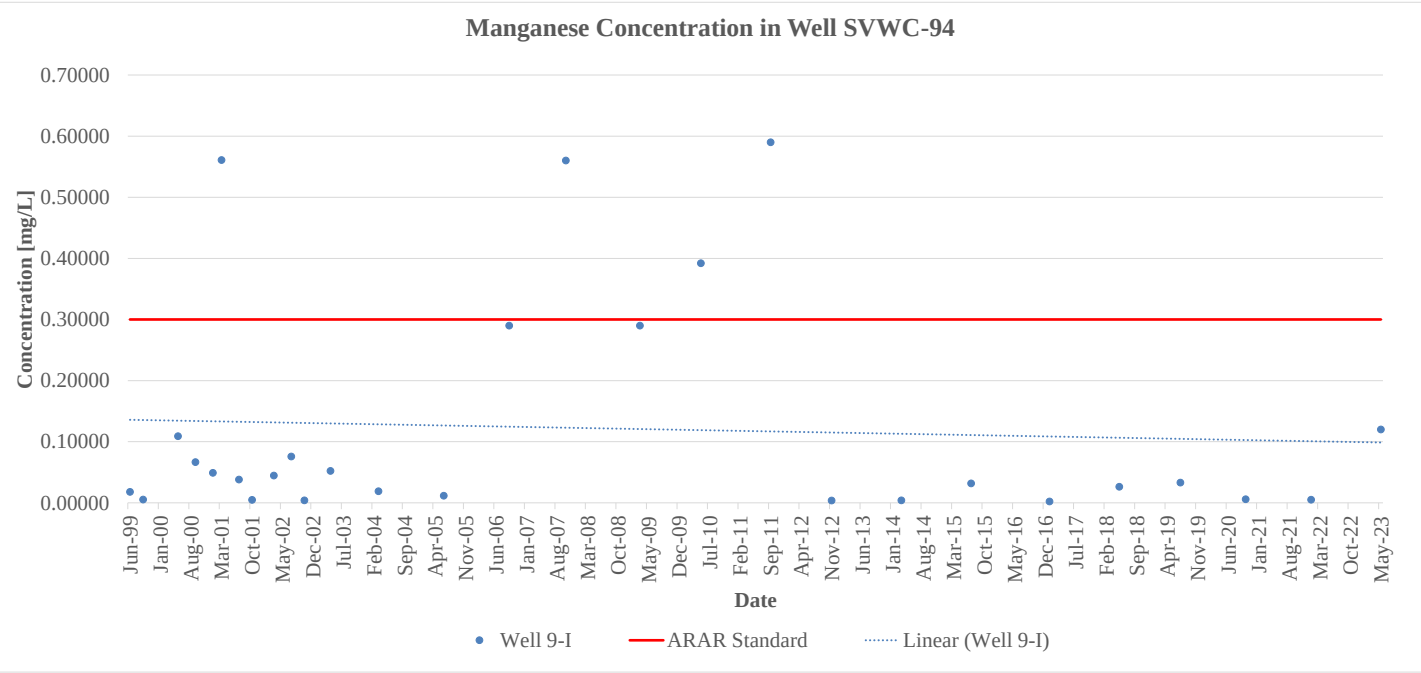
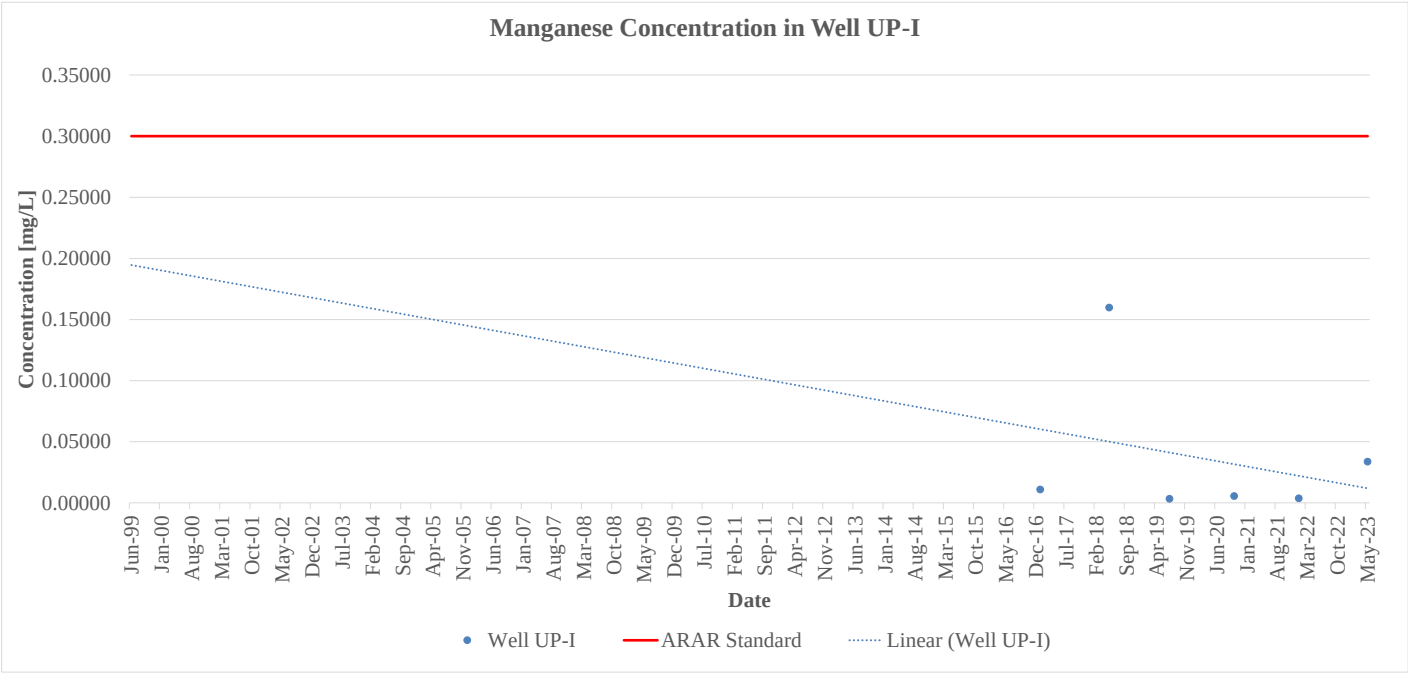


Table 17

Summary of Historical Groundwater Quality Results - Nickel (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96
DATE																															
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00110	0.03400	0.01570	ND	0.00220	0.00660	NA	NA	NA	NA	NA	NA	0.00110	0.00120	0.00270	0.00410	0.00330	0.00380
Sep-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-00	0.14000	0.01620 B	0.21500	0.00410 B	0.15600	0.07370	0.02240 B	0.00150 B	0.03500 B	NA	0.00820 B	0.00940 B	0.00190 B	0.00220 B	0.00590 B	0.01620 B	0.00240 B	0.00460 B	0.00370 B	NA	NA	NA	NA	NA	0.00110 U	0.00110 U	0.00260 B	0.00110 U	0.00110 U	0.00130 B	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dec-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-01	0.08240	0.02770 B	0.11600	0.00170 U	0.06870	0.02820 B	0.00880 B	0.00190 B	0.01950 B	NA	0.00230 B	0.01030 B	0.00220 B	0.01940 B	0.04040	0.02260 B	0.00470 B	0.01820 B	0.00570 B	NA	NA	NA	NA	NA	NA	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U	0.00170 U
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-02	0.02880 B	0.03820 B	0.03490 B	0.00950 B	0.12800	0.00860 B	0.00540 B	0.00280 U	NA	0.00500 B	0.01170 B	0.00860 B	0.00280 U	0.01110 B	0.00700 B	0.02090 B	0.00280 U	0.00280 U	0.00280 U	NA	NA	NA	NA	NA	NA	0.00280 U	0.00280 U	0.00280 U	0.00280 U	0.00280 U	0.00280 U
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr-03	NA	0.00220 B	0.10800	0.00390 B	0.93200	0.00510 B	0.01480 B	0.00190 U	NA	0.00270 B	0.00210 B	0.00350 B	NA	0.00680 B	0.01430 B	0.01500 B	0.00190 U	0.00270 B	0.00190 U	NA	NA	NA	NA	NA	NA	0.00190 U	0.00190 U	0.00190 U	0.00190 U	0.00290 B	0.00190 U
Mar-04	NA	NA	0.05680	NA	0.43400	NA	0.00730 B	NA	0.13200 E	NA	NA	0.04180	NA	0.00790 B	0.02940 B	0.01500 B	0.00170 U	0.00170 U	0.00170 U	NA	NA	NA	NA	NA	NA	0.00170 U	0.00170 U	0.04270	0.00170 U	0.00190 B	0.00170 U
Jun-05	0.00920 B	NA	0.05210	NA	1.46000	NA	0.08780	NA	NA	0.00230 U	NA	0.00230 U	NA	0.06190	0.01560 B	0.01150 B	0.00230 U	0.00230 U	0.00230 U	NA	NA	NA	NA	NA	NA	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U
Sep-06	0.27000	NA	0.08000	NA	1.30000	NA	0.04000 J	NA	0.37000	NA	NA	0.02600 J	NA	0.00580 J	0.02000 J	0.03600 J	0.00670 J	0.01800 J	0.00180 J	NA	NA	NA	NA	NA	NA	0.05000	0.05000 U	0.05000 U	0.05000 U	0.00140 J	0.05000 U
Oct-07	0.75000	NA	0.15000	NA	0.73000	NA	0.06800	NA	0.01400 J	NA	NA	0.02600 J	NA	0.01400 J	0.02400 J	0.01500 J	0.03400 J	0.03100 J	0.00320 J	NA	NA	NA	NA	NA	NA	0.05000 U	0.00700 J	0.00550 J	0.05000 U	0.00120 J	0.05000 U
Mar-09	0.64000	NA	0.49000	NA	0.81000	NA	0.04400 J	NA	0.08900	NA	NA	0.01100 J	NA	0.01700 J	0.01800 J	0.01500 J	0.02800 J	0.01900 J	0.00250 J	NA	NA	NA	NA	NA	NA	0.05000 U	0.05000 U	0.05000 U	NA	0.05000 U	0.05000 U
May-10	0.52700	NA	0.23600	NA	0.49200	NA	0.06150	NA	0.14700	NA	NA	0.02850	NA	0.01030	0.01370	0.01060	0.01340	0.02340	0.00340 J	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	NA	0.01000 U	0.00750 J
Sep-11	0.88000	0.13000	0.41000	0.00430 J	1.60000	0.26000	0.03400	NA	0.05600	0.00440 J	0.06100	0.03700	NA	0.02800	0.00600 J	0.01000	0.02000	0.03200	0.00290 J	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	NA
Nov-12	0.18000	NA	0.17000	NA	0.65000	NA	0.03700	NA	0.06700	NA	NA	0.02900	NA	0.01100	0.01200	0.01000	0.00720 J	0.01000 U	0.00290 J	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA
Mar-14	0.44000	NA	0.24000	NA	0.40000	NA	0.04200	NA	0.04700	NA	NA	0.03600	NA	0.00590 J	0.01300	0.01100	0.01500	ND	0.00200 J	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	0.00670 J
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00400 U	0.00410 J	0.08910	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	0.40570	NA	0.15260	NA	0.08250	NA	0.03750	NA	0.01200	NA	NA	0.00760	NA	0.01290	0.01380	0.01440	0.00340	0.00360	0.00390	0.00360	0.00220	0.01480	NA	NA	NA	0.00050 J	0.00060 J	0.00054 J	0.00090 J	0.00499	0.00016
Jan-17	0.62250	NA	0.24970	NA	0.30290	NA	0.05980	NA	NA	NA	NA	0.00280	NA	0.04900	0.00160 J	0.00980	0.00060 U	0.00190 J	0.00760	0.00080 J	0.00180 J	0.06910	0.00140 J	0.00150 J	0.00250	0.00060 U	0.00070 J	0.00200	0.00130 J	0.00180 J	0.00070 J
May-18	0.16650	NA	0.00648	NA	0.39080	NA	0.02304	NA	NA	NA	NA	0.00098 J	NA	0.00088 J	0.00857	0.01175	0.00200 U	0.00249	0.01583	0.00088 J	0.00100 J	0.10140	0.00136 J	0.15430	0.00200 U	0.00200 U	0.00159 J	0.00200 U	0.00200 U	0.00062 J	0.00200 U
Jul-19	0.04278	NA	0.00326	NA	1.04400	NA	0.05196	NA	NA	NA	NA	0.00080 J	NA	0.06892	0.00898	0.00917	0.00186 J	0.00101 J	0.00472	0.00061 J	0.00055 U	0.01356	0.00195 J	0.00831	0.00556	0.00055 U	0.00124 J	0.00055 U	0.00057 J	0.00055 U	0.00055 U
Oct-20	0.05000	NA	0.02500 J	NA	0.71100	NA	0.06400	NA	NA	NA	NA	0.01100 J	NA	0.01766	0.00665	0.02297	0.00055 U	0.00077 J	0.08511	0.00072 J	0.00055 U	0.00592	0.00055 U	0.01049	0.00093 J	0.00055 U	0.00055 U	0.00060 J	0.00107 J	0.00059 J	
Jan-22	0.03813	NA	0.00811	NA	0.12230	NA	0.01962	NA	NA	NA	NA	0.00055 U	NA	0.01390	0.00541	0.04774	0.00055 U	0.00055 U	0.02791	0.00241	0.00055 U	0.00281	0.00083 J	0.00260	NA	0.00070 J	0.00060 U	0.00055 U	0.00055 U	0.00064 J	0.00055 U
May-23	0.00337	NA	0.00278	NA	0.01541	NA	0.03011	NA	NA	NA	NA	0.00305	NA	0.00852	0.00626	0.01305	0.00100 J	0.00065 J	0.05360	0.00058 J	0.00055 U	0.00197 J	0.00218	0.10800	0.00055 U	0.00060 U	0.00060 U	0.00060 J	0.00055 U	0.00055 U	0.00060 J

Notes:

ARAR Standard = 0.1 mg/L; USEPA MCL = Not Available; and, Part 5 MCL = Not Available

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

E = Indicates an estimated value because of the possible presence of interference.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

Table 17

Summary of Historical Groundwater Quality Results - Nickel (mg/L)
Town of Ramapo Landfill

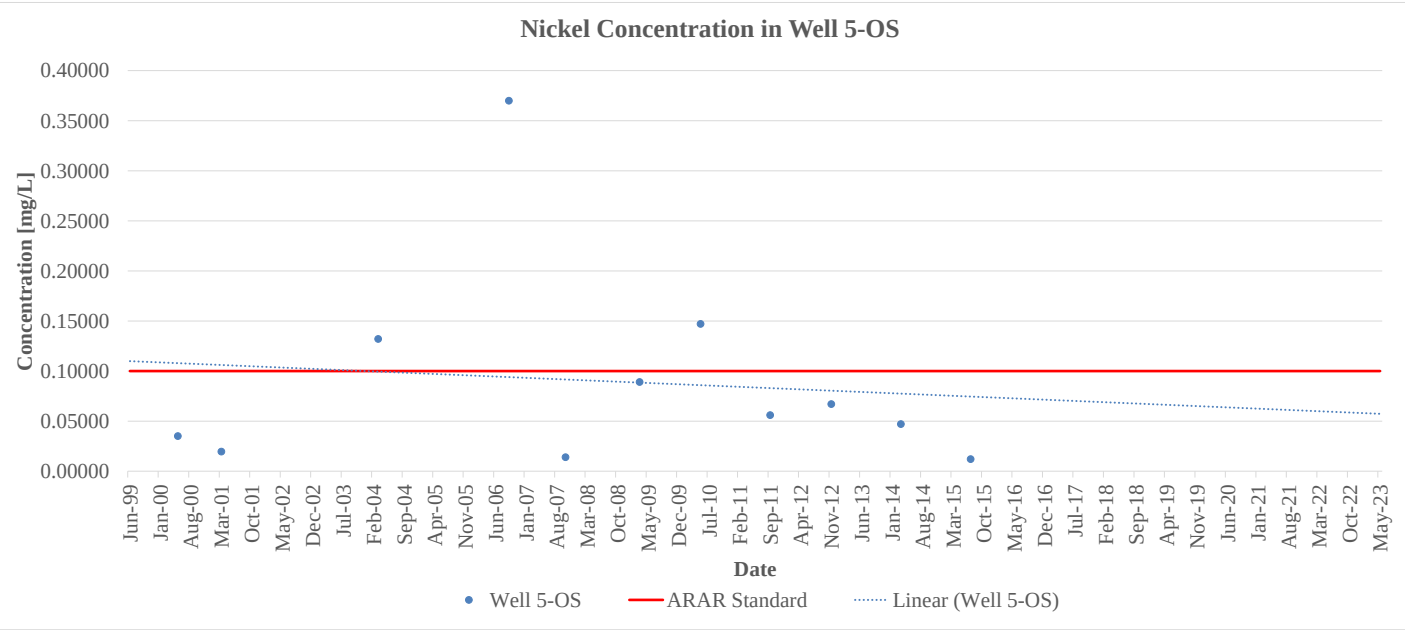
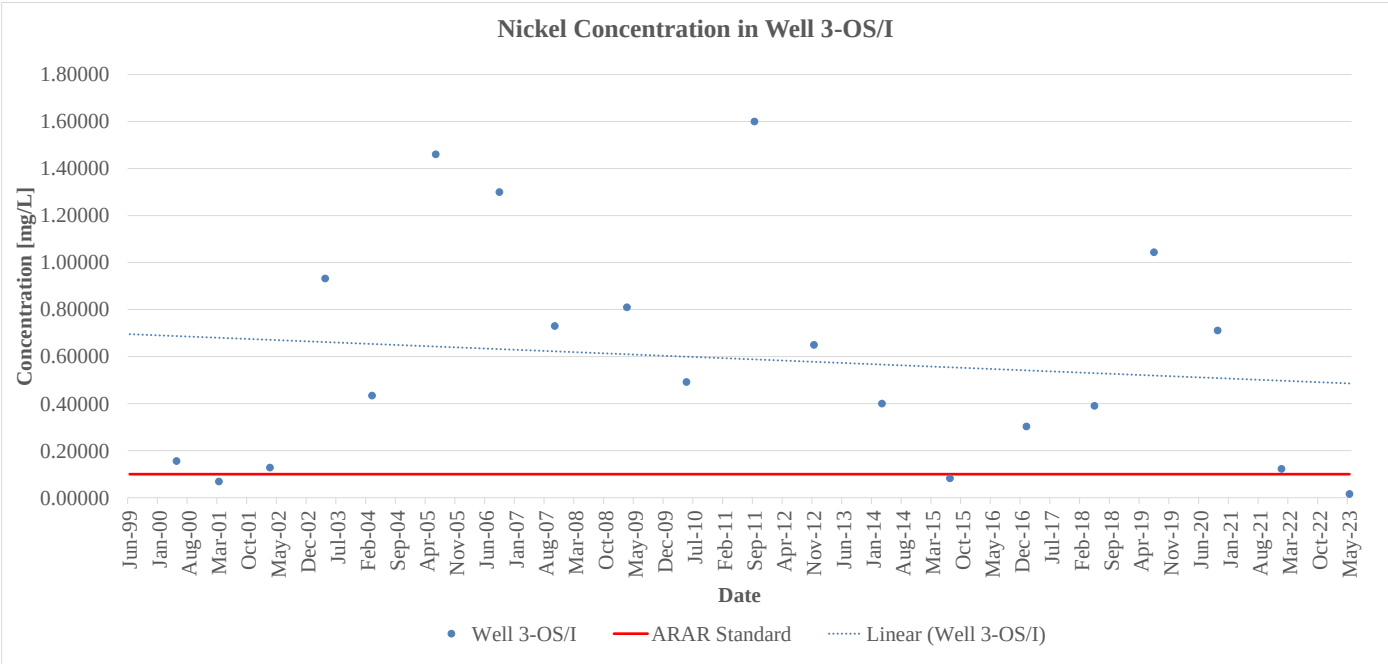
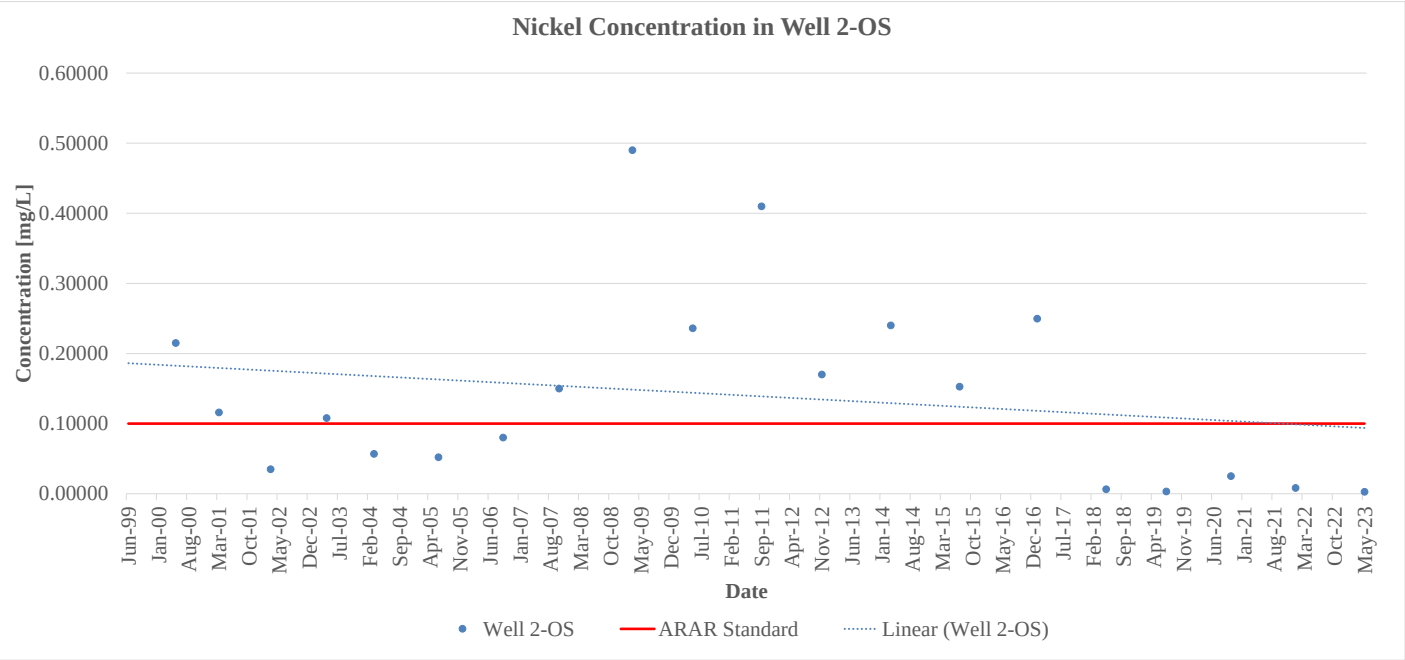
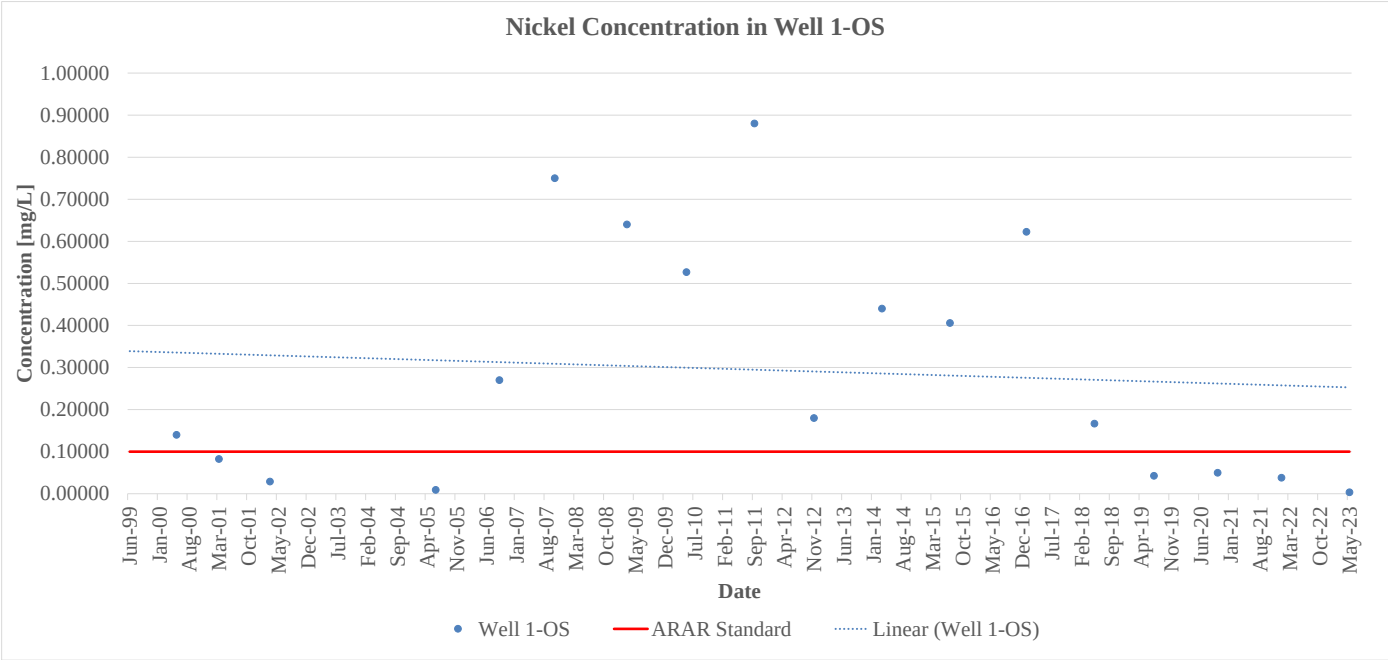


Table 17

Summary of Historical Groundwater Quality Results - Nickel (mg/L)
Town of Ramapo Landfill

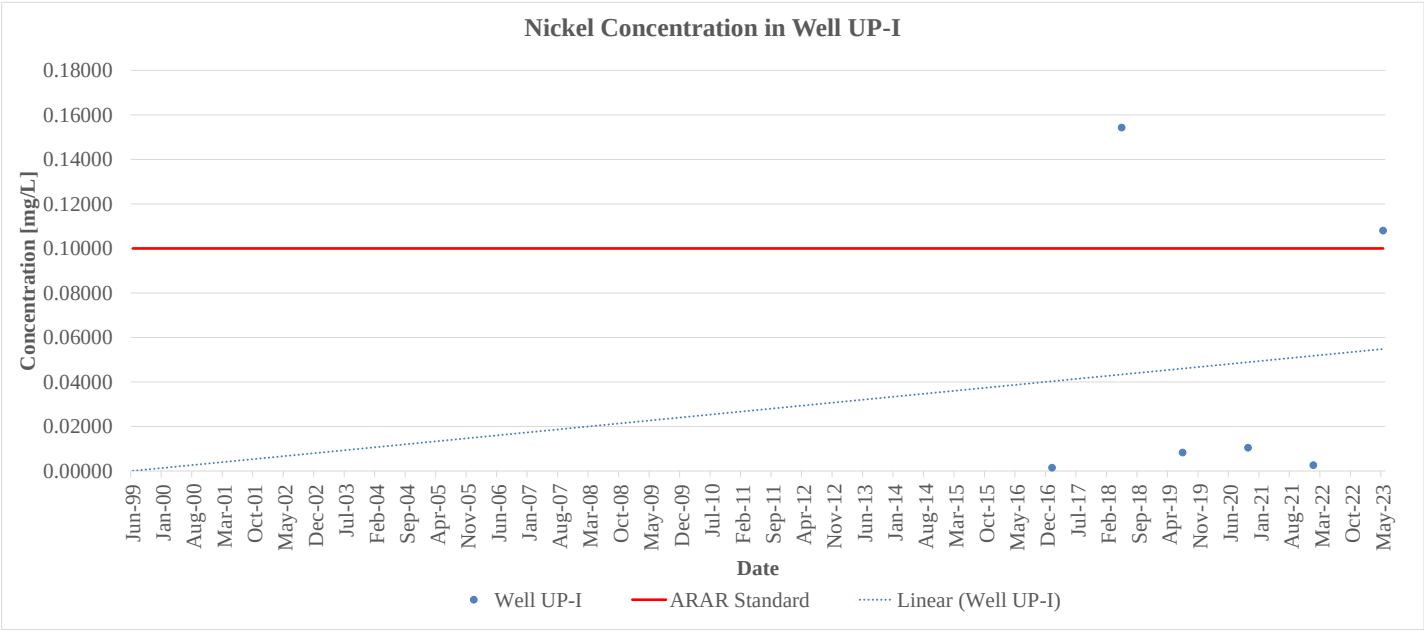


Table 18

Summary of Historical Groundwater Quality Results - Sodium (mg/L)
Town of Ramapo Landfill

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96	
DATE																																
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.98	16.10	43.40	5.50	5.61	13.10	NA	NA	NA	NA	NA	NA	4.30	13.20	31.60	33.40	32.90	30.40	
Sep-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
May-00	36.40	29.00	9.96	10.10	41.60	43.30	30.50	13.80	5.53	NA	4.48	19.80	13.90	3.48 B	15.00	71.10	5.08	4.40 B	14.30	NA	NA	NA	NA	NA	NA	5.43	9.11	31.40	32.50	28.80	35.90	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dec-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-01	42.10	19.10	9.46	7.76	38.70	34.90	24.10	13.70	4.77 B	NA	3.74 B	16.90	11.30	14.20	90.50	52.40	3.67 B	4.95 B	27.50	NA	NA	NA	NA	NA	NA	6.13	9.33	36.00	38.70	38.50	35.20	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-02	47.80	69.50	9.45	7.24	29.80	32.30	23.50	9.78	NA	4.48	4.86	12.50	10.50	5.15	56.20	74.40	5.12	6.06	22.20	NA	NA	NA	NA	NA	NA	7.16	8.72	56.00 E	48.90 E	41.90 E	43.50 E	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oct-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Apr-03	NA	24.20	7.13	7.67	31.50	38.00	26.20	12.90	NA	4.54 B	4.19 B	13.10	NA	10.90	46.50	52.20	4.53 B	5.83	20.60	NA	NA	NA	NA	NA	NA	8.69	9.00	39.80	43.00	34.70	4.04	
Mar-04	NA	NA	11.00	NA	22.60 E	NA	54.60	NA	8.87	NA	NA	5.00 E	NA	17.10 E	110.00 E	47.30 E	3.22 B,E	3.69 B	14.60 E	NA	NA	NA	NA	NA	NA	5.41 E	7.73 E	33.80 E	35.60 E	27.70 E	30.10 E	
Jun-05	37.10 E	NA	8.68 E	NA	29.10 E	NA	20.30	NA	NA	2.88 B,E	NA	9.19	NA	8.40	124.00	42.20	4.16 B	5.53	22.50	NA	NA	NA	NA	NA	NA	11.50	5.40	44.10	42.30	41.70	47.40	
Sep-06	62.00	NA	11.00	NA	29.00	NA	33.00	NA	14.00	NA	NA	7.00	NA	28.00	73.00	46.00	0.01	9.40	28.00	NA	NA	NA	NA	NA	NA	14.00	7.40	52.00	47.00	36.00	47.00	
Oct-07	76.00	NA	12.00	NA	23.00	NA	24.00	NA	4.10	NA	NA	7.70	NA	15.00	55.00	48.00	7.20	9.80	35.00	NA	NA	NA	NA	NA	NA	12.00	6.10	60.00	52.00	53.00	56.00	
Mar-09	97.00	NA	11.00	NA	36.00	NA	48.00	NA	8.10	NA	NA	9.70	NA	41.00	50.00	42.00	8.30	15.00	44.00	NA	NA	NA	NA	NA	NA	12.00	7.40	52.00	NA	49.00	54.00	
May-10	111.00	NA	9.30	NA	36.90	NA	47.90	NA	8.00	NA	NA	11.70	NA	30.70	75.60	41.40	8.20	14.20	59.30	NA	NA	NA	NA	NA	NA	18.60	8.60	41.60	NA	47.20	48.60	
Sep-11	101.00	23.90 B	10.90	9.70	57.20	59.00	60.20	NA	7.30	4.60	6.20 B	12.50	NA	19.80	56.80 B	34.60 B	11.20 B	17.10 B	48.90 B	NA	NA	NA	NA	NA	NA	68.50 B	6.90 B	45.60 B	40.40 B	NA	NA	
Nov-12	102.00	NA	13.10	NA	36.30	NA	64.50	NA	7.30	NA	NA	15.90	NA	10.80	97.90	37.80	9.80	11.40	45.50	NA	NA	NA	NA	NA	NA	32.50	6.80	45.10	45.90	42.50	NA	
Mar-14	117.00 B	NA	10.50 B	NA	35.30	NA	71.90	NA	7.00	NA	NA	14.90	NA	24.50 B	91.80 B	37.80	5.50	13.00	37.60	NA	NA	NA	NA	NA	NA	25.60 B	7.20	54.10 B	50.10 B	48.60 B	56.10 B	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.74	17.80	3.22	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	118.00	NA	15.10	NA	20.50	NA	35.60	NA	4.09	NA	NA	15.80	NA	31.00	122.00	42.80	9.77	9.96	47.20	2.15	4.21	6.95	NA	NA	NA	35.00	7.90	58.00	66.00	61.00	64.00	
Jan-17	103.00	NA	14.00	NA	25.90	NA	84.70	NA	NA	NA	NA	14.60	NA	18.00	29.20	39.70	5.81	19.30	50.40	2.23	3.78	5.52	3.58	3.82	4.03	19.80	6.41	63.00	56.40	56.10	59.70	
May-18	73.30	NA	34.70	NA	29.90	NA	67.10	NA	NA	NA	NA	11.10	NA	6.84	59.40	35.90	4.66	31.50	43.20	2.56	3.34	5.27	24.80	4.06	4.72	40.70	6.37	44.80	49.40	46.00	57.30	
Jul-19	115.00	NA	133.00	NA	52.10	NA	93.50	NA	NA	NA	NA	14.90	NA	52.40	96.80	42.00	6.70	9.68	39.60	2.09	3.91	4.41	3.87	3.59	4.38	37.90	7.08	58.20	61.30	55.60	62.90	
Oct-20	112.00	NA	24.80	NA	60.80	NA	51.80	NA	NA	NA	NA	12.00	NA	26.30	91.40	71.50	6.12	26.10	50.00	2.30	4.23	4.28	4.06	3.68	4.49	17.60	8.38	80.10	82.90	73.40	74.00	
Jan-22	90.60	NA	32.00	NA	26.80	NA	80.50	NA	NA	NA	NA	12.70	NA	24.60	44.70	37.80	16.10	5.88	48.40	2.64	3.77	3.70	3.64	3.72	NA	18.40	7.37	46.10	50.80	44.50	54.90	
May-23	69.70	NA	32.90	NA	35.40	NA	84.90	NA	NA	NA	NA	9.05	NA	13.00	56.80	45.70	2.46	9.69	58.10	2.26	3.99	4.22	3.61	3.83	4.49	18.60	7.42	55.60	42.20	38.20	65.10	

Notes:

ARAR Standard = 20 mg/L; USEPA MCL = Not Available; Part 5 MCL = (1); and, Health Advisory = 20 mg/L

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

⁽¹⁾ While there is no Part 5 MCL for sodium, people on severely restricted diets should consult with the County Health Department for guidance if the reported sodium concentration is higher than 20,000 mg/L.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

E = Indicates an estimated value because of the possible presence of interference.

Table 18

Summary of Historical Groundwater Quality Results - Sodium (mg/L)
Town of Ramapo Landfill

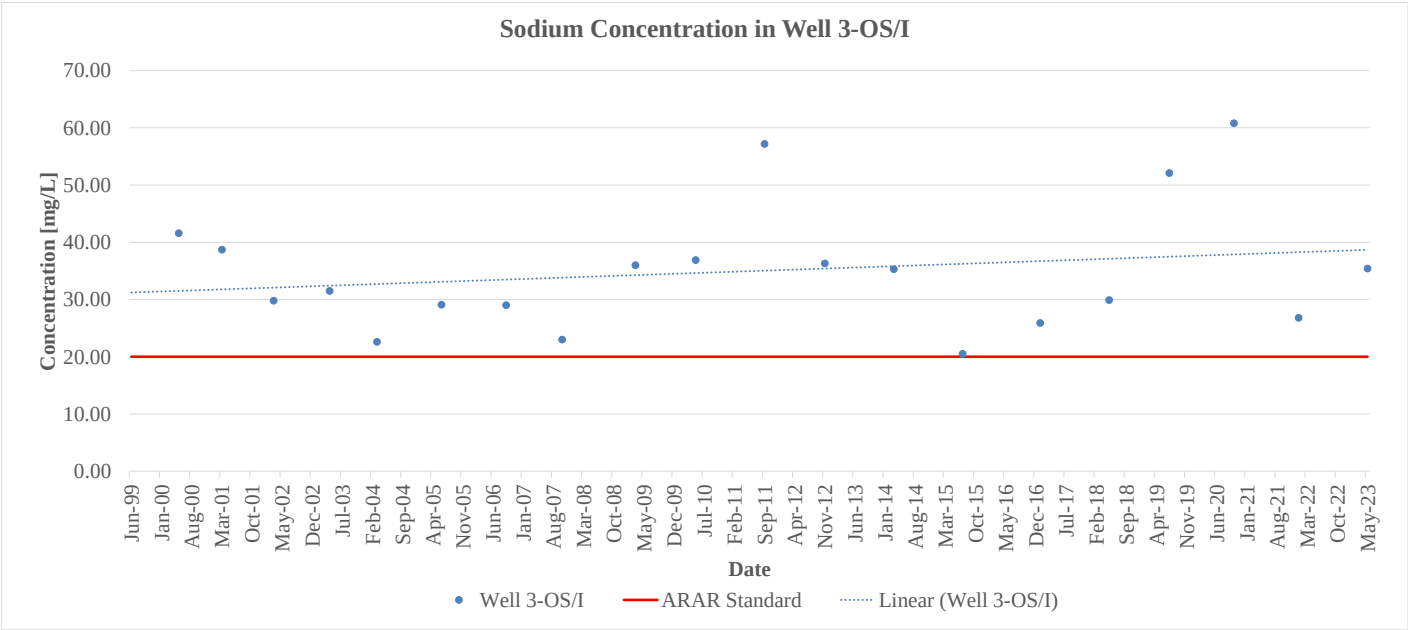
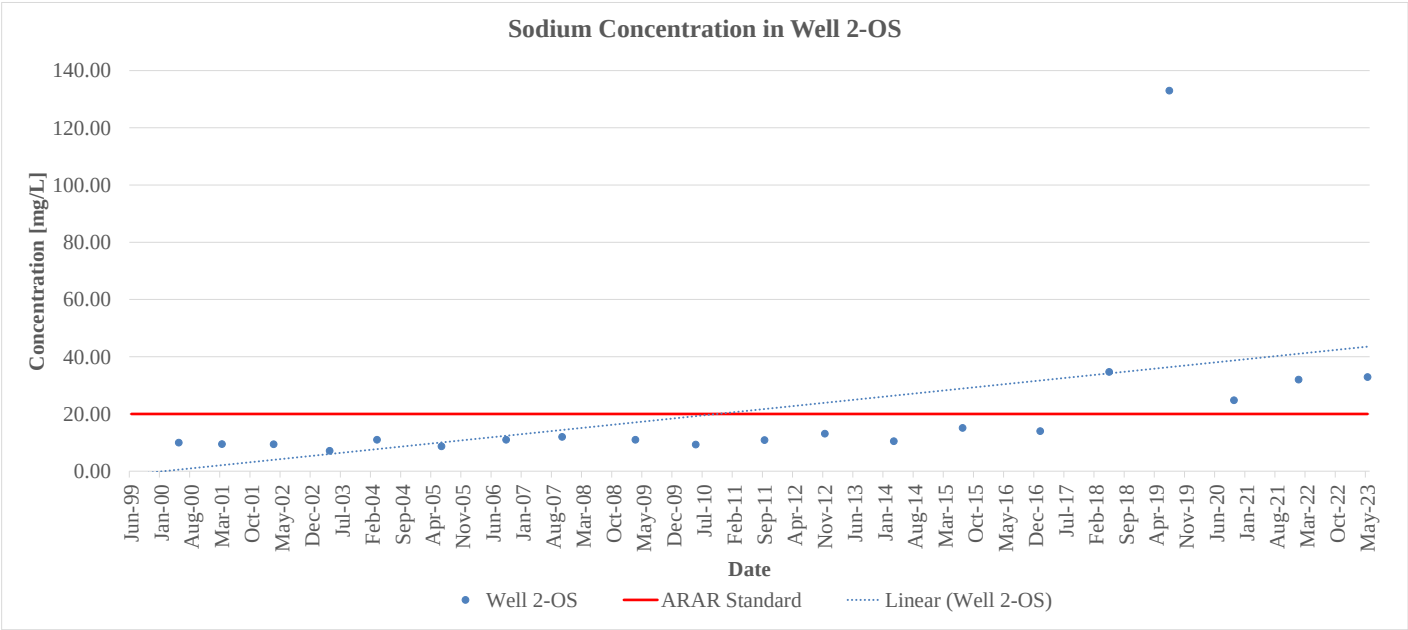
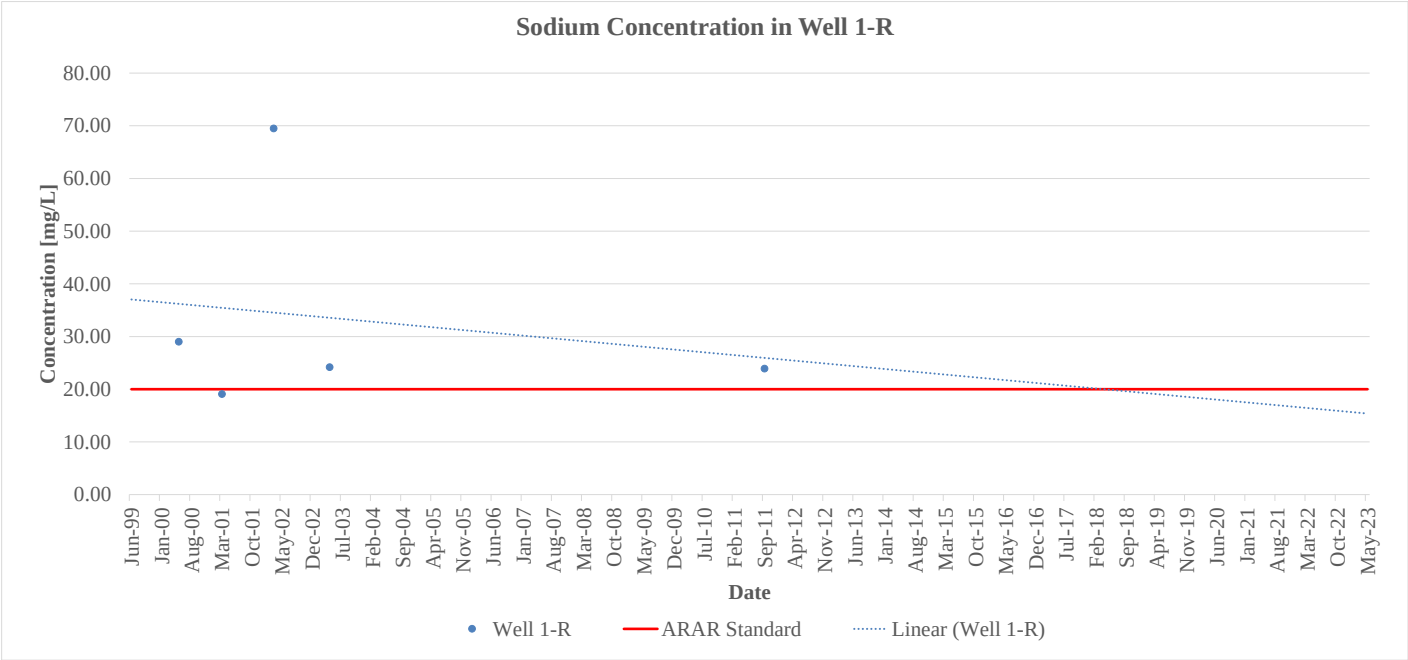
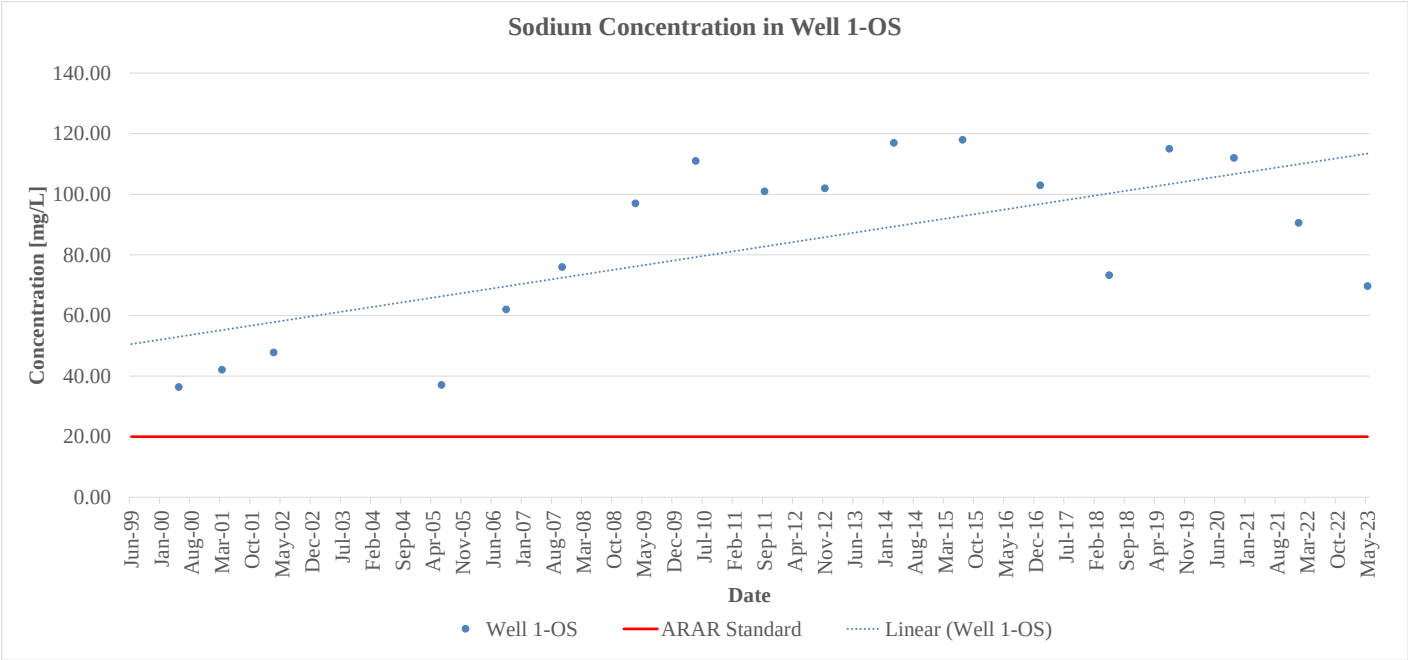


Table 18
Summary of Historical Groundwater Quality Results - Sodium (mg/L)
Town of Ramapo Landfill

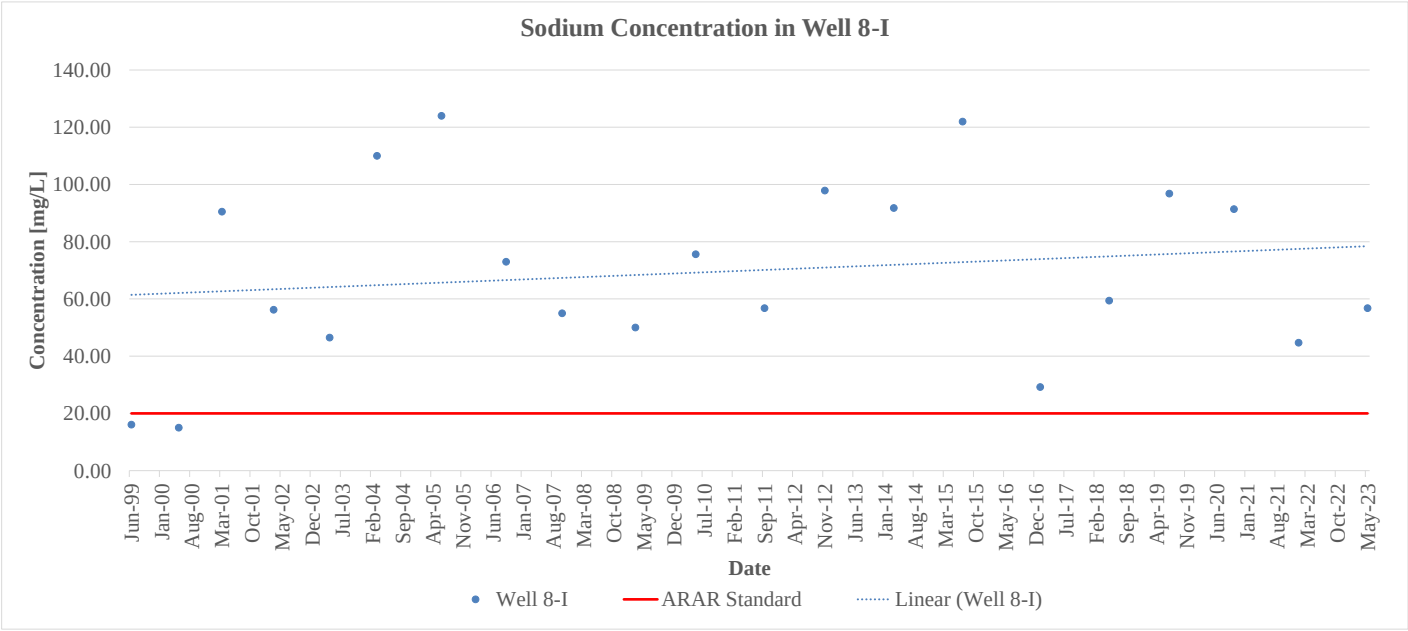
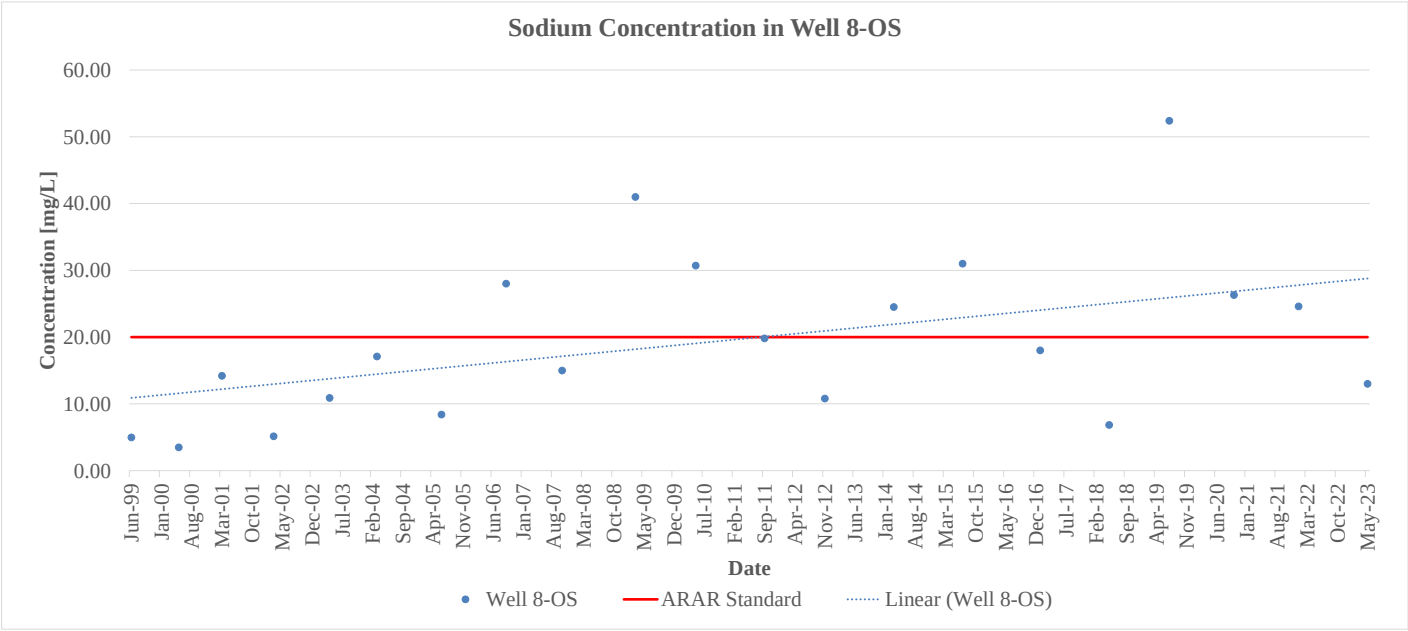
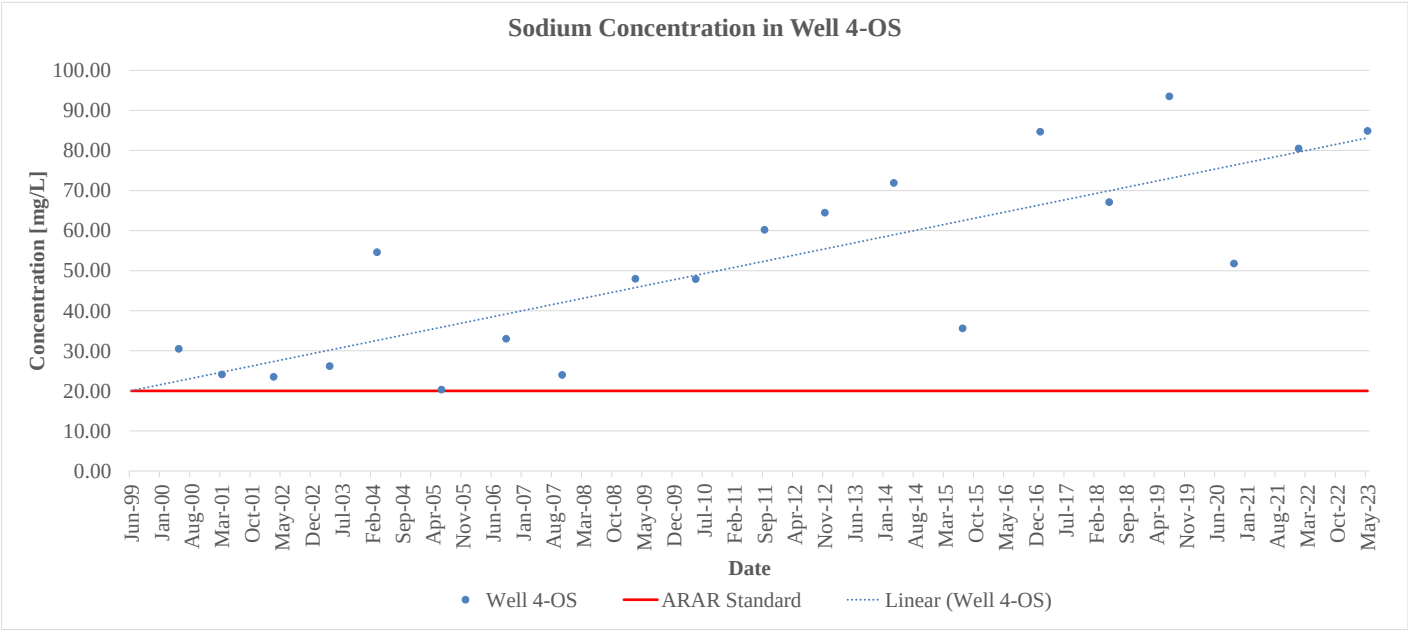
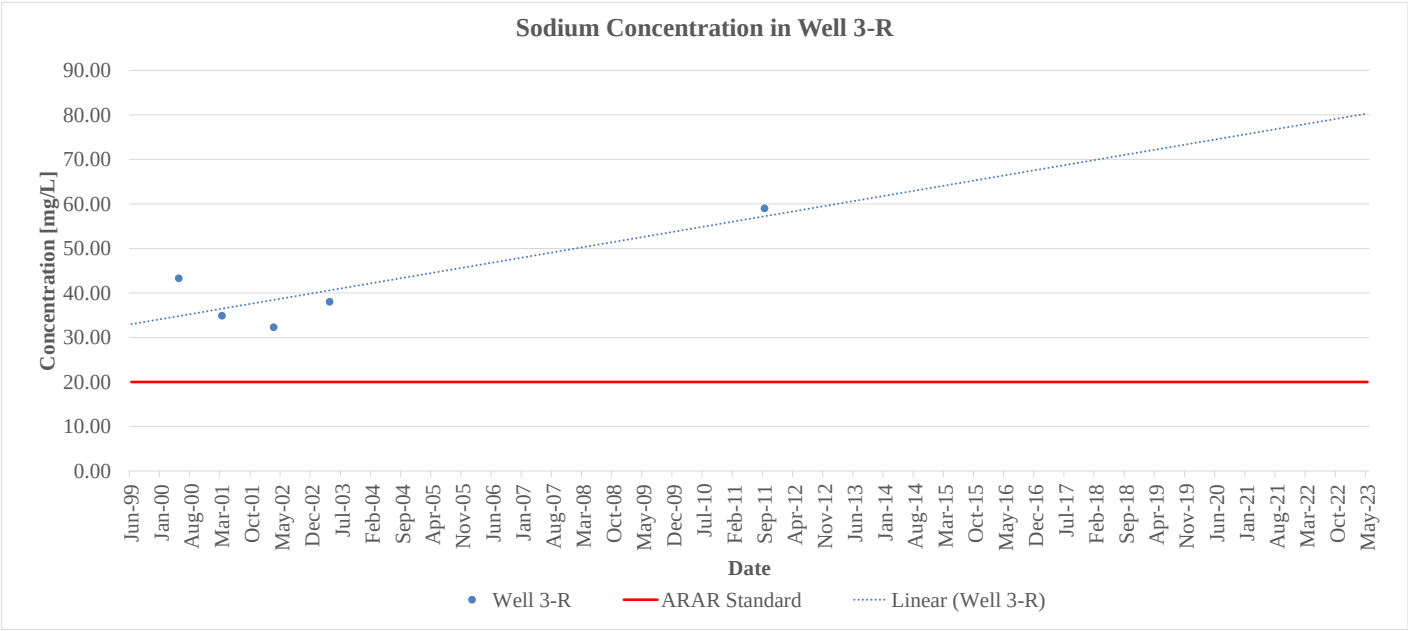


Table 18
Summary of Historical Groundwater Quality Results - Sodium (mg/L)
Town of Ramapo Landfill

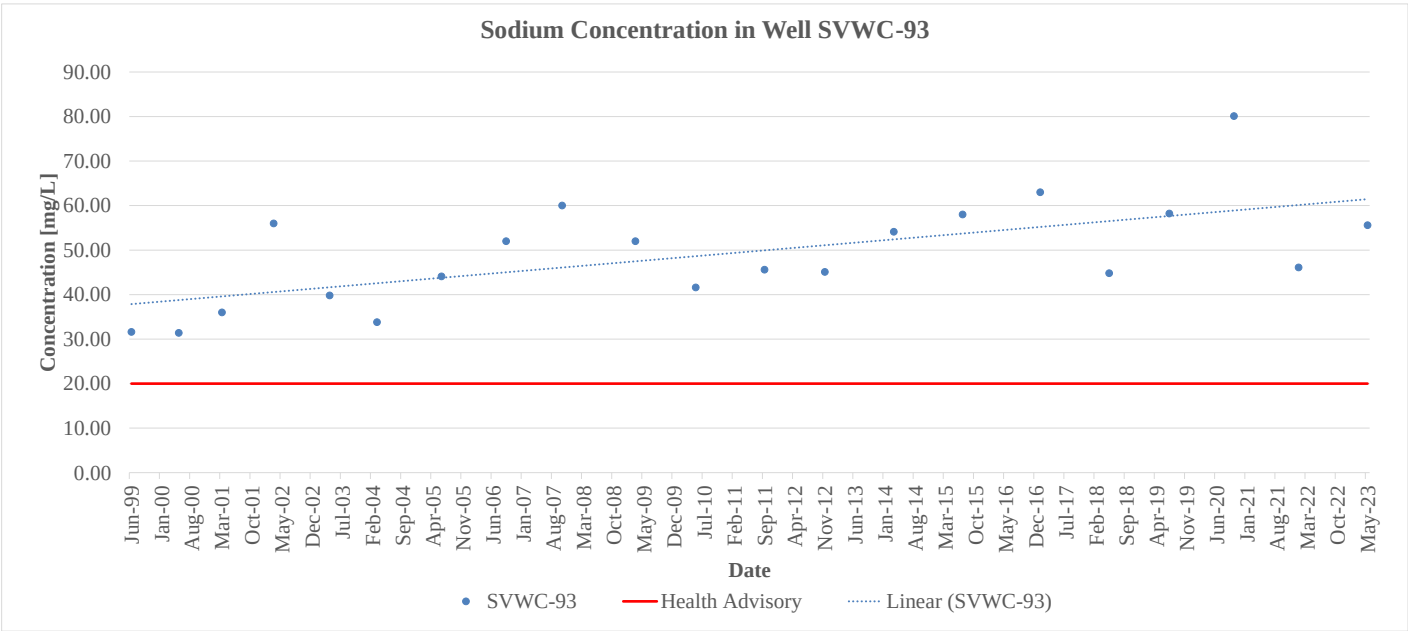
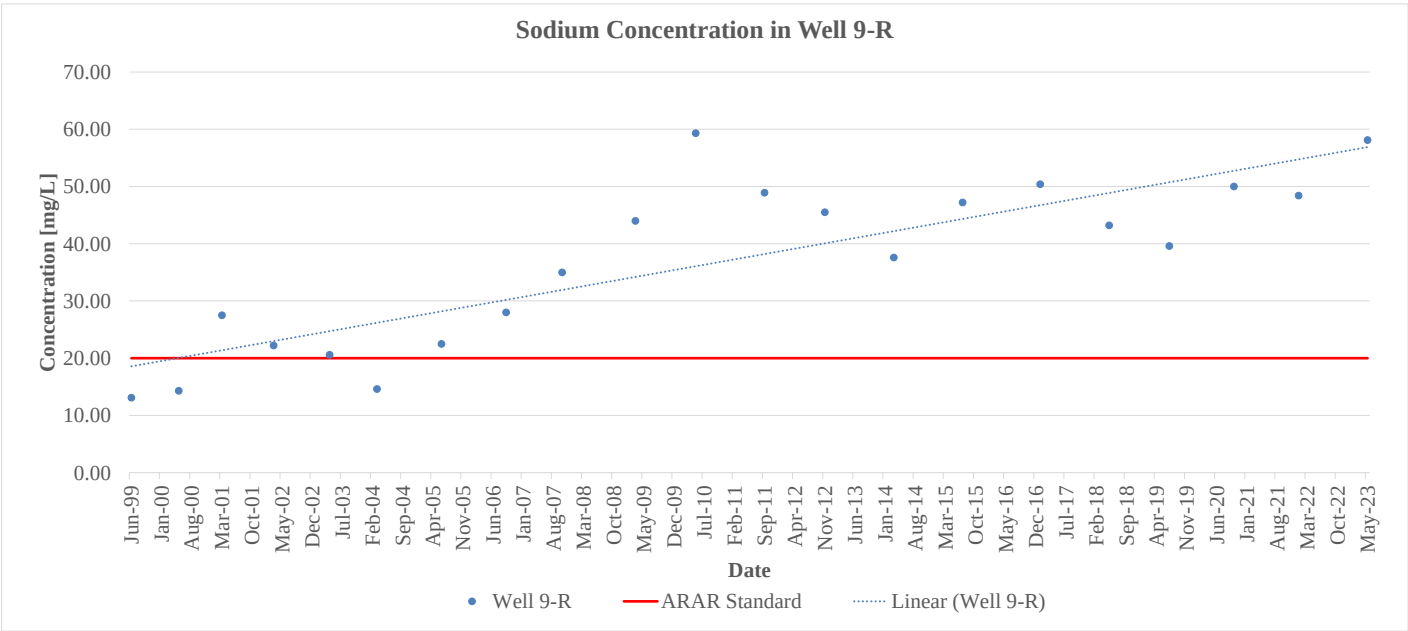
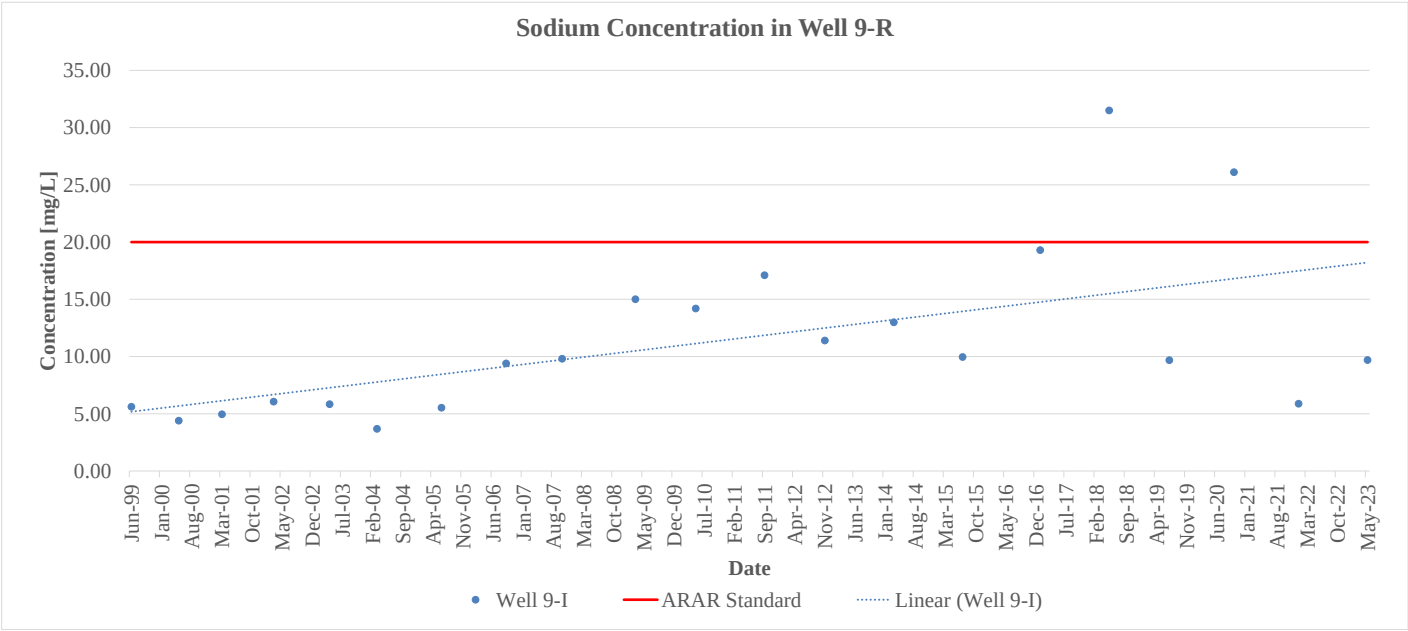
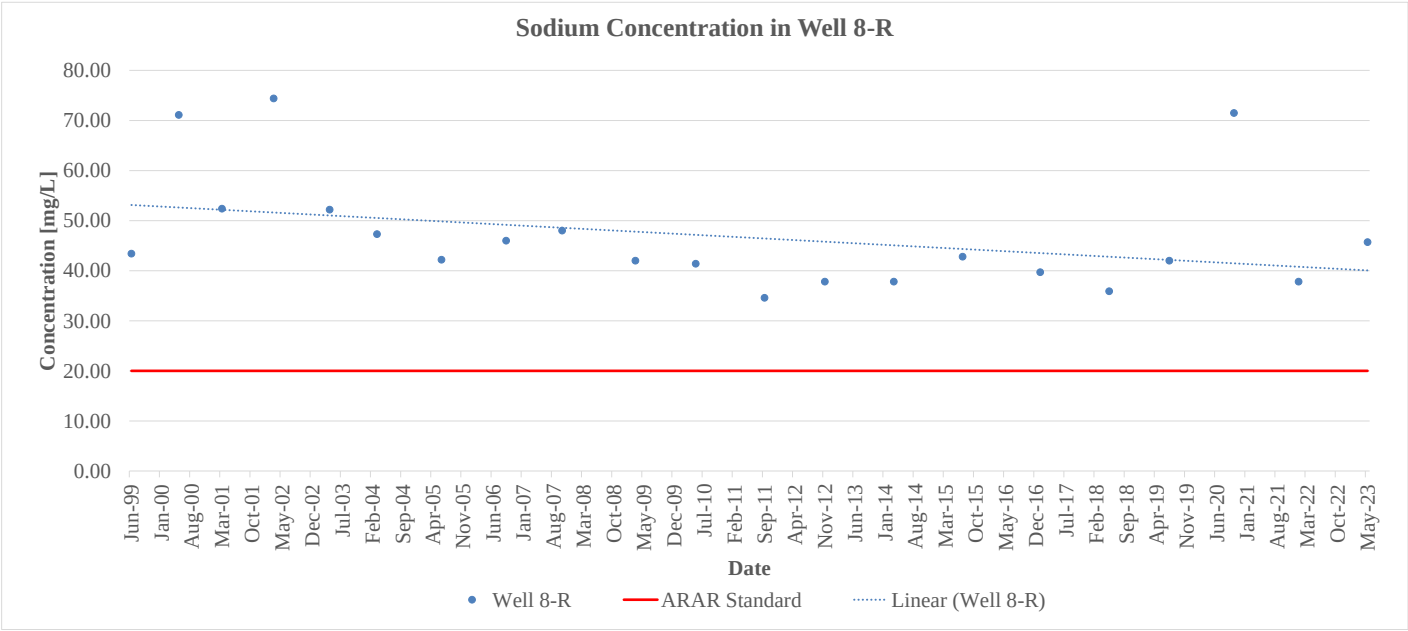


Table 18

Summary of Historical Groundwater Quality Results - Sodium (mg/L)
Town of Ramapo Landfill

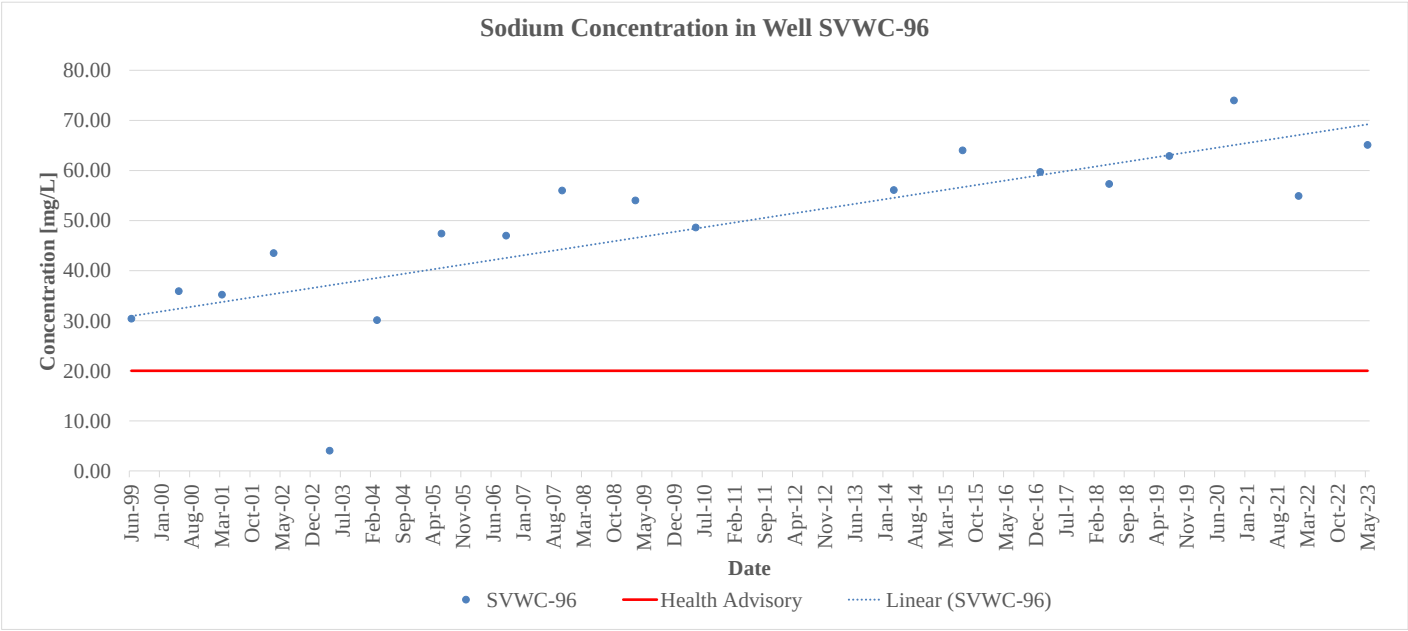
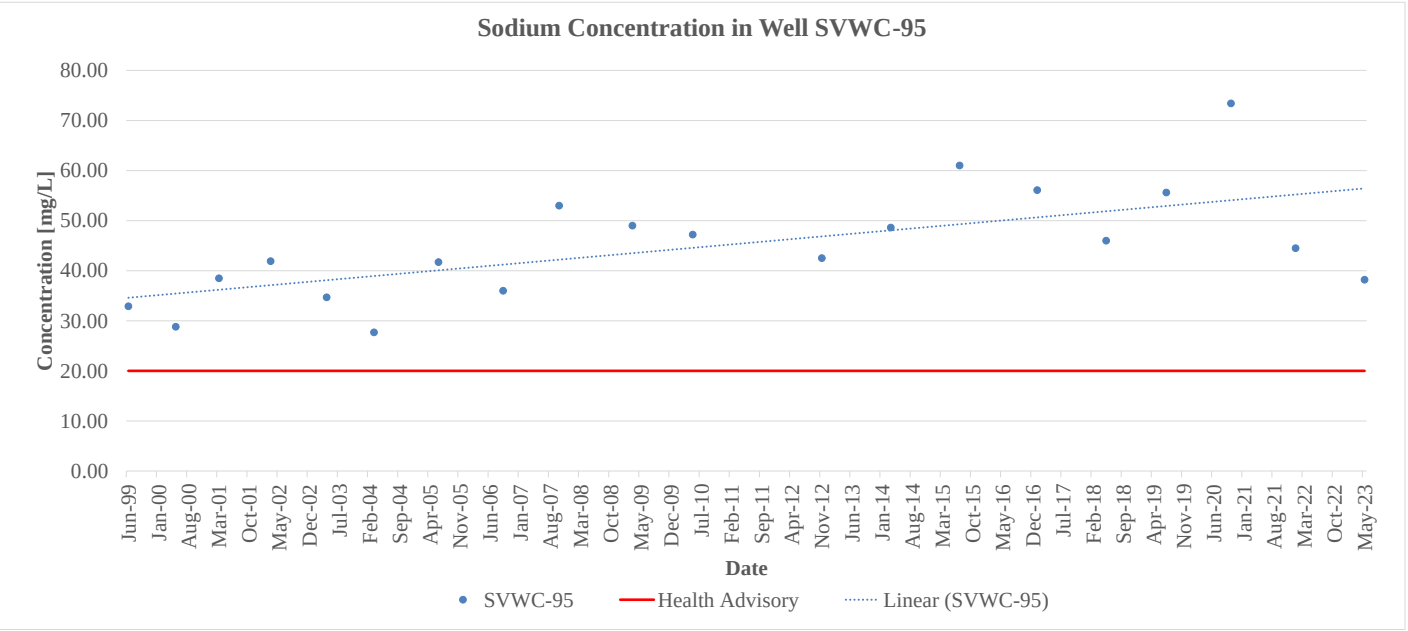
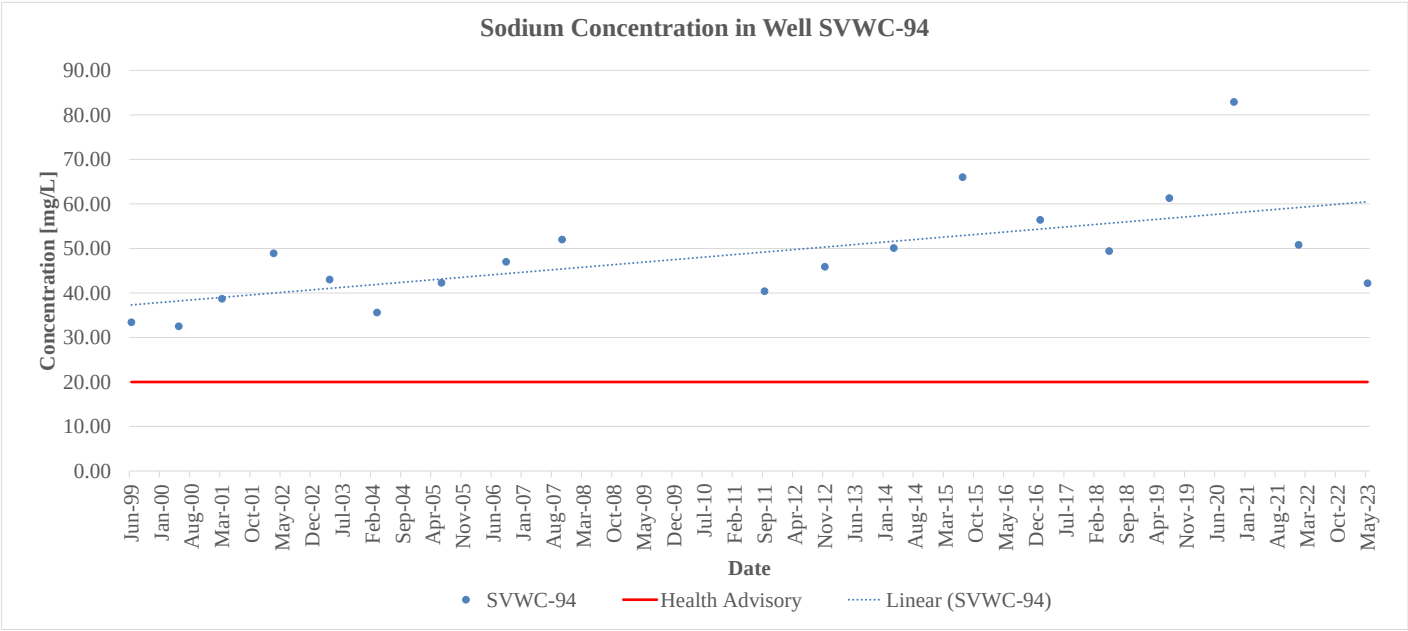


Table 19

Summary of Historical Groundwater Quality Results - Thallium (mg/L)
Town of Ramapo Landfill

Well ID DATE	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/I	Well 3-R	Well 4-OS	Well 4-R	Well 5-OS	Well 5-I	Well 5-R	Well 7-OS	Well 7-R	Well 8-OS	Well 8-I	Well 8-R	Well 9-OS	Well 9-I	Well 9-R	Well 10-OS	Well 10-I	Well 10-R	Well UP-OS	Well UP-I	Well UP-R	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96
Jun-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	0.00720
Sep-99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
May-00	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	NA	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	NA	NA	NA	NA	NA	NA	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U	0.00230 U
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dec-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-01	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00480 B	NA	0.02280	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	NA	NA	NA	NA	NA	NA	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U	0.00270 U
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mar-02	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	NA	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00360 U	0.00440 B	0.00360 U	NA	NA	NA	NA	NA	NA	0.00360 U	0.00360 U	0.00440 B	0.00360 U	0.00360 U	0.00360 U
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oct-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Apr-03	NA	0.00350 U	0.00480 B	0.00350 U	0.00350 U	0.00350 U	0.00350 U	0.00350 U	NA	0.00410 B	0.00350 U	0.00350 U	NA	0.00350 U	0.00350 U	0.00350 U	0.00350 U	0.00350 U	0.00350 U	NA	NA	NA	NA	NA	NA	0.00410 B	0.00350 U	0.00350 U	0.00350 U	0.00350 U	0.00350 U
Mar-04	NA	NA	0.00280 U	NA	0.00330 U	NA	0.00540 B	NA	0.00280 U	NA	NA	0.00330 U	NA	0.00330 U	0.00330 U	0.00330 U	0.00330 U	0.00330 U	0.00330 U	NA	NA	NA	NA	NA	NA	0.00330 U	0.00330 U	0.00330 U	0.00330 U	0.00330 U	0.00330 U
Jun-05	0.01040	NA	0.00530 B	NA	0.01270	NA	0.00290 U	NA	NA	0.00510 B	NA	0.00290 U	NA	0.00290 U	0.00460 B,N	0.00460 B,N	0.00290 U	0.00290 U	0.00290 U	NA	NA	NA	NA	NA	NA	0.00290 U	0.00290 U	0.00290 N	0.00290 U	0.00290 U	0.00290 U
Sep-06	0.02000	NA	0.01600	NA	0.01600	NA	0.02400	NA	0.00780 J	NA	NA	0.00760 J	NA	0.00980 J	0.01200	0.00940 J	0.01000 U	0.01000 U	0.01000 U	NA	NA	NA	NA	NA	NA	0.01000 U	0.00880 J	0.00760 J	0.01000 U	0.01000 U	0.01000 U
Oct-07	0.00990 J	NA	0.01000 U	NA	0.01000 U	NA	0.01000 U	NA	0.01000 U	NA	NA	0.01000 U	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	NA	NA	NA	NA	NA	NA	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U	0.01000 U
Mar-09	0.02000 U	NA	0.02000 U	NA	0.04000 U	NA	0.02000 U	NA	0.02000 U	NA	NA	0.02000 U	NA	0.02000 U	0.02000 U	0.02000 U	0.02000 U	0.02000 U	0.02000 U	NA	NA	NA	NA	NA	NA	0.02000 U	0.02000 U	0.02000 U	NA	0.01000 U	0.02000 U
May-10	0.00050 U	NA	0.00050 U	NA	0.00050 J	NA	0.00050 J	NA	0.00250 U	NA	NA	0.00050 U	NA	0.00050 U	0.00050 J	0.00050 J	0.00050 U	0.00050 U	0.00050 U	NA	NA	NA	NA	NA	NA	0.00050 U	0.00050 U	0.00050 U	NA	0.00050 U	0.00050 U
Sep-11	0.00020 J	0.00018 J	0.00003 J	0.00011 J	0.00001 J	0.00047 J	0.00014 J	NA	0.00032 J	0.00002 J	0.00018 J	0.00020 J	NA	0.00050 U	0.00028 J	0.00030 J	0.00019 J	0.00060 J	0.00028 J	NA	NA	NA	NA	NA	NA	0.00031 J	0.00022 J	0.00029 J	0.00026 J	NA	NA
Nov-12	0.00013 J	NA	0.00004 J	NA	0.00050 U	NA	0.00005 J	NA	0.00044 J	NA	NA	0.00021 J	NA	0.00050 U	0.00050 U	0.00050 U	0.00001 J	0.00050 U	0.00050 U	NA	NA	NA	NA	NA	NA	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	NA
Mar-14	0.00010 J	NA	0.00004 J	NA	0.00002 J	NA	0.00004	NA	0.00039 J	NA	NA	0.00025 J	NA	ND	ND	ND	0.00002 J	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00050 U	0.00050 U	0.00050 U	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	0.00006 J	NA	0.00010 U	NA	0.00010 U	NA	0.00010 U	NA	0.00010 U	NA	NA	0.00010 U	NA	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	NA	NA	NA	0.00003 U	0.00003 U	0.00003 U	0.00003 U	0.00006 J	0.00003 U
Jan-17	0.00010 U	NA	0.00010 U	NA	0.00010 U	NA	0.00010 U	NA	NA	NA	NA	0.00010 U	NA	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	0.00010 U	
May-18	0.00050 U	NA	0.00050 U	NA	0.00050 U	NA	0.00050 U	NA	NA	NA	NA	0.00050 U	NA	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	0.00050 U	
Jul-19	0.00014 U	NA	0.00014 U	NA	0.00014 U	NA	0.00014 U	NA	NA	NA	NA	0.00014 U	NA	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00037 J	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	
Oct-20	0.01500 J	NA	0.00300 U	NA	0.00500 J	NA	0.00300 U	NA	NA	NA	NA	0.00400 J	NA	0.00045 J	0.00034 J	0.00021 J	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00027 J	0.00016 J	0.00014 U	0.00021 J	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	
Jan-22	0.00014 U	NA	0.00014 U	NA	0.00014 U	NA	0.00014 U	NA	NA	NA	NA	0.00017 J	NA	0.00029 J	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 J	0.00014 U	NA	0.00010 U	0.00010 U	0.00014 U	0.00014 U	0.00016 J	
May-23	0.00014 U	NA	0.00014 U	NA	0.00014 U	NA	0.00014 U	NA	NA	NA	NA	0.00014 U	NA	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00010 U	0.00010 U	0.00010 U	0.00014 U	0.00014 U	

Notes:

ARAR Standard = 0.0005 mg/L; USEPA MCL = .002 mg/L; and, Part 5 MCL = .002 mg/L.

ARAR = Applicable or Relevant and Appropriate Requirement: NYSDEC T.O.G.S. 1.1.1 Ambient Water-Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 2004).

MCL = Maximum Contaminant Level: USEPA National Primary Drinking Water Regulations.

Values in **BOLD** indicate the reported concentration is greater than the ARAR for the groundwater monitoring wells or MCL for the private and municipal drinking water wells water quality standard.

NA = Not Analyzed

Laboratory Qualifier Definitions

ND or U = Not Detected

B = The analyte was detected above the reporting limit in the associated method blank.

D14 = Dilution required due to high concentration of dissolved solids known to cause failure of routine quality control. Analytical method recommends a five-fold dilution for samples that contain greater than 2,000 mg/L of total solids.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

Table 19
Summary of Historical Groundwater Quality Results - Thallium (mg/L)
Town of Ramapo Landfill

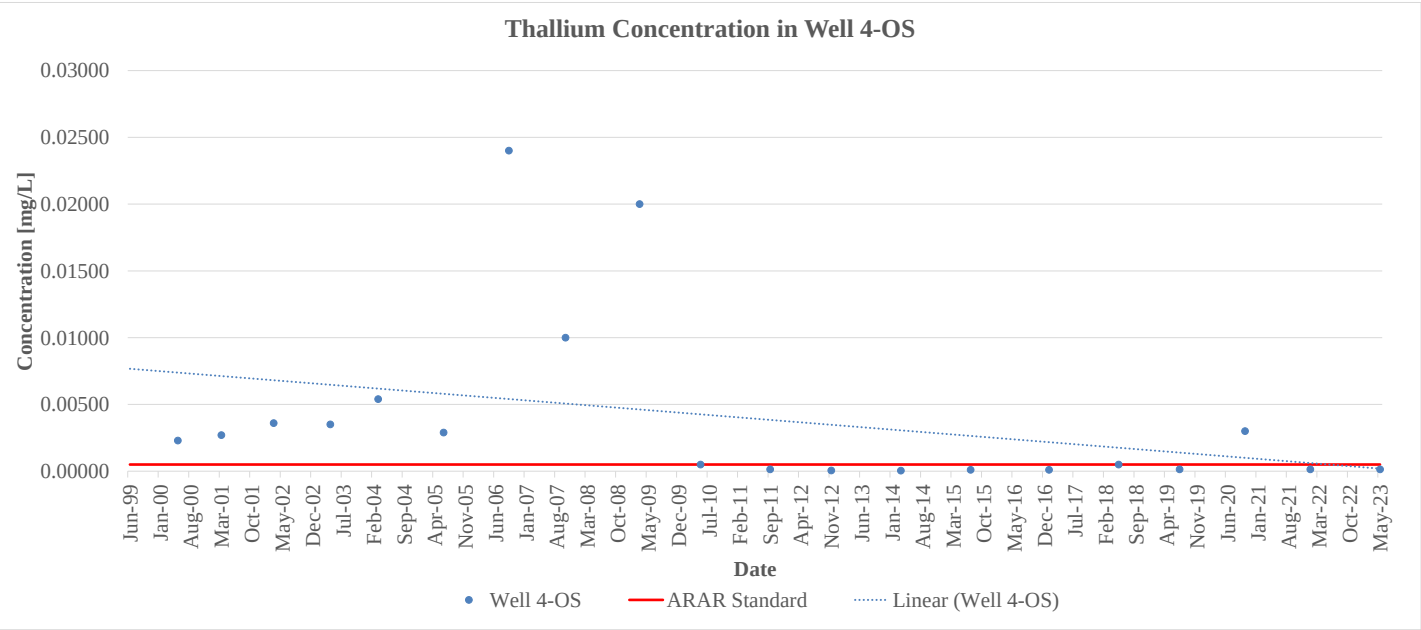
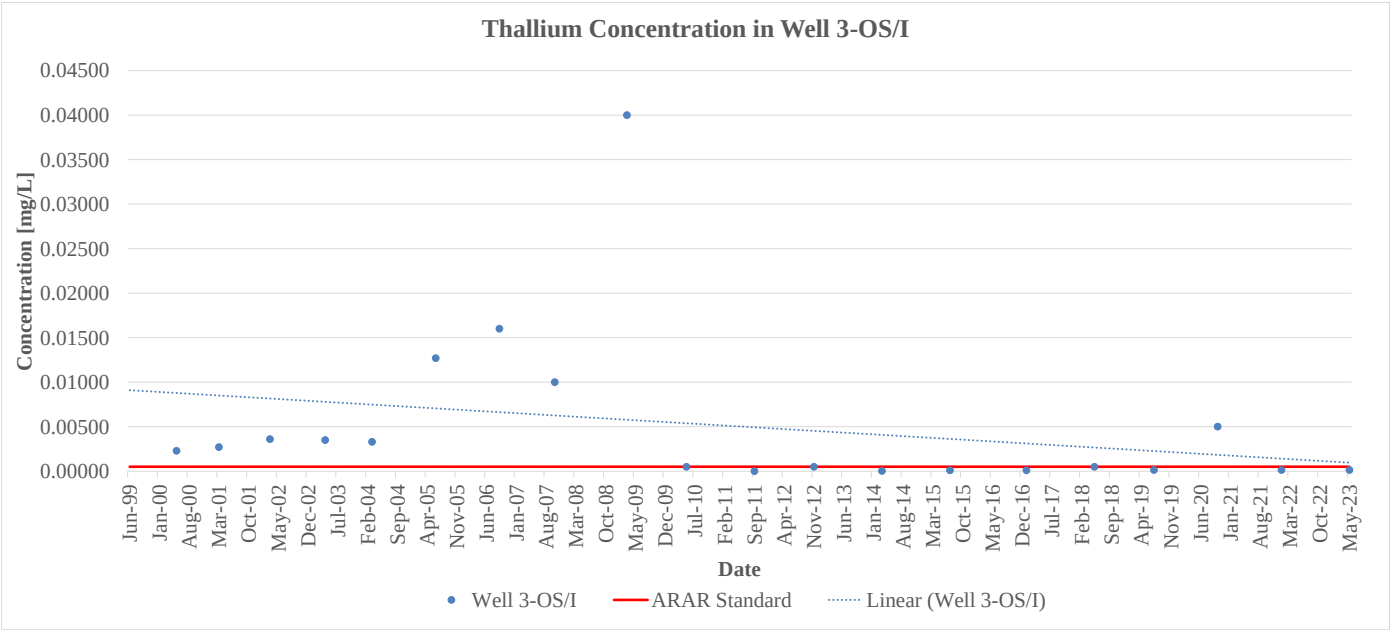
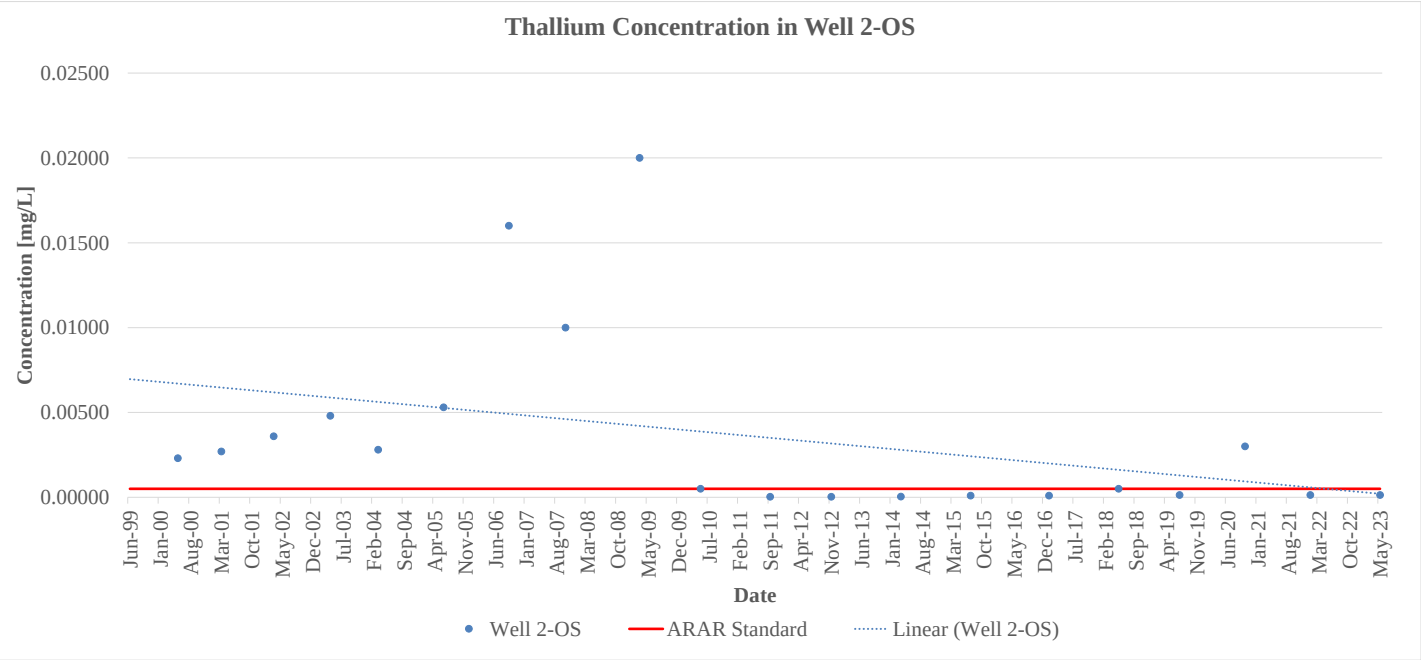
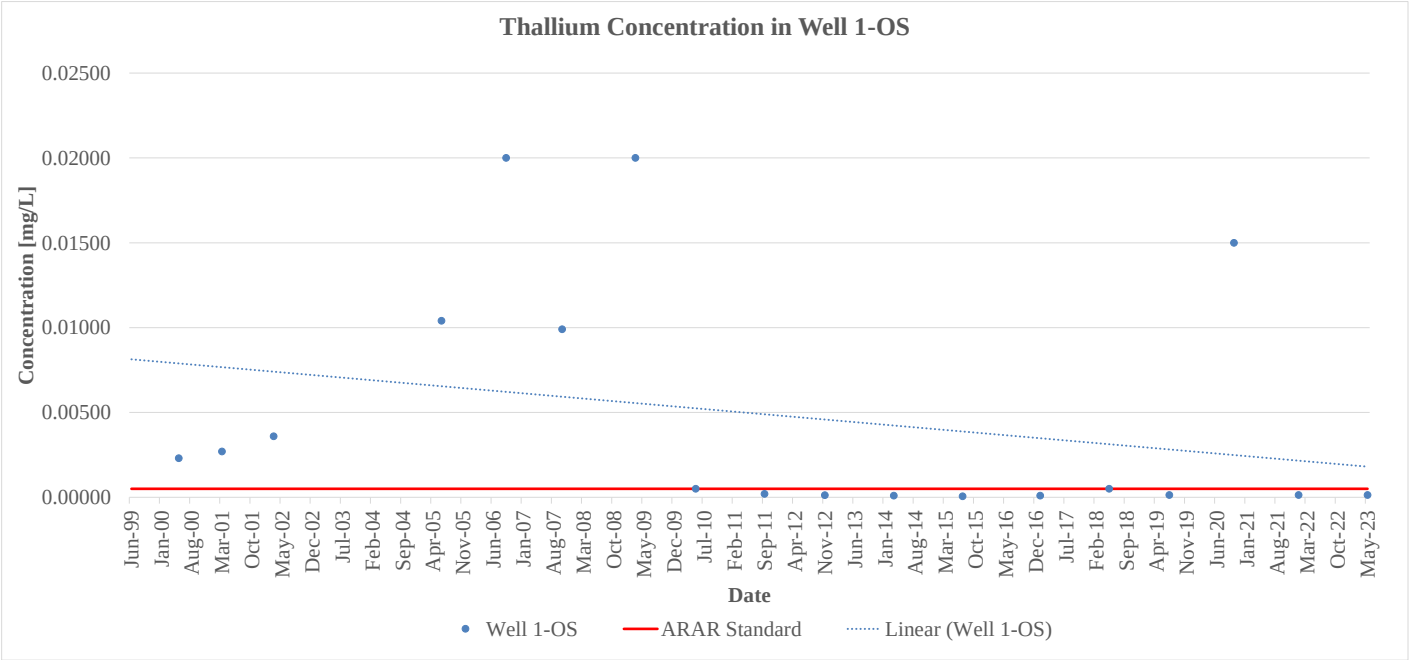


Table 19
Summary of Historical Groundwater Quality Results - Thallium (mg/L)
Town of Ramapo Landfill

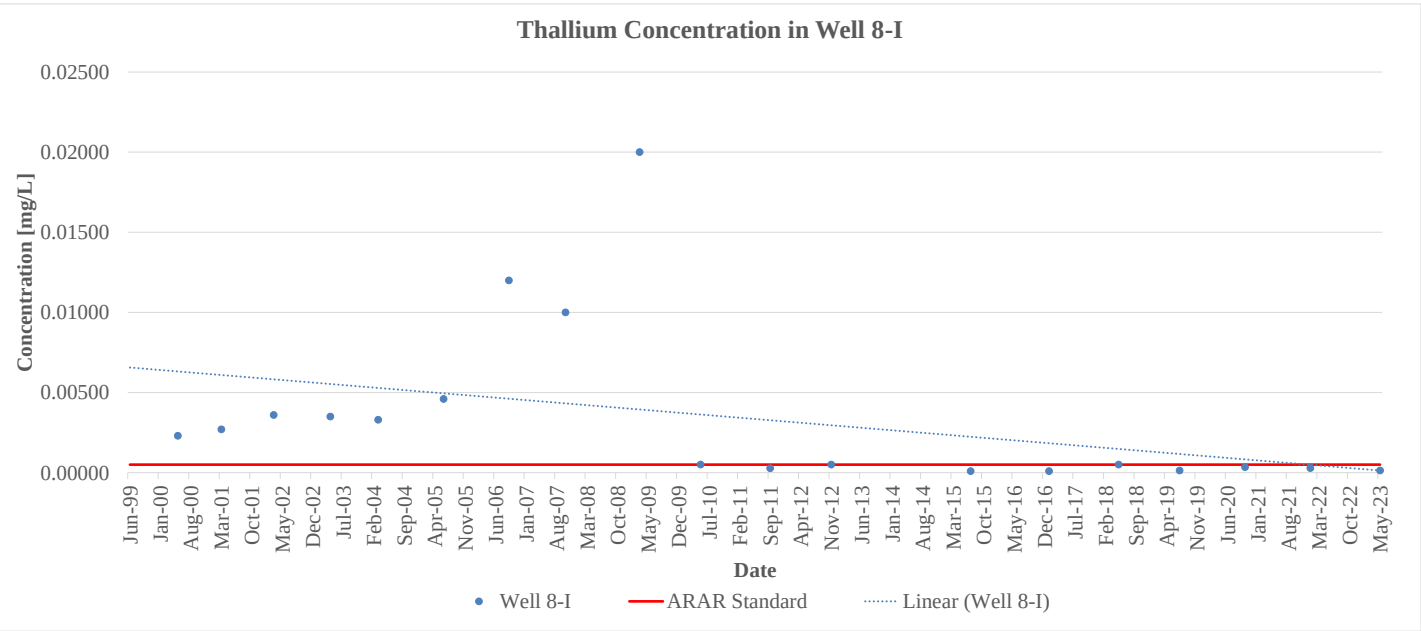
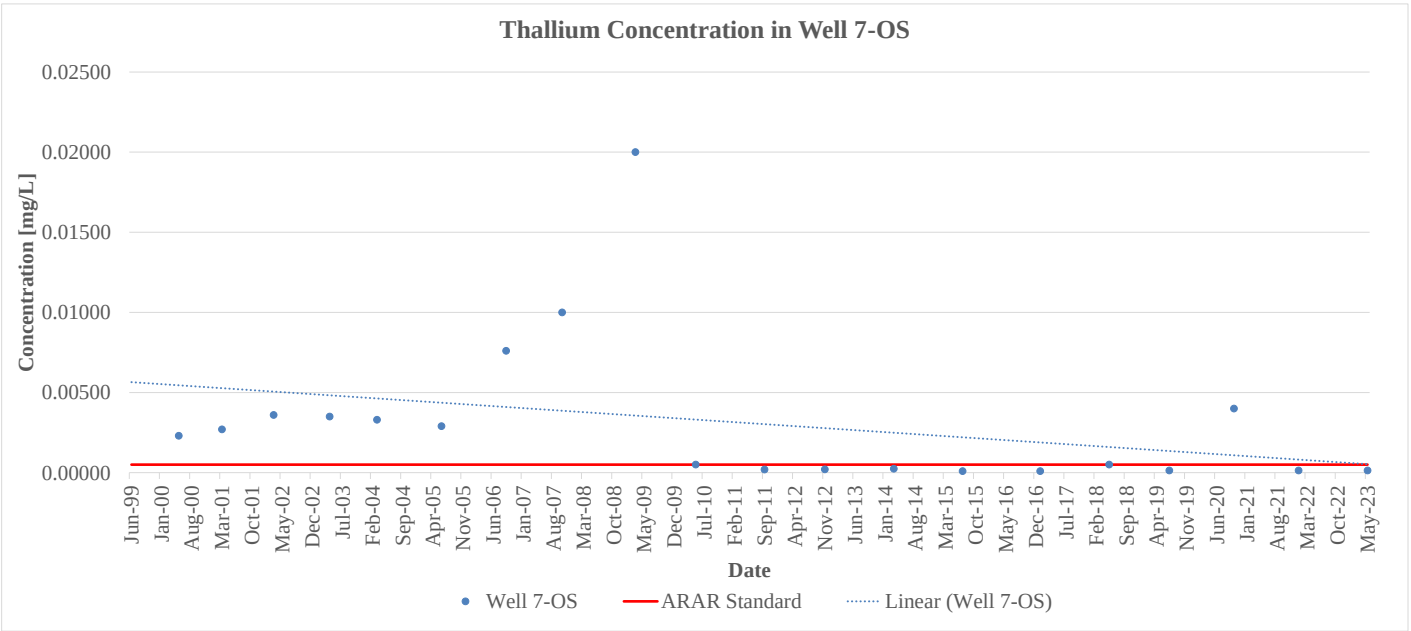
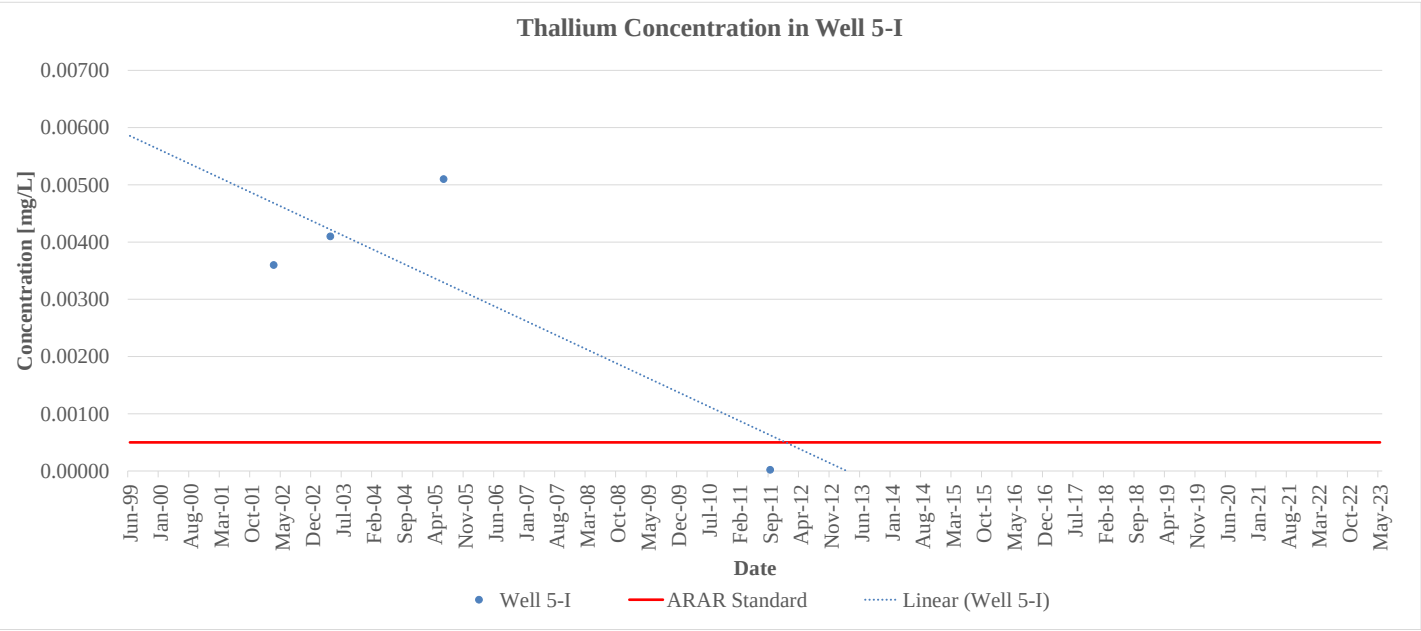
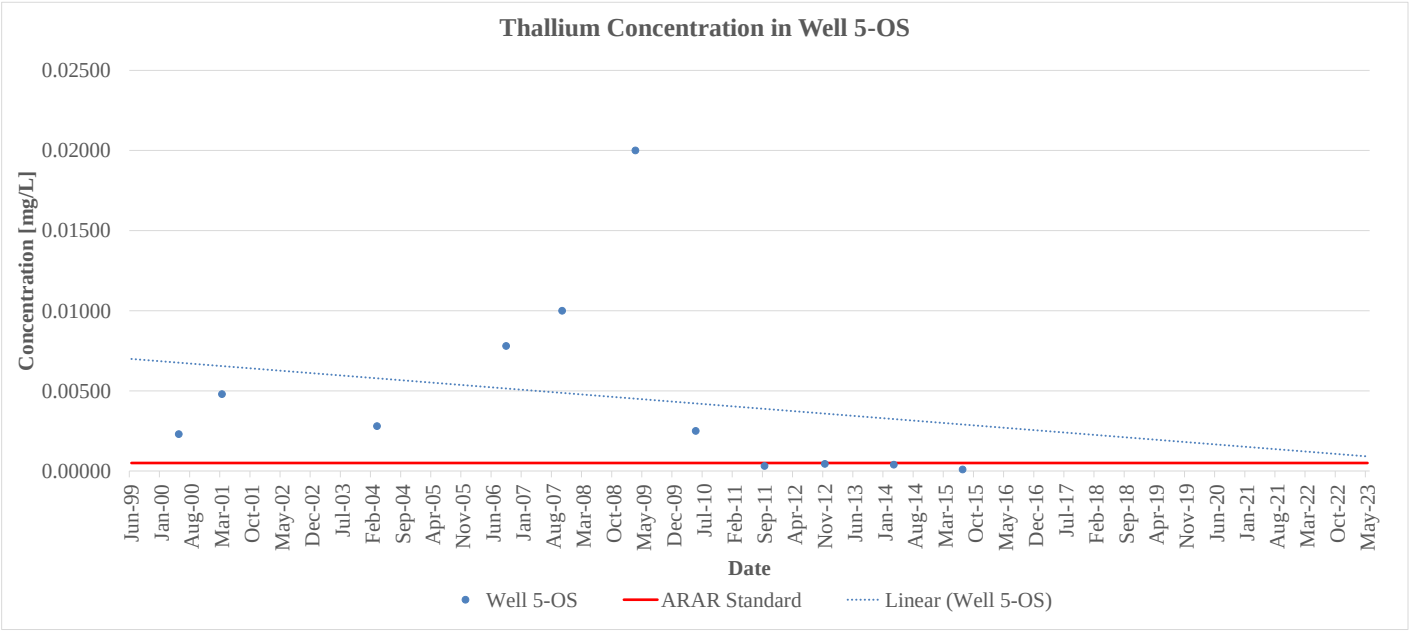


Table 19
Summary of Historical Groundwater Quality Results - Thallium (mg/L)
Town of Ramapo Landfill

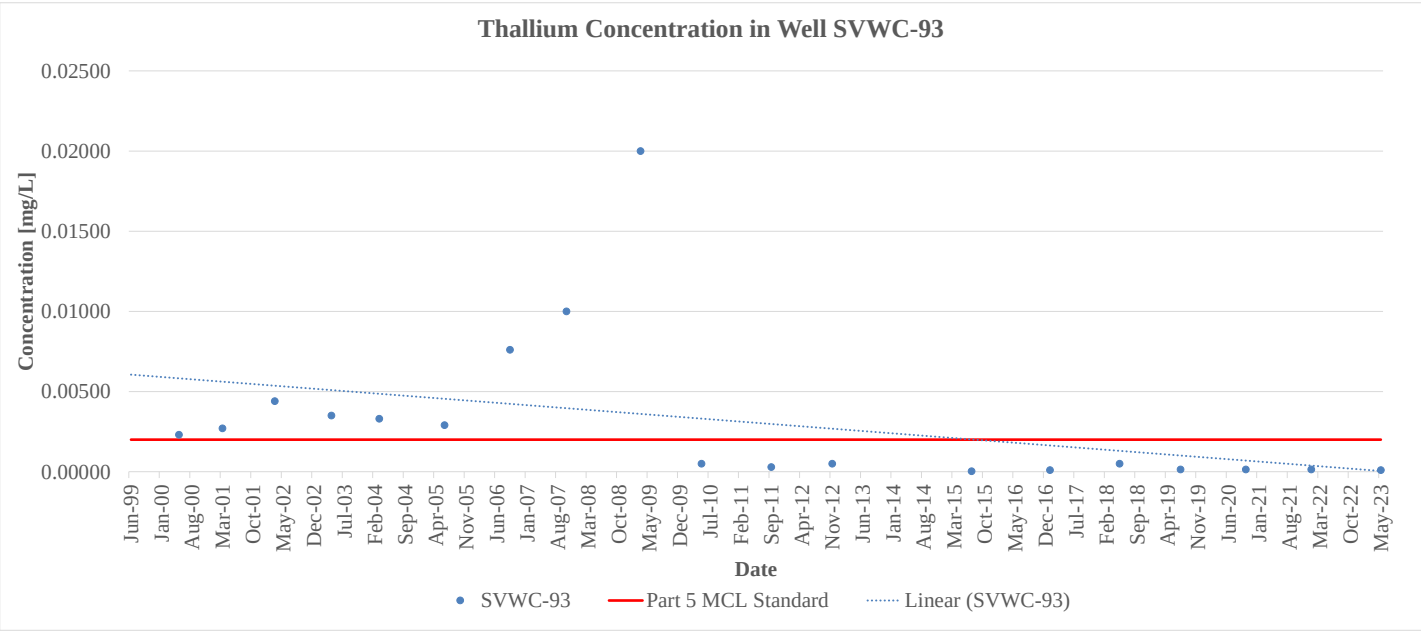
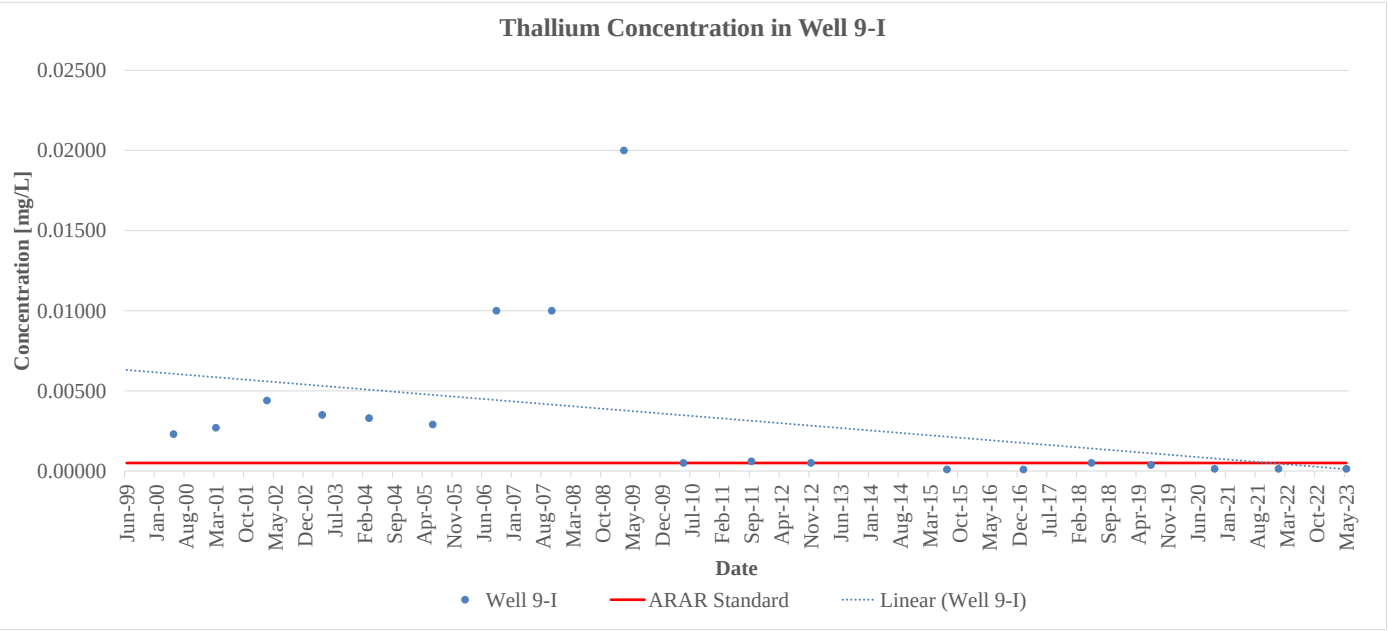
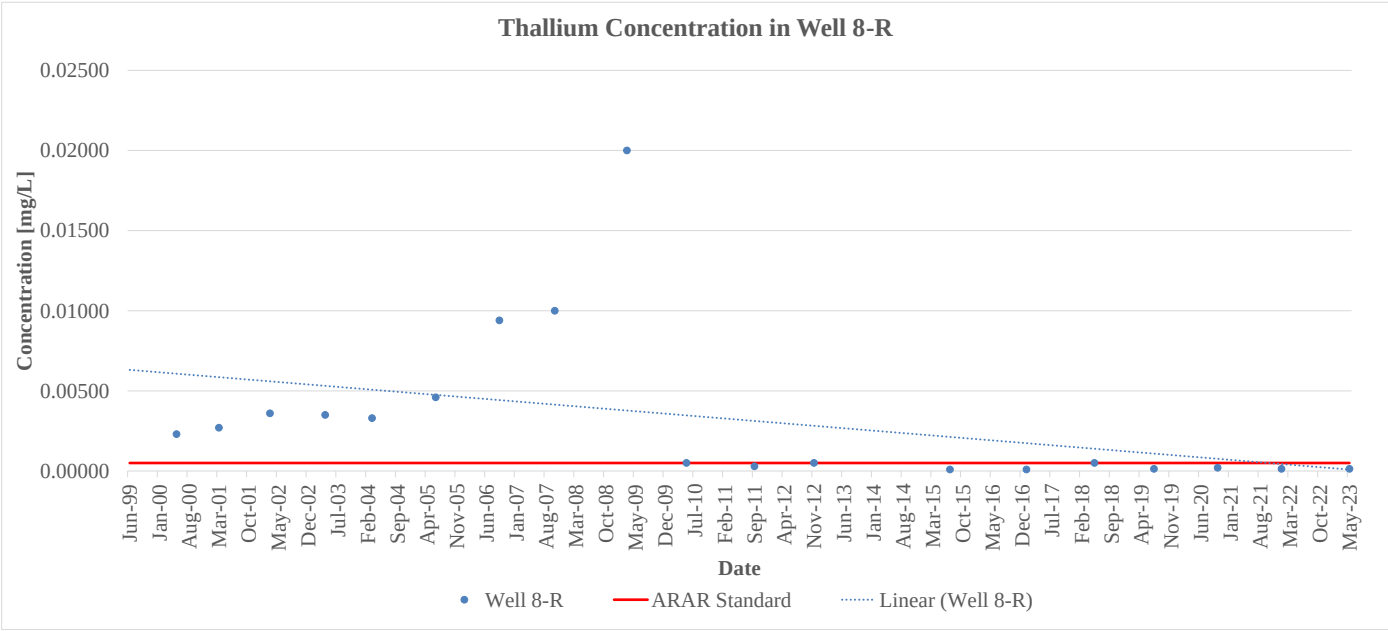


TABLE 20

**Volume of Leachate/Groundwater Pumped from Landfill Extraction Wells to RCSD #1 POTW
Town of Ramapo Landfill, Hillburn, New York**

Year	Gallons
1995	20,553,200
1996	21,851,062
1997 ⁽¹⁾	22,888,055
1998 ⁽¹⁾	22,888,055
1999	7,280,848
2000	17,234,622
2001	12,328,217
2002	13,576,560
2003	18,415,267
2004	13,827,647
2005	18,285,355
2006	14,391,820
2007	11,671,388
2008	11,929,369
2009	13,692,046
2010	8,955,114
2011	9,763,081
2012	13,345,000
2013	18,202,000
2014	13,254,000
2015	14,591,000
2016	11,314,000
2017	17,811,125
2018	15,001,258
2019	14,079,593
2020	11,822,370
2021	13,366,682
2022	14,916,500
2023 ⁽²⁾	5,235,368

⁽¹⁾ Flow meter or totalizer did not function - no data available therefore values are based on previous records

⁽²⁾ 2023 total is for January 1, 2023 through April 30, 2023

Note: The volumes for 1997, 1998, and 2018 are estimated. No data was recorded in 1997 and 1998 due to malfunctioning equipment.

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

Analyte	Maximum Concentration	Units	8/20 & 21/09	01/13/10	5/19 & 20/10	1/26/11	7/20/11	3/14/12	5/17/12
pH		S.U.	---	---	---	---	6.8	6.8	6.8
Phosphorous (Total)	-	ppm	0.41	1.32	0.02 U	0.13	0.07	0.185	0.105
Chloride	-	ppm	160	180	130	200	257	123	92.6
Ammonia	-	ppm	520	340	1.8	1 U	2.3	0.645	0.821
BOD	-(1)	ppm	30	100	2	4	6	4	2
COD	-	ppm	161	576	35	43	55	52	20
Suspended Solids	-(2)	ppm	24	74	5	2	20	7	3
TKN	-	ppm	530	380	2.2	1 U	3.4	1.47	1.59
Total Dissolved Solids	-	ppm	2,300	950	480	720	1,500	504	312
O&G Non-Polar	25	ppm	1.4 U	1.4 U	1.4 U	5 U	0.6 U	6.30	---
Antimony	-	ppm	0.1	0.11	0.09	0.098	0.111	0.0792 B	0.0966 B
Arsenic	0.25	ppm	0.727	0.783	0.744	0.87	0.428	1.35	0.823
Beryllium	-	ppm	0.005 U	0.005 U	0.005 U	0.015 U	0.0036 J	0.002 U	0.002 U
Boron	1.0	ppm	0.004 U	0.007	0.004 U	0.01 U	0.0035 U	0.002	0.002
Cadmium	0.07	ppm	0.001 U	0.001 U	0.001 U	0.005 U	0.0008 U	0.001 U	0.000116 B
Chromium	0.6	ppm	0.001 U	0.001 U	0.001 U	0.002 U	0.0005 J	0.004 U	0.004 U
Copper	1.0	ppm	0.001 U	0.004	0.001 U	0.005 U	0.0039 J	0.011 U	0.016 B
Lead	1.0	ppm	0.018	0.085	0.002 U	0.025 U	0.158	0.015	0.024
Manganese	-	ppm	0.002 U	0.002 U	0.002 U	0.01 U	0.0028 U	0.044	0.015 U
Mercury	0.05	ppm	0.0002 U	0.008 U	0.0002 U	0.0002 U	0.00007 U	0.001 U	0.001 U
Molybdenum	0.14	ppm	0.003	0.01	0.002	0.005 U	0.0082	0.016 B	0.038
Nickel	1.0	ppm	0.001 U	0.001	0.001 U	0.01 U	0.0012 U	0.01 U	0.01 U
Selenium	0.1	ppm	0.005 U	0.025 U	0.005 U	0.005 U	0.0038	0.05 U	0.033 U
Silver	2.3	ppm	0.027	0.117	0.003	0.025 U	0.471	0.044	0.109
Thallium	-	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.0037 U	0.004	0.004
Zinc	3.0	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.0047 U	0.0024 B	0.0019 B
Cyanide Total	1.0	ppm	0.02	0.05 U	0.01 U	0.01 U	0.00498 U	0.01 U	0.01 U
Cyanide, Free	0.1	ppm	0.01	(3)	0.01 U	0.005	0.00468 U	---	---
Cyanide, Amenable	-	ppm	---	---	---	---	---	0.01 U	0.01 U
Phenol	2.25	ppm	0.03 U	0.015 U	0.015 U	0.015 U	0.015 U	0.05 U	0.05 U
USEPA Priority Pollutants (4)	-	ppm	0.06 U	0.06 U	0.06 U	0.0206 U	0.028 U	0.085 (5)	0.087 (5)

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

Analyte	Maximum Concentration	Units	8/22/12	7/25/13	1/23/14	05/15/14	07/10/14
pH		S.U.	6.5	8.2	7.7	7.1	7.3
Phosphorous (Total)	-	ppm	0.03 U	0.198	3.74	0.264	0.05 U
Chloride	-	ppm	90.8	148	4010	136	218
Ammonia	-	ppm	2.03	0.1 U	1260	0.1 U	0.1 U
BOD	_(¹)	ppm	2	1	39	2	9
COD	-	ppm	9	---	2600	30	56
Suspended Solids	_(²)	ppm	6	6	72	6	6
TKN	-	ppm	4.06	1.02	1500	0.64	1.03
Total Dissolved Solids	-	ppm	366	504	958	511	628
O&G Non-Polar	25	ppm	---	---	---	---	---
Antimony	-	ppm	0.0725 B	0.106	0.1	0.068	0.096
Arsenic	0.25	ppm	1,160	0.508	0.025 U	0.703	0.64
Beryllium	-	ppm	0.002 U	0.001	0.001 U	0.001	0.001 U
Boron	1.0	ppm	0.002	0.001 U	0.002	0.001	0.004
Cadmium	0.07	ppm	0.000106 B	0.001 U	0.001 U	0.001 U	0.001 U
Chromium	0.6	ppm	0.008	0.004 U	0.004 U	0.004 U	0.004 U
Copper	1.0	ppm	0.011 U	0.025 U	0.011 U	0.011 U	0.011 U
Lead	1.0	ppm	0.01 U	0.010 U	0.067	0.01 U	0.01 U
Manganese	-	ppm	0.032 B	0.016 U	0.016 U	0.038 B	0.027 B
Mercury	0.05	ppm	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Molybdenum	0.14	ppm	0.01 U	0.025 U	0.025 U	0.074	0.025 U
Nickel	1.0	ppm	0.01 U	0.010 U	0.01 U	0.01 U	0.01 U
Selenium	0.1	ppm	0.033 U	0.033 U	0.039 B	0.075	0.05 U
Silver	2.3	ppm	0.023	0.015	0.093	0.01 U	0.043
Thallium	-	ppm	0.001 U	0.002	0.001	0.002	0.003
Zinc	3.0	ppm	0.0027 B	0.00240 B	0.05 U	0.05	0.05 U
Cyanide Total	1.0	ppm	0.01 U	0.01 U	0.057	0.01 U	0.01 U
Cyanide, Free	0.1	ppm	---	---	---	---	---
Cyanide, Amenable	-	ppm	0.010 U	0.01 U	0.010 U	0.01 U	0.01 U
Phenol	2.25	ppm	0.05 U	0.01 U	0.067	0.05 U	0.01 U
USEPA Priority Pollutants ⁽⁴⁾	-	ppm	0.089 ⁽⁵⁾	0.57 J	0.0197 J	0.00948 J	0.03611 J

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

Analyte	Maximum Concentration	Units	01/14/15	04/16/15	07/08/15	02/24/16	06/08/16	09/21/16	05/17/17
pH		S.U.	7.6	7.5	7.3	7.2	8.2	7.2	7.3
Phosphorous (Total)	-	ppm	0.05 U	0.05 U	0.054	0.05 U	0.601	0.238	0.894
Chloride	-	ppm	97.4	263	201	267	165	294	194
Ammonia	-	ppm	0.7	0.1 U	0.128	0.422	0.1 U	1.72	0.1 U
BOD	_(¹)	ppm	12	3	4	3	2	12	13
COD	-	ppm	47	27	110	62	30	42	76
Suspended Solids	_(²)	ppm	4	5	7	16	4	4	18
TKN	-	ppm	2.25	0.35	0.35	1.61	0.41	3.23	2.82
Total Dissolved Solids	-	ppm	322	694	740	756	624	976	594
O&G Non-Polar	25	ppm	---	---	---	---	5 U	5 U	5 U
Antimony	-	ppm	0.05 U	0.08	0.08	0.05	0.08	0.11	0.001 U
Arsenic	0.25	ppm	0.572	0.261	0.575	4.73	0.395	0.211	0.002 U
Beryllium	-	ppm	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002	0.001 U
Boron	1.0	ppm	0.001 U	0.001 U	0.003	0.009	0.001 U	0.001 U	0.10
Cadmium	0.07	ppm	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.003	0.01
Chromium	0.6	ppm	0.004 U	0.004 U	0.004 U	0.009	0.003 B	0.009	0.011 U
Copper	1.0	ppm	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.023
Lead	1.0	ppm	0.01 U	0.01 U	0.01 U	0.023	0.01 U	0.01 U	0.074
Manganese	-	ppm	0.058	0.059	0.028 B	0.063	0.03 B	0.094	0.542
Mercury	0.05	ppm	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Molybdenum	0.14	ppm	0.031	0.047	0.025 U	0.059	0.061	0.07	0.003 U
Nickel	1.0	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.055
Selenium	0.1	ppm	0.05 U	0.053	0.061	0.042 B	0.05 U	0.05 U	0.001 U
Silver	2.3	ppm	0.044	0.011	0.01 U	0.051	0.01	0.01 U	0.01 U
Thallium	-	ppm	0.001 U	0.004	0.001	0.002	0.001 U	0.001 U	0.033 U
Zinc	3.0	ppm	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.059
Cyanide Total	1.0	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cyanide, Free	0.1	ppm	---	---	---	---	---	---	0.01 U
Cyanide, Amenable	-	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Phenol	2.25	ppm	0.01 U	0.016 B	0.016 B	0.019 B	0.01 U	0.029 B	0.01 U
USEPA Priority Pollutants ⁽⁴⁾	-	ppm	0.00701 J	0.00887 J	0.01294 J	0.00835 J	0.01653 J	0.00781	0.00176 J

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

Analyte	Maximum Concentration	Units	09/20/17	11/29/17	04/25/18	07/25/18
pH		S.U.	6.8	6.4	6.5	6.8
Phosphorous (Total)	-	ppm	1.73	0.862	0.106	1.05
Chloride	-	ppm	177	201	180	70.1
Ammonia	-	ppm	5.24	2.07	0.21	0.22
BOD	_(¹)	ppm	3	3	7	24
COD	-	ppm	41	88	86	300
Suspended Solids	_(²)	ppm	12	4	13	14
TKN	-	ppm	79.5	2.49	0.61	1.02
Total Dissolved Solids	-	ppm	567	660	631	360
O&G Non-Polar	25	ppm	5 U	1.7 U	5 U	1.5 U
Antimony	-	ppm	0.001 U	0.003 U	0.003 U	0.003 U
Arsenic	0.25	ppm	0.003	0.002	0.002 U	0.002 U
Beryllium	-	ppm	0.001 U	0.001 U	0.001 U	0.001 U
Boron	1.0	ppm	0.11	0.11	0.09	0.1
Cadmium	0.07	ppm	0.005	0.003 B	0.001 U	0.001 U
Chromium	0.6	ppm	0.011 U	0.011 U	0.011 U	0.011 U
Copper	1.0	ppm	0.019	0.01 U	0.01 U	0.013
Lead	1.0	ppm	0.067	0.068	0.016 U	0.016 U
Manganese	-	ppm	0.943	0.656	0.411	0.226
Mercury	0.05	ppm	0.001 U	0.001 U	0.001 U	0.001 U
Molybdenum	0.14	ppm	0.003 U	0.003 U	0.003 U	0.003 U
Nickel	1.0	ppm	0.051	0.01 U	0.01 U	0.01 U
Selenium	0.1	ppm	0.001 U	0.005 U	0.005 U	0.005 U
Silver	2.3	ppm	0.01 U	0.01 U	0.01 U	0.01 U
Thallium	-	ppm	0.033 U	0.033 U	0.033 U	0.033 U
Zinc	3.0	ppm	0.052	0.036 U	0.01 U	0.16
Cyanide Total	1.0	ppm	0.01 U	0.01 U	0.005 U	0.005 U
Cyanide, Free	0.1	ppm	0.01 U	0.05 U	---	---
Cyanide, Amenable	-	ppm	0.01 U	---	0.01 U	0.010 U
Phenol	2.25	ppm	0.01 U	0.015 U	0.015 U	0.063
USEPA Priority Pollutants ⁽⁴⁾	-	ppm	0.001442 J	0.00739 J	0.00266 J	ND

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

Analyte	Maximum Concentration	Units	10/17/18	05/15/19	09/18/19	02/19/20	10/07/20	04/14/21
pH		S.U.	7.2	6.4	6.9	6.45	6.16	6.77
Phosphorous (Total)	-	ppm	0.546	3.92	0.351	0.85	0.021	0.059
Chloride	-	ppm	163	123	311	161	133	118
Ammonia	-	ppm	2.27	0.28	0.06	0.17	1.1	1.21
BOD	_(¹)	ppm	15	2	1	1.5	4	5
COD	-	ppm	39	35	41	32	32	22
Suspended Solids	_(²)	ppm	19	2	1.0 U	1.0 U	2	3
TKN	-	ppm	2.84	0.48	0.21	0.37	1.54	1.30
Total Dissolved Solids	-	ppm	590	470	890	540	767	517
O&G Non-Polar	25	ppm	1.7 U	1.9 U	4.0 U	4.0 U	5.1 U	5 U
Antimony	-	ppm	0.003 U	0.003 U	0.003 U	0.02 U	0.002 U	0.002 U
Arsenic	0.25	ppm	0.002 U	0.002 U	0.002 U	0.01 U	0.002 U	0.002 U
Beryllium	-	ppm	0.001 U	0.001 U	0.001 U	0.004 U	0.001 U	0.001 U
Boron	1.0	ppm	0.03 U	0.09	0.12	0.22	0.221	0.105
Cadmium	0.07	ppm	0.001 U	0.009	0.001 U	0.002 U	0.002 U	0.002 U
Chromium	0.6	ppm	0.011 U	0.011 U	0.011 U	0.005 U	0.01 U	0.01 U
Copper	1.0	ppm	0.032	0.01 U	0.01 U	0.01 U	0.0137	0.0116
Lead	1.0	ppm	0.016 U	0.016 U	0.016 U	0.0082	0.002 U	0.002 U
Manganese	-	ppm	1.31	0.383	0.08	0.27	0.384	0.342
Mercury	0.05	ppm	0.001 U	0.001 U	0.001 U	0.0002 U	0.0005 U	0.0005 U
Molybdenum	0.14	ppm	0.003 U	0.003 U	0.003 U	0.02 U	0.002 U	0.002 U
Nickel	1.0	ppm	0.01 U	0.01 U	0.087	0.02 U	0.00333	0.00344
Selenium	0.1	ppm	0.005 U	0.005 U	0.005 U	0.02 U	0.006 U	0.006 U
Silver	2.3	ppm	0.01 U	0.01 U	0.01 U	0.004 U	0.002 U	0.002 U
Thallium	-	ppm	0.033 U	0.033 U	0.033 U	0.02 U	0.002 U	0.002 U
Zinc	3.0	ppm	0.04	0.019	0.01 U	0.02 U	0.03 U	0.003 U
Cyanide Total	1.0	ppm	0.01 U	0.002 U	0.013	0.01 U	0.01 U	0.01 U
Cyanide, Free	0.1	ppm	---	---	---	---	---	---
Cyanide, Amenable	-	ppm	0.010 U	0.005 U	0.012	0.01 U	0.01 U	0.01 U
Phenol	2.25	ppm	0.015 U	0.015 U	0.015 U	0.015 U	0.05 U	0.05 U
USEPA Priority Pollutants ⁽⁴⁾	-	ppm	ND	0.00615 J	0.00858 J	ND	0.00703	ND

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

Analyte	Maximum Concentration	Units	07/21/21	10/20/21	05/19/22	08/24/22	10/12/22	04/13/23
pH		S.U.	6.54	7.33	6.9	7.51	8.07	7.49
Phosphorous (Total)	-	ppm	0.020	0.076	0.120	0.082	0.135	0.232
Chloride	-	ppm	165	160	141	208	219	187
Ammonia	-	ppm	0.706	1.33	1.04	1.34	1.83	1.58
BOD	_(¹)	ppm	6	4	17	22	4	6
COD	-	ppm	21	36	53	141	54	46
Suspended Solids	_(²)	ppm	2	4	3 U	6	5	6
TKN	-	ppm	0.828	1.36	2.9	4.42	4.82	4.66
Total Dissolved Solids	-	ppm	530	552	752	722	78.4	684
O&G Non-Polar	25	ppm	5 U	5 U	5 U	5 U	5 U	5 U
Antimony	-	ppm	0.002 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Arsenic	0.25	ppm	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Beryllium	-	ppm	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Boron	1.0	ppm	0.126	0.14	0.169	0.155	0.156	0.147
Cadmium	0.07	ppm	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Chromium	0.6	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Copper	1.0	ppm	0.0972	0.00745	0.00801	0.078	0.00873 *	0.091 *
Lead	1.0	ppm	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Manganese	-	ppm	0.00204	0.434	0.259	0.186	0.133	0.217
Mercury	0.05	ppm	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0005 U	0.0002 U
Molybdenum	0.14	ppm	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Nickel	1.0	ppm	0.002 U	0.00284	0.002 U	0.00342	0.002 U	0.00378
Selenium	0.1	ppm	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U
Silver	2.3	ppm	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Thallium	-	ppm	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Zinc	3.0	ppm	0.334	0.0346	0.03 U	0.117	0.03 U	0.13
Cyanide Total	1.0	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Cyanide, Free	0.1	ppm	---	---	---	---	---	---
Cyanide, Amenable	-	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
Phenol	2.25	ppm	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
USEPA Priority Pollutants ⁽⁴⁾	-	ppm	0.00371 J	0.00141 J	0.003913	0.00151	0.00245	0.00395

Table 21
Summary of Historical Leachate/Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location: Manhole Immediately Upstream of Wet Well

7 of 7

Notes:

- = No maximum concentration is provided.

--- = Not sampled for.

B = The analyte was detected above the reporting limit in the associated method blank.

J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

U = Reported at concentration less than indicated reporting limit.

(1) A surcharge will apply if BOD is > 250 ppm

(2) A surcharge will apply if Suspended Solids is > 300 ppm

(3) Could not report free Cyanide due to matrix interference

(4) Excluding metals, Phenol and Cyanides

(5) Does not include : Acrolein, Acrylonitrile, Benzidine, Parachlorometa cresol, 1, 2-diphenylhydrazine, 4-chlorophenyl phenyl ether, 4-bromophenyl phenyl ether, Methyl chloride, Methyl bromide, 4, 6 -dinitro-o-cresol

ND = Not Detected.

* = Concentration is partially illegible on laboratory report and is assumed.

APPENDIX A

INSPECTION CHECKLIST AND INSTITUTIONAL AND ENGINEERING CONTROLS EVALUATION FORM

Inspection Checklist and Institutional and Engineering Controls Evaluation Form
Town of Ramapo Landfill
250 Torne Valley Road, Hillburn, New York

Date: 5/5/2023

Inspected By: Paul Scholar and Amanda Castignetti – Sterling Environmental Engineering, P.C.

Landfill Property Item	Condition: (Check applicable items)			Remarks
	Acceptable	Not Acceptable	Not Present	
1. Vegetative Cover	X			Good condition – No problems noted.
2. Surface Water Drainage Structures (Swales, Downchutes, Channels, Plunge Pools, Outfalls to Torne Brook).	X			Good condition – No problems noted.
a. Sediment Build-Up in Drainage Structures	X			Good condition – No problems noted.
b. Pooling or Ponding	X			Three (3) plunge pools (Plunge Pool No.'s 1, 2 and 3) are part of the drainage system but are not on the Landfill cover (see Figure 4).
c. Slope Integrity	X			Good condition – No problems noted.
d. Overall Adequacy	X			
e. Concrete Lining	X			
f. Gabion Lining	X			
g. Corrugated Metal Pipe (CMP) Lining	X			
3. Access Road	X			Good condition – No problems noted.
4. Landfill Cover System	X			
a. Erosion Damage	X			
b. Leachate Seeps			X	
c. Settlement			X	
d. Stone Aprons	X			

Landfill Property Item	Condition: (Check applicable items)			Remarks
	Acceptable	Not Acceptable	Not Present	
5. Gabion Retaining Walls	X			Good condition - No problems noted.
a. Structural	X			
b. Drainage Media Behind Wall	X			
6. Fence and Gates	X			Good condition - No problems noted.
7. Slope Stability	X			Good condition - No problems noted.
a. Landfill	X			
b. Mountain Side	X			
8. Gas Vents		X		Three (3) damaged gas vents and two (2) angled gas vents (see Photographs 4, 5, 7, 8 and 10) were observed across the Landfill.
a. Are Openings Unobstructed?	X			
b. Pipe Condition	X			
9. Burrow Holes			X	No active burrow holes were observed.

Other	Yes	No
Obtain Groundwater Extraction Well Operation Period Records and Maintenance Records for Current Year	X	

Comments:

Damaged concrete collar for manhole cover for leachate collection system observed at MH E-6 (see Photograph 2).

APPENDIX B

**NYSDEC INSTITUTIONAL AND ENGINEERING CONTROLS
CERTIFICATION FORM**

Site Details

Site No. 344004

Box 1

Site Name Ramapo Town Landfill

Site Address: Torne Valley Road Zip Code: 10901
City/Town: Ramapo
County: Rockland
Site Acreage: 80.000

Reporting Period: May 15, 2020 to May 15, 2023

YES NO

1.	Is the information above correct?	☒	☐
	If NO, include handwritten above or on a separate sheet.		
2.	Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☒
3.	Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☒
4.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☒

If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.

5. Is the site currently undergoing development? ☐ ☒

Box 2

YES NO

6. Is the current site use consistent with the use(s) listed below? ☒ ☐
Commercial and Industrial
7. Are all ICs in place and functioning as designed? ☒ ☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date _____

Description of Institutional ControlsParcelOwnerInstitutional Control**39.19-1-3**

Town of Ramapo

Soil Management Plan

Landuse Restriction
 Monitoring Plan
 Ground Water Use Restriction
 Site Management Plan
 O&M Plan
 IC/EC Plan

Land use is restricted to commercial/industrial.

Groundwater use is restricted.

39.19-1-3.1

Rockland County Sewer District No. 1

Ground Water Use Restriction
 Site Management Plan

Groundwater Wells for drinking water shall not be used or installed on any portion of the Ramapo Landfill Site

39.19-1-4

Rockland County Solid Waste Mgmt Auth.

Site Management Plan
 Ground Water Use Restriction

Groiundwater wells for drinking water shall not be installed or used on any portion of the Ramapo Landfill Site

39.19-1-5

Rockland County Solid waste Mgmt Auth

Ground Water Use Restriction
 Site Management Plan

Groundwater wells for drinking water shall not be installed or used on any portion of the Ramapo Landfill Site.

Description of Engineering ControlsParcelEngineering Control**39.19-1-3**

Cover System
 Leachate Collection
 Fencing/Access Control
 Groundwater Containment

Leachate Collection System

Landfill Cover and Gas Venting

Groundwater Containment System (including extraction wells)

Fencing around the capped area

Monitoring Well Network

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and complete.

YES NO

☒ ☐

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

(a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES NO

☒ ☐

**IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and
DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.**

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 344004

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1, 2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Michael J. Sadowski at 237 Route 59, Suffern, NY 10901
print name print business address

am certifying as Deputy Director Dept. of Public Works (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Michael J. Sadowski
Signature of Owner, Remedial Party, or Designated Representative
Rendering Certification

6/12/23
Date

EC CERTIFICATIONS

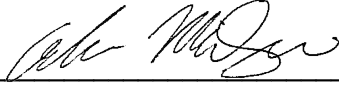
Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Andrew Millspaugh at 24 Wade Road, Latham, NY 12110,
print name print business address

am certifying as a Professional Engineer for the Owner
(Owner or Remedial Party)


Signature of Professional Engineer, for the Owner or
Remedial Party, Rendering Certification



Stamp
(Required for PE)

06/12/2023
Date

Enclosure 3
Periodic Review Report (PRR) General Guidance

- I. Executive Summary: (1/2-page or less)
 - A. Provide a brief summary of site, nature and extent of contamination, and remedial history.
 - B. Effectiveness of the Remedial Program - Provide overall conclusions regarding;
 - 1. progress made during the reporting period toward meeting the remedial objectives for the site
 - 2. the ultimate ability of the remedial program to achieve the remedial objectives for the site.
 - C. Compliance
 - 1. Identify any areas of non-compliance regarding the major elements of the Site Management Plan (SMP, i.e., the Institutional/Engineering Control (IC/EC) Plan, the Monitoring Plan, and the Operation & Maintenance (O&M) Plan).
 - 2. Propose steps to be taken and a schedule to correct any areas of non-compliance.
 - D. Recommendations
 - 1. recommend whether any changes to the SMP are needed
 - 2. recommend any changes to the frequency for submittal of PRRs (increase, decrease)
 - 3. recommend whether the requirements for discontinuing site management have been met.
- II. Site Overview (one page or less)
 - A. Describe the site location, boundaries (figure), significant features, surrounding area, and the nature and extent of contamination prior to site remediation.
 - B. Describe the chronology of the main features of the remedial program for the site, the components of the selected remedy, cleanup goals, site closure criteria, and any significant changes to the selected remedy that have been made since remedy selection.
- III. Evaluate Remedy Performance, Effectiveness, and Protectiveness
Using tables, graphs, charts and bulleted text to the extent practicable, describe the effectiveness of the remedy in achieving the remedial goals for the site. Base findings, recommendations, and conclusions on objective data. Evaluations and should be presented simply and concisely.
- IV. IC/EC Plan Compliance Report (if applicable)
 - A. IC/EC Requirements and Compliance
 - 1. Describe each control, its objective, and how performance of the control is evaluated.
 - 2. Summarize the status of each goal (whether it is fully in place and its effectiveness).
 - 3. Corrective Measures: describe steps proposed to address any deficiencies in ICECs.
 - 4. Conclusions and recommendations for changes.
 - B. IC/EC Certification
 - 1. The certification must be complete (even if there are IC/EC deficiencies), and certified by the appropriate party as set forth in a Department-approved certification form(s).
- V. Monitoring Plan Compliance Report (if applicable)
 - A. Components of the Monitoring Plan (tabular presentations preferred) - Describe the requirements of the monitoring plan by media (i.e., soil, groundwater, sediment, etc.) and by any remedial technologies being used at the site.
 - B. Summary of Monitoring Completed During Reporting Period - Describe the monitoring tasks actually completed during this PRR reporting period. Tables and/or figures should be used to show all data.
 - C. Comparisons with Remedial Objectives - Compare the results of all monitoring with the remedial objectives for the site. Include trend analyses where possible.
 - D. Monitoring Deficiencies - Describe any ways in which monitoring did not fully comply with the monitoring plan.
 - E. Conclusions and Recommendations for Changes - Provide overall conclusions regarding the monitoring completed and the resulting evaluations regarding remedial effectiveness.
- VI. Operation & Maintenance (O&M) Plan Compliance Report (if applicable)
 - A. Components of O&M Plan - Describe the requirements of the O&M plan including required activities, frequencies, recordkeeping, etc.
 - B. Summary of O&M Completed During Reporting Period - Describe the O&M tasks actually completed during this PRR reporting period.
 - C. Evaluation of Remedial Systems - Based upon the results of the O&M activities completed, evaluated

the ability of each component of the remedy subject to O&M requirements to perform as designed/expected.

- D. O&M Deficiencies - Identify any deficiencies in complying with the O&M plan during this PRR reporting period.
- E. Conclusions and Recommendations for Improvements - Provide an overall conclusion regarding O&M for the site and identify any suggested improvements requiring changes in the O&M Plan.

VII. Overall PRR Conclusions and Recommendations

- A. Compliance with SMP - For each component of the SMP (i.e., IC/EC, monitoring, O&M), summarize;
 - 1. whether all requirements of each plan were met during the reporting period
 - 2. any requirements not met
 - 3. proposed plans and a schedule for coming into full compliance.
- B. Performance and Effectiveness of the Remedy - Based upon your evaluation of the components of the SMP, form conclusions about the performance of each component and the ability of the remedy to achieve the remedial objectives for the site.
- C. Future PRR Submittals
 - 1. Recommend, with supporting justification, whether the frequency of the submittal of PRRs should be changed (either increased or decreased).
 - 2. If the requirements for site closure have been achieved, contact the Departments Project Manager for the site to determine what, if any, additional documentation is needed to support a decision to discontinue site management.

VIII. Additional Guidance

Additional guidance regarding the preparation and submittal of an acceptable PRR can be obtained from the Departments Project Manager for the site.

APPENDIX C
PHOTOGRAPH LOG

			DAILY PHOTOGRAPH LOG	
			Project:	Town of Ramapo Landfill, Project Number 20010
			Photo By:	Paul Scholar
Photo No. 1	Date 2023-05-05	Time 14:30		
Direction Looking:	East-Southeast			
Comments: View of drainage channel along the northern perimeter of the Landfill.				

Photo No. 2	Date 2023-05-05	Time 14:33	
Direction Looking:	Southeast		
Comments: View of damaged upper portion of the concrete drainage vault (MH E-6) near the northern perimeter of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			<u>Project:</u>	Town of Ramapo Landfill, Project Number 20010
			<u>Photo By:</u>	Paul Scholar
Photo No.	Date	Time		
3	2023-05-05	14:13		
Direction Looking:	Southeast			
Comments: View of well-established cover system and minor overgrown vegetation in drainage feature in the northern portion of the Landfill.				

Photo No.	Date	Time	
4	2023-05-05	14:17	
Direction Looking:	Southeast		
Comments: View of leaning gas vent in the north central portion of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			<u>Project:</u>	Town of Ramapo Landfill, Project Number 20010
			<u>Photo By:</u>	Paul Scholar
Photo No.	Date	Time		
5	2023-05-05	14:20		
Direction Looking:	South			
Comments: View of leaning gas vent to the north of the firearms training building.				

Photo No.	Date	Time	
6	2023-05-05	14:03	
Direction Looking:	South		
Comments: View of repaired gas vent near the midwestern perimeter of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			<u>Project:</u>	Town of Ramapo Landfill, Project Number 20010
			<u>Photo By:</u>	Paul Scholar
Photo No. 7	Date 2023-05-05	Time 14:15		
Direction Looking:	East			
Comments: View of damaged gas vent in the north-central portion of the Landfill.				

Photo No. 8	Date 2023-05-05	Time 14:08	
Direction Looking:	Northwest		
Comments: View of damaged gas vent in the north-central portion of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			Project:	Town of Ramapo Landfill, Project Number 20010
			Photo By:	Paul Scholar
Photo No.	Date	Time		
9	2023-05-05	08:04		
Direction Looking:	Southeast			
Comments: View of shooting range along the mideastern perimeter of the Landfill.				

Photo No.	Date	Time	
10	2023-05-05	13:12	
Direction Looking:	North		
Comments: View of damaged gas vent in the east-central portion of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			Project:	Town of Ramapo Landfill, Project Number 20010
			Photo By:	Paul Scholar
Photo No.	Date	Time		
11	2023-05-05	13:56		
Direction Looking:	North-Northeast			
Comments: View of drainage ditch along the southwestern perimeter of the Landfill.				

Photo No.	Date	Time	
12	2023-05-05	13:37	
Direction Looking:	Northeast		
Comments: View of well-maintained cover system in the central portion of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			Project:	Town of Ramapo Landfill, Project Number 20010
			Photo By:	Paul Scholar
Photo No.	Date	Time		
13	2023-05-05	13:10		
Direction Looking:	West			
Comments: View of slightly overgrown vegetation in drainage feature along the mideastern perimeter of the Landfill.				

Photo No.	Date	Time	
14	2023-05-05	13:08	
Direction Looking:	West		
Comments: View of well-maintained drainage chute along the mideastern perimeter of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			<u>Project:</u>	Town of Ramapo Landfill, Project Number 20010
			<u>Photo By:</u>	Paul Scholar
Photo No. 15	Date 2023-05-05	Time 08:00		
Direction Looking:	West			
Comments: View of well-maintained cover system along the mideastern perimeter of the Landfill.				

Photo No. 16	Date 2023-05-05	Time 07:58	
Direction Looking:	South-Southwest		
Comments: View of debris build-up in drainage swale along the northeastern perimeter of the Landfill.			

			DAILY PHOTOGRAPH LOG	
			Project:	Town of Ramapo Landfill, Project Number 20010
			Photo By:	Paul Scholar
Photo No. 17	Date 2023-05-05	Time 13:54		
Direction Looking:	North			
Comments: View of well-maintained gabion retaining walls along the southwestern perimeter of the Landfill.				

Photo No. 18	Date 2023-05-05	Time 13:51		
Direction Looking:	North			
Comments: View of recently mowed cover system along the southwestern perimeter of the Landfill.				

			DAILY PHOTOGRAPH LOG		
			Project:	Town of Ramapo Landfill, Project Number 20010	
			Photo By:	Paul Scholar	
Photo No.	Date	Time			
19	2023-05-05	13:42			
Direction Looking:	North-Northwest				
Comments: View of well maintained drainage swale along the southeastern perimeter of the Landfill.					

Photo No.	Date	Time			
20	2023-05-05	13:48			
Direction Looking:	East				
Comments: View of Lift Station W-20 in the southwestern portion of the Landfill.					

			DAILY PHOTOGRAPH LOG	
			<u>Project:</u>	Town of Ramapo Landfill, Project Number 20010
			<u>Photo By:</u>	Paul Scholar
Photo No. 21	Date 2023-05-05	Time 13:46		
Direction Looking:	South			
Comments: View of slightly overgrown vegetation in drainage feature along the southern perimeter of the Landfill.				

Photo No. 22	Date 2023-05-05	Time 13:44	
Direction Looking:	Northwest		
Comments: View of well-maintained cover system along the southern perimeter of the Landfill.			

APPENDIX D

LABORATORY ANALYTICAL RESULTS - GROUNDWATER



ANALYTICAL REPORT

Lab Number:	L2324371
Client:	Sterling Environmental Engineering 24 Wade Road Latham, NY 12110
ATTN:	Andrew Millspaugh
Phone:	(518) 456-4900
Project Name:	RAMAPO LF
Project Number:	20010
Report Date:	06/02/23

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2324371-01	UP-0S	WATER	SUFFERN, NY	05/03/23 11:45	05/03/23
L2324371-02	UP-I	WATER	SUFFERN, NY	05/03/23 12:55	05/03/23
L2324371-03	UP-R	WATER	SUFFERN, NY	05/03/23 13:00	05/03/23
L2324371-04	10-R	WATER	SUFFERN, NY	05/03/23 14:10	05/03/23
L2324371-05	EB05032023	WATER	SUFFERN, NY	05/03/23 13:25	05/03/23
L2324371-06	10-I	WATER	SUFFERN, NY	05/03/23 15:25	05/03/23
L2324371-07	10-0S	WATER	SUFFERN, NY	05/03/23 16:30	05/03/23
L2324371-08	TB05032023	WATER	SUFFERN, NY	05/03/23 00:00	05/03/23
L2324371-09	DUP05032023	WATER	SUFFERN, NY	05/03/23 00:00	05/03/23
L2324371-10	PW-2	DW	SUFFERN, NY	05/03/23 17:05	05/03/23
L2324371-11	PW-1	DW	SUFFERN, NY	05/03/23 17:20	05/03/23

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

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: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Case Narrative (continued)

Report Submission

June 02, 2023: This final report includes the results of all requested analyses.

May 17, 2023: This is a preliminary report.

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

Volatile Organics by Method 524.2

The WG1778295-3 LCS recovery, associated with L2324371-10 and -11, is above the acceptance criteria for 1,1-dichloroethene (135%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

Perfluorinated Alkyl Acids by 1633

L2324371-03: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1784487-2 LCS recovery, associated with L2324371-01, -02, -03, -04, -05, -06, -07, and -09, is above the acceptance criteria for nonafluoro-3,6-dioxaheptanoic acid (nfdha) (181%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

The WG1784487-4/-5 MS/MSD recoveries, performed on L2324371-04, are outside the acceptance criteria for nonafluoro-3,6-dioxaheptanoic acid (nfdha) (161%/168%).

Total Metals

The WG1777201-3 MS recovery, performed on L2324371-10, is outside the acceptance criteria for potassium (128%). A post digestion spike was performed and yielded an unacceptable recovery for potassium (138%).

The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

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:

Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative

Date: 06/02/23

ORGANICS

VOLATILES

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-01
 Client ID: UP-0S
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 11:45
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 11:18
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	120		70-130

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-02
 Client ID: UP-I
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 12:55
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 11:44
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	120		70-130

Project Name: RAMAPO LF**Project Number:** 20010**Lab Number:** L2324371**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-03
 Client ID: UP-R
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 13:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 12:10
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	118		70-130

Project Name: RAMAPO LF**Project Number:** 20010**Lab Number:** L2324371**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-04
 Client ID: 10-R
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 14:10
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 13:29
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	121		70-130

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-06
 Client ID: 10-I
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 15:25
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 12:37
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	123		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	119		70-130

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-07
 Client ID: 10-0S
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 16:30
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 13:03
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	120		70-130

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-08
 Client ID: TB05032023
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 00:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 09:32
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	118		70-130

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-09
 Client ID: DUP05032023
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 00:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 00:03
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-10
 Client ID: PW-2
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 17:05
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 16,524.2
 Analytical Date: 05/11/23 15:04
 Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Vinyl chloride	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
Benzene	ND		ug/l	0.50	0.19	1
Chlorobenzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	103		80-120
4-Bromofluorobenzene	93		80-120

Project Name: RAMAPO LF**Project Number:** 20010**Lab Number:** L2324371**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-11
 Client ID: PW-1
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 17:20
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 16,524.2
 Analytical Date: 05/11/23 15:33
 Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Vinyl chloride	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
Benzene	ND		ug/l	0.50	0.19	1
Chlorobenzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	105		80-120
4-Bromofluorobenzene	96		80-120

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
 Analytical Date: 05/11/23 09:22
 Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1778295-4					
Vinyl chloride	ND		ug/l	0.50	0.19
1,1-Dichloroethane	ND		ug/l	0.50	0.16
Benzene	ND		ug/l	0.50	0.19
Chlorobenzene	ND		ug/l	0.50	0.16

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	101		80-120
4-Bromofluorobenzene	95		80-120

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 05/15/23 06:55
 Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-04,06-08 Batch: WG1779388-5					
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chlorobenzene	ND		ug/l	2.5	0.70
Benzene	ND		ug/l	0.50	0.16
Vinyl chloride	ND		ug/l	1.0	0.07

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	114		70-130

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 05/16/23 19:17
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 09 Batch: WG1780033-5					
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chlorobenzene	ND		ug/l	2.5	0.70
Benzene	ND		ug/l	0.50	0.16
Vinyl chloride	ND		ug/l	1.0	0.07

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1778295-3								
Vinyl chloride	125		-		70-130	-		20
1,1-Dichloroethane	132	Q	-		70-130	-		20
Benzene	105		-		70-130	-		20
Chlorobenzene	100		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	100				80-120
4-Bromofluorobenzene	100				80-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06-08 Batch: WG1779388-3 WG1779388-4								
1,1-Dichloroethane	110		110		70-130	0		20
Chlorobenzene	91		94		75-130	3		20
Benzene	110		110		70-130	0		20
Vinyl chloride	70		90		55-140	25	Q	20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		114		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	113		115		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 09 Batch: WG1780033-3 WG1780033-4								
1,1-Dichloroethane	100		110		70-130	10		20
Chlorobenzene	92		95		75-130	3		20
Benzene	100		100		70-130	0		20
Vinyl chloride	81		81		55-140	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	112		109		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	106		109		70-130
Dibromofluoromethane	99		98		70-130

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 10-11 QC Batch ID: WG1778295-5 WG1778295-6 QC Sample: L2324240-09 Client ID:												
Dichlorodifluoromethane	ND	4	6.6	165	Q	6.6	165	Q	70-130	0		20
Chloromethane	ND	4	6.6	165	Q	6.4	160	Q	70-130	3		20
Vinyl chloride	ND	4	6.2	155	Q	6.2	155	Q	70-130	0		20
Bromomethane	ND	4	5.4	135	Q	5.2	130		70-130	4		20
Chloroethane	ND	4	5.9	148	Q	5.8	145	Q	70-130	2		20
Trichlorofluoromethane	ND	4	5.8	145	Q	5.9	148	Q	70-130	2		20
1,1-Dichloroethene	ND	4	6.5	163	Q	6.2	155	Q	70-130	5		20
Methylene chloride	ND	4	6.4	160	Q	6.3	158	Q	70-130	2		20
Methyl tert butyl ether	ND	4	5.6	140	Q	5.5	138	Q	70-130	2		20
trans-1,2-Dichloroethene	ND	4	6.2	155	Q	6.2	155	Q	70-130	0		20
1,1-Dichloroethane	ND	4	6.1	153	Q	6.0	150	Q	70-130	2		20
2,2-Dichloropropane	ND	4	5.3	133	Q	3.7	92		70-130	36	Q	20
cis-1,2-Dichloroethene	ND	4	5.9	148	Q	4.3	108		70-130	31	Q	20
Chloroform	ND	4	5.7	143	Q	4.7	118		70-130	19		20
Bromochloromethane	ND	4	4.7	118		4.4	110		70-130	7		20
1,1,1-Trichloroethane	ND	4	4.7	118		4.6	115		70-130	2		20
1,1-Dichloropropene	ND	4	4.6	115		4.6	115		70-130	0		20
Carbon tetrachloride	ND	4	4.7	118		4.6	115		70-130	2		20
1,2-Dichloroethane	ND	4	4.7	118		4.6	115		70-130	2		20
Benzene	ND	4	4.8	120		4.7	118		70-130	2		20
Trichloroethene	ND	4	4.9	123		4.8	120		70-130	2		20
1,2-Dichloropropane	ND	4	4.8	120		4.6	115		70-130	4		20
Bromodichloromethane	ND	4	4.9	123		4.7	118		70-130	4		20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 10-11 QC Batch ID: WG1778295-5 WG1778295-6 QC Sample: L2324240-09 Client ID:												
Dibromomethane	ND	4	4.8	120		4.9	123		70-130	2		20
cis-1,3-Dichloropropene	ND	4	4.6	115		4.5	113		70-130	2		20
Toluene	ND	4	5.1	128		5.0	125		70-130	2		20
trans-1,3-Dichloropropene	ND	4	4.5	113		4.6	115		70-130	2		20
1,1,2-Trichloroethane	ND	4	5.5	138	Q	5.4	135	Q	70-130	2		20
1,3-Dichloropropane	ND	4	5.5	138	Q	5.4	135	Q	70-130	2		20
Tetrachloroethene	ND	4	5.3	133	Q	5.2	130		70-130	2		20
Dibromochloromethane	ND	4	5.1	128		4.9	123		70-130	4		20
1,2-Dibromoethane	ND	4	5.1	128		5.0	125		70-130	2		20
Chlorobenzene	ND	4	4.5	113		4.4	110		70-130	2		20
1,1,1,2-Tetrachloroethane	ND	4	4.3	108		4.3	108		70-130	0		20
Ethylbenzene	ND	4	4.4	110		4.4	110		70-130	0		20
p/m-Xylene	ND	8	9.2	115		9.2	115		70-130	0		20
o-Xylene	ND	4	4.4	110		4.4	110		70-130	0		20
Styrene	ND	4	4.2	105		4.3	108		70-130	2		20
Isopropylbenzene	ND	4	4.4	110		4.4	110		70-130	0		20
Bromoform	ND	4	3.9	98		3.9	98		70-130	0		20
1,1,2,2-Tetrachloroethane	ND	4	4.4	110		4.4	110		70-130	0		20
1,2,3-Trichloropropane	ND	4	4.5	113		4.6	115		70-130	2		20
n-Propylbenzene	ND	4	4.6	115		4.5	113		70-130	2		20
Bromobenzene	ND	4	4.7	118		4.6	115		70-130	2		20
1,3,5-Trimethylbenzene	ND	4	4.4	110		4.4	110		70-130	0		20
o-Chlorotoluene	ND	4	4.6	115		4.5	113		70-130	2		20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab MS Sample Associated sample(s): 10-11 QC Batch ID: WG1778295-5 WG1778295-6 QC Sample: L2324240-09 Client ID:												
p-Chlorotoluene	ND	4	4.8	120		4.7	118		70-130	2		20
tert-Butylbenzene	ND	4	4.4	110		4.4	110		70-130	0		20
1,2,4-Trimethylbenzene	ND	4	4.6	115		4.5	113		70-130	2		20
sec-Butylbenzene	ND	4	4.6	115		4.6	115		70-130	0		20
p-Isopropyltoluene	ND	4	4.5	113		4.4	110		70-130	2		20
1,3-Dichlorobenzene	ND	4	4.4	110		4.4	110		70-130	0		20
1,4-Dichlorobenzene	ND	4	4.3	108		4.1	103		70-130	5		20
n-Butylbenzene	ND	4	4.6	115		4.5	113		70-130	2		20
1,2-Dichlorobenzene	ND	4	4.2	105		4.1	103		70-130	2		20
1,2-Dibromo-3-chloropropane	ND	4	4.4	110		4.1	103		70-130	7		20
1,2,4-Trichlorobenzene	ND	4	3.8	95		3.7	92		70-130	3		20
Hexachlorobutadiene	ND	4	3.9	98		3.9	98		70-130	0		20
Naphthalene	ND	4	3.8	95		3.9	98		70-130	3		20
1,2,3-Trichlorobenzene	ND	4	3.9	98		3.8	95		70-130	3		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	98		98		80-120
4-Bromofluorobenzene	102		107		80-120

Matrix Spike Analysis*Batch Quality Control***Project Name:** RAMAPO LF**Project Number:** 20010**Lab Number:** L2324371**Report Date:** 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-04,06-08 QC Batch ID: WG1779388-6 WG1779388-7 QC Sample: L2324371-04 Client ID: 10-R												
1,1-Dichloroethane	ND	10	12	120		12	120		70-130	0		20
Chlorobenzene	ND	10	9.6	96		9.4	94		75-130	2		20
Benzene	ND	10	11	110		11	110		70-130	0		20
Vinyl chloride	ND	10	7.7	77		8.0	80		55-140	4		20

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		118		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	117		115		70-130
Toluene-d8	95		93		70-130

SEMIVOLATILES

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-01
 Client ID: UP-0S
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 11:45
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/09/23 02:34
 Analyst: AMV

Extraction Method: EPA 3510C
 Extraction Date: 05/06/23 16:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	44			15-110		

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-01
 Client ID: UP-0S
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 11:45
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 00:04
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.07	0.972	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.04	0.812	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.52	0.508	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.07	1.59	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.52	0.448	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.52	0.266	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.52	0.304	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.52	0.364	1
Perfluorooctanoic Acid (PFOA)	0.987	J	ng/l	1.52	0.660	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.07	2.05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.52	0.410	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.52	0.478	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.52	0.691	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.52	0.615	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.07	2.36	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.52	0.471	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.52	0.827	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.52	0.660	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.52	0.349	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.52	0.410	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.52	0.820	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.52	0.698	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.52	0.569	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.52	0.402	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.07	0.850	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.07	0.956	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.52	0.577	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2324371-01**Date Collected:** 05/03/23 11:45**Client ID:** UP-0S**Date Received:** 05/03/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.07	1.25	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.07	1.25	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.52	0.660	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.52	0.698	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.2	3.57	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.2	1.86	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.04	0.433	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.04	0.402	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.04	0.334	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.04	1.79	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.59	2.50	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	38.0	8.88	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	38.0	5.99	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-01

Date Collected: 05/03/23 11:45

Client ID: UP-0S

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	90		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	97		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	86		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	119		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	86		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	103		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	86		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	95		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	95		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	82		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	83		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	86		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	91		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	87		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	68		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	105		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	87		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	76		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	89		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	76		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	83		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	85		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	101		20-150

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-02
 Client ID: UP-I
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 12:55
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/09/23 02:59
 Analyst: AMV

Extraction Method: EPA 3510C
 Extraction Date: 05/06/23 16:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	147	33.2	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	42			15-110		

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-02
 Client ID: UP-I
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 12:55
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 00:16
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.32	1.01	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.16	0.845	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.58	0.529	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.32	1.65	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.58	0.466	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.58	0.276	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.58	0.316	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.58	0.379	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.58	0.687	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.32	2.13	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.58	0.427	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.58	0.498	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.58	0.719	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.58	0.640	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.32	2.46	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.58	0.490	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.58	0.861	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.58	0.687	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.58	0.363	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.58	0.427	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.58	0.853	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.58	0.727	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.58	0.593	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.58	0.419	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.32	0.885	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.32	0.996	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.58	0.600	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2324371-02**Date Collected:** 05/03/23 12:55**Client ID:** UP-I**Date Received:** 05/03/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.32	1.30	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.32	1.30	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.58	0.687	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.58	0.727	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.8	3.71	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.8	1.94	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.16	0.450	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.16	0.419	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.16	0.348	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.16	1.86	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.90	2.61	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	39.5	9.24	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	39.5	6.23	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-02

Date Collected: 05/03/23 12:55

Client ID: UP-I

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	88				20-150	
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	94				20-150	
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	95				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	103				20-150	
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	93				20-150	
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	106				20-150	
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	88				20-150	
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	95				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	97				20-150	
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84				20-150	
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	83				20-150	
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	84				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	85				20-150	
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	93				20-150	
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	82				20-150	
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	72				20-150	
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	111				20-150	
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	83				20-150	
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	66				20-150	
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	95				20-150	
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	73				20-150	
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	84				20-150	
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	90				20-150	
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	102				20-150	

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-03
 Client ID: UP-R
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 13:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/09/23 03:24
 Analyst: AMV

Extraction Method: EPA 3510C
 Extraction Date: 05/06/23 16:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	142	32.0	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	41			15-110		

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-03
 Client ID: UP-R
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 13:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 11:00
 Analyst: AC

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.00	0.959	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.00	0.802	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.50	0.502	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.00	1.57	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.50	0.442	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.50	0.262	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.50	0.300	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.50	0.360	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.50	0.652	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.00	2.02	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.50	0.405	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.50	0.472	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.50	0.682	1
Perfluorodecanoic Acid (PFDA)	1.72		ng/l	1.50	0.607	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.00	2.33	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.50	0.465	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.50	0.817	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.50	0.652	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.50	0.345	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.50	0.405	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.50	0.809	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.50	0.689	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.50	0.562	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.50	0.397	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.00	0.839	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.00	0.944	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.50	0.570	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-03

Date Collected: 05/03/23 13:00

Client ID: UP-R

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.00	1.24	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.00	1.24	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.50	0.652	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.50	0.689	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.0	3.52	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.0	1.84	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.00	0.427	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.00	0.397	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.00	0.330	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.00	1.77	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.49	2.47	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	37.5	8.77	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	37.5	5.91	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-03

Date Collected: 05/03/23 13:00

Client ID: UP-R

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	63		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	53		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	65		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	196	Q	20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	50		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	58		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	64		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	63		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	67		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	56		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	51		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	58		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	64		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	55		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	62		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	46		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	73		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	58		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	51		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	53		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	49		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	52		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	56		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	62		20-150

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-04
 Client ID: 10-R
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 14:10
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/09/23 03:48
 Analyst: AMV

Extraction Method: EPA 3510C
 Extraction Date: 05/06/23 16:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	147	33.2	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	45			15-110		

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-04
 Client ID: 10-R
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 14:10
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 01:18
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.23	0.997	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.12	0.833	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.56	0.522	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.23	1.63	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.56	0.460	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.56	0.273	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.56	0.312	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.56	0.374	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.56	0.678	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.23	2.10	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.56	0.421	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.56	0.491	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.56	0.709	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.56	0.631	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.23	2.42	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.56	0.483	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.56	0.849	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.56	0.678	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.56	0.358	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.56	0.421	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.56	0.841	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.56	0.716	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.56	0.584	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.56	0.413	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.23	0.872	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.23	0.981	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.56	0.592	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2324371-04**Date Collected:** 05/03/23 14:10**Client ID:** 10-R**Date Received:** 05/03/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.23	1.28	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.23	1.28	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.56	0.678	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.56	0.716	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.6	3.66	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.6	1.91	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.12	0.444	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.12	0.413	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.12	0.343	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.12	1.84	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.79	2.57	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	38.9	9.11	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	38.9	6.14	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-04

Date Collected: 05/03/23 14:10

Client ID: 10-R

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	91		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	92		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	99		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	130		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	87		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	102		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	91		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	87		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	108		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	72		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	73		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	83		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	84		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	74		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	67		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	88		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	71		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	61		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	69		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	75		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	82		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	90		20-150

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-05
 Client ID: EB05032023
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 13:25
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 01:56
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.04	0.967	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.02	0.808	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.51	0.506	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.04	1.58	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.51	0.446	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.51	0.264	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.51	0.302	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.51	0.363	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.51	0.657	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.04	2.04	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.51	0.408	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.51	0.476	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.51	0.688	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.51	0.612	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.04	2.35	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.51	0.468	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.51	0.824	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.51	0.657	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.51	0.348	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.51	0.408	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.51	0.816	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.51	0.695	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.51	0.567	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.51	0.400	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.04	0.846	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.04	0.952	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.51	0.574	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2324371-05**Date Collected:** 05/03/23 13:25**Client ID:** EB05032023**Date Received:** 05/03/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.04	1.25	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.04	1.25	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.51	0.657	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.51	0.695	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.1	3.55	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.1	1.85	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.02	0.431	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.02	0.400	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.02	0.332	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.02	1.78	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.56	2.49	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	37.8	8.84	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	37.8	5.96	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-05
 Client ID: EB05032023
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 13:25
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	95		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	98		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	97		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	112		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	86		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	99		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	89		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	96		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	102		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	86		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	90		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	84		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	90		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	84		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	67		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	95		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	79		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	72		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	70		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	76		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	84		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	99		20-150

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-06
 Client ID: 10-I
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 15:25
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/09/23 05:01
 Analyst: AMV

Extraction Method: EPA 3510C
 Extraction Date: 05/06/23 16:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	142	32.0	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	40			15-110		

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-06
 Client ID: 10-I
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 15:25
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 02:09
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	5.91	0.946	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.95	0.790	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.48	0.495	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	5.91	1.54	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.48	0.436	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.48	0.258	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.48	0.295	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.48	0.354	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.48	0.643	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	5.91	1.99	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.48	0.399	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.48	0.465	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.48	0.672	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.48	0.598	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	5.91	2.30	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.48	0.458	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.48	0.805	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.48	0.643	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.48	0.340	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.48	0.399	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.48	0.798	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.48	0.680	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.48	0.554	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.48	0.392	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	5.91	0.827	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	5.91	0.931	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.48	0.561	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2324371-06**Date Collected:** 05/03/23 15:25**Client ID:** 10-I**Date Received:** 05/03/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	5.91	1.22	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	5.91	1.22	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.48	0.643	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.48	0.680	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	14.8	3.47	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	14.8	1.81	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	2.95	0.421	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	2.95	0.392	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	2.95	0.325	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	2.95	1.74	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.39	2.44	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	36.9	8.64	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	36.9	5.83	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-06

Date Collected: 05/03/23 15:25

Client ID: 10-I

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	89				20-150	
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	78				20-150	
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	91				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	131				20-150	
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	71				20-150	
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	82				20-150	
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	90				20-150	
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	98				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	96				20-150	
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	82				20-150	
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	74				20-150	
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	74				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	75				20-150	
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	81				20-150	
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	75				20-150	
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	62				20-150	
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	89				20-150	
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	69				20-150	
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	55				20-150	
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	78				20-150	
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	71				20-150	
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	73				20-150	
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	71				20-150	
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	89				20-150	

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-07
 Client ID: 10-0S
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 16:30
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/10/23 12:03
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	153	34.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	49			15-110		

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-07
 Client ID: 10-0S
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 16:30
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 02:21
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	5.86	0.938	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.93	0.784	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.46	0.491	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	5.86	1.53	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.46	0.432	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.46	0.256	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.46	0.293	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.46	0.352	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.46	0.637	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	5.86	1.98	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.46	0.396	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.46	0.462	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.46	0.667	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.46	0.593	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	5.86	2.28	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.46	0.454	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.46	0.799	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.46	0.637	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.46	0.337	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.46	0.396	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.46	0.791	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.46	0.674	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.46	0.550	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.46	0.388	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	5.86	0.820	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	5.86	0.923	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.46	0.557	1

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2324371-07**Date Collected:** 05/03/23 16:30**Client ID:** 10-0S**Date Received:** 05/03/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	5.86	1.21	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	5.86	1.21	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.46	0.637	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.46	0.674	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	14.6	3.44	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	14.6	1.80	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	2.93	0.418	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	2.93	0.388	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	2.93	0.322	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	2.93	1.73	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.33	2.42	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	36.6	8.57	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	36.6	5.78	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-07

Date Collected: 05/03/23 16:30

Client ID: 10-0S

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	100		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	90		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	108		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	124		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	91		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	103		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	96		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	103		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	107		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	93		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	86		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	86		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	97		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	102		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	88		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	75		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	120		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	84		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	70		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	79		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	89		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	86		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	107		20-150

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2324371-09
 Client ID: DUP05032023
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 00:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/10/23 12:26
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	153	34.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	48			15-110		

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-09
 Client ID: DUP05032023
 Sample Location: SUFFERN, NY

Date Collected: 05/03/23 00:00
 Date Received: 05/03/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 02:34
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	5.91	0.946	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.96	0.791	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.48	0.495	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	5.91	1.54	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.48	0.436	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.48	0.259	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.48	0.296	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.48	0.355	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.48	0.643	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	5.91	2.00	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.48	0.399	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.48	0.466	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.48	0.673	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.48	0.599	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	5.91	2.30	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.48	0.458	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.48	0.806	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.48	0.643	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.48	0.340	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.48	0.399	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.48	0.798	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.48	0.680	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.48	0.554	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.48	0.392	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	5.91	0.828	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	5.91	0.931	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.48	0.562	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-09

Date Collected: 05/03/23 00:00

Client ID: DUP05032023

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	5.91	1.22	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	5.91	1.22	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.48	0.643	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.48	0.680	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	14.8	3.47	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	14.8	1.81	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	2.96	0.421	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	2.96	0.392	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	2.96	0.325	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	2.96	1.74	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.39	2.44	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	37.0	8.65	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	37.0	5.83	1

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-09

Date Collected: 05/03/23 00:00

Client ID: DUP05032023

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	91		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	83		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	97		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	140		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	86		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	92		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	88		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	88		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	93		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	86		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	84		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	81		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	83		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	97		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	85		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	69		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	125		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	79		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	76		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	84		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	70		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	78		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	77		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	98		20-150

Project Name: RAMAPO LF**Project Number:** 20010**Lab Number:** L2324371**Report Date:** 06/02/23**Method Blank Analysis**
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 05/08/23 16:56
Analyst: AMV

Extraction Method: EPA 3510C
Extraction Date: 05/06/23 16:31

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270E-SIM - Mansfield Lab for sample(s): 01-04,06 Batch: WG1775719-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	47		15-110

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E-SIM
 Analytical Date: 05/09/23 15:01
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270E-SIM - Mansfield Lab for sample(s): 07,09 Batch: WG1776417-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	55		15-110

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
 Analytical Date: 06/01/23 21:44
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-07,09 Batch: WG1784487-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.40	1.02
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.20	0.856
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.60	0.536
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.40	1.67
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.60	0.472
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.60	0.280
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.60	0.320
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.60	0.384
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.60	0.696
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.40	2.16
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.60	0.432
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.60	0.504
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.60	0.728
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.60	0.648
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.40	2.49
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.60	0.496
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.60	0.872
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.60	0.696
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.60	0.368
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.60	0.432
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.60	0.864
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.60	0.736
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.60	0.600
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.60	0.424
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.40	0.896
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.40	1.01
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.60	0.608

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/01/23 21:44
Analyst: LMV

Extraction Method: EPA 1633
Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-07,09 Batch: WG1784487-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.40	1.32
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.40	1.32
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.60	0.696
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.60	0.736
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	16.0	3.76
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	16.0	1.96
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.20	0.456
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.20	0.424
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.20	0.352
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.20	1.89
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	8.00	2.64
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	40.0	9.36
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	40.0	6.31

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/01/23 21:44
Analyst: LMV

Extraction Method: EPA 1633
Extraction Date: 05/29/23 06:10

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-07,09 Batch: WG1784487-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	76		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	77		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	88		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	88		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	76		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	86		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	74		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	80		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	83		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	68		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	69		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	62		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	66		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	65		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	54		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	52		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	75		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	56		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	53		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	54		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	57		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	68		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	74		20-150

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270E-SIM - Mansfield Lab Associated sample(s): 01-04,06 Batch: WG1775719-2 WG1775719-3								
1,4-Dioxane	117		117		40-140	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	48		46		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270E-SIM - Mansfield Lab Associated sample(s): 07,09 Batch: WG1776417-2 WG1776417-3								
1,4-Dioxane	119		119		40-140	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	47		51		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 Batch: WG1784487-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	107		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	98		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	124		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	104		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	108		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	98		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	78		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	90		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	82		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	97		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	86		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	100		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	108		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	88		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	87		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	83		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	80		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	102		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	96		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	100		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	95		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	82		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 Batch: WG1784487-2 LOW LEVEL								
Perfluorotridecanoic Acid (PFTrDA)	100		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	110		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	99		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	89		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	90		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	76		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	73		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	82		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	105		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	88		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	100		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	106		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	116		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	88		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	181	Q	-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	104		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	83		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	67		-		40-150	-		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 Batch: WG1784487-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	85				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	83				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	75				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	98				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	90				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	100				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	85				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	89				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	90				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	86				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	76				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	90				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	82				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	90				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	88				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	67				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	96				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	88				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	76				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	60				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	69				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	86				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	101				20-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 Batch: WG1784487-3								
Perfluorobutanoic Acid (PFBA)	97		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	84		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	89		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	98		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	93		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	92		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	78		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	77		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	75		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	97		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	78		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	99		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	97		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	95		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	85		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	81		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	92		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	103		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	86		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	107		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	83		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	82		-		40-150	-		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 Batch: WG1784487-3								
Perfluorotridecanoic Acid (PFTrDA)	104		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	134		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	101		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	83		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	83		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	86		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	75		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	96		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	107		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	101		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	87		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	95		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	92		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	86		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	145		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	94		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	79		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	75		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 Batch: WG1784487-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	92				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	89				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	101				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	111				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	92				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	103				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	92				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	96				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	104				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	81				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	88				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	92				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	84				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	82				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	59				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	97				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	78				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	62				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	94				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	57				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	65				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	83				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	108				20-150

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

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 8270E-SIM - Mansfield Lab R	Associated sample(s): 01-04,06 QC Batch ID: WG1775719-6 WG1775719-7 QC Sample: L2324371-04 Client ID: 10-											
1,4-Dioxane	ND	5000	5850	117		5860	117		40-140	0		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,4-Dioxane-d8	38		45		15-110

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 QC Batch ID: WG1784487-4 WG1784487-5 QC Sample: L2324371-04 Client ID: 10-R												
Perfluorobutanoic Acid (PFBA)	ND	79.4	77.1	97		81.7	103		40-150	6		30
Perfluoropentanoic Acid (PFPeA)	ND	39.7	34.9	88		33.0	83		40-150	6		30
Perfluorobutanesulfonic Acid (PFBS)	ND	17.6	18.9	107		18.8	107		40-150	1		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	74.5	74.6	100		81.4	109		40-150	9		30
Perfluorohexanoic Acid (PFHxA)	ND	19.9	18.8	95		20.1	101		40-150	7		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	18.7	18.6	100		20.0	107		40-150	7		30
Perfluoroheptanoic Acid (PFHpA)	ND	19.9	16.4	83		16.8	84		40-150	2		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	18.2	14.7	81		16.2	89		40-150	10		30
Perfluorooctanoic Acid (PFOA)	ND	19.9	16.4	83		16.1	81		40-150	2		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	75.5	82.6	109		83.0	110		40-150	0		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	18.9	16.9	89		17.6	93		40-150	4		30
Perfluorononanoic Acid (PFNA)	ND	19.9	22.2	112		22.6	114		40-150	2		30
Perfluorooctanesulfonic Acid (PFOS)	ND	18.4	19.2	104		19.6	106		40-150	2		30
Perfluorodecanoic Acid (PFDA)	ND	19.9	17.8	90		19.8	100		40-150	11		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	76.3	72.1	94		75.3	99		40-150	4		30
Perfluorononanesulfonic Acid (PFNS)	ND	19.1	15.5	81		16.8	88		40-150	8		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	19.9	20.3	102		21.1	106		40-150	4		30
Perfluoroundecanoic Acid (PFUnA)	ND	19.9	24.1	121		22.2	112		40-150	8		30
Perfluorodecanesulfonic Acid (PFDS)	ND	19.2	17.9	93		17.9	93		40-150	0		30
Perfluorooctanesulfonamide (PFOSA)	ND	19.9	20.8	105		21.6	109		40-150	4		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	19.9	19.0	96		17.6	88		40-150	8		30
Perfluorododecanoic Acid (PFDoA)	ND	19.9	17.2	87		17.5	88		40-150	2		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 QC Batch ID: WG1784487-4 WG1784487-5 QC Sample: L2324371-04 Client ID: 10-R												
Perfluorotridecanoic Acid (PFTrDA)	ND	19.9	21.5	108		22.7	114		40-150	5		30
Perfluorotetradecanoic Acid (PFTeDA)	ND	19.9	28.1	141		27.0	136		40-150	4		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	79.4	86.1	108		97.8	123		40-150	13		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	75.1	65.1	87		67.0	89		40-150	3		30
Perfluorododecanesulfonic Acid (PFDoS)	ND	19.3	16.4	85		18.3	95		40-150	11		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	74.3	59.3	80		64.5	87		40-150	8		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	75.1	53.5	71		59.6	79		40-150	11		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	19.9	17.8	90		18.2	92		40-150	2		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	19.9	21.9	110		20.8	105		40-150	5		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	199	193	97		189	95		40-150	2		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	199	224	113		222	112		40-150	1		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	39.7	37.5	94		36.2	91		40-150	4		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	39.7	43.3	109		41.5	104		40-150	4		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	35.4	31.8	90		35.3	100		40-150	10		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	39.7	63.9	161	Q	66.6	168	Q	40-150	4		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	99.3	101	102		99.6	100		40-150	1		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	496	429	86		473	95		40-150	10		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	496	434	87		473	95		40-150	9		30

Matrix Spike Analysis**Batch Quality Control****Project Name:** RAMAPO LF**Project Number:** 20010**Lab Number:** L2324371**Report Date:** 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 QC Batch ID: WG1784487-4 WG1784487-5 QC Sample: L2324371-04 Client ID: 10-R												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	78		82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	124		116		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	97		98		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	76		73		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	85		92		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	82		87		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	68		64		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	80		78		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	76		79		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	88		86		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	61		58		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	75		72		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	90		88		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	68		74		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	74		70		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	88		82		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	98		99		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	67		69		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	53		62		20-150
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	94		87		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	88		91		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	91		89		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	84		82		20-150

Matrix Spike Analysis**Batch Quality Control****Project Name:** RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-07,09 QC Batch ID: WG1784487-4 WG1784487-5 QC Sample: L2324371-04 Client ID: 10-R												

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	93		91		20-150

METALS

Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-01

Date Collected: 05/03/23 11:45

Client ID: UP-OS

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	1.17		mg/l	0.0100	0.00327	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Arsenic, Total	0.00038	J	mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Barium, Total	0.01158		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Boron, Total	0.007	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Calcium, Total	29.7		mg/l	0.100	0.0394	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00327		mg/l	0.00100	0.00017	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00081		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Copper, Total	0.00987		mg/l	0.00100	0.00038	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Iron, Total	1.62		mg/l	0.0500	0.0191	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Lead, Total	0.00061	J	mg/l	0.00100	0.00034	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Magnesium, Total	8.41		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Manganese, Total	0.02715		mg/l	0.00100	0.00044	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/17/23 10:53	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00218		mg/l	0.00200	0.00055	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Potassium, Total	0.878		mg/l	0.100	0.0309	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Sodium, Total	3.61		mg/l	0.100	0.0293	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Vanadium, Total	0.00266	J	mg/l	0.00500	0.00157	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Zinc, Total	0.00584	J	mg/l	0.01000	0.00341	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	108.8		mg/l	0.5400	NA	1	05/10/23 12:10	05/17/23 10:42	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-02

Date Collected: 05/03/23 12:55

Client ID: UP-I

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.599		mg/l	0.0100	0.00327	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Arsenic, Total	0.00036	J	mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Barium, Total	0.01189		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Boron, Total	0.004	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Calcium, Total	21.7		mg/l	0.100	0.0394	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Chromium, Total	0.05443		mg/l	0.00100	0.00017	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00385		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Copper, Total	0.00573		mg/l	0.00100	0.00038	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Iron, Total	2.22		mg/l	0.0500	0.0191	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Lead, Total	0.00038	J	mg/l	0.00100	0.00034	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Magnesium, Total	5.01		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Manganese, Total	0.03364		mg/l	0.00100	0.00044	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/17/23 10:56	EPA 7470A	1,7470A	DMB
Nickel, Total	0.1080		mg/l	0.00200	0.00055	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Potassium, Total	0.641		mg/l	0.100	0.0309	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Sodium, Total	3.83		mg/l	0.100	0.0293	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Vanadium, Total	0.00332	J	mg/l	0.00500	0.00157	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Zinc, Total	0.00543	J	mg/l	0.01000	0.00341	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	74.86		mg/l	0.5400	NA	1	05/10/23 12:10	05/17/23 10:47	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-03

Date Collected: 05/03/23 13:00

Client ID: UP-R

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00499	J	mg/l	0.0100	0.00327	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Barium, Total	0.00240		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Boron, Total	0.004	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Calcium, Total	12.0		mg/l	0.100	0.0394	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00142		mg/l	0.00100	0.00017	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Iron, Total	0.0357	J	mg/l	0.0500	0.0191	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Magnesium, Total	3.75		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Manganese, Total	0.00100		mg/l	0.00100	0.00044	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/17/23 10:59	EPA 7470A	1,7470A	DMB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Potassium, Total	0.641		mg/l	0.100	0.0309	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Sodium, Total	4.49		mg/l	0.100	0.0293	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	45.36		mg/l	0.5400	NA	1	05/10/23 12:10	05/17/23 10:51	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-04

Date Collected: 05/03/23 14:10

Client ID: 10-R

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0284		mg/l	0.0100	0.00327	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Barium, Total	0.00326		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Boron, Total	0.009	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 10:37	EPA 3005A	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Calcium, Total	8.64		mg/l	0.200	0.0394	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Chromium, Total	0.00434		mg/l	0.00100	0.00017	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Cobalt, Total	0.00018	J	mg/l	0.00050	0.00016	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Copper, Total	0.00041	J	mg/l	0.00100	0.00038	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Iron, Total	0.0381	J	mg/l	0.0500	0.0191	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Magnesium, Total	1.79		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Manganese, Total	0.00390		mg/l	0.00100	0.00044	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/11/23 09:17	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00197	J	mg/l	0.00200	0.00055	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Potassium, Total	0.618		mg/l	0.100	0.0309	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Sodium, Total	4.22		mg/l	0.100	0.0293	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP
Total Hardness (by calculation) - Mansfield Lab											
Hardness	28.96		mg/l	0.5400	NA	1	05/10/23 12:10	05/10/23 18:01	EPA 3005A	1,6020B	WKP



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-06

Date Collected: 05/03/23 15:25

Client ID: 10-I

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00964	J	mg/l	0.0100	0.00327	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Antimony, Total	0.00175	J	mg/l	0.00400	0.00042	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Barium, Total	0.00116		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Boron, Total	0.008	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Calcium, Total	9.35		mg/l	0.100	0.0394	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00037	J	mg/l	0.00100	0.00017	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Iron, Total	ND		mg/l	0.0500	0.0191	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Magnesium, Total	2.82		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Manganese, Total	0.00044	J	mg/l	0.00100	0.00044	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/17/23 11:03	EPA 7470A	1,7470A	DMB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Potassium, Total	0.777		mg/l	0.100	0.0309	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Sodium, Total	3.99		mg/l	0.100	0.0293	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	34.97		mg/l	0.5400	NA	1	05/10/23 12:10	05/17/23 11:16	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-07

Date Collected: 05/03/23 16:30

Client ID: 10-0S

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.468		mg/l	0.0100	0.00327	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Antimony, Total	0.00052	J	mg/l	0.00400	0.00042	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Arsenic, Total	0.00018	J	mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Barium, Total	0.00789		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Beryllium, Total	0.00013	J	mg/l	0.00050	0.00010	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Boron, Total	0.003	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Cadmium, Total	0.00006	J	mg/l	0.00020	0.00005	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Calcium, Total	2.94		mg/l	0.100	0.0394	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00043	J	mg/l	0.00100	0.00017	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00034	J	mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Copper, Total	0.00098	J	mg/l	0.00100	0.00038	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Iron, Total	0.270		mg/l	0.0500	0.0191	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Magnesium, Total	0.575		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Manganese, Total	0.02591		mg/l	0.00100	0.00044	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/17/23 11:06	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00058	J	mg/l	0.00200	0.00055	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Potassium, Total	0.314		mg/l	0.100	0.0309	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Sodium, Total	2.26		mg/l	0.100	0.0293	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	9.715		mg/l	0.5400	NA	1	05/10/23 12:10	05/17/23 11:20	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-09

Date Collected: 05/03/23 00:00

Client ID: DUP05032023

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00779	J	mg/l	0.0100	0.00327	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Barium, Total	0.00113		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Boron, Total	0.007	J	mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Calcium, Total	9.46		mg/l	0.100	0.0394	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00039	J	mg/l	0.00100	0.00017	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Iron, Total	ND		mg/l	0.0500	0.0191	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Magnesium, Total	2.81		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Manganese, Total	0.00056	J	mg/l	0.00100	0.00044	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/10/23 13:26	05/17/23 11:09	EPA 7470A	1,7470A	DMB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Potassium, Total	0.796		mg/l	0.100	0.0309	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Sodium, Total	4.05		mg/l	0.100	0.0293	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	35.18		mg/l	0.5400	NA	1	05/10/23 12:10	05/17/23 11:25	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-10

Date Collected: 05/03/23 17:05

Client ID: PW-2

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	0.0318	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Antimony, Total	ND		mg/l	0.0040	0.0004	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Arsenic, Total	ND		mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Barium, Total	0.0013		mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Beryllium, Total	ND		mg/l	0.0010	0.0001	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Boron, Total	0.0075	J	mg/l	0.0300	0.0016	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Calcium, Total	29.6		mg/l	0.100	0.0350	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Chromium, Total	0.0002	J	mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Cobalt, Total	ND		mg/l	0.0200	0.0017	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Copper, Total	0.0113		mg/l	0.0010	0.0004	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Iron, Total	0.0240	J	mg/l	0.0500	0.0090	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Lead, Total	ND		mg/l	0.0010	0.0003	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Magnesium, Total	3.49		mg/l	0.100	0.0153	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Manganese, Total	ND		mg/l	0.0100	0.0016	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/11/23 01:25	05/12/23 16:49	EPA 245.1	3,245.1	DMB
Nickel, Total	ND		mg/l	0.0020	0.0006	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Potassium, Total	1.08	J	mg/l	2.50	0.237	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Selenium, Total	ND		mg/l	0.0050	0.0017	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Silver, Total	ND		mg/l	0.0004	0.0002	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Sodium, Total	7.42		mg/l	2.00	0.120	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL
Thallium, Total	ND		mg/l	0.0010	0.0001	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Vanadium, Total	ND		mg/l	0.0050	0.0016	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Zinc, Total	0.0157		mg/l	0.0050	0.0034	1	05/10/23 23:48	05/11/23 12:44	EPA 3005A	3,200.8	SMV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	88.2		mg/l	0.660	NA	1	05/10/23 23:48	05/15/23 08:36	EPA 3005A	19,200.7	DHL



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-11

Date Collected: 05/03/23 17:20

Client ID: PW-1

Date Received: 05/03/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	0.0318	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Antimony, Total	ND		mg/l	0.0040	0.0004	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Arsenic, Total	ND		mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Barium, Total	0.0060		mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Beryllium, Total	ND		mg/l	0.0010	0.0001	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Boron, Total	0.0234	J	mg/l	0.0300	0.0016	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Calcium, Total	8.06		mg/l	0.100	0.0350	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Chromium, Total	0.0004	J	mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Cobalt, Total	ND		mg/l	0.0200	0.0017	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Copper, Total	0.0304		mg/l	0.0010	0.0004	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Iron, Total	ND		mg/l	0.0500	0.0090	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Lead, Total	0.0009	J	mg/l	0.0010	0.0003	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Magnesium, Total	2.28		mg/l	0.100	0.0153	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Manganese, Total	ND		mg/l	0.0100	0.0016	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/11/23 01:25	05/12/23 16:39	EPA 245.1	3,245.1	DMB
Nickel, Total	ND		mg/l	0.0020	0.0006	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Potassium, Total	1.10	J	mg/l	2.50	0.237	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Selenium, Total	ND		mg/l	0.0050	0.0017	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Silver, Total	ND		mg/l	0.0004	0.0002	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Sodium, Total	18.6		mg/l	2.00	0.120	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL
Thallium, Total	ND		mg/l	0.0010	0.0001	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Vanadium, Total	ND		mg/l	0.0050	0.0016	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Zinc, Total	0.0098		mg/l	0.0050	0.0034	1	05/10/23 23:48	05/11/23 12:56	EPA 3005A	3,200.8	SMV
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	29.5		mg/l	0.660	NA	1	05/10/23 23:48	05/15/23 09:01	EPA 3005A	19,200.7	DHL



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04,06-07,09 Batch: WG1777140-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Barium, Total	ND		mg/l	0.00050	0.00017	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Boron, Total	ND		mg/l	0.010	0.0005	1	05/10/23 12:10	05/17/23 10:08	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Calcium, Total	0.139	J	mg/l	0.200	0.0394	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Chromium, Total	ND		mg/l	0.00100	0.00017	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Iron, Total	ND		mg/l	0.0500	0.0191	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Manganese, Total	ND		mg/l	0.00100	0.00044	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Potassium, Total	ND		mg/l	0.100	0.0309	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Sodium, Total	ND		mg/l	0.100	0.0293	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness (by calculation) - Mansfield Lab for sample(s): 01-04,06-07,09 Batch: WG1777140-1										
Hardness	ND		mg/l	0.5400	NA	1	05/10/23 12:10	05/10/23 17:28	1,6020B	WKP



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04,06-07,09 Batch: WG1777146-1									
Mercury, Total	ND	mg/l	0.00020	0.00009	1	05/10/23 13:26	05/11/23 09:11	1,7470A	DMB

Prep Information

Digestion Method: EPA 7470A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10-11 Batch: WG1777199-1									
Antimony, Total	ND	mg/l	0.0040	0.0004	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Arsenic, Total	ND	mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Barium, Total	ND	mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Beryllium, Total	ND	mg/l	0.0010	0.0001	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Cadmium, Total	ND	mg/l	0.0002	0.0001	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Chromium, Total	ND	mg/l	0.0010	0.0002	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Copper, Total	ND	mg/l	0.0010	0.0004	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Lead, Total	ND	mg/l	0.0010	0.0003	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Nickel, Total	ND	mg/l	0.0020	0.0006	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Selenium, Total	ND	mg/l	0.0050	0.0017	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Silver, Total	ND	mg/l	0.0004	0.0002	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Thallium, Total	ND	mg/l	0.0010	0.0001	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Vanadium, Total	ND	mg/l	0.0050	0.0016	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV
Zinc, Total	ND	mg/l	0.0050	0.0034	1	05/10/23 23:48	05/11/23 12:27	3,200.8	SMV

Prep Information

Digestion Method: EPA 3005A



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10-11 Batch: WG1777201-1										
Aluminum, Total	ND		mg/l	0.100	0.0318	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Boron, Total	ND		mg/l	0.0300	0.0016	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Calcium, Total	ND		mg/l	0.100	0.0350	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Cobalt, Total	ND		mg/l	0.0200	0.0017	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Iron, Total	ND		mg/l	0.0500	0.0090	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Magnesium, Total	ND		mg/l	0.100	0.0153	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Manganese, Total	ND		mg/l	0.0100	0.0016	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Potassium, Total	ND		mg/l	2.50	0.237	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL
Sodium, Total	ND		mg/l	2.00	0.120	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 10-11 Batch: WG1777201-1										
Hardness	ND		mg/l	0.660	NA	1	05/10/23 23:48	05/15/23 08:22	19,200.7	DHL

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10-11 Batch: WG1777203-1										
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/11/23 01:25	05/12/23 16:00	3,245.1	DMB

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 Batch: WG1777140-2								
Aluminum, Total	96		-		80-120	-		
Antimony, Total	82		-		80-120	-		
Arsenic, Total	100		-		80-120	-		
Barium, Total	95		-		80-120	-		
Beryllium, Total	98		-		80-120	-		
Boron, Total	100		-		80-120	-		
Cadmium, Total	100		-		80-120	-		
Calcium, Total	97		-		80-120	-		
Chromium, Total	96		-		80-120	-		
Cobalt, Total	96		-		80-120	-		
Copper, Total	98		-		80-120	-		
Iron, Total	97		-		80-120	-		
Lead, Total	96		-		80-120	-		
Magnesium, Total	95		-		80-120	-		
Manganese, Total	97		-		80-120	-		
Nickel, Total	95		-		80-120	-		
Potassium, Total	96		-		80-120	-		
Selenium, Total	102		-		80-120	-		
Silver, Total	102		-		80-120	-		
Sodium, Total	110		-		80-120	-		
Thallium, Total	95		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 Batch: WG1777140-2					
Vanadium, Total	95	-	80-120	-	
Zinc, Total	97	-	80-120	-	
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 01-04,06-07,09 Batch: WG1777140-2					
Hardness	96	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 Batch: WG1777146-2					
Mercury, Total	92	-	80-120	-	

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11 Batch: WG1777199-2					
Antimony, Total	92	-	85-115	-	
Arsenic, Total	103	-	85-115	-	
Barium, Total	98	-	85-115	-	
Beryllium, Total	102	-	85-115	-	
Cadmium, Total	101	-	85-115	-	
Chromium, Total	101	-	85-115	-	
Copper, Total	101	-	85-115	-	
Lead, Total	104	-	85-115	-	
Nickel, Total	97	-	85-115	-	
Selenium, Total	103	-	85-115	-	
Silver, Total	104	-	85-115	-	
Thallium, Total	104	-	85-115	-	
Vanadium, Total	100	-	85-115	-	
Zinc, Total	99	-	85-115	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11 Batch: WG1777201-2					
Aluminum, Total	104	-	85-115	-	
Boron, Total	108	-	85-115	-	
Calcium, Total	101	-	85-115	-	
Cobalt, Total	99	-	85-115	-	
Iron, Total	99	-	85-115	-	
Magnesium, Total	103	-	85-115	-	
Manganese, Total	95	-	85-115	-	
Potassium, Total	114	-	85-115	-	
Sodium, Total	110	-	85-115	-	
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 10-11 Batch: WG1777201-2					
Hardness	102	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 10-11 Batch: WG1777203-2					
Mercury, Total	90	-	85-115	-	

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1777140-3 WG1777140-4 QC Sample: L2324371-04 Client ID: 10-R												
Aluminum, Total	0.0284	2	1.95	96		1.95	96		75-125	0		20
Antimony, Total	ND	0.5	0.4327	86		0.4373	87		75-125	1		20
Arsenic, Total	ND	0.12	0.1206	100		0.1196	100		75-125	1		20
Barium, Total	0.00326	2	1.919	96		1.937	97		75-125	1		20
Beryllium, Total	ND	0.05	0.04985	100		0.04925	98		75-125	1		20
Boron, Total	0.009J	1	1.01	101		1.02	102		75-125	1		20
Cadmium, Total	ND	0.053	0.05398	102		0.05404	102		75-125	0		20
Calcium, Total	8.64	10	18.4	98		17.7	91		75-125	4		20
Chromium, Total	0.00434	0.2	0.1979	97		0.1954	96		75-125	1		20
Cobalt, Total	0.00018J	0.5	0.4807	96		0.4810	96		75-125	0		20
Copper, Total	0.00041J	0.25	0.2489	100		0.2480	99		75-125	0		20
Iron, Total	0.0381J	1	1.04	104		0.995	100		75-125	4		20
Lead, Total	ND	0.53	0.5150	97		0.5114	96		75-125	1		20
Magnesium, Total	1.79	10	11.2	94		11.0	92		75-125	2		20
Manganese, Total	0.00390	0.5	0.4789	95		0.4762	94		75-125	1		20
Nickel, Total	0.00197J	0.5	0.4754	95		0.4810	96		75-125	1		20
Potassium, Total	0.618	10	10.1	95		10.0	94		75-125	1		20
Selenium, Total	ND	0.12	0.126	105		0.127	106		75-125	1		20
Silver, Total	ND	0.05	0.05190	104		0.05201	104		75-125	0		20
Sodium, Total	4.22	10	15.1	109		15.0	108		75-125	1		20
Thallium, Total	ND	0.12	0.1172	98		0.1152	96		75-125	2		20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1777140-3 WG1777140-4 QC Sample: L2324371-04 Client ID: 10-R									
Vanadium, Total	ND	0.5	0.4732	95	0.4717	94	75-125	0	20
Zinc, Total	ND	0.5	0.4946	99	0.4987	100	75-125	1	20
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1777140-3 WG1777140-4 QC Sample: L2324371-04 Client ID: 10-R									
Hardness	28.96	66.2	92.21	96	89.73	92	75-125	3	20
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1777146-3 WG1777146-4 QC Sample: L2324371-04 Client ID: 10-R									
Mercury, Total	ND	0.005	0.00501	100	0.00482	96	75-125	4	20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11			QC Batch ID: WG1777199-3		QC Sample: L2324371-10		Client ID: PW-2		
Antimony, Total	ND	0.5	0.4674	93	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1231	102	-	-	70-130	-	20
Barium, Total	0.0013	2	1.981	99	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0505	101	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0534	101	-	-	70-130	-	20
Chromium, Total	0.0002J	0.2	0.2014	101	-	-	70-130	-	20
Copper, Total	0.0113	0.25	0.2622	100	-	-	70-130	-	20
Lead, Total	ND	0.53	0.5362	101	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.4782	96	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1235	103	-	-	70-130	-	20
Silver, Total	ND	0.05	0.0511	102	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1210	101	-	-	70-130	-	20
Vanadium, Total	ND	0.5	0.5049	101	-	-	70-130	-	20
Zinc, Total	0.0157	0.5	0.5170	100	-	-	70-130	-	20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11			QC Batch ID: WG1777199-5		QC Sample: L2324371-11		Client ID: PW-1		
Antimony, Total	ND	0.5	0.4606	92	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1242	104	-	-	70-130	-	20
Barium, Total	0.0060	2	1.924	96	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0499	100	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0539	102	-	-	70-130	-	20
Chromium, Total	0.0004J	0.2	0.2030	102	-	-	70-130	-	20
Copper, Total	0.0304	0.25	0.2823	101	-	-	70-130	-	20
Lead, Total	0.0009J	0.53	0.5163	97	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.4807	96	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1286	107	-	-	70-130	-	20
Silver, Total	ND	0.05	0.0518	104	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1169	97	-	-	70-130	-	20
Vanadium, Total	ND	0.5	0.4935	99	-	-	70-130	-	20
Zinc, Total	0.0098	0.5	0.5126	100	-	-	70-130	-	20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777201-3 QC Sample: L2324371-10 Client ID: PW-2									
Aluminum, Total	ND	2	2.07	104	-	-	75-125	-	20
Boron, Total	0.0075J	1	1.12	112	-	-	75-125	-	20
Calcium, Total	29.6	10	39.5	99	-	-	75-125	-	20
Cobalt, Total	ND	0.5	0.488	98	-	-	75-125	-	20
Iron, Total	0.0240J	1	0.992	99	-	-	75-125	-	20
Magnesium, Total	3.49	10	13.8	103	-	-	75-125	-	20
Manganese, Total	ND	0.5	0.465	93	-	-	75-125	-	20
Potassium, Total	1.08J	10	12.8	128	Q	-	75-125	-	20
Sodium, Total	7.42	10	18.7	113	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777201-3 QC Sample: L2324371-10 Client ID: PW-2									
Hardness	88.2	66.2	155	101	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777203-3 QC Sample: L2324371-11 Client ID: PW-1									
Mercury, Total	ND	0.005	0.0047	94	-	-	70-130	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777199-4 QC Sample: L2324371-10 Client ID: PW-2						
Antimony, Total	ND	ND	mg/l	NC		20
Arsenic, Total	ND	ND	mg/l	NC		20
Barium, Total	0.0013	0.0012	mg/l	1		20
Beryllium, Total	ND	ND	mg/l	NC		20
Cadmium, Total	ND	ND	mg/l	NC		20
Chromium, Total	0.0002J	0.0002J	mg/l	NC		20
Copper, Total	0.0113	0.0112	mg/l	1		20
Lead, Total	ND	ND	mg/l	NC		20
Nickel, Total	ND	ND	mg/l	NC		20
Selenium, Total	ND	ND	mg/l	NC		20
Silver, Total	ND	ND	mg/l	NC		20
Thallium, Total	ND	ND	mg/l	NC		20
Vanadium, Total	ND	ND	mg/l	NC		20
Zinc, Total	0.0157	0.0161	mg/l	3		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777199-6 QC Sample: L2324371-11 Client ID: PW-1					
Antimony, Total	ND	ND	mg/l	NC	20
Arsenic, Total	ND	ND	mg/l	NC	20
Barium, Total	0.0060	0.0060	mg/l	0	20
Beryllium, Total	ND	ND	mg/l	NC	20
Cadmium, Total	ND	ND	mg/l	NC	20
Chromium, Total	0.0004J	0.0004J	mg/l	NC	20
Copper, Total	0.0304	0.0304	mg/l	0	20
Lead, Total	0.0009J	0.0009J	mg/l	NC	20
Nickel, Total	ND	ND	mg/l	NC	20
Selenium, Total	ND	ND	mg/l	NC	20
Silver, Total	ND	ND	mg/l	NC	20
Thallium, Total	ND	ND	mg/l	NC	20
Vanadium, Total	ND	ND	mg/l	NC	20
Zinc, Total	0.0098	0.0099	mg/l	1	20

Lab Duplicate Analysis *Batch Quality Control*

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777201-4 QC Sample: L2324371-10 Client ID: PW-2					
Aluminum, Total	ND	ND	mg/l	NC	20
Boron, Total	0.0075J	0.0084J	mg/l	NC	20
Calcium, Total	29.6	29.3	mg/l	1	20
Cobalt, Total	ND	ND	mg/l	NC	20
Iron, Total	0.0240J	0.0243J	mg/l	NC	20
Magnesium, Total	3.49	3.54	mg/l	1	20
Manganese, Total	ND	0.0055J	mg/l	NC	20
Potassium, Total	1.08J	1.05J	mg/l	NC	20
Sodium, Total	7.42	7.22	mg/l	3	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777201-4 QC Sample: L2324371-10 Client ID: PW-2					
Hardness	88.2	87.8	mg/l	0	20
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777203-4 QC Sample: L2324371-11 Client ID: PW-1					
Mercury, Total	ND	ND	mg/l	NC	20

Project Name: RAMAPO LF
Project Number: 20010

**Lab Serial Dilution
Analysis
Batch Quality Control**

Lab Number: L2324371
Report Date: 06/02/23

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1777140-6 QC Sample: L2324371-04 Client ID: 10-R						
Calcium, Total	8.64	9.01	mg/l	4		20
Magnesium, Total	1.79	1.88	mg/l	5		20
Sodium, Total	4.22	4.40	mg/l	4		20
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1777140-6 QC Sample: L2324371-04 Client ID: 10-R						
Hardness	28.96	30.23	mg/l	4		20
Total Metals - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777201-6 QC Sample: L2324371-10 Client ID: PW-2						
Calcium, Total	29.6	27.5	mg/l	7		20
Magnesium, Total	3.49	3.06	mg/l	12		20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 10-11 QC Batch ID: WG1777201-6 QC Sample: L2324371-10 Client ID: PW-2						
Hardness	88.2	81.4	mg/l	8		20

INORGANICS & MISCELLANEOUS

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-01

Client ID: UP-0S

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 11:45

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	108.		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:34	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.251	J	mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 20:57	121,4500NH3-H	AVT
Chemical Oxygen Demand	29.		mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:52	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-02

Client ID: UP-I

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 12:55

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	66.9		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:37	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.218	J	mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 20:58	121,4500NH3-H	AVT
Chemical Oxygen Demand	7.9	J	mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:52	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-03

Client ID: UP-R

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 13:00

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	40.9		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:40	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.302		mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 20:59	121,4500NH3-H	AVT
Chemical Oxygen Demand	7.9	J	mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:52	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-04

Client ID: 10-R

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 14:10

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	23.4		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:42	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.077	J	mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 21:00	121,4500NH3-H	AVT
Chemical Oxygen Demand	3.2	J	mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:52	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-06

Client ID: 10-I

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 15:25

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	25.3		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:54	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.118	J	mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 21:03	121,4500NH3-H	AVT
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:52	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-07

Client ID: 10-0S

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 16:30

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:55	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.209	J	mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 21:04	121,4500NH3-H	AVT
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:53	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-09

Client ID: DUP05032023

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 00:00

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	26.1		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:56	121,2320B	MKT
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	0.066	1	05/13/23 18:30	05/15/23 21:05	121,4500NH3-H	AVT
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:53	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-10

Client ID: PW-2

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 17:05

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	66.9		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:58	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.101	J	mg/l	0.300	0.066	1	05/11/23 18:55	05/12/23 17:21	4,351.1	AVT
Chemical Oxygen Demand	5.6	J	mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:53	44,410.4	CVN



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2324371-11

Client ID: PW-1

Sample Location: SUFFERN, NY

Date Collected: 05/03/23 17:20

Date Received: 05/03/23

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	28.7		mg CaCO3/L	2.00	NA	1	-	05/16/23 09:01	121,2320B	MKT
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	0.066	1	05/11/23 18:55	05/12/23 17:25	4,351.1	AVT
Chemical Oxygen Demand	27.		mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:54	44,410.4	CVN



Project Name: RAMAPO LF

Lab Number: L2324371

Project Number: 20010

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 10-11 Batch: WG1777691-1										
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	0.022	1	05/11/23 18:55	05/12/23 17:15	4,351.1	AVT
General Chemistry - Westborough Lab for sample(s): 01-04,06-07,09-11 Batch: WG1778603-1										
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/13/23 10:40	05/13/23 13:51	44,410.4	CVN
General Chemistry - Westborough Lab for sample(s): 01-04,06-07,09 Batch: WG1778679-1										
Nitrogen, Total Kjeldahl	0.110	J	mg/l	0.300	0.022	1	05/13/23 18:30	05/15/23 20:44	121,4500NH3-H	AVT
General Chemistry - Westborough Lab for sample(s): 01-04,06-07,09-11 Batch: WG1779327-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	05/16/23 08:48	121,2320B	MKT

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 10-11 Batch: WG1777691-2								
Nitrogen, Total Kjeldahl	99		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09-11 Batch: WG1778603-2								
Chemical Oxygen Demand	90		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09 Batch: WG1778679-2								
Nitrogen, Total Kjeldahl	100		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09-11 Batch: WG1779327-2								
Alkalinity, Total	97		-		90-110	-		10

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324371

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 10-11 QC Batch ID: WG1777691-4 QC Sample: L2326028-11 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	9.67	16	13.4	23	Q	-	-		77-111	-		24
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09-11 QC Batch ID: WG1778603-4 QC Sample: L2324371-04 Client ID: 10-R												
Chemical Oxygen Demand	3.2J	47.6	50	105		-	-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1778679-4 QC Sample: L2324371-04 Client ID: 10-R												
Nitrogen, Total Kjeldahl	0.077J	8	7.19	90		-	-		77-111	-		24
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09-11 QC Batch ID: WG1779327-4 QC Sample: L2324371-04 Client ID: 10-R												
Alkalinity, Total	23.4	100	138	114		-	-		86-116	-		10

Lab Duplicate Analysis

Batch Quality Control

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 10-11 QC Batch ID: WG1777691-3 QC Sample: L2326028-11 Client ID: DUP Sample						
Nitrogen, Total Kjeldahl	9.67	9.33	mg/l	4		24
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09-11 QC Batch ID: WG1778603-3 QC Sample: L2324371-04 Client ID: 10-R						
Chemical Oxygen Demand	3.2J	5.6J	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09 QC Batch ID: WG1778679-3 QC Sample: L2324371-04 Client ID: 10-R						
Nitrogen, Total Kjeldahl	0.077J	0.198J	mg/l	NC		24
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-07,09-11 QC Batch ID: WG1779327-3 QC Sample: L2324371-04 Client ID: 10-R						
Alkalinity, Total	23.4	23.7	mg CaCO3/L	1		10

Project Name: RAMAPO LF**Lab Number:** L2324371**Project Number:** 20010**Report Date:** 06/02/23**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

B Absent

C Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-01A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-01B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-01C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-01D	Plastic 250ml unpreserved/No Headspace	B	NA		3.1	Y	Absent		ALK-T-2320(14)
L2324371-01E	Plastic 250ml HNO3 preserved	B	<2	<2	3.1	Y	Absent		TL-6020T(180),BA-6020T(180),SE-6020T(180),FE-6020T(180),K-6020T(180),NI-6020T(180),CA-6020T(180),CR-6020T(180),NA-6020T(180),ZN-6020T(180),CU-6020T(180),PB-6020T(180),MN-6020T(180),BE-6020T(180),AS-6020T(180),SB-6020T(180),B-6020T(180),V-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),AG-6020T(180),HARDT-6020(180),CO-6020T(180)
L2324371-01F	Plastic 250ml H2SO4 preserved	B	<2	<2	3.1	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-01G	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-01H	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-01I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-01J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-01K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-02A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-02B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-02C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-02D	Plastic 250ml unpreserved/No Headspace	B	NA		3.1	Y	Absent		ALK-T-2320(14)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06022316:32
Lab Number: L2324371
Report Date: 06/02/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-02E	Plastic 250ml HNO3 preserved	B	<2	<2	3.1	Y	Absent		BA-6020T(180),FE-6020T(180),TL-6020T(180),SE-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),B-6020T(180),SB-6020T(180),V-6020T(180),CD-6020T(180),MG-6020T(180),AG-6020T(180),AL-6020T(180),HARDT-6020(180),HG-T(28),CO-6020T(180)
L2324371-02F	Plastic 250ml H2SO4 preserved	B	<2	<2	3.1	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-02G	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-02H	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-02I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-02J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-02K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-03A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-03B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-03C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-03D	Plastic 250ml unpreserved/No Headspace	B	NA		3.1	Y	Absent		ALK-T-2320(14)
L2324371-03E	Plastic 250ml HNO3 preserved	B	<2	<2	3.1	Y	Absent		SE-6020T(180),TL-6020T(180),BA-6020T(180),FE-6020T(180),K-6020T(180),CA-6020T(180),CR-6020T(180),NI-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),MN-6020T(180),BE-6020T(180),AS-6020T(180),V-6020T(180),SB-6020T(180),B-6020T(180),HG-T(28),AL-6020T(180),AG-6020T(180),CD-6020T(180),HARDT-6020(180),MG-6020T(180),CO-6020T(180)
L2324371-03F	Plastic 250ml H2SO4 preserved	B	<2	<2	3.1	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-03G	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-03H	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-03I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-03J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-03K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06022316:32
Lab Number: L2324371
Report Date: 06/02/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-04A1	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04A2	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04B1	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04B2	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04C1	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04C2	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-04D	Plastic 250ml unpreserved/No Headspace	C	NA		2.7	Y	Absent		ALK-T-2320(14)
L2324371-04D1	Plastic 250ml unpreserved/No Headspace	C	NA		2.7	Y	Absent		ALK-T-2320(14)
L2324371-04D2	Plastic 250ml unpreserved/No Headspace	C	NA		2.7	Y	Absent		ALK-T-2320(14)
L2324371-04E	Plastic 250ml HNO3 preserved	C	<2	<2	2.7	Y	Absent		BA-6020T(180),SE-6020T(180),TL-6020T(180),FE-6020T(180),CR-6020T(180),NI-6020T(180),K-6020T(180),CA-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),V-6020T(180),AS-6020T(180),B-6020T(180),SB-6020T(180),HARDT-6020(180),HG-T(28),AL-6020T(180),CD-6020T(180),AG-6020T(180),MG-6020T(180),CO-6020T(180)
L2324371-04E1	Plastic 250ml HNO3 preserved	C	<2	<2	2.7	Y	Absent		BA-6020T(180),SE-6020T(180),TL-6020T(180),FE-6020T(180),CR-6020T(180),NI-6020T(180),K-6020T(180),CA-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),V-6020T(180),AS-6020T(180),SB-6020T(180),HARDT-6020(180),HG-T(28),AL-6020T(180),CD-6020T(180),AG-6020T(180),MG-6020T(180),CO-6020T(180)
L2324371-04E2	Plastic 250ml HNO3 preserved	C	<2	<2	2.7	Y	Absent		BA-6020T(180),SE-6020T(180),TL-6020T(180),FE-6020T(180),CR-6020T(180),NI-6020T(180),K-6020T(180),CA-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),V-6020T(180),AS-6020T(180),SB-6020T(180),HARDT-6020(180),HG-T(28),AL-6020T(180),CD-6020T(180),AG-6020T(180),MG-6020T(180),CO-6020T(180)
L2324371-04F	Plastic 250ml H2SO4 preserved	C	<2	<2	2.7	Y	Absent		TKN-4500(28),COD-410-LOW(28)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-04F1	Plastic 250ml H2SO4 preserved	C	<2	<2	2.7	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-04F2	Plastic 250ml H2SO4 preserved	C	<2	<2	2.7	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-04G	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-04G1	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-04G2	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-04H	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-04H1	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-04H2	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-04I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04I1	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04I2	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04J1	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04J2	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04K1	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-04K2	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-05A	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-05B	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-05C	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-06A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-06B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-06C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-06D	Plastic 250ml unpreserved/No Headspace	C	NA		2.7	Y	Absent		ALK-T-2320(14)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-06E	Plastic 250ml HNO3 preserved	C	<2	<2	2.7	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CR-6020T(180),NI-6020T(180),K-6020T(180),CA-6020T(180),NA-6020T(180),ZN-6020T(180),CU-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),SB-6020T(180),V-6020T(180),AS-6020T(180),B-6020T(180),HARDT-6020(180),CD-6020T(180),AG-6020T(180),AL-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L2324371-06F	Plastic 250ml H2SO4 preserved	C	<2	<2	2.7	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-06G	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-06H	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-06I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-06J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-06K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-07A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-07B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-07C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-07D	Plastic 250ml unpreserved/No Headspace	C	NA		2.7	Y	Absent		ALK-T-2320(14)
L2324371-07E	Plastic 250ml HNO3 preserved	C	<2	<2	2.7	Y	Absent		SE-6020T(180),TL-6020T(180),FE-6020T(180),BA-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),ZN-6020T(180),NA-6020T(180),PB-6020T(180),MN-6020T(180),BE-6020T(180),SB-6020T(180),B-6020T(180),V-6020T(180),AS-6020T(180),CD-6020T(180),AL-6020T(180),AG-6020T(180),MG-6020T(180),HARDT-6020(180),HG-T(28),CO-6020T(180)
L2324371-07F	Plastic 250ml H2SO4 preserved	C	<2	<2	2.7	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-07G	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-07H	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-07I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-07J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-07K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-08A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)

*Values in parentheses indicate holding time in days

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-08B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-09A	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-09B	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-09C	Vial HCl preserved	B	NA		3.1	Y	Absent		NYTCL-8260(14)
L2324371-09D	Plastic 250ml unpreserved/No Headspace	C	NA		2.7	Y	Absent		ALK-T-2320(14)
L2324371-09E	Plastic 250ml HNO3 preserved	C	<2	<2	2.7	Y	Absent		FE-6020T(180),BA-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),NI-6020T(180),K-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),MN-6020T(180),BE-6020T(180),SB-6020T(180),AS-6020T(180),V-6020T(180),B-6020T(180),AL-6020T(180),CD-6020T(180),AG-6020T(180),HG-T(28),HARDT-6020(180),MG-6020T(180),CO-6020T(180)
L2324371-09F	Plastic 250ml H2SO4 preserved	C	<2	<2	2.7	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324371-09G	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-09H	Amber 250ml unpreserved	C	7	7	2.7	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324371-09I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-09J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-09K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324371-10A	Vial HCl preserved	B	NA		3.1	Y	Absent		524.2(14)
L2324371-10B	Vial HCl preserved	B	NA		3.1	Y	Absent		524.2(14)
L2324371-10C	Vial HCl preserved	B	NA		3.1	Y	Absent		524.2(14)
L2324371-10D	Plastic 250ml unpreserved/No Headspace	B	NA		3.1	Y	Absent		ALK-T-2320(14)

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Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324371-10E	Plastic 250ml HNO3 preserved	B	<2	<2	3.1	Y	Absent		SE-6020T(180),FE-6020T(180),CD-2008T(180),BA-6020T(180),TL-6020T(180),CA-UI(180),CA-6020T(180),NI-6020T(180),CR-6020T(180),K-6020T(180),NI-2008T(180),NA-6020T(180),K-UI(180),ZN-2008T(180),BE-2008T(180),CO-UI(180),CU-6020T(180),ZN-6020T(180),V-2008T(180),CU-2008T(180),HARDU(180),PB-6020T(180),FE-UI(180),MG-UI(180),BE-6020T(180),SE-2008T(180),AG-2008T(180),MN-6020T(180),AS-2008T(180),HG-U(28),V-6020T(180),SB-6020T(180),AS-6020T(180),AL-UI(180),BA-2008T(180),HG-T(28),MG-6020T(180),AG-6020T(180),CD-6020T(180),MN-UI(180),NA-UI(180),AL-6020T(180),CO-6020T(180),TL-2008T(180),SB-2008T(180),PB-2008T(180),CR-2008T(180)
L2324371-10F	Plastic 250ml H2SO4 preserved	B	<2	<2	3.1	Y	Absent		TKN-351(28)
L2324371-11A	Vial HCl preserved	B	NA		3.1	Y	Absent		524.2(14)
L2324371-11B	Vial HCl preserved	B	NA		3.1	Y	Absent		524.2(14)
L2324371-11C	Vial HCl preserved	B	NA		3.1	Y	Absent		524.2(14)
L2324371-11D	Plastic 250ml unpreserved/No Headspace	B	NA		3.1	Y	Absent		ALK-T-2320(14)
L2324371-11E	Plastic 250ml HNO3 preserved	B	<2	<2	3.1	Y	Absent		BA-6020T(180),CD-2008T(180),SE-6020T(180),FE-6020T(180),TL-6020T(180),NI-2008T(180),CA-UI(180),CA-6020T(180),NI-6020T(180),K-6020T(180),CR-6020T(180),K-UI(180),ZN-6020T(180),CU-6020T(180),BE-2008T(180),CO-UI(180),NA-6020T(180),ZN-2008T(180),FE-UI(180),CU-2008T(180),MG-UI(180),PB-6020T(180),V-2008T(180),HARDU(180),AG-2008T(180),SE-2008T(180),AS-2008T(180),BE-6020T(180),MN-6020T(180),HG-U(28),AS-6020T(180),V-6020T(180),B-UI(180),SB-6020T(180),AG-6020T(180),AL-6020T(180),AL-UI(180),MN-UI(180),NA-UI(180),HG-T(28),BA-2008T(180),CD-6020T(180),MG-6020T(180),CO-6020T(180),PB-2008T(180),TL-2008T(180),CR-2008T(180),SB-2008T(180)
L2324371-11F	Plastic 250ml H2SO4 preserved	B	<2	<2	3.1	Y	Absent		TKN-351(28),COD-410-LOW(28)

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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/PFTeDA	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/PFDoS	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
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
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/PFOSA	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

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PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

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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: RAMAPO LF
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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.

Chlordane: 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.)

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'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

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. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: 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 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

Report Format: DU Report with 'J' Qualifiers



Project Name: RAMAPO LF
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Data Qualifiers

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.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324371
Report Date: 06/02/23

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
- 16 Methods for the Determination of Organic Compounds in Drinking Water - Supplement II. EPA/600/R-92/129, August 1992.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 144 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. Draft EPA Method 1633, EPA Document 821-D-22-001, June 2022.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

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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 625/625.1:** alpha-Terpineol**EPA 8260C/8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D/8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; 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.

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, SM4500CI-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, SM9222D.****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, EPA 537.1.****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		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 <u>1</u> of <u>2</u>		Date Rec'd in Lab <u>5/3/23</u>		ALPHA Job # <u>62324371</u>					
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: <u>Remapo LF</u> Project Location: <u>Sufern, NY</u> Project # <u>20010</u> (Use Project name as Project #) ☐		Deliverables ☒ ASP-A ☒ ASP-B ☐ EQuIS (1 File) ☐ EQuIS (4 File) ☐ Other <u>CAT, B, PFAS + 1,4 Dioxane only</u>		Billing Information ☒ Same as Client Info PO #					
Client Information Client: <u>Sterling Env</u> Address: <u>24 Wadde Rd</u> <u>Latham NY 12110</u> Phone: <u>518 456-4900</u> Fax: Email:		Project Manager: <u>Andrew Millspargh</u> ALPHAQuote #: Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		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 ☐				ANALYSIS				Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)					
Other project specific requirements/comments: <u>Andrew.millspargh@sterlingenvironmental.com</u> <u>paul.scholar@sterlingenvironmental.com</u>				Please specify Metals or TAL: <u>#Baseline Metals - Al, Sb, As, B, Ba, Be, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Co + VOCs - 1,1 Dichloroethane, Benzene, Chlorobenzene, Vinyl Chloride</u>				Total Bottles					
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		Total Metals * Hardness TKN, COD PFAS 16:33 1,4-Dioxane 8:270D SIM A1K-T-2320 VOCs 8:260C ++		Sample Specific Comments	
✓ 24371 -01		UP-OS		5-3-2023 1145		GW		PWS		X		11	
✓ -02		UP-I		1255		GW				X		11	
✓ -03		UP-R		1300		GW				X		11	
✓ -04		10-R		1410		GW				X		11	
✓ -04		10-R MS		1415		GW				X		11	
✓ -04		10-R MSD		1420		GW				X		11	
✓ -05		EB05032023		1325		LW				X		3	
✓ -06		10-I		1525		GW				X		11	
✓ -07		10-OS		1630		GW				X		11	
✓ -08		TB05032023		-		LW				X		2	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O 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		P P P A P V C D A A A B		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.)			
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23 16:00</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/3/23 18:00</u>							
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23 16:00</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/3/23 18:00</u>							
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23 23:45</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/3/23 23:45</u>							

 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 <u>2</u> of <u>2</u>		Date Rec'd in Lab <u>5/3/23</u>		ALPHA Job # <u>62324371</u>	
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: <u>Ramapo LF</u> Project Location: <u>Suffern, NY</u> Project # <u>20010</u> (Use Project name as Project #) ☐		Deliverables ☒ ASP-A ☒ ASP-B ☐ EQuIS (1 File) ☐ EQuIS (4 File) ☐ Other <u>CATB PFAS H2O2</u>		Billing Information ☒ Same as Client Info PO #	
Client Information Client: <u>Sterling Env</u> Address: <u>24 Wadsworth Rd</u> <u>Latham NY 12110</u> Phone: <u>518 456-4900</u> Fax: Email:		Project Manager: <u>Andrew Millsbaugh</u> ALPHAQuote #: Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		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 ☐						ANALYSIS		Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)	
Other project specific requirements/comments: <u>andrew.millsbaugh@sterlingenvironmental.com</u> <u>paul.scholer@sterlingenvironmental.com</u>						Total Metals * Hardness TKN, COD PFAS 1633 1,4 Dioxane 82300 SIM Aik-T-2320 VOCs EPA 8260C ++		Sample Specific Comments	
Please specify Metals or TAL: <u>Basis Metals: Al, Sb, As, B, Ba, Be, Cd, Ca, Cr, Cu, Fe, Pb, Mg, Mn</u> <u>Hg, Ni, K, Se, Ag, Na, Ti, V, Zn, Co, VOCs: 1,1-Dichloroethene, Benzene, Chlorobenzene, Vinyl Chloride</u>									
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials				
		Date	Time						
✓ 24371	-09 DU0503 2023	5-3-2023	-	G-W	PWS	X	X	X	X
✓ -10	PW-2	↓	1705	DW	PWS	X	X	X	X
✓ -11	PW-1	↓	1720	DW	PWS	X	X	X	X
									
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O 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		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.)	
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23 18:00</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/5/23 18:00</u>			
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23 18:00</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/3/23 18:30</u>			
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/3/23 22:00</u>			
Relinquished By: <u>[Signature]</u>		Date/Time: <u>5/3/23 23:45</u>		Received By: <u>[Signature]</u>		Date/Time: <u>5/3/23 23:45</u>			



ANALYTICAL REPORT

Lab Number:	L2324741
Client:	Sterling Environmental Engineering 24 Wade Road Latham, NY 12110
ATTN:	Andrew Millspaugh
Phone:	(518) 456-4900
Project Name:	RAMAPO LF
Project Number:	20010
Report Date:	06/05/23

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-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2324741-01	SVWC-93	DW	SUFFERN, NY	05/04/23 07:50	05/04/23
L2324741-02	SVWC-96	DW	SUFFERN, NY	05/04/23 08:10	05/04/23
L2324741-03	9-OS	WATER	SUFFERN, NY	05/04/23 09:35	05/04/23
L2324741-04	9-I	WATER	SUFFERN, NY	05/04/23 10:15	05/04/23
L2324741-05	EB05042023	WATER	SUFFERN, NY	05/04/23 10:35	05/04/23
L2324741-06	9-R	WATER	SUFFERN, NY	05/04/23 11:20	05/04/23
L2324741-07	8-R	WATER	SUFFERN, NY	05/04/23 13:25	05/04/23
L2324741-08	8-I	WATER	SUFFERN, NY	05/04/23 14:20	05/04/23
L2324741-09	8-OS	WATER	SUFFERN, NY	05/04/23 15:00	05/04/23
L2324741-10	3-OS/I	WATER	SUFFERN, NY	05/04/23 15:35	05/04/23
L2324741-11	TB05042023	WATER	SUFFERN, NY	05/04/23 00:00	05/04/23

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

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: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Case Narrative (continued)

Report Submission

June 05, 2023: This final report includes the results of all requested analyses.

May 18, 2023: This is a preliminary report.

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

Perfluorinated Alkyl Acids by 1633

L2324741-03 and -06: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

The WG1785176-2 LCS recovery, associated with L2324741-03 through -06, is above the acceptance criteria for nonafluoro-3,6-dioxaheptanoic acid (nfdha) (182%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

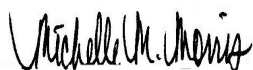
The WG1785176-3 LCS recovery, associated with L2324741-03 through -06, is above the acceptance criteria for nonafluoro-3,6-dioxaheptanoic acid (nfdha) (165%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analysis are reported.

Total Mercury

The WG1777886-2 LCS recovery, associated with L2324741-03, -04, -06, -07, -08, -09, and -10, is above the acceptance criteria for mercury (121%); however, the associated samples are non-detect to the RL for this target analyte. The results of the original analyses are reported.

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:



Michelle M. Morris

Title: Technical Director/Representative

Date: 06/05/23

ORGANICS

VOLATILES

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-01
 Client ID: SVWC-93
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 07:50
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 16,524.2
 Analytical Date: 05/16/23 15:19
 Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Vinyl chloride	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
Benzene	ND		ug/l	0.50	0.19	1
Chlorobenzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	102		80-120
4-Bromofluorobenzene	95		80-120

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-02
 Client ID: SVWC-96
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 08:10
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Dw
 Analytical Method: 16,524.2
 Analytical Date: 05/16/23 15:48
 Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Vinyl chloride	ND		ug/l	0.50	0.19	1
1,1-Dichloroethane	ND		ug/l	0.50	0.16	1
Benzene	ND		ug/l	0.50	0.19	1
Chlorobenzene	ND		ug/l	0.50	0.16	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	94		80-120
4-Bromofluorobenzene	92		80-120

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-03
 Client ID: 9-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 09:35
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 21:12
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	105		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-04
 Client ID: 9-I
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 10:15
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 21:34
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	117		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-06
 Client ID: 9-R
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 11:20
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 21:56
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	110		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-07
 Client ID: 8-R
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 13:25
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 22:17
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	107		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-08
 Client ID: 8-I
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 14:20
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 22:39
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-09
 Client ID: 8-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 15:00
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 23:01
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-10
 Client ID: 3-OS/I
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 15:35
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 23:22
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	108		70-130

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-11
 Client ID: TB05042023
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 00:00
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/15/23 23:44
 Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	107		70-130

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
 Analytical Date: 05/15/23 17:38
 Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-04,06-11 Batch: WG1779649-5					
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chlorobenzene	ND		ug/l	2.5	0.70
Benzene	ND		ug/l	0.50	0.16
Vinyl chloride	ND		ug/l	1.0	0.07

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	110		70-130

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 16,524.2
Analytical Date: 05/16/23 11:29
Analyst: GMT

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1779986-4					
Vinyl chloride	ND		ug/l	0.50	0.19
1,1-Dichloroethane	ND		ug/l	0.50	0.16
Benzene	ND		ug/l	0.50	0.19
Chlorobenzene	ND		ug/l	0.50	0.16

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	102		80-120
4-Bromofluorobenzene	95		80-120

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-04,06-11 Batch: WG1779649-3 WG1779649-4								
1,1-Dichloroethane	100		99		70-130	1		20
Chlorobenzene	89		85		75-130	5		20
Benzene	110		96		70-130	14		20
Vinyl chloride	110		97		55-140	13		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		99		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	100		102		70-130
Dibromofluoromethane	110		104		70-130

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1779986-3								
Vinyl chloride	120		-		70-130	-		20
1,1-Dichloroethane	108		-		70-130	-		20
Benzene	102		-		70-130	-		20
Chlorobenzene	108		-		70-130	-		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichlorobenzene-d4	102				80-120
4-Bromofluorobenzene	100				80-120

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779986-6 QC Sample: L2326231-01 Client ID: MS Sample												
Dichlorodifluoromethane	ND	4	4.3	108		-	-		70-130	-		20
Chloromethane	ND	4	4.8	120		-	-		70-130	-		20
Vinyl chloride	ND	4	5.6	140	Q	-	-		70-130	-		20
Bromomethane	ND	4	4.4	110		-	-		70-130	-		20
Chloroethane	ND	4	4.8	120		-	-		70-130	-		20
Trichlorofluoromethane	ND	4	4.4	110		-	-		70-130	-		20
1,1-Dichloroethene	ND	4	4.6	115		-	-		70-130	-		20
Methylene chloride	ND	4	4.8	120		-	-		70-130	-		20
Methyl tert butyl ether	ND	4	4.0	100		-	-		70-130	-		20
trans-1,2-Dichloroethene	ND	4	4.8	120		-	-		70-130	-		20
1,1-Dichloroethane	ND	4	4.6	115		-	-		70-130	-		20
2,2-Dichloropropane	ND	4	3.3	82		-	-		70-130	-		20
cis-1,2-Dichloroethene	ND	4	4.6	115		-	-		70-130	-		20
Chloroform	ND	4	4.6	115		-	-		70-130	-		20
Bromochloromethane	ND	4	4.6	115		-	-		70-130	-		20
1,1,1-Trichloroethane	ND	4	3.8	95		-	-		70-130	-		20
1,1-Dichloropropene	ND	4	4.4	110		-	-		70-130	-		20
Carbon tetrachloride	ND	4	3.7	92		-	-		70-130	-		20
1,2-Dichloroethane	ND	4	4.4	110		-	-		70-130	-		20
Benzene	ND	4	4.2	105		-	-		70-130	-		20
Trichloroethene	ND	4	3.8	95		-	-		70-130	-		20
1,2-Dichloropropane	ND	4	4.1	103		-	-		70-130	-		20
Bromodichloromethane	ND	4	3.7	92		-	-		70-130	-		20
Dibromomethane	ND	4	4.1	103		-	-		70-130	-		20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab		Associated sample(s): 01-02			QC Batch ID: WG1779986-6		QC Sample: L2326231-01		Client ID: MS Sample			
cis-1,3-Dichloropropene	ND	4	3.1	78		-	-		70-130	-		20
Toluene	ND	4	4.2	105		-	-		70-130	-		20
trans-1,3-Dichloropropene	ND	4	2.8	70		-	-		70-130	-		20
1,1,2-Trichloroethane	ND	4	3.8	95		-	-		70-130	-		20
1,3-Dichloropropane	ND	4	4.1	103		-	-		70-130	-		20
Tetrachloroethene	ND	4	4.1	103		-	-		70-130	-		20
Dibromochloromethane	ND	4	3.2	80		-	-		70-130	-		20
1,2-Dibromoethane	ND	4	3.7	92		-	-		70-130	-		20
Chlorobenzene	ND	4	4.3	108		-	-		70-130	-		20
1,1,1,2-Tetrachloroethane	ND	4	3.8	95		-	-		70-130	-		20
Ethylbenzene	ND	4	4.4	110		-	-		70-130	-		20
p/m-Xylene	ND	8	8.7	109		-	-		70-130	-		20
o-Xylene	ND	4	4.3	108		-	-		70-130	-		20
Styrene	ND	4	4.2	105		-	-		70-130	-		20
Isopropylbenzene	ND	4	4.3	108		-	-		70-130	-		20
Bromoform	ND	4	3.0	75		-	-		70-130	-		20
1,1,2,2-Tetrachloroethane	ND	4	4.9	123		-	-		70-130	-		20
1,2,3-Trichloropropane	ND	4	4.1	103		-	-		70-130	-		20
n-Propylbenzene	ND	4	4.4	110		-	-		70-130	-		20
Bromobenzene	ND	4	4.3	108		-	-		70-130	-		20
1,3,5-Trimethylbenzene	ND	4	4.3	108		-	-		70-130	-		20
o-Chlorotoluene	ND	4	4.3	108		-	-		70-130	-		20
p-Chlorotoluene	ND	4	4.4	110		-	-		70-130	-		20
tert-Butylbenzene	ND	4	4.3	108		-	-		70-130	-		20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779986-6 QC Sample: L2326231-01 Client ID: MS Sample												
1,2,4-Trimethylbenzene	ND	4	4.3	108		-	-		70-130	-		20
sec-Butylbenzene	ND	4	4.4	110		-	-		70-130	-		20
p-Isopropyltoluene	ND	4	4.3	108		-	-		70-130	-		20
1,3-Dichlorobenzene	ND	4	4.1	103		-	-		70-130	-		20
1,4-Dichlorobenzene	ND	4	4.2	105		-	-		70-130	-		20
n-Butylbenzene	ND	4	4.6	115		-	-		70-130	-		20
1,2-Dichlorobenzene	ND	4	4.3	108		-	-		70-130	-		20
1,2-Dibromo-3-chloropropane	ND	4	3.3	82		-	-		70-130	-		20
1,2,4-Trichlorobenzene	ND	4	3.9	98		-	-		70-130	-		20
Hexachlorobutadiene	ND	4	3.7	92		-	-		70-130	-		20
Naphthalene	ND	4	4.0	100		-	-		70-130	-		20
1,2,3-Trichlorobenzene	ND	4	4.0	100		-	-		70-130	-		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	102				80-120
4-Bromofluorobenzene	98				80-120

Lab Duplicate Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779986-5 QC Sample: L2326229-01 Client ID: DUP Sample						
Dichlorodifluoromethane	ND	ND	ug/l	NC		20
Chloromethane	ND	ND	ug/l	NC		20
Vinyl chloride	ND	ND	ug/l	NC		20
Bromomethane	ND	ND	ug/l	NC		20
Chloroethane	ND	ND	ug/l	NC		20
Trichlorofluoromethane	ND	ND	ug/l	NC		20
1,1-Dichloroethene	ND	ND	ug/l	NC		20
Methylene chloride	ND	ND	ug/l	NC		20
Methyl tert butyl ether	ND	ND	ug/l	NC		20
trans-1,2-Dichloroethene	ND	ND	ug/l	NC		20
1,1-Dichloroethane	ND	ND	ug/l	NC		20
2,2-Dichloropropane	ND	ND	ug/l	NC		20
cis-1,2-Dichloroethene	ND	ND	ug/l	NC		20
Chloroform	5.1	5.2	ug/l	2		20
Bromochloromethane	ND	ND	ug/l	NC		20
1,1,1-Trichloroethane	ND	ND	ug/l	NC		20
1,1-Dichloropropene	ND	ND	ug/l	NC		20
Carbon tetrachloride	ND	ND	ug/l	NC		20
1,2-Dichloroethane	ND	ND	ug/l	NC		20
Benzene	ND	ND	ug/l	NC		20
Trichloroethene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779986-5 QC Sample: L2326229-01 Client ID: DUP Sample						
1,2-Dichloropropane	ND	ND	ug/l	NC		20
Bromodichloromethane	ND	ND	ug/l	NC		20
Dibromomethane	ND	ND	ug/l	NC		20
cis-1,3-Dichloropropene	ND	ND	ug/l	NC		20
Toluene	ND	ND	ug/l	NC		20
trans-1,3-Dichloropropene	ND	ND	ug/l	NC		20
1,1,2-Trichloroethane	ND	ND	ug/l	NC		20
1,3-Dichloropropane	ND	ND	ug/l	NC		20
Tetrachloroethene	ND	ND	ug/l	NC		20
Dibromochloromethane	ND	ND	ug/l	NC		20
1,2-Dibromoethane	ND	ND	ug/l	NC		20
Chlorobenzene	ND	ND	ug/l	NC		20
1,1,1,2-Tetrachloroethane	ND	ND	ug/l	NC		20
Ethylbenzene	ND	ND	ug/l	NC		20
p/m-Xylene	ND	ND	ug/l	NC		20
o-Xylene	ND	ND	ug/l	NC		20
Styrene	ND	ND	ug/l	NC		20
Isopropylbenzene	ND	ND	ug/l	NC		20
Bromoform	ND	ND	ug/l	NC		20
1,1,2,2-Tetrachloroethane	ND	ND	ug/l	NC		20
1,2,3-Trichloropropane	ND	ND	ug/l	NC		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779986-5 QC Sample: L2326229-01 Client ID: DUP Sample						
Xylene (Total) ¹	ND	ND	ug/l	NC		20
1,3-Dichloropropene, Total	ND	ND	ug/l	NC		20
n-Propylbenzene	ND	ND	ug/l	NC		20
Trihalomethanes, Total	5.1	5.2	ug/l	2		20
Bromobenzene	ND	ND	ug/l	NC		20
1,3,5-Trimethylbenzene	ND	ND	ug/l	NC		20
o-Chlorotoluene	ND	ND	ug/l	NC		20
p-Chlorotoluene	ND	ND	ug/l	NC		20
tert-Butylbenzene	ND	ND	ug/l	NC		20
1,2,4-Trimethylbenzene	ND	ND	ug/l	NC		20
sec-Butylbenzene	ND	ND	ug/l	NC		20
p-Isopropyltoluene	ND	ND	ug/l	NC		20
1,3-Dichlorobenzene	ND	ND	ug/l	NC		20
1,4-Dichlorobenzene	ND	ND	ug/l	NC		20
n-Butylbenzene	ND	ND	ug/l	NC		20
1,2-Dichlorobenzene	ND	ND	ug/l	NC		20
1,2-Dibromo-3-chloropropane	ND	ND	ug/l	NC		20
1,2,4-Trichlorobenzene	ND	ND	ug/l	NC		20
Hexachlorobutadiene	ND	ND	ug/l	NC		20
Naphthalene	ND	ND	ug/l	NC		20
1,2,3-Trichlorobenzene	ND	ND	ug/l	NC		20

Lab Duplicate Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779986-5 QC Sample: L2326229-01 Client ID: DUP Sample						

Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichlorobenzene-d4	99		96		80-120
4-Bromofluorobenzene	90		97		80-120

SEMIVOLATILES

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-03
 Client ID: 9-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 09:35
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/10/23 12:50
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	147	33.2	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	50			15-110		

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-03
 Client ID: 9-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 09:35
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 19:40
 Analyst: AC

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.10	0.976	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.05	0.816	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.52	0.511	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.10	1.59	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.52	0.450	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.52	0.267	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.52	0.305	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.52	0.366	1
Perfluorooctanoic Acid (PFOA)	0.762	J	ng/l	1.52	0.663	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.10	2.06	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.52	0.412	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.52	0.480	1
Perfluorooctanesulfonic Acid (PFOS)	1.07	JF	ng/l	1.52	0.694	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.52	0.617	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.10	2.37	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.52	0.473	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.52	0.831	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.52	0.663	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.52	0.351	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.52	0.412	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.52	0.823	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.52	0.701	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.52	0.572	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.52	0.404	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.10	0.854	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.10	0.960	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.52	0.579	1

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS****Lab ID:** L2324741-03**Date Collected:** 05/04/23 09:35**Client ID:** 9-OS**Date Received:** 05/04/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.10	1.26	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.10	1.26	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.52	0.663	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.52	0.701	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.2	3.58	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.2	1.87	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.05	0.434	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.05	0.404	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.05	0.335	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.05	1.80	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.62	2.52	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	38.1	8.92	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	38.1	6.01	1

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-03

Date Collected: 05/04/23 09:35

Client ID: 9-OS

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	101				20-150	
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	98				20-150	
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	103				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	166			Q	20-150	
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	99				20-150	
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	107				20-150	
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	99				20-150	
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	100				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	113				20-150	
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	86				20-150	
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	79				20-150	
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	83				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	94				20-150	
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	104				20-150	
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	83				20-150	
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	69				20-150	
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	120				20-150	
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	73				20-150	
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	78				20-150	
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	95				20-150	
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	63				20-150	
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	74				20-150	
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	81				20-150	
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	103				20-150	

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-04
 Client ID: 9-I
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 10:15
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/10/23 13:14
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	147	33.2	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	46			15-110		

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-04
 Client ID: 9-I
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 10:15
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 19:52
 Analyst: AC

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	3.12	J	ng/l	6.09	0.974	1
Perfluoropentanoic Acid (PFPeA)	2.36	J	ng/l	3.04	0.814	1
Perfluorobutanesulfonic Acid (PFBS)	1.14	J	ng/l	1.52	0.510	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.09	1.59	1
Perfluorohexanoic Acid (PFHxA)	1.67		ng/l	1.52	0.449	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.52	0.266	1
Perfluoroheptanoic Acid (PFHpA)	1.52		ng/l	1.52	0.304	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.52	0.365	1
Perfluorooctanoic Acid (PFOA)	2.66		ng/l	1.52	0.662	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.09	2.05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.52	0.411	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.52	0.479	1
Perfluorooctanesulfonic Acid (PFOS)	1.83		ng/l	1.52	0.692	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.52	0.616	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.09	2.37	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.52	0.472	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.52	0.829	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.52	0.662	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.52	0.350	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.52	0.411	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.52	0.822	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.52	0.700	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.52	0.571	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.52	0.403	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.09	0.852	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.09	0.959	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.52	0.578	1

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS****Lab ID:** L2324741-04**Date Collected:** 05/04/23 10:15**Client ID:** 9-I**Date Received:** 05/04/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.09	1.26	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.09	1.26	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.52	0.662	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.52	0.700	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.2	3.58	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.2	1.86	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.04	0.434	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.04	0.403	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.04	0.335	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.04	1.80	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.61	2.51	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	38.0	8.90	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	38.0	6.00	1

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-04

Date Collected: 05/04/23 10:15

Client ID: 9-I

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	91		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	85		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	94		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	150		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	84		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	99		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	89		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	90		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	102		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	79		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	78		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	69		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	90		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	87		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	69		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	66		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	116		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	70		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	68		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	87		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	63		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	71		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	76		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	91		20-150

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-05
 Client ID: EB05042023
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 10:35
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 20:05
 Analyst: AC

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.26	1.00	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.13	0.837	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.56	0.524	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.26	1.63	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.56	0.461	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.56	0.274	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.56	0.313	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.56	0.375	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.56	0.680	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.26	2.11	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.56	0.422	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.56	0.493	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.56	0.712	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.56	0.634	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.26	2.43	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.56	0.485	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.56	0.852	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.56	0.680	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.56	0.360	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.56	0.422	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.56	0.845	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.56	0.720	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.56	0.587	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.56	0.414	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.26	0.876	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.26	0.986	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.56	0.594	1

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS****Lab ID:** L2324741-05**Date Collected:** 05/04/23 10:35**Client ID:** EB05042023**Date Received:** 05/04/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.26	1.29	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.26	1.29	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.56	0.680	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.56	0.720	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.6	3.68	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.6	1.92	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.13	0.446	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.13	0.414	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.13	0.344	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.13	1.84	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.82	2.58	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	39.1	9.15	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	39.1	6.17	1

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-05
 Client ID: EB05042023
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 10:35
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	99		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	111		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	103		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	119		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	101		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	116		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	94		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	103		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	103		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	90		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	86		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	79		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	84		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	72		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	72		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	60		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	91		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	58		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	50		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	101		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	48		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	55		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	62		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	72		20-150

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS**

Lab ID: L2324741-06
 Client ID: 9-R
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 11:20
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/10/23 13:37
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	3290		ng/l	156	35.3	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	48			15-110		

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-06
 Client ID: 9-R
 Sample Location: SUFFERN, NY

Date Collected: 05/04/23 11:20
 Date Received: 05/04/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/02/23 20:18
 Analyst: AC

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	25.0		ng/l	6.08	0.974	1
Perfluoropentanoic Acid (PFPeA)	5.48		ng/l	3.04	0.814	1
Perfluorobutanesulfonic Acid (PFBS)	3.58		ng/l	1.52	0.510	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.08	1.59	1
Perfluorohexanoic Acid (PFHxA)	6.77		ng/l	1.52	0.449	1
Perfluoropentanesulfonic Acid (PFPeS)	0.532	J	ng/l	1.52	0.266	1
Perfluoroheptanoic Acid (PFHpA)	3.50		ng/l	1.52	0.304	1
Perfluorohexanesulfonic Acid (PFHxS)	1.60		ng/l	1.52	0.365	1
Perfluorooctanoic Acid (PFOA)	9.28		ng/l	1.52	0.662	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.08	2.05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.52	0.411	1
Perfluorononanoic Acid (PFNA)	30.7		ng/l	1.52	0.479	1
Perfluorooctanesulfonic Acid (PFOS)	6.92		ng/l	1.52	0.692	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.52	0.616	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.08	2.36	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.52	0.472	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.52	0.829	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.52	0.662	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.52	0.350	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.52	0.411	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.52	0.822	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.52	0.700	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.52	0.570	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.52	0.403	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.08	0.852	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.08	0.958	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.52	0.578	1

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**SAMPLE RESULTS****Lab ID:** L2324741-06**Date Collected:** 05/04/23 11:20**Client ID:** 9-R**Date Received:** 05/04/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.08	1.26	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.08	1.26	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.52	0.662	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.52	0.700	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.2	3.58	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.2	1.86	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.04	0.434	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.04	0.403	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.04	0.335	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.04	1.80	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.61	2.51	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	38.0	8.90	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	38.0	6.00	1

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-06

Date Collected: 05/04/23 11:20

Client ID: 9-R

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Surrogate	% Recovery			Qualifier	Acceptance Criteria	
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	94				20-150	
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	76				20-150	
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	95				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	176			Q	20-150	
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	83				20-150	
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	89				20-150	
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	88				20-150	
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	92				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	99				20-150	
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	77				20-150	
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	71				20-150	
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	72				20-150	
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	88				20-150	
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	74				20-150	
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	67				20-150	
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	60				20-150	
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	93				20-150	
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	64				20-150	
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	50				20-150	
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	85				20-150	
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	53				20-150	
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	61				20-150	
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	65				20-150	
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	80				20-150	

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 05/09/23 15:01
Analyst: TPR

Extraction Method: EPA 3510C
Extraction Date: 05/08/23 20:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270E-SIM - Mansfield Lab for sample(s): 03-04,06 Batch: WG1776417-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	55		15-110

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
 Analytical Date: 06/02/23 18:11
 Analyst: AC

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 03-06 Batch: WG1785176-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.40	1.02
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.20	0.856
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.60	0.536
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.40	1.67
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.60	0.472
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.60	0.280
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.60	0.320
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.60	0.384
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.60	0.696
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.40	2.16
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.60	0.432
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.60	0.504
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.60	0.728
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.60	0.648
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.40	2.49
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.60	0.496
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.60	0.872
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.60	0.696
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.60	0.368
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.60	0.432
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.60	0.864
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.60	0.736
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.60	0.600
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.60	0.424
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.40	0.896
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.40	1.01
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.60	0.608

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/02/23 18:11
Analyst: AC

Extraction Method: EPA 1633
Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 03-06 Batch: WG1785176-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.40	1.32
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.40	1.32
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.60	0.696
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.60	0.736
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	16.0	3.76
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	16.0	1.96
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.20	0.456
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.20	0.424
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.20	0.352
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.20	1.89
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	8.00	2.64
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	40.0	9.36
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	40.0	6.31

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/02/23 18:11
Analyst: AC

Extraction Method: EPA 1633
Extraction Date: 05/31/23 06:30

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 03-06 Batch: WG1785176-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	79		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	78		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	70		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	90		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	66		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	83		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	70		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	84		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	76		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	74		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	72		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	74		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	83		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	79		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	71		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	109		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	66		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	55		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	76		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	52		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	58		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	81		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	92		20-150

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270E-SIM - Mansfield Lab Associated sample(s): 03-04,06 Batch: WG1776417-2 WG1776417-3								
1,4-Dioxane	119		119		40-140	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	47		51		15-110

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 03-06 Batch: WG1785176-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	114		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	102		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	110		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	114		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	110		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	106		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	92		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	101		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	90		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	113		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	86		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	112		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	118		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	105		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	98		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	99		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	115		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	110		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	98		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	108		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	82		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	88		-		40-150	-		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 03-06 Batch: WG1785176-2 LOW LEVEL								
Perfluorotridecanoic Acid (PFTrDA)	112		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	122		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	100		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	98		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	90		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	79		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	71		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	72		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	85		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	88		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	113		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	114		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	119		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	108		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	182	Q	-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	108		-		40-150	-		30
2H,2H,3H-Perfluorooctanoic Acid (5:3FTCA)	86		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	57		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 03-06 Batch: WG1785176-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	90				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	86				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	94				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	112				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	86				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	94				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	91				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	93				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	101				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	86				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	78				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	73				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	89				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	83				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	78				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	68				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	107				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	74				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	64				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	88				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	55				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	65				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	87				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	98				20-150

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 03-06 Batch: WG1785176-3								
Perfluorobutanoic Acid (PFBA)	93		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	78		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	97		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	97		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	90		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	92		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	76		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	76		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	70		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	97		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	72		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	86		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	94		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	87		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	83		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	71		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	93		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	98		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	84		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	92		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	72		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	71		-		40-150	-		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 03-06 Batch: WG1785176-3								
Perfluorotridecanoic Acid (PFTrDA)	96		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	106		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	96		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	86		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	78		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	84		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	76		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	64		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	90		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	82		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	90		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	90		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	97		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	88		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	165	Q	-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	92		-		40-150	-		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	82		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	72		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 03-06 Batch: WG1785176-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	102				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	105				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	106				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	121				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	100				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	115				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	100				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	108				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	114				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	103				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	101				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	96				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	102				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	109				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	103				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	80				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	143				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	97				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	90				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	104				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	74				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	79				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	98				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	122				20-150

METALS

Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-01

Date Collected: 05/04/23 07:50

Client ID: SVWC-93

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	0.0318	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Antimony, Total	ND		mg/l	0.0040	0.0004	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Arsenic, Total	ND		mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Barium, Total	0.0068		mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Beryllium, Total	ND		mg/l	0.0010	0.0001	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Boron, Total	0.0261	J	mg/l	0.0300	0.0016	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Calcium, Total	17.4		mg/l	0.100	0.0350	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Chromium, Total	ND		mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Cobalt, Total	ND		mg/l	0.0200	0.0017	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Copper, Total	0.0027		mg/l	0.0010	0.0004	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Iron, Total	ND		mg/l	0.0500	0.0090	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Lead, Total	ND		mg/l	0.0010	0.0003	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Magnesium, Total	4.88		mg/l	0.100	0.0153	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Manganese, Total	ND		mg/l	0.0100	0.0016	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/16/23 17:54	05/17/23 22:27	EPA 245.1	3,245.1	DMB
Nickel, Total	0.0006	J	mg/l	0.0020	0.0006	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Potassium, Total	1.85	J	mg/l	2.50	0.237	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Selenium, Total	ND		mg/l	0.0050	0.0017	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Silver, Total	ND		mg/l	0.0004	0.0002	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Sodium, Total	55.6		mg/l	2.00	0.120	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW
Thallium, Total	ND		mg/l	0.0010	0.0001	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Vanadium, Total	ND		mg/l	0.0050	0.0016	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Zinc, Total	0.0089		mg/l	0.0050	0.0034	1	05/16/23 16:54	05/17/23 15:54	EPA 3005A	3,200.8	NTB
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	63.6		mg/l	0.660	NA	1	05/16/23 16:54	05/17/23 17:33	EPA 3005A	19,200.7	AMW



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-02

Date Collected: 05/04/23 08:10

Client ID: SVWC-96

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.100	0.0318	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Antimony, Total	ND		mg/l	0.0040	0.0004	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Arsenic, Total	ND		mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Barium, Total	0.0091		mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Beryllium, Total	ND		mg/l	0.0010	0.0001	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Boron, Total	0.0353		mg/l	0.0300	0.0016	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Cadmium, Total	ND		mg/l	0.0002	0.0001	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Calcium, Total	20.0		mg/l	0.100	0.0350	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Chromium, Total	0.0007	J	mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Cobalt, Total	ND		mg/l	0.0200	0.0017	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Copper, Total	0.0025		mg/l	0.0010	0.0004	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Iron, Total	ND		mg/l	0.0500	0.0090	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Lead, Total	ND		mg/l	0.0010	0.0003	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Magnesium, Total	5.57		mg/l	0.100	0.0153	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Manganese, Total	ND		mg/l	0.0100	0.0016	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/16/23 17:54	05/17/23 22:57	EPA 245.1	3,245.1	DMB
Nickel, Total	0.0006	J	mg/l	0.0020	0.0006	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Potassium, Total	1.80	J	mg/l	2.50	0.237	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Selenium, Total	ND		mg/l	0.0050	0.0017	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Silver, Total	ND		mg/l	0.0004	0.0002	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Sodium, Total	65.1		mg/l	2.00	0.120	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW
Thallium, Total	ND		mg/l	0.0010	0.0001	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Vanadium, Total	ND		mg/l	0.0050	0.0016	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Zinc, Total	0.0047	J	mg/l	0.0050	0.0034	1	05/16/23 16:54	05/17/23 15:58	EPA 3005A	3,200.8	NTB
Total Hardness by SM 2340B - Mansfield Lab											
Hardness	72.9		mg/l	0.660	NA	1	05/16/23 16:54	05/17/23 17:36	EPA 3005A	19,200.7	AMW



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-03

Date Collected: 05/04/23 09:35

Client ID: 9-OS

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00936	J	mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Barium, Total	0.00513		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Boron, Total	0.0149	J	mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 10:13	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Calcium, Total	8.96		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00074	J	mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Copper, Total	0.00059	J	mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Iron, Total	ND		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Magnesium, Total	1.90		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Manganese, Total	0.00080	J	mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Mercury, Total	0.00012	J	mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 18:30	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00100	J	mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Potassium, Total	1.23		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Selenium, Total	0.00195	J	mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Sodium, Total	2.46		mg/l	0.100	0.0293	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	30.22		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 20:52	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-04

Date Collected: 05/04/23 10:15

Client ID: 9-I

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00922	J	mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Barium, Total	0.00479		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Boron, Total	0.0192	J	mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 10:18	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Calcium, Total	8.98		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Chromium, Total	0.02259		mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Copper, Total	0.00043	J	mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Iron, Total	0.168		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Magnesium, Total	2.33		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Manganese, Total	0.1201		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Mercury, Total	0.00009	J	mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 18:40	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00065	J	mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Potassium, Total	0.760		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Sodium, Total	9.69		mg/l	0.100	0.0293	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	32.02		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 20:57	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-06

Date Collected: 05/04/23 11:20

Client ID: 9-R

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0777		mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Arsenic, Total	0.00100		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Barium, Total	0.03065		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Boron, Total	0.0832		mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 10:22	EPA 3005A	19,200.7	DHL
Cadmium, Total	0.00141		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Calcium, Total	48.9		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Chromium, Total	0.01297		mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00426		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Copper, Total	0.00191		mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Iron, Total	5.62		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Lead, Total	0.00063	J	mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Magnesium, Total	13.1		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Manganese, Total	3.850		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 19:38	EPA 7470A	1,7470A	DMB
Nickel, Total	0.05360		mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Potassium, Total	9.46		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Sodium, Total	58.1		mg/l	0.100	0.0293	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Zinc, Total	0.00507	J	mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	176.0		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 21:02	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-07

Date Collected: 05/04/23 13:25

Client ID: 8-R

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0105		mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Arsenic, Total	0.00023	J	mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Barium, Total	0.01121		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Boron, Total	0.127		mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 11:22	EPA 3005A	19,200.7	DHL
Cadmium, Total	0.00022		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Calcium, Total	139.		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00254		mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00827		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Copper, Total	0.00369		mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Iron, Total	0.345		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Magnesium, Total	36.9		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Manganese, Total	2.294		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Mercury, Total	0.00014	J	mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 19:41	EPA 7470A	1,7470A	DMB
Nickel, Total	0.01305		mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Potassium, Total	2.53		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Sodium, Total	45.7		mg/l	0.100	0.0293	1	05/16/23 14:34	05/18/23 11:33	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	499.7		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 21:52	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-08

Date Collected: 05/04/23 14:20

Client ID: 8-I

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Arsenic, Total	0.00242		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Barium, Total	0.01841		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Boron, Total	0.103		mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 11:26	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Calcium, Total	108.		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Chromium, Total	0.00058	J	mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00828		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Copper, Total	0.00045	J	mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Iron, Total	5.10		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Magnesium, Total	26.5		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Manganese, Total	2.557		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Mercury, Total	0.00009	J	mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 19:44	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00626		mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Potassium, Total	4.52		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Sodium, Total	56.8		mg/l	0.100	0.0293	1	05/16/23 14:34	05/18/23 11:38	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	378.3		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 21:57	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-09

Date Collected: 05/04/23 15:00

Client ID: 8-OS

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00368	J	mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Barium, Total	0.00385		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Boron, Total	0.0146	J	mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 11:31	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Calcium, Total	14.4		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Chromium, Total	0.07087		mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00016	J	mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Copper, Total	0.00085	J	mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Iron, Total	0.504		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Magnesium, Total	3.42		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Manganese, Total	0.01707		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Mercury, Total	0.00010	J	mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 19:47	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00852		mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Potassium, Total	0.835		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Sodium, Total	13.0		mg/l	0.100	0.0293	1	05/16/23 14:34	05/18/23 11:43	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	50.12		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 22:02	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-10

Date Collected: 05/04/23 15:35

Client ID: 3-OS/I

Date Received: 05/04/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00752	J	mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Barium, Total	0.01433		mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Boron, Total	0.0670		mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 11:35	EPA 3005A	19,200.7	DHL
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Calcium, Total	61.4		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Chromium, Total	0.08466		mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Cobalt, Total	0.00035	J	mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Copper, Total	0.00081	J	mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Iron, Total	0.409		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Magnesium, Total	8.54		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Manganese, Total	0.04861		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 19:51	EPA 7470A	1,7470A	DMB
Nickel, Total	0.01541		mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Potassium, Total	2.30		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Sodium, Total	35.4		mg/l	0.100	0.0293	1	05/16/23 14:34	05/18/23 11:48	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB
Total Hardness (by calculation) - Mansfield Lab											
Hardness	188.5		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 22:07	EPA 3005A	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,06-10 Batch: WG1777883-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Barium, Total	0.00027	J	mg/l	0.00050	0.00017	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Calcium, Total	ND		mg/l	0.100	0.0394	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Chromium, Total	ND		mg/l	0.00100	0.00017	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Iron, Total	ND		mg/l	0.0500	0.0191	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Manganese, Total	ND		mg/l	0.00100	0.00044	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Potassium, Total	ND		mg/l	0.100	0.0309	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Sodium, Total	ND		mg/l	0.100	0.0293	1	05/16/23 14:34	05/18/23 11:17	1,6020B	SMV
Thallium, Total	0.00016	J	mg/l	0.00100	0.00014	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness (by calculation) - Mansfield Lab for sample(s): 03-04,06-10 Batch: WG1777883-1										
Hardness	ND		mg/l	0.5400	NA	1	05/16/23 14:34	05/17/23 21:23	1,6020B	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,06-10 Batch: WG1777884-1									
Boron, Total	ND	mg/l	0.0300	0.0016	1	05/16/23 14:34	05/17/23 10:04	19,200.7	DHL

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,06-10 Batch: WG1777886-1									
Mercury, Total	ND	mg/l	0.00020	0.00009	1	05/16/23 15:23	05/17/23 18:23	1,7470A	DMB

Prep Information

Digestion Method: EPA 7470A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1778300-1									
Antimony, Total	ND	mg/l	0.0040	0.0004	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Arsenic, Total	ND	mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Barium, Total	ND	mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Beryllium, Total	ND	mg/l	0.0010	0.0001	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Cadmium, Total	ND	mg/l	0.0002	0.0001	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Chromium, Total	ND	mg/l	0.0010	0.0002	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Copper, Total	ND	mg/l	0.0010	0.0004	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Lead, Total	ND	mg/l	0.0010	0.0003	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Nickel, Total	ND	mg/l	0.0020	0.0006	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Selenium, Total	ND	mg/l	0.0050	0.0017	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Silver, Total	ND	mg/l	0.0004	0.0002	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Thallium, Total	ND	mg/l	0.0010	0.0001	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Vanadium, Total	ND	mg/l	0.0050	0.0016	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB
Zinc, Total	ND	mg/l	0.0050	0.0034	1	05/16/23 16:54	05/17/23 14:45	3,200.8	NTB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1778302-1									
Aluminum, Total	ND	mg/l	0.100	0.0318	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Boron, Total	ND	mg/l	0.0300	0.0016	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Calcium, Total	ND	mg/l	0.100	0.0350	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Cobalt, Total	ND	mg/l	0.0200	0.0017	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Iron, Total	ND	mg/l	0.0500	0.0090	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Magnesium, Total	ND	mg/l	0.100	0.0153	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Manganese, Total	ND	mg/l	0.0100	0.0016	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Potassium, Total	ND	mg/l	2.50	0.237	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW
Sodium, Total	ND	mg/l	2.00	0.120	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness by SM 2340B - Mansfield Lab for sample(s): 01-02 Batch: WG1778302-1									
Hardness	ND	mg/l	0.660	NA	1	05/16/23 16:54	05/17/23 16:49	19,200.7	AMW

Prep Information

Digestion Method: EPA 3005A



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1778306-1										
Mercury, Total	ND		mg/l	0.0002	0.0001	1	05/16/23 17:54	05/17/23 22:20	3,245.1	DMB

Prep Information

Digestion Method: EPA 245.1

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1777883-2								
Aluminum, Total	105		-		80-120	-		
Antimony, Total	88		-		80-120	-		
Arsenic, Total	103		-		80-120	-		
Barium, Total	105		-		80-120	-		
Beryllium, Total	105		-		80-120	-		
Cadmium, Total	104		-		80-120	-		
Calcium, Total	98		-		80-120	-		
Chromium, Total	106		-		80-120	-		
Cobalt, Total	103		-		80-120	-		
Copper, Total	106		-		80-120	-		
Iron, Total	107		-		80-120	-		
Lead, Total	106		-		80-120	-		
Magnesium, Total	100		-		80-120	-		
Manganese, Total	105		-		80-120	-		
Nickel, Total	102		-		80-120	-		
Potassium, Total	101		-		80-120	-		
Selenium, Total	98		-		80-120	-		
Silver, Total	109		-		80-120	-		
Sodium, Total	104		-		80-120	-		
Thallium, Total	106		-		80-120	-		
Vanadium, Total	106		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1777883-2					
Zinc, Total	99	-	80-120	-	
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1777883-2					
Hardness	99	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1777884-2					
Boron, Total	101	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1777886-2					
Mercury, Total	121	Q	80-120	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1778300-2					
Antimony, Total	100	-	85-115	-	
Arsenic, Total	102	-	85-115	-	
Barium, Total	101	-	85-115	-	
Beryllium, Total	99	-	85-115	-	
Cadmium, Total	103	-	85-115	-	
Chromium, Total	105	-	85-115	-	
Copper, Total	102	-	85-115	-	
Lead, Total	105	-	85-115	-	
Nickel, Total	100	-	85-115	-	
Selenium, Total	103	-	85-115	-	
Silver, Total	106	-	85-115	-	
Thallium, Total	103	-	85-115	-	
Vanadium, Total	108	-	85-115	-	
Zinc, Total	100	-	85-115	-	

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1778302-2					
Aluminum, Total	110	-	85-115	-	
Boron, Total	108	-	85-115	-	
Calcium, Total	103	-	85-115	-	
Cobalt, Total	104	-	85-115	-	
Iron, Total	101	-	85-115	-	
Magnesium, Total	104	-	85-115	-	
Manganese, Total	103	-	85-115	-	
Potassium, Total	108	-	85-115	-	
Sodium, Total	108	-	85-115	-	
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 Batch: WG1778302-2					
Hardness	104	-	85-115	-	
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1778306-2					
Mercury, Total	109	-	85-115	-	

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777883-3 QC Sample: L2324524-01 Client ID: MS Sample												
Aluminum, Total	0.005J	2	2.25	112		-	-		75-125	-		20
Antimony, Total	ND	0.5	0.4967	99		-	-		75-125	-		20
Arsenic, Total	0.0003J	0.12	0.1262	105		-	-		75-125	-		20
Barium, Total	0.1813	2	2.210	101		-	-		75-125	-		20
Beryllium, Total	ND	0.05	0.05260	105		-	-		75-125	-		20
Cadmium, Total	0.0002	0.053	0.05577	105		-	-		75-125	-		20
Calcium, Total	96.7	10	111	143	Q	-	-		75-125	-		20
Chromium, Total	0.0016	0.2	0.2155	107		-	-		75-125	-		20
Cobalt, Total	0.0017	0.5	0.5592	111		-	-		75-125	-		20
Copper, Total	0.01526	0.25	0.2902	110		-	-		75-125	-		20
Iron, Total	0.571	1	1.72	115		-	-		75-125	-		20
Lead, Total	0.00084J	0.53	0.5811	110		-	-		75-125	-		20
Magnesium, Total	11.3	10	20.8	95		-	-		75-125	-		20
Manganese, Total	1.233	0.5	1.864	126	Q	-	-		75-125	-		20
Nickel, Total	0.0028	0.5	0.5695	113		-	-		75-125	-		20
Potassium, Total	7.17	10	17.8	106		-	-		75-125	-		20
Selenium, Total	ND	0.12	0.128	107		-	-		75-125	-		20
Silver, Total	ND	0.05	0.05399	108		-	-		75-125	-		20
Sodium, Total	246	10	233	0	Q	-	-		75-125	-		20
Thallium, Total	ND	0.12	0.1164	97		-	-		75-125	-		20
Vanadium, Total	ND	0.5	0.5040	101		-	-		75-125	-		20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777883-3 QC Sample: L2324524-01 Client ID: MS Sample									
Zinc, Total	0.02519	0.5	0.5474	104	-	-	75-125	-	20
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777883-3 QC Sample: L2324524-01 Client ID: MS Sample									
Hardness	288.0	66.2	361.9	112	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777884-3 QC Sample: L2324524-01 Client ID: MS Sample									
Boron, Total	0.033	1	1.07	104	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777884-7 QC Sample: L2324524-03 Client ID: MS Sample									
Boron, Total	0.027J	1	1.06	106	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777886-3 QC Sample: L2324741-03 Client ID: 9-OS									
Mercury, Total	0.00012J	0.005	0.00568	114	-	-	75-125	-	20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02			QC Batch ID: WG1778300-3		QC Sample: L2324416-01		Client ID: MS Sample		
Antimony, Total	ND	0.5	0.5000	100	-	-	70-130	-	20
Arsenic, Total	ND	0.12	0.1259	105	-	-	70-130	-	20
Barium, Total	0.0180	2	2.034	101	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0485	97	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0540	102	-	-	70-130	-	20
Chromium, Total	ND	0.2	0.2076	104	-	-	70-130	-	20
Copper, Total	0.0077	0.25	0.2632	102	-	-	70-130	-	20
Lead, Total	0.0008J	0.53	0.5542	104	-	-	70-130	-	20
Nickel, Total	ND	0.5	0.4873	97	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1185	99	-	-	70-130	-	20
Silver, Total	ND	0.05	0.0515	103	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1245	104	-	-	70-130	-	20
Vanadium, Total	ND	0.5	0.5493	110	-	-	70-130	-	20
Zinc, Total	0.2722	0.5	0.7630	98	-	-	70-130	-	20

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02			QC Batch ID: WG1778300-5		QC Sample: L2324564-01		Client ID: MS Sample		
Antimony, Total	ND	0.5	0.5060	101	-	-	70-130	-	20
Arsenic, Total	0.0004J	0.12	0.1267	106	-	-	70-130	-	20
Barium, Total	0.0130	2	2.025	100	-	-	70-130	-	20
Beryllium, Total	ND	0.05	0.0519	104	-	-	70-130	-	20
Cadmium, Total	ND	0.053	0.0549	104	-	-	70-130	-	20
Chromium, Total	0.0007J	0.2	0.2050	102	-	-	70-130	-	20
Copper, Total	0.0176	0.25	0.2758	103	-	-	70-130	-	20
Lead, Total	0.0017	0.53	0.5551	104	-	-	70-130	-	20
Nickel, Total	0.0022	0.5	0.4924	98	-	-	70-130	-	20
Selenium, Total	ND	0.12	0.1257	105	-	-	70-130	-	20
Silver, Total	ND	0.05	0.0535	107	-	-	70-130	-	20
Thallium, Total	ND	0.12	0.1260	105	-	-	70-130	-	20
Vanadium, Total	ND	0.5	0.6122	122	-	-	70-130	-	20
Zinc, Total	0.0493	0.5	0.5512	100	-	-	70-130	-	20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-3 QC Sample: L2324416-01 Client ID: MS Sample									
Aluminum, Total	ND	2	2.14	107	-	-	75-125	-	20
Boron, Total	0.015J	1	1.10	110	-	-	75-125	-	20
Calcium, Total	7.45	10	17.6	102	-	-	75-125	-	20
Cobalt, Total	ND	0.5	0.502	100	-	-	75-125	-	20
Iron, Total	0.0656	1	1.01	94	-	-	75-125	-	20
Magnesium, Total	1.51	10	11.6	101	-	-	75-125	-	20
Manganese, Total	ND	0.5	0.500	100	-	-	75-125	-	20
Potassium, Total	10.2	10	22.6	124	-	-	75-125	-	20
Sodium, Total	50.9	10	62.9	120	-	-	75-125	-	20
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-3 QC Sample: L2324416-01 Client ID: MS Sample									
Hardness	24.8	66.2	92.1	102	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-7 QC Sample: L2324564-01 Client ID: MS Sample									
Aluminum, Total	ND	2	2.09	104	-	-	75-125	-	20
Boron, Total	0.006J	1	1.07	107	-	-	75-125	-	20
Calcium, Total	40.2	10	49.7	95	-	-	75-125	-	20
Cobalt, Total	ND	0.5	0.493	99	-	-	75-125	-	20
Iron, Total	ND	1	0.973	97	-	-	75-125	-	20
Magnesium, Total	8.81	10	18.7	99	-	-	75-125	-	20
Manganese, Total	0.002J	0.5	0.495	99	-	-	75-125	-	20
Potassium, Total	2.42J	10	14.0	140	Q	-	75-125	-	20
Sodium, Total	93.1	10	103	99	-	-	75-125	-	20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-7 QC Sample: L2324564-01 Client ID: MS Sample									
Hardness	137	66.2	201	97	-	-	75-125	-	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778306-3 QC Sample: L2324741-01 Client ID: SVWC-93									
Mercury, Total	ND	0.005	0.0055	109	-	-	70-130	-	20

Lab Duplicate Analysis *Batch Quality Control*

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777883-4 QC Sample: L2324524-01 Client ID: DUP Sample						
Copper, Total	0.01526	0.01473	mg/l	4		20
Lead, Total	0.00084J	0.00083J	mg/l	NC		20
Selenium, Total	ND	0.00176J	mg/l	NC		20
Zinc, Total	0.02519	0.02440	mg/l	3		20
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1777886-4 QC Sample: L2324741-03 Client ID: 9-OS						
Mercury, Total	0.00012J	0.00010J	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778300-4 QC Sample: L2324416-01 Client ID: DUP Sample						
Lead, Total	0.0008J	0.0009J	mg/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778300-6 QC Sample: L2324564-01 Client ID: DUP Sample						
Arsenic, Total	0.0004J	0.0003J	mg/l	NC		20
Lead, Total	0.0017	0.0018	mg/l	6		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-4 QC Sample: L2324416-01 Client ID: DUP Sample						
Calcium, Total	7.45	6.34	mg/l	16		20
Iron, Total	0.0656	0.0181J	mg/l	NC		20
Magnesium, Total	1.51	1.32	mg/l	13		20
Manganese, Total	ND	ND	mg/l	NC		20
Potassium, Total	10.2	8.93	mg/l	13		20
Sodium, Total	50.9	44.2	mg/l	14		20

Project Name: RAMAPO LF
Project Number: 20010

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2324741
Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Hardness by SM 2340B - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-4 QC Sample: L2324416-01 Client ID: DUP Sample					
Hardness	24.8	21.2	mg/l	16	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778302-8 QC Sample: L2324564-01 Client ID: DUP Sample					
Iron, Total	ND	ND	mg/l	NC	20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1778306-4 QC Sample: L2324741-01 Client ID: SVWC-93					
Mercury, Total	ND	ND	mg/l	NC	20

INORGANICS & MISCELLANEOUS

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-01

Client ID: SVWC-93

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 07:50

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	48.9		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:17	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.225	J	mg/l	0.300	0.066	1	05/16/23 21:30	05/17/23 18:06	4,351.1	AVT
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:06	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-02

Client ID: SVWC-96

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 08:10

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	57.4		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:20	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.228	J	mg/l	0.300	0.066	1	05/16/23 21:30	05/17/23 18:10	4,351.1	AVT
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:06	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-03

Client ID: 9-OS

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 09:35

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	26.5		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:22	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.243	J	mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:41	121,4500NH3-H	KEP
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:06	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-04

Client ID: 9-I

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 10:15

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	25.3		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:24	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.192	J	mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:42	121,4500NH3-H	KEP
Chemical Oxygen Demand	3.2	J	mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:07	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-06

Client ID: 9-R

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 11:20

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	166.		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:25	121,2320B	MKT
Nitrogen, Total Kjeldahl	2.38		mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:43	121,4500NH3-H	KEP
Chemical Oxygen Demand	10.		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:07	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-07

Client ID: 8-R

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 13:25

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	487.		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:30	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.728		mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:44	121,4500NH3-H	KEP
Chemical Oxygen Demand	10.		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:07	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-08

Client ID: 8-I

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 14:20

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	352.		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:43	121,2320B	MKT
Nitrogen, Total Kjeldahl	1.38		mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:45	121,4500NH3-H	KEP
Chemical Oxygen Demand	12.		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:07	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-09

Client ID: 8-OS

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 15:00

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	52.4		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:52	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.185	J	mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:46	121,4500NH3-H	KEP
Chemical Oxygen Demand	3.2	J	mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:07	44,410.4	JRG



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

SAMPLE RESULTS

Lab ID: L2324741-10

Client ID: 3-OS/I

Sample Location: SUFFERN, NY

Date Collected: 05/04/23 15:35

Date Received: 05/04/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	233.		mg CaCO3/L	2.00	NA	1	-	05/17/23 08:54	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.258	J	mg/l	0.300	0.066	1	05/14/23 13:05	05/16/23 08:46	121,4500NH3-H	KEP
Chemical Oxygen Demand	3.2	J	mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:08	44,410.4	JRG



Project Name: RAMAPO LF

Lab Number: L2324741

Project Number: 20010

Report Date: 06/05/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 03-04,06-10 Batch: WG1778748-1										
Nitrogen, Total Kjeldahl	0.093	J	mg/l	0.300	0.022	1	05/14/23 13:05	05/16/23 08:20	121,4500NH3-H	KEP
General Chemistry - Westborough Lab for sample(s): 01-02 Batch: WG1779689-1										
Nitrogen, Total Kjeldahl	0.088	J	mg/l	0.300	0.022	1	05/16/23 21:30	05/17/23 18:01	4,351.1	AVT
General Chemistry - Westborough Lab for sample(s): 01-04,06-10 Batch: WG1779704-1										
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/16/23 19:24	05/16/23 22:04	44,410.4	JRG
General Chemistry - Westborough Lab for sample(s): 01-04,06-10 Batch: WG1779869-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	05/17/23 09:21	121,2320B	MKT

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-04,06-10 Batch: WG1778748-2								
Nitrogen, Total Kjeldahl	102		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 01-02 Batch: WG1779689-2								
Nitrogen, Total Kjeldahl	102		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 Batch: WG1779704-2								
Chemical Oxygen Demand	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 Batch: WG1779869-2								
Alkalinity, Total	98		-		90-110	-		10

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2324741

Report Date: 06/05/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1778748-4 QC Sample: L2326411-02 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	0.173J	8	6.63	83		-	-		77-111	-		24
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779689-4 QC Sample: L2322683-17 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	0.549	8	8.66	101		-	-		77-111	-		24
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1779704-4 QC Sample: L2324741-01 Client ID: SVWC-93												
Chemical Oxygen Demand	ND	47.6	48	101		-	-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1779869-4 QC Sample: L2324942-01 Client ID: MS Sample												
Alkalinity, Total	29.8	100	145	115		-	-		86-116	-		10

Lab Duplicate Analysis

Batch Quality Control

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1778748-3 QC Sample: L2326411-02 Client ID: DUP Sample						
Nitrogen, Total Kjeldahl	0.173J	0.206J	mg/l	NC		24
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1779689-3 QC Sample: L2322683-17 Client ID: DUP Sample						
Nitrogen, Total Kjeldahl	0.549	0.604	mg/l	10		24
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1779704-3 QC Sample: L2324741-01 Client ID: SVWC-93						
Chemical Oxygen Demand	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1779869-3 QC Sample: L2324942-01 Client ID: DUP Sample						
Alkalinity, Total	29.8	29.7	mg CaCO3/L	0		10

Project Name: RAMAPO LF**Lab Number:** L2324741**Project Number:** 20010**Report Date:** 06/05/23**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

Cooler Information**Cooler** **Custody Seal**

A Absent

B Absent

C Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324741-01A	Vial HCl preserved	C	NA		3.9	Y	Absent		524.2(14)
L2324741-01B	Vial HCl preserved	C	NA		3.9	Y	Absent		524.2(14)
L2324741-01C	Vial HCl preserved	C	NA		3.9	Y	Absent		524.2(14)
L2324741-01D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-01E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		CD-2008T(180),CA-UI(180),NI-2008T(180),CO-UI(180),ZN-2008T(180),BE-2008T(180),K-UI(180),FE-UI(180),HARDU(180),V-2008T(180),CU-2008T(180),MG-UI(180),AG-2008T(180),HG-U(28),AS-2008T(180),SE-2008T(180),B-UI(180),NA-UI(180),MN-UI(180),AL-UI(180),BA-2008T(180),SB-2008T(180),TL-2008T(180),PB-2008T(180),CR-2008T(180)
L2324741-01F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-351(28),COD-410-LOW(28)
L2324741-02A	Vial HCl preserved	C	NA		3.9	Y	Absent		524.2(14)
L2324741-02B	Vial HCl preserved	C	NA		3.9	Y	Absent		524.2(14)
L2324741-02C	Vial HCl preserved	C	NA		3.9	Y	Absent		524.2(14)
L2324741-02D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-02E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		CD-2008T(180),CA-UI(180),NI-2008T(180),BE-2008T(180),CO-UI(180),K-UI(180),ZN-2008T(180),V-2008T(180),CU-2008T(180),HARDU(180),MG-UI(180),FE-UI(180),SE-2008T(180),AG-2008T(180),HG-U(28),AS-2008T(180),B-UI(180),AL-UI(180),NA-UI(180),BA-2008T(180),MN-UI(180),PB-2008T(180),CR-2008T(180),SB-2008T(180),TL-2008T(180)
L2324741-02F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-351(28),COD-410-LOW(28)
L2324741-03A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No: 06052316:13
Lab Number: L2324741
Report Date: 06/05/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324741-03B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-03C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-03D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-03E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CR-6020T(180),K-6020T(180),CA-6020T(180),NI-6020T(180),NA-6020T(180),CU-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),B-UI(180),V-6020T(180),SB-6020T(180),AS-6020T(180),CD-6020T(180),HARDT-6020(180),HG-T(28),AL-6020T(180),AG-6020T(180),MG-6020T(180),CO-6020T(180)
L2324741-03F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-03G	Amber 250ml unpreserved	B	8	8	2.6	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324741-03H	Amber 250ml unpreserved	B	8	8	2.6	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324741-03I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-03J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-03K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-04A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-04B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-04C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-04D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-04E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		BA-6020T(180),SE-6020T(180),TL-6020T(180),FE-6020T(180),CA-6020T(180),NI-6020T(180),K-6020T(180),CR-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),B-UI(180),AS-6020T(180),SB-6020T(180),V-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),AL-6020T(180),HARDT-6020(180),AG-6020T(180),CO-6020T(180)
L2324741-04F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-04G	Amber 250ml unpreserved	B	8	8	2.6	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324741-04H	Amber 250ml unpreserved	B	8	8	2.6	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324741-04I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-04J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)

*Values in parentheses indicate holding time in days

Project Name: RAMAPO LF
Project Number: 20010

Serial_No: 06052316:13
Lab Number: L2324741
Report Date: 06/05/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324741-04K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-05A	Plastic 500ml unpreserved	B	NA		2.6	Y	Absent		A2-1633-DRAFT(28)
L2324741-05B	Plastic 500ml unpreserved	B	NA		2.6	Y	Absent		A2-1633-DRAFT(28)
L2324741-05C	Plastic 500ml unpreserved	B	NA		2.6	Y	Absent		A2-1633-DRAFT(28)
L2324741-06A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-06B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-06C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-06D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-06E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		FE-6020T(180),BA-6020T(180),TL-6020T(180),SE-6020T(180),CA-6020T(180),K-6020T(180),NI-6020T(180),CR-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),B-UI(180),V-6020T(180),SB-6020T(180),AS-6020T(180),HARDT-6020(180),AL-6020T(180),MG-6020T(180),HG-T(28),AG-6020T(180),CD-6020T(180),CO-6020T(180)
L2324741-06F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-06G	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324741-06H	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2324741-06I	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-06J	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-06K	Plastic 500ml unpreserved	A	NA		4.2	Y	Absent		A2-1633-DRAFT(28)
L2324741-07A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-07B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-07C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-07D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-07E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		BA-6020T(180),SE-6020T(180),FE-6020T(180),TL-6020T(180),K-6020T(180),NI-6020T(180),CR-6020T(180),CA-6020T(180),NA-6020T(180),CU-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),B-UI(180),V-6020T(180),SB-6020T(180),AS-6020T(180),HG-T(28),AL-6020T(180),AG-6020T(180),MG-6020T(180),HARDT-6020(180),CD-6020T(180),CO-6020T(180)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06052316:13
Lab Number: L2324741
Report Date: 06/05/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324741-07F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-08A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-08B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-08C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-08D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-08E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		BA-6020T(180),SE-6020T(180),FE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),NI-6020T(180),K-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),B-UI(180),AS-6020T(180),SB-6020T(180),V-6020T(180),HG-T(28),MG-6020T(180),AL-6020T(180),HARDT-6020(180),AG-6020T(180),CD-6020T(180),CO-6020T(180)
L2324741-08F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-09A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-09B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-09C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-09D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)
L2324741-09E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),NI-6020T(180),CR-6020T(180),CA-6020T(180),K-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),SB-6020T(180),V-6020T(180),AS-6020T(180),B-UI(180),CD-6020T(180),HG-T(28),AL-6020T(180),AG-6020T(180),MG-6020T(180),HARDT-6020(180),CO-6020T(180)
L2324741-09F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-10A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-10B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-10C	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-10D	Plastic 250ml unpreserved/No Headspace	B	NA		2.6	Y	Absent		ALK-T-2320(14)

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2324741-10E	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),NI-6020T(180),CR-6020T(180),CA-6020T(180),K-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),V-6020T(180),B-UI(180),SB-6020T(180),AS-6020T(180),HG-T(28),MG-6020T(180),CD-6020T(180),HARDT-6020(180),AL-6020T(180),AG-6020T(180),CO-6020T(180)
L2324741-10F	Plastic 250ml H2SO4 preserved	B	<2	<2	2.6	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2324741-11A	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)
L2324741-11B	Vial HCl preserved	C	NA		3.9	Y	Absent		NYTCL-8260(14)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06052316:13
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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/PFTeDA	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/PFDoS	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
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
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/PFOSA	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-Chloroeicosafuoro-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

Project Name: RAMAPO LF
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PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

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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.

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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.

Chlordane: 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.)

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'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

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. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: 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 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

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Data Qualifiers

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.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



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Project Number: 20010

Lab Number: L2324741
Report Date: 06/05/23

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.
- 4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
- 16 Methods for the Determination of Organic Compounds in Drinking Water - Supplement II. EPA/600/R-92/129, August 1992.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 144 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. Draft EPA Method 1633, EPA Document 821-D-22-001, June 2022.

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.



Alpha Analytical, Inc.Facility: **Company-wide**Department: **Quality Assurance**Title: **Certificate/Approval Program Summary**ID No.: **17873**

Revision 19

Published Date: 4/2/2021 1:14:23 PM

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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 625/625.1:** alpha-Terpineol**EPA 8260C/8260D:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.**EPA 8270D/8270E:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; 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.

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, SM4500CI-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, SM9222D.****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, EPA 537.1.****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.

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of 2

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ALPHA Job # C2324741

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.)

[illegible]



ANALYTICAL REPORT

Lab Number:	L2325099
Client:	Sterling Environmental Engineering 24 Wade Road Latham, NY 12110
ATTN:	Andrew Millspaugh
Phone:	(518) 456-4900
Project Name:	RAMAPO LF
Project Number:	20010
Report Date:	06/02/23

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-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2325099-01	SVWC-95	WATER	SUFFERN, NY	05/05/23 08:45	05/05/23
L2325099-02	SVWC-94	WATER	SUFFERN, NY	05/05/23 08:55	05/05/23
L2325099-03	7-OS	WATER	SUFFERN, NY	05/05/23 09:45	05/05/23
L2325099-04	4-OS	WATER	SUFFERN, NY	05/05/23 10:55	05/05/23
L2325099-05	2-OS	WATER	SUFFERN, NY	05/05/23 11:40	05/05/23
L2325099-06	1-OS	WATER	SUFFERN, NY	05/05/23 12:45	05/05/23
L2325099-07	FB05052023	WATER	SUFFERN, NY	05/05/23 09:00	05/05/23
L2325099-08	TB05052023	WATER	SUFFERN, NY	05/05/23 00:00	05/05/23

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

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: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Case Narrative (continued)

Report Submission

June 02, 2023: This final report includes the results of all requested analyses.

May 19, 2023: This is a preliminary report.

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

Perfluorinated Alkyl Acids by 1633

The WG1785469-4/-5 MS/MSD RPD, performed on L2325099-01, is outside the acceptance criteria for perfluorododecane sulfonic acid (pfdods) (45%).

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:

 Kelly Stenstrom

Title: Technical Director/Representative

Date: 06/02/23

ORGANICS

VOLATILES

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-01
 Client ID: SVWC-95
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:45
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 16:00
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	113		70-130

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-02
 Client ID: SVWC-94
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:55
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 16:22
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	115		70-130

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-03
 Client ID: 7-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 09:45
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 16:44
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	115		70-130

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-04
 Client ID: 4-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 10:55
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 17:06
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	115		70-130

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-05
 Client ID: 2-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 11:40
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 17:27
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	116		70-130

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-06
 Client ID: 1-OS
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 12:45
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 17:49
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	115		70-130

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-08
 Client ID: TB05052023
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 00:00
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260D
 Analytical Date: 05/17/23 14:33
 Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Benzene	ND		ug/l	0.50	0.16	1
Vinyl chloride	ND		ug/l	1.0	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	106		70-130

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 05/17/23 14:11
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06,08 Batch: WG1780400-5					
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chlorobenzene	ND		ug/l	2.5	0.70
Benzene	ND		ug/l	0.50	0.16
Vinyl chloride	ND		ug/l	1.0	0.07

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06,08 Batch: WG1780400-3 WG1780400-4								
1,1-Dichloroethane	100		110		70-130	10		20
Chlorobenzene	100		110		75-130	10		20
Benzene	100		110		70-130	10		20
Vinyl chloride	100		110		55-140	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		96		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	102		101		70-130
Dibromofluoromethane	94		96		70-130

SEMIVOLATILES

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-01
 Client ID: SVWC-95
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:45
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/17/23 01:40
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/12/23 11:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	338.		ng/l	142	32.0	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	38			15-110		

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-01
 Client ID: SVWC-95
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:45
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/01/23 15:20
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 13:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	2.12	J	ng/l	6.07	0.971	1
Perfluoropentanoic Acid (PFPeA)	0.910	J	ng/l	3.03	0.812	1
Perfluorobutanesulfonic Acid (PFBS)	1.90		ng/l	1.52	0.508	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.07	1.58	1
Perfluorohexanoic Acid (PFHxA)	0.986	J	ng/l	1.52	0.448	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.52	0.266	1
Perfluoroheptanoic Acid (PFHpA)	0.455	J	ng/l	1.52	0.303	1
Perfluorohexanesulfonic Acid (PFHxS)	0.683	J	ng/l	1.52	0.364	1
Perfluorooctanoic Acid (PFOA)	2.35		ng/l	1.52	0.660	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.07	2.05	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.52	0.410	1
Perfluorononanoic Acid (PFNA)	6.60		ng/l	1.52	0.478	1
Perfluorooctanesulfonic Acid (PFOS)	2.58		ng/l	1.52	0.690	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.52	0.614	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.07	2.36	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.52	0.470	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.52	0.827	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.52	0.660	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.52	0.349	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.52	0.410	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.52	0.819	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.52	0.698	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.52	0.569	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.52	0.402	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.07	0.850	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.07	0.956	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.52	0.577	1

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS****Lab ID:** L2325099-01**Date Collected:** 05/05/23 08:45**Client ID:** SVWC-95**Date Received:** 05/05/23**Sample Location:** SUFFERN, NY**Field Prep:** Not Specified**Sample Depth:**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.07	1.25	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.07	1.25	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.52	0.660	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.52	0.698	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.2	3.57	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.2	1.86	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.03	0.432	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.03	0.402	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.03	0.334	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.03	1.79	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.59	2.50	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	37.9	8.88	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	37.9	5.99	1

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-01

Date Collected: 05/05/23 08:45

Client ID: SVWC-95

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	90		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	87		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	93		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	120		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	90		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	101		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	89		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	90		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	93		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	78		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	77		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	73		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	77		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	86		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	82		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	64		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	104		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	70		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	60		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	91		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	48		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	49		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	78		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	94		20-150

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**SAMPLE RESULTS**

Lab ID: L2325099-02
 Client ID: SVWC-94
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:55
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 1,8270E-SIM
 Analytical Date: 05/17/23 02:05
 Analyst: TPR

Extraction Method: EPA 3510C
 Extraction Date: 05/12/23 11:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270E-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1
Surrogate	% Recovery		Qualifier	Acceptance Criteria		
1,4-Dioxane-d8	34			15-110		

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-02
 Client ID: SVWC-94
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:55
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/01/23 15:58
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 13:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.22	0.995	1
Perfluoropentanoic Acid (PFPeA)	1.01	J	ng/l	3.11	0.832	1
Perfluorobutanesulfonic Acid (PFBS)	1.17	J	ng/l	1.56	0.521	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.22	1.62	1
Perfluorohexanoic Acid (PFHxA)	1.01	J	ng/l	1.56	0.459	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.56	0.272	1
Perfluoroheptanoic Acid (PFHpA)	0.311	J	ng/l	1.56	0.311	1
Perfluorohexanesulfonic Acid (PFHxS)	0.544	J	ng/l	1.56	0.373	1
Perfluorooctanoic Acid (PFOA)	1.24	J	ng/l	1.56	0.676	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.22	2.10	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.56	0.420	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.56	0.490	1
Perfluorooctanesulfonic Acid (PFOS)	2.18		ng/l	1.56	0.708	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.56	0.630	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.22	2.42	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.56	0.482	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.56	0.848	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.56	0.676	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.56	0.358	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.56	0.420	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.56	0.840	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.56	0.715	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.56	0.583	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.56	0.412	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.22	0.871	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.22	0.980	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.56	0.591	1

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-02

Date Collected: 05/05/23 08:55

Client ID: SVWC-94

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.22	1.28	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.22	1.28	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.56	0.676	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.56	0.715	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.6	3.66	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.6	1.90	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.11	0.443	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.11	0.412	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND		ng/l	3.11	0.342	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.11	1.84	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.78	2.57	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	38.9	9.10	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	38.9	6.14	1

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-02
 Client ID: SVWC-94
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:55
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	82		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	77		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	84		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	108		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	76		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	84		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	76		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	81		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	81		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	72		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	74		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	75		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	78		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	83		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	59		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	99		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	73		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	64		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	83		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	51		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	51		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	76		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	84		20-150

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-07
 Client ID: FB05052023
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 09:00
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Matrix: Water
 Analytical Method: 144,1633
 Analytical Date: 06/01/23 16:11
 Analyst: LMV

Extraction Method: EPA 1633
 Extraction Date: 05/31/23 13:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.27	1.00	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.13	0.838	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.57	0.525	1
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.27	1.64	1
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.57	0.462	1
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.57	0.274	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.57	0.313	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.57	0.376	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.57	0.682	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.27	2.12	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.57	0.423	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.57	0.494	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.57	0.713	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.57	0.635	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.27	2.44	1
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.57	0.486	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.57	0.854	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.57	0.682	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.57	0.360	1
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.57	0.423	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.57	0.846	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.57	0.721	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.57	0.588	1
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.57	0.415	1
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.27	0.878	1
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.27	0.987	1
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.57	0.595	1

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-07
 Client ID: FB05052023
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 09:00
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.27	1.29	1
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.27	1.29	1
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.57	0.682	1
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.57	0.721	1
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	15.7	3.68	1
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	15.7	1.92	1
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.13	0.446	1
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.13	0.415	1
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.13	0.345	1
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.13	1.85	1
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	7.83	2.58	1
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	39.2	9.17	1
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	39.2	6.18	1

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-07
 Client ID: FB05052023
 Sample Location: SUFFERN, NY

Date Collected: 05/05/23 09:00
 Date Received: 05/05/23
 Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	83		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	86		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	91		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	98		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	94		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	98		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	83		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	83		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	87		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	74		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	78		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	78		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	77		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	82		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	59		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	84		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	79		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	70		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	47		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	44		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	62		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	77		20-150

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 05/16/23 13:43
Analyst: TPR

Extraction Method: EPA 3510C
Extraction Date: 05/12/23 11:10

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270E-SIM - Mansfield Lab for sample(s): 01-02 Batch: WG1778206-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	43		15-110

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/01/23 13:12
Analyst: LMV

Extraction Method: EPA 1633
Extraction Date: 05/31/23 13:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-02,07 Batch: WG1785469-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	6.40	1.02
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	3.20	0.856
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.60	0.536
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND		ng/l	6.40	1.67
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	1.60	0.472
Perfluoropentanesulfonic Acid (PFPeS)	ND		ng/l	1.60	0.280
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.60	0.320
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.60	0.384
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.60	0.696
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	6.40	2.16
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.60	0.432
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.60	0.504
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.60	0.728
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.60	0.648
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	6.40	2.49
Perfluorononanesulfonic Acid (PFNS)	ND		ng/l	1.60	0.496
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.60	0.872
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.60	0.696
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.60	0.368
Perfluorooctanesulfonamide (PFOSA)	ND		ng/l	1.60	0.432
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.60	0.864
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.60	0.736
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.60	0.600
Perfluorotetradecanoic Acid (PFTeDA)	ND		ng/l	1.60	0.424
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND		ng/l	6.40	0.896
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND		ng/l	6.40	1.01
Perfluorododecanesulfonic Acid (PFDoS)	ND		ng/l	1.60	0.608

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/01/23 13:12
Analyst: LMV

Extraction Method: EPA 1633
Extraction Date: 05/31/23 13:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-02,07 Batch: WG1785469-1					
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND		ng/l	6.40	1.32
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND		ng/l	6.40	1.32
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND		ng/l	1.60	0.696
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND		ng/l	1.60	0.736
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND		ng/l	16.0	3.76
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND		ng/l	16.0	1.96
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND		ng/l	3.20	0.456
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND		ng/l	3.20	0.424
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND		ng/l	3.20	0.352
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND		ng/l	3.20	1.89
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND		ng/l	8.00	2.64
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND		ng/l	40.0	9.36
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND		ng/l	40.0	6.31

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Analytical Method: 144,1633
Analytical Date: 06/01/23 13:12
Analyst: LMV

Extraction Method: EPA 1633
Extraction Date: 05/31/23 13:45

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab for sample(s): 01-02,07 Batch: WG1785469-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	85		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	87		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	89		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	92		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	82		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	98		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	82		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	80		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	90		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	80		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	79		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	79		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	86		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	87		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	58		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	95		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	81		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	63		20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	90		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	45		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	43		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	75		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	80		20-150

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270E-SIM - Mansfield Lab Associated sample(s): 01-02 Batch: WG1778206-2 WG1778206-3								
1,4-Dioxane	114		116		40-140	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	39		40		15-110

Lab Control Sample Analysis Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 Batch: WG1785469-2 LOW LEVEL								
Perfluorobutanoic Acid (PFBA)	92		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	79		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	90		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	96		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	92		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	93		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	78		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	79		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	75		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	98		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	68		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	92		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	102		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	78		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	80		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	68		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	65		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	90		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	83		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	90		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	75		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	80		-		40-150	-		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	<i>Low Level</i> LCS %Recovery	Qual	<i>Low Level</i> LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 Batch: WG1785469-2 LOW LEVEL								
Perfluorotridecanoic Acid (PFTrDA)	95		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	105		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	93		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	79		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	80		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	66		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	69		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	72		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	100		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	83		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	92		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	88		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	98		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	84		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	134		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	70		-		40-150	-		30
2H,2H,3H-Perfluorooctanoic Acid (5:3FTCA)	80		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	73		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	Low Level LCS %Recovery	Qual	Low Level LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 Batch: WG1785469-2 LOW LEVEL								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	86				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	89				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	86				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	93				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	85				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	94				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	81				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	84				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	87				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	82				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	81				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	82				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	86				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	87				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	86				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	58				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	96				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	84				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	75				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	94				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	54				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	53				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	78				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	88				20-150

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 Batch: WG1785469-3								
Perfluorobutanoic Acid (PFBA)	87		-		40-150	-		30
Perfluoropentanoic Acid (PFPeA)	80		-		40-150	-		30
Perfluorobutanesulfonic Acid (PFBS)	89		-		40-150	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	92		-		40-150	-		30
Perfluorohexanoic Acid (PFHxA)	96		-		40-150	-		30
Perfluoropentanesulfonic Acid (PFPeS)	82		-		40-150	-		30
Perfluoroheptanoic Acid (PFHpA)	71		-		40-150	-		30
Perfluorohexanesulfonic Acid (PFHxS)	72		-		40-150	-		30
Perfluorooctanoic Acid (PFOA)	70		-		40-150	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	95		-		40-150	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	72		-		40-150	-		30
Perfluorononanoic Acid (PFNA)	96		-		40-150	-		30
Perfluorooctanesulfonic Acid (PFOS)	90		-		40-150	-		30
Perfluorodecanoic Acid (PFDA)	73		-		40-150	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	81		-		40-150	-		30
Perfluorononanesulfonic Acid (PFNS)	74		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	98		-		40-150	-		30
Perfluoroundecanoic Acid (PFUnA)	96		-		40-150	-		30
Perfluorodecanesulfonic Acid (PFDS)	85		-		40-150	-		30
Perfluorooctanesulfonamide (PFOSA)	88		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	74		-		40-150	-		30
Perfluorododecanoic Acid (PFDoA)	76		-		40-150	-		30

Lab Control Sample Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 Batch: WG1785469-3								
Perfluorotridecanoic Acid (PFTrDA)	91		-		40-150	-		30
Perfluorotetradecanoic Acid (PFTeDA)	108		-		40-150	-		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	94		-		40-150	-		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	76		-		40-150	-		30
Perfluorododecanesulfonic Acid (PFDoS)	76		-		40-150	-		30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	80		-		40-150	-		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	73		-		40-150	-		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	78		-		40-150	-		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	102		-		40-150	-		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	85		-		40-150	-		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	95		-		40-150	-		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	87		-		40-150	-		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	96		-		40-150	-		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	80		-		40-150	-		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	135		-		40-150	-		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	73		-		40-150	-		30
2H,2H,3H-Perfluorooctanoic Acid (5:3FTCA)	76		-		40-150	-		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	73		-		40-150	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 Batch: WG1785469-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	72				20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	68				20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	73				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	83				20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	69				20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	78				20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	71				20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	74				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	74				20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	64				20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	66				20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	70				20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	69				20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	73				20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	69				20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	51				20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	82				20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	66				20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	59				20-150
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	74				20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	41				20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	42				20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	73				20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	85				20-150

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 QC Batch ID: WG1785469-4 WG1785469-5 QC Sample: L2325099-01 Client ID: SVWC-95												
Perfluorobutanoic Acid (PFBA)	2.12J	75.9	69.5	89		72.2	89		40-150	4		30
Perfluoropentanoic Acid (PFPeA)	0.910J	38	30.1	77		28.6	70		40-150	5		30
Perfluorobutanesulfonic Acid (PFBS)	1.90	16.8	15.9	83		17.3	88		40-150	8		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	71.2	66.1	93		66.7	90		40-150	1		30
Perfluorohexanoic Acid (PFHxA)	0.986J	19	18.4	92		17.6	84		40-150	4		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	17.9	15.8	88		15.3	82		40-150	3		30
Perfluoroheptanoic Acid (PFHpA)	0.455J	19	13.9	71		12.5	61		40-150	11		30
Perfluorohexanesulfonic Acid (PFHxS)	0.683J	17.4	13.1	72		12.7	67		40-150	3		30
Perfluorooctanoic Acid (PFOA)	2.35	19	14.6	64		15.4	66		40-150	5		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	72.1	70.2	97		68.1	91		40-150	3		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	18.1	13.2	73		13.5	72		40-150	2		30
Perfluorononanoic Acid (PFNA)	6.60	19	21.9	81		24.4	90		40-150	11		30
Perfluorooctanesulfonic Acid (PFOS)	2.58	17.6	18.2	89		18.2	85		40-150	0		30
Perfluorodecanoic Acid (PFDA)	ND	19	14.6	77		15.7	80		40-150	7		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	72.9	57.0	78		58.1	77		40-150	2		30
Perfluorononanesulfonic Acid (PFNS)	ND	18.3	13.2	72		12.4	65		40-150	6		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	19	19.3	102		19.6	99		40-150	2		30
Perfluoroundecanoic Acid (PFUnA)	ND	19	19.1	101		20.0	101		40-150	5		30
Perfluorodecanesulfonic Acid (PFDS)	ND	18.3	15.4	84		14.0	74		40-150	10		30
Perfluorooctanesulfonamide (PFOSA)	ND	19	19.2	101		17.7	90		40-150	8		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	19	13.9	73		16.0	81		40-150	14		30
Perfluorododecanoic Acid (PFDoA)	ND	19	14.8	78		15.7	80		40-150	6		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 QC Batch ID: WG1785469-4 WG1785469-5 QC Sample: L2325099-01 Client ID: SVWC-95												
Perfluorotridecanoic Acid (PFTrDA)	ND	19	18.2	96		17.2	87		40-150	6		30
Perfluorotetradecanoic Acid (PFTeDA)	ND	19	20.4	107		24.9	126		40-150	20		30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	75.9	74.3	98		71.8	91		40-150	3		30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	71.8	52.7	73		52.3	70		40-150	1		30
Perfluorododecanesulfonic Acid (PFDoS)	ND	18.4	14.0	76		8.84	46		40-150	45	Q	30
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	71	53.3	75		48.9	66		40-150	9		30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	71.8	49.5	69		39.8	53		40-150	22		30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	19	15.7	83		14.9	76		40-150	5		30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	19	20.0	105		18.5	94		40-150	8		30
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	190	158	83		161	82		40-150	2		30
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	190	181	95		191	97		40-150	5		30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	38	33.7	89		32.9	83		40-150	2		30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	38	39.1	103		36.6	93		40-150	7		30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	33.8	27.9	83		28.0	80		40-150	0		30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	38	53.5	141		52.3	133		40-150	2		30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	ND	94.9	91.9	97		81.1	82		40-150	12		30
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	475	386	81		361	73		40-150	7		30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	ND	475	390	82		331	67		40-150	16		30

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 QC Batch ID: WG1785469-4 WG1785469-5 QC Sample: L2325099-01 Client ID: SVWC-95												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Decanesulfonic Acid (13C2-8:2FTS)	81		59		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Hexanesulfonic Acid (13C2-4:2FTS)	104		82		20-150
1H,1H,2H,2H-Perfluoro-1-[1,2-13C2]Octanesulfonic Acid (13C2-6:2FTS)	83		69		20-150
N-Ethyl-d5-Perfluoro-1-Octanesulfonamide (D5-NEtFOSA)	44		31		20-150
N-Ethyl-d5-perfluoro-1-octanesulfonamidoacetic Acid (D5-NEtFOSAA)	92		44		20-150
N-Ethyl-d9-Perfluorooctanesulfonamidoethanol (D9-NEtFOSE)	80		42		20-150
N-Methyl-d3-Perfluoro-1-Octanesulfonamide (D3-NMeFOSA)	44		34		20-150
N-Methyl-d3-perfluoro-1-octanesulfonamidoacetic Acid (D3-NMeFOSAA)	73		43		20-150
N-Methyl-d7-Perfluorooctanesulfonamidoethanol (D7-NMeFOSE)	78		44		20-150
Perfluoro-1-[1,2,3-13C3]Hexanesulfonic Acid (13C3-PFHxS)	78		66		20-150
Perfluoro-1-[13C8]Octanesulfonamide (13C8-PFOSA)	56		44		20-150
Perfluoro-1-[13C8]Octanesulfonic Acid (13C8-PFOS)	73		56		20-150
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	83		69		20-150
Perfluoro-n-[1,2,3,4,5,6,7-13C7]Undecanoic Acid (13C7-PFUnA)	72		50		20-150
Perfluoro-n-[1,2,3,4,5,6-13C6]Decanoic Acid (13C6-PFDA)	74		54		20-150
Perfluoro-n-[1,2,3,4,6-13C5]Hexanoic Acid (13C5-PFHxA)	74		66		20-150
Perfluoro-n-[1,2,3,4-13C4]Heptanoic Acid (13C4-PFHpA)	89		75		20-150
Perfluoro-n-[1,2-13C2]Dodecanoic Acid (13C2-PFDoA)	68		43		20-150
Perfluoro-n-[1,2-13C2]Tetradecanoic Acid (13C2-PFTeDA)	61		24		20-150
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	81		70		20-150
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	74		70		20-150
Perfluoro-n-[13C8]Octanoic Acid (13C8-PFOA)	80		66		20-150
Perfluoro-n-[13C9]Nonanoic Acid (13C9-PFNA)	78		62		20-150

Matrix Spike Analysis**Batch Quality Control****Project Name:** RAMAPO LF**Project Number:** 20010**Lab Number:** L2325099**Report Date:** 06/02/23

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 EPA 1633 - Mansfield Lab Associated sample(s): 01-02,07 QC Batch ID: WG1785469-4 WG1785469-5 QC Sample: L2325099-01 Client ID: SVWC-95												

Surrogate	MS % Recovery	Qualifier	MSD % Recovery	Qualifier	Acceptance Criteria
Tetrafluoro-2-heptafluoropropoxy-[13C3]-propanoic acid (13C3-HFPO-DA)	86		73		20-150

METALS

Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-01

Date Collected: 05/05/23 08:45

Client ID: SVWC-95

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Barium, Total	0.00981		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Boron, Total	0.020		mg/l	0.010	0.0005	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Calcium, Total	17.8		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Chromium, Total	0.00027	J	mg/l	0.00100	0.00017	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Copper, Total	0.00200		mg/l	0.00100	0.00038	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Iron, Total	0.0289	J	mg/l	0.0500	0.0191	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Magnesium, Total	4.74		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Manganese, Total	0.03420		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/17/23 03:00	05/19/23 10:49	EPA 7470A	1,7470A	DMB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Potassium, Total	1.53		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Sodium, Total	38.2		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV
Total Hardness (by calculation) - Mansfield Lab											
Hardness	64.02		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 15:56	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-02

Date Collected: 05/05/23 08:55

Client ID: SVWC-94

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00557	J	mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Arsenic, Total	0.00029	J	mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Barium, Total	0.00939		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Boron, Total	0.016		mg/l	0.010	0.0005	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Calcium, Total	18.1		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Chromium, Total	0.00035	J	mg/l	0.00100	0.00017	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Copper, Total	0.00355		mg/l	0.00100	0.00038	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Iron, Total	0.0363	J	mg/l	0.0500	0.0191	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Magnesium, Total	4.94		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Manganese, Total	0.01209		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/17/23 03:00	05/19/23 10:53	EPA 7470A	1,7470A	DMB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Potassium, Total	1.47		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Sodium, Total	42.2		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV
Total Hardness (by calculation) - Mansfield Lab											
Hardness	65.54		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 16:01	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-03

Date Collected: 05/05/23 09:45

Client ID: 7-OS

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0170		mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Barium, Total	0.01326		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Boron, Total	0.042		mg/l	0.010	0.0005	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Calcium, Total	33.4		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Chromium, Total	0.03431		mg/l	0.00100	0.00017	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Cobalt, Total	0.00018	J	mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Copper, Total	0.00096	J	mg/l	0.00100	0.00038	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Iron, Total	0.220		mg/l	0.0500	0.0191	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Magnesium, Total	7.09		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Manganese, Total	0.00321		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/17/23 03:00	05/19/23 10:56	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00305		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Potassium, Total	2.90		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Sodium, Total	9.05		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV
Total Hardness (by calculation) - Mansfield Lab											
Hardness	112.7		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 16:06	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-04

Date Collected: 05/05/23 10:55

Client ID: 4-OS

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0204		mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Barium, Total	0.02617		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Boron, Total	0.008	J	mg/l	0.010	0.0005	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Calcium, Total	31.7		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Chromium, Total	0.02963		mg/l	0.00100	0.00017	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Cobalt, Total	0.00124		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Copper, Total	0.00072	J	mg/l	0.00100	0.00038	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Iron, Total	0.765		mg/l	0.0500	0.0191	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Magnesium, Total	13.6		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Manganese, Total	0.03810		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/17/23 03:00	05/19/23 10:59	EPA 7470A	1,7470A	DMB
Nickel, Total	0.03011		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Potassium, Total	0.883		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Sodium, Total	84.9		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV
Total Hardness (by calculation) - Mansfield Lab											
Hardness	135.2		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 16:10	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-05

Date Collected: 05/05/23 11:40

Client ID: 2-OS

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0463		mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Antimony, Total	0.00043	J	mg/l	0.00400	0.00042	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Arsenic, Total	0.00026	J	mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Barium, Total	0.03491		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Boron, Total	0.130		mg/l	0.100	0.005	10	05/17/23 00:15	05/18/23 17:04	EPA 3005A	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Calcium, Total	111.		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Chromium, Total	0.01312		mg/l	0.00100	0.00017	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Cobalt, Total	0.00025	J	mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Copper, Total	0.00368		mg/l	0.00100	0.00038	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Iron, Total	0.207		mg/l	0.0500	0.0191	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Magnesium, Total	14.9		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Manganese, Total	0.00743		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/17/23 03:00	05/19/23 11:02	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00278		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Potassium, Total	3.68		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Sodium, Total	32.9		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV
Total Hardness (by calculation) - Mansfield Lab											
Hardness	338.5		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 16:40	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-06

Date Collected: 05/05/23 12:45

Client ID: 1-OS

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0183		mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Antimony, Total	0.00096	J	mg/l	0.00400	0.00042	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Barium, Total	0.00995		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Boron, Total	0.047		mg/l	0.010	0.0005	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Calcium, Total	56.5		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Chromium, Total	0.02308		mg/l	0.00100	0.00017	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Cobalt, Total	0.00060		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Copper, Total	0.00166		mg/l	0.00100	0.00038	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Iron, Total	0.377		mg/l	0.0500	0.0191	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Magnesium, Total	11.9		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Manganese, Total	0.8900		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Mercury, Total	ND		mg/l	0.00020	0.00009	1	05/17/23 03:00	05/19/23 11:06	EPA 7470A	1,7470A	DMB
Nickel, Total	0.00337		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Potassium, Total	2.42		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Sodium, Total	69.7		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV
Total Hardness (by calculation) - Mansfield Lab											
Hardness	190.2		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 16:20	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-06 Batch: WG1777866-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV
Antimony, Total	ND		mg/l	0.00400	0.00042	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Barium, Total	ND		mg/l	0.00050	0.00017	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Beryllium, Total	ND		mg/l	0.00050	0.00010	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Boron, Total	ND		mg/l	0.010	0.0005	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV
Cadmium, Total	ND		mg/l	0.00020	0.00005	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Calcium, Total	ND		mg/l	0.100	0.0394	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV
Chromium, Total	0.00029	J	mg/l	0.00100	0.00017	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Copper, Total	ND		mg/l	0.00100	0.00038	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Iron, Total	ND		mg/l	0.0500	0.0191	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV
Manganese, Total	ND		mg/l	0.00100	0.00044	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Nickel, Total	ND		mg/l	0.00200	0.00055	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Potassium, Total	ND		mg/l	0.100	0.0309	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV
Selenium, Total	ND		mg/l	0.00500	0.00173	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Silver, Total	ND		mg/l	0.00040	0.00016	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Sodium, Total	ND		mg/l	0.100	0.0293	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV
Thallium, Total	ND		mg/l	0.00100	0.00014	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB
Zinc, Total	ND		mg/l	0.01000	0.00341	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Hardness (by calculation) - Mansfield Lab for sample(s): 01-06 Batch: WG1777866-1										
Hardness	ND		mg/l	0.5400	NA	1	05/17/23 00:15	05/18/23 13:24	1,6020B	SMV



Project Name: RAMAPO LF

Lab Number: L2325099

Project Number: 20010

Report Date: 06/02/23

Method Blank Analysis Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-06 Batch: WG1777870-1									
Mercury, Total	ND	mg/l	0.00020	0.00009	1	05/17/23 03:00	05/18/23 16:54	1,7470A	DMB

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1777866-2								
Aluminum, Total	101		-		80-120	-		
Antimony, Total	89		-		80-120	-		
Arsenic, Total	100		-		80-120	-		
Barium, Total	101		-		80-120	-		
Beryllium, Total	98		-		80-120	-		
Boron, Total	94		-		80-120	-		
Cadmium, Total	103		-		80-120	-		
Calcium, Total	96		-		80-120	-		
Chromium, Total	100		-		80-120	-		
Cobalt, Total	97		-		80-120	-		
Copper, Total	99		-		80-120	-		
Iron, Total	99		-		80-120	-		
Lead, Total	104		-		80-120	-		
Magnesium, Total	97		-		80-120	-		
Manganese, Total	97		-		80-120	-		
Nickel, Total	97		-		80-120	-		
Potassium, Total	97		-		80-120	-		
Selenium, Total	96		-		80-120	-		
Silver, Total	107		-		80-120	-		
Sodium, Total	102		-		80-120	-		
Thallium, Total	104		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1777866-2					
Vanadium, Total	99	-	80-120	-	
Zinc, Total	95	-	80-120	-	
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 01-06 Batch: WG1777866-2					
Hardness	97	-	80-120	-	
Total Metals - Mansfield Lab Associated sample(s): 01-06 Batch: WG1777870-2					
Mercury, Total	90	-	80-120	-	

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06			QC Batch ID: WG1777866-3		WG1777866-4	QC Sample: L2325061-01			Client ID: MS Sample			
Aluminum, Total	0.109	2	2.07	98		2.19	104		75-125	6		20
Antimony, Total	ND	0.5	0.5249	105		0.5033	101		75-125	4		20
Arsenic, Total	0.00019J	0.12	0.1203	100		0.1208	101		75-125	0		20
Barium, Total	0.01279	2	2.056	102		2.028	101		75-125	1		20
Beryllium, Total	ND	0.05	0.05224	104		0.04840	97		75-125	8		20
Boron, Total	0.012	1	1.01	100		0.974	96		75-125	4		20
Cadmium, Total	ND	0.053	0.05469	103		0.05373	101		75-125	2		20
Calcium, Total	26.7	10	35.7	90		37.7	110		75-125	5		20
Chromium, Total	0.00085J	0.2	0.2082	104		0.2089	104		75-125	0		20
Cobalt, Total	0.00046J	0.5	0.5051	101		0.4996	100		75-125	1		20
Copper, Total	0.00068J	0.25	0.2554	102		0.2521	101		75-125	1		20
Iron, Total	9.59	1	10.5	91		10.7	111		75-125	2		20
Lead, Total	ND	0.53	0.5472	103		0.5401	102		75-125	1		20
Magnesium, Total	4.30	10	13.6	93		14.6	103		75-125	7		20
Manganese, Total	0.1868	0.5	0.6860	100		0.6842	99		75-125	0		20
Nickel, Total	0.00068J	0.5	0.4955	99		0.5014	100		75-125	1		20
Potassium, Total	0.880	10	10.8	99		11.6	107		75-125	7		20
Selenium, Total	ND	0.12	0.121	101		0.116	97		75-125	4		20
Silver, Total	ND	0.05	0.05383	108		0.05293	106		75-125	2		20
Sodium, Total	0.950	10	10.6	96		11.2	102		75-125	6		20
Thallium, Total	ND	0.12	0.1228	102		0.1213	101		75-125	1		20

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1777866-3 WG1777866-4 QC Sample: L2325061-01 Client ID: MS Sample									
Vanadium, Total	ND	0.5	0.5167	103	0.5165	103	75-125	0	20
Zinc, Total	0.00372J	0.5	0.4974	99	0.4913	98	75-125	1	20
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1777866-3 WG1777866-4 QC Sample: L2325061-01 Client ID: MS Sample									
Hardness	84.48	66.2	145.3	92	154.2	105	75-125	6	20
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1777870-3 WG1777870-4 QC Sample: L2325061-01 Client ID: MS Sample									
Mercury, Total	ND	0.005	0.00459	92	0.00476	95	75-125	4	20

Project Name: RAMAPO LF
Project Number: 20010

**Lab Serial Dilution
 Analysis
 Batch Quality Control**

Lab Number: L2325099
Report Date: 06/02/23

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1777866-6 QC Sample: L2325061-01 Client ID: DUP Sample						
Calcium, Total	26.7	26.4	mg/l	1		20
Magnesium, Total	4.30	4.36	mg/l	1		20
Total Hardness (by calculation) - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1777866-6 QC Sample: L2325061-01 Client ID: DUP Sample						
Hardness	84.48	83.90	mg/l	1		20

INORGANICS & MISCELLANEOUS

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-01

Client ID: SVWC-95

Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:45

Date Received: 05/05/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	58.5		mg CaCO3/L	2.00	NA	1	-	05/17/23 09:31	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.096	J	mg/l	0.300	0.066	1	05/17/23 16:10	05/19/23 15:14	121,4500NH3-H	AAA
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:12	44,410.4	TLH



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-02

Client ID: SVWC-94

Sample Location: SUFFERN, NY

Date Collected: 05/05/23 08:55

Date Received: 05/05/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	44.3		mg CaCO3/L	2.00	NA	1	-	05/17/23 09:41	121,2320B	MKT
Nitrogen, Total Kjeldahl	ND		mg/l	0.300	0.066	1	05/17/23 16:10	05/19/23 15:14	121,4500NH3-H	AAA
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:12	44,410.4	TLH



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-03

Client ID: 7-OS

Sample Location: SUFFERN, NY

Date Collected: 05/05/23 09:45

Date Received: 05/05/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	122.		mg CaCO3/L	2.00	NA	1	-	05/17/23 09:43	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.137	J	mg/l	0.300	0.066	1	05/17/23 16:10	05/19/23 15:15	121,4500NH3-H	AAA
Chemical Oxygen Demand	10.		mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:12	44,410.4	TLH



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-04

Client ID: 4-OS

Sample Location: SUFFERN, NY

Date Collected: 05/05/23 10:55

Date Received: 05/05/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	82.3		mg CaCO3/L	2.00	NA	1	-	05/17/23 09:47	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.088	J	mg/l	0.300	0.066	1	05/17/23 16:10	05/19/23 15:16	121,4500NH3-H	AAA
Chemical Oxygen Demand	7.9	J	mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:12	44,410.4	TLH



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-05

Client ID: 2-OS

Sample Location: SUFFERN, NY

Date Collected: 05/05/23 11:40

Date Received: 05/05/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	382.		mg CaCO3/L	2.00	NA	1	-	05/17/23 09:50	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.205	J	mg/l	0.300	0.066	1	05/17/23 16:10	05/19/23 15:17	121,4500NH3-H	AAA
Chemical Oxygen Demand	3.2	J	mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:12	44,410.4	TLH



Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

SAMPLE RESULTS

Lab ID: L2325099-06

Client ID: 1-OS

Sample Location: SUFFERN, NY

Date Collected: 05/05/23 12:45

Date Received: 05/05/23

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	273.		mg CaCO3/L	2.00	NA	1	-	05/17/23 10:00	121,2320B	MKT
Nitrogen, Total Kjeldahl	0.378		mg/l	0.300	0.066	1	05/17/23 16:10	05/19/23 15:18	121,4500NH3-H	AAA
Chemical Oxygen Demand	5.6	J	mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:12	44,410.4	TLH



Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-06 Batch: WG1779854-1										
Nitrogen, Total Kjeldahl	0.075	J	mg/l	0.300	0.022	1	05/17/23 16:10	05/19/23 15:10	121,4500NH3-H	AAA
General Chemistry - Westborough Lab for sample(s): 01-06 Batch: WG1779876-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	05/17/23 14:18	121,2320B	MKT
General Chemistry - Westborough Lab for sample(s): 01-06 Batch: WG1780179-1										
Chemical Oxygen Demand	ND		mg/l	10	2.7	1	05/17/23 17:35	05/17/23 20:11	44,410.4	TLH

Lab Control Sample Analysis

Batch Quality Control

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06 Batch: WG1779854-2								
Nitrogen, Total Kjeldahl	108		-		78-122	-		
General Chemistry - Westborough Lab Associated sample(s): 01-06 Batch: WG1779876-2								
Alkalinity, Total	99		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-06 Batch: WG1780179-2								
Chemical Oxygen Demand	96		-		90-110	-		

Matrix Spike Analysis **Batch Quality Control**

Project Name: RAMAPO LF

Project Number: 20010

Lab Number: L2325099

Report Date: 06/02/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1779854-4 QC Sample: L2325396-02 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	20.2	8	26.4	78		-	-		77-111	-		24
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1779876-4 QC Sample: L2325099-01 Client ID: SVWC-95												
Alkalinity, Total	58.5	100	169	110		-	-		86-116	-		10
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1780179-4 QC Sample: L2325099-01 Client ID: SVWC-95												
Chemical Oxygen Demand	ND	47.6	45	94		-	-		90-110	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1779854-3 QC Sample: L2325396-02 Client ID: DUP Sample						
Nitrogen, Total Kjeldahl	20.2	18.7	mg/l	8		24
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1779876-3 QC Sample: L2325099-01 Client ID: SVWC-95						
Alkalinity, Total	58.5	57.0	mg CaCO3/L	3		10
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1780179-3 QC Sample: L2325099-01 Client ID: SVWC-95						
Chemical Oxygen Demand	ND	ND	mg/l	NC		20

Project Name: RAMAPO LF**Lab Number:** L2325099**Project Number:** 20010**Report Date:** 06/02/23**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(*)
L2325099-01A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-01B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-01C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-01D	Plastic 250ml unpreserved/No Headspace	NA	NA			Y	Absent		ALK-T-2320(14)
L2325099-01E	Plastic 250ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TKN-4500(28)
L2325099-01F	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		BA-6020T(180),TL-6020T(180),FE-6020T(180),SE-6020T(180),CA-6020T(180),K-6020T(180),CR-6020T(180),NI-6020T(180),ZN-6020T(180),CU-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),B-6020T(180),V-6020T(180),AS-6020T(180),SB-6020T(180),HG-T(28),MG-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HARDT-6020(180),CO-6020T(180)
L2325099-01G	Amber 250ml unpreserved	A	7	7	4.2	N	Absent		A2-1,4-DIOXANE-SIM(7)
L2325099-01H	Amber 250ml unpreserved	A	7	7	4.2	N	Absent		A2-1,4-DIOXANE-SIM(7)
L2325099-01I	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-01J	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-01K	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-02A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-02B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-02C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-02D	Plastic 250ml unpreserved/No Headspace	NA	NA			Y	Absent		ALK-T-2320(14)
L2325099-02E	Plastic 500ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TKN-4500(28)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06022312:56
Lab Number: L2325099
Report Date: 06/02/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2325099-02F	Plastic 500ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		FE-6020T(180),BA-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),ZN-6020T(180),NA-6020T(180),CU-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),B-6020T(180),SB-6020T(180),V-6020T(180),HG-T(28),MG-6020T(180),AL-6020T(180),HARDT-6020(180),CD-6020T(180),AG-6020T(180),CO-6020T(180)
L2325099-02G	Amber 250ml unpreserved	A	7	7	4.2	N	Absent		A2-1,4-DIOXANE-SIM(7)
L2325099-02H	Amber 250ml unpreserved	A	7	7	4.2	N	Absent		A2-1,4-DIOXANE-SIM(7)
L2325099-02I	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-02J	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-02K	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-03A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-03B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-03C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-03D	Plastic 250ml unpreserved/No Headspace	A	NA		4.2	Y	Absent		ALK-T-2320(14)
L2325099-03E	Plastic 250ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2325099-03F	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		FE-6020T(180),BA-6020T(180),SE-6020T(180),TL-6020T(180),K-6020T(180),NI-6020T(180),CR-6020T(180),CA-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),MN-6020T(180),BE-6020T(180),SB-6020T(180),AS-6020T(180),V-6020T(180),B-6020T(180),AG-6020T(180),MG-6020T(180),CD-6020T(180),HG-T(28),AL-6020T(180),HARDT-6020(180),CO-6020T(180)
L2325099-04A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-04B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-04C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-04D	Plastic 250ml unpreserved/No Headspace	A	NA		4.2	Y	Absent		ALK-T-2320(14)
L2325099-04E	Plastic 250ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TKN-4500(28),COD-410-LOW(28)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06022312:56
Lab Number: L2325099
Report Date: 06/02/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2325099-04F	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		BA-6020T(180),SE-6020T(180),FE-6020T(180),TL-6020T(180),CA-6020T(180),K-6020T(180),CR-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),V-6020T(180),SB-6020T(180),B-6020T(180),MG-6020T(180),CD-6020T(180),AL-6020T(180),HG-T(28),AG-6020T(180),HARDT-6020(180),CO-6020T(180)
L2325099-05A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-05B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-05C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-05D	Plastic 250ml unpreserved/No Headspace	A	NA		4.2	Y	Absent		ALK-T-2320(14)
L2325099-05E	Plastic 250ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2325099-05F	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		BA-6020T(180),TL-6020T(180),FE-6020T(180),SE-6020T(180),CA-6020T(180),K-6020T(180),NI-6020T(180),CR-6020T(180),NA-6020T(180),ZN-6020T(180),CU-6020T(180),PB-6020T(180),MN-6020T(180),BE-6020T(180),B-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),HARDT-6020(180),HG-T(28),CD-6020T(180),AG-6020T(180),MG-6020T(180),AL-6020T(180),CO-6020T(180)
L2325099-06A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-06B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-06C	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-06D	Plastic 250ml unpreserved/No Headspace	A	NA		4.2	Y	Absent		ALK-T-2320(14)
L2325099-06E	Plastic 250ml H2SO4 preserved	A	<2	<2	4.2	Y	Absent		TKN-4500(28),COD-410-LOW(28)
L2325099-06F	Plastic 250ml HNO3 preserved	A	<2	<2	4.2	Y	Absent		FE-6020T(180),BA-6020T(180),TL-6020T(180),SE-6020T(180),CA-6020T(180),K-6020T(180),CR-6020T(180),NI-6020T(180),CU-6020T(180),ZN-6020T(180),NA-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),SB-6020T(180),B-6020T(180),AS-6020T(180),V-6020T(180),AL-6020T(180),MG-6020T(180),HG-T(28),AG-6020T(180),CD-6020T(180),HARDT-6020(180),CO-6020T(180)
L2325099-07A	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-07B	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)
L2325099-07C	Plastic 500ml unpreserved	B	NA		3.7	Y	Absent		A2-1633-DRAFT(28)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06022312:56
Lab Number: L2325099
Report Date: 06/02/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2325099-08A	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)
L2325099-08B	Vial HCl preserved	A	NA		4.2	Y	Absent		NYTCL-8260(14)

Project Name: RAMAPO LF
Project Number: 20010

Serial_No:06022312:56
Lab Number: L2325099
Report Date: 06/02/23

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/PFTeDA	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 (PFSA's)		
Perfluorododecanesulfonic Acid	PFDoDS/PFDoS	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
Perfluoropropanesulfonic Acid	PFPrS	423-41-6
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/PFOSA	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	PFEEA	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

Project Name: RAMAPO LF
Project Number: 20010

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PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
FLUOROTELOMER CARBOXYLIC ACIDS (FTCAs)		
3-Perfluoroheptyl Propanoic Acid	7:3FTCA	812-70-4
2H,2H,3H,3H-Perfluorooctanoic Acid	5:3FTCA	914637-49-3
3-Perfluoropropyl Propanoic Acid	3:3FTCA	356-02-5

Project Name: RAMAPO LF
Project Number: 20010

Lab Number: L2325099
Report Date: 06/02/23

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.

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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.

Chlordane: 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.)

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'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

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. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: 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 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

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Data Qualifiers

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.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.
- 144 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS. Draft EPA Method 1633, EPA Document 821-D-22-001, June 2022.

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 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; 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.

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, SM4500CI-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, SM9222D.**

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, EPA 537.1.

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 <u>1</u> of <u>1</u>		Date Rec'd in Lab <u>5/6/23</u>		ALPHA Job # <u>12325099</u>			
Client Information Client: <u>Sterling Env</u> Address: <u>24 Wood Rd</u> <u>Latham NY 12110</u> Phone: <u>518 456-4900</u> Fax: Email:		Project Information Project Name: <u>Ramapo LF</u> Project Location: <u>Suffern, NY</u> Project # <u>20010</u> (Use Project name as Project #) ☐ Project Manager: <u>Andrew Millspaugh</u> ALPHAQuote #: Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		Deliverables ☒ ASP-A ☒ ASP-B ☐ EQUIS (1 File) ☐ EQUIS (4 File) ☐ Other <u>CATB PFAS + 1,4 Dioxin Only</u>		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: <u>andrew.millspaugh@sterlingenvironmental.com</u> <u>paul.scholar@sterlingenvironmental.com</u> Please specify Metals or TALX: <u>Total/As, Cd, Cu, Cr, Fe, Pb, Hg, Mn, Ni, K, Se, Ag, Na, Ti, V, Zn, ++VOLs = 1,1 Dichloroethane, Benzene, Chlorobenzene, Vinyl Chloride</u>		ANALYSIS Total Metals <u>1633</u> Hardness <u>1633</u> TKN, COD <u>1633</u> PFAS <u>1633</u> 1,4 Dioxin <u>1633</u> PCBs <u>1633</u> Aik-T-2380 <u>1633</u> Volcs <u>1633</u> 8260C <u>1633</u>		Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)		Sample Specific Comments		Total Bottles			
ALPHA Lab ID (Lab Use Only) Sample ID Collection Date Time Sample Matrix Sampler's Initials		Date Time Sample Matrix Sampler's Initials		Date Time Sample Matrix Sampler's Initials		Date Time Sample Matrix Sampler's Initials		Date Time Sample Matrix Sampler's Initials			
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25099 -206 5-5-2023 2130 Secured Storage		25099 -207 5-5-2023 2130 Secured Storage		25099 -208 5-5-2023 2130 Secured Storage		25099 -209 5-5-2023 2130 Secured Storage		25099 -210 5-5-2023 2130 Secured Storage			
25099 -211 5-5-2023 2130 Secured Storage		25099 -212 5-5-2023 2130 Secured Storage		25099 -213 5-5-2023 2130 Secured Storage		25099 -214 5-5-2023 2130 Secured Storage		25099 -215 5-5-2023 2130 Secured Storage			
25099 -216 5-5-2023 2130 Secured Storage		25099 -217 5-5-2023 2130 Secured Storage		25099 -218 5-5-2023 2130 Secured Storage		25099 -219 5-5-2023 2130 Secured Storage		25099 -220 5-5-2023 2130 Secured Storage			
25099 -221 5-5-2023 2130 Secured Storage		25099 -222 5-5-2023 2130 Secured Storage		25099 -223 5-5-2023 2130 Secured Storage		25099 -224 5-5-2023 2130 Secured Storage		25099 -225 5-5-2023 2130 Secured Storage			
25099 -226 5-5-2023 2130 Secured Storage		25099 -227 5-5-2023 2130 Secured Storage		25099 -228 5-5-2023 2130 Secured Storage		25099 -229 5-5-2023 2130 Secured Storage		25099 -230 5-5-2023 2130 Secured Storage			
25099 -231 5-5-2023 2130 Secured Storage		25099 -232 5-5-2023 2130 Secured Storage		25099 -233 5-5-2023 2130 Secured Storage		25099 -234 5-5-2023 2130 Secured Storage		25099 -235 5-5-2023 2130 Secured Storage			
25099 -236 5-5-2023 2130 Secured Storage		25099 -237 5-5-2023 2130 Secured Storage		25099 -238 5-5-2023 2130 Secured Storage		25099 -239 5-5-2023 2130 Secured Storage		25099 -240 5-5-2023 2130 Secured Storage			
25099 -241 5-5-2023 2130 Secured Storage		25099 -242 5-5-2023 2130 Secured Storage		25099 -243 5-5-2023 2130 Secured Storage		25099 -244 5-5-2023 2130 Secured Storage		25099 -245 5-5-2023 2130 Secured Storage			
25099 -246 5-5-2023 2130 Secured Storage		25099 -247 5-5-2023 2130 Secured Storage		25099 -248 5-5-2023 2130 Secured Storage		25099 -249 5-5-2023 2130 Secured Storage		25099 -250 5-5-2023 2130 Secured Storage			
25099 -251 5-5-2023 2130 Secured Storage		25099 -252 5-5-2023 2130 Secured Storage		25099 -253 5-5-2023 2130 Secured Storage		25099 -254 5-5-2023 2130 Secured Storage		25099 -255 5-5-2023 2130 Secured Storage			
25099 -256 5-5-2023 2130 Secured Storage		25099 -257 5-5-2023 2130 Secured Storage		25099 -258 5-5-2023 2130 Secured Storage		25099 -259 5-5-2023 2130 Secured Storage		25099 -260 5-5-2023 2130 Secured Storage			
25099 -261 5-5-2023 2130 Secured Storage		25099 -262									



ANALYTICAL REPORT

Lab Number:	L2325098
Client:	Sterling Environmental Engineering 24 Wade Road Latham, NY 12110
ATTN:	Andrew Millspaugh
Phone:	(518) 456-4900
Project Name:	RAMAPO LF RANGE
Project Number:	20010
Report Date:	05/19/23

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-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OH (CL108), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: RAMAPO LF RANGE
Project Number: 20010

Lab Number: L2325098
Report Date: 05/19/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2325098-01	RPD RANGE	WATER	SUFFERN, NY	05/05/23 08:00	05/05/23

Project Name: RAMAPO LF RANGE
Project Number: 20010

Lab Number: L2325098
Report Date: 05/19/23

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: RAMAPO LF RANGE
Project Number: 20010

Lab Number: L2325098
Report Date: 05/19/23

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.

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:



Kelly Stenstrom

Title: Technical Director/Representative

Date: 05/19/23

METALS

Project Name: RAMAPO LF RANGE**Lab Number:** L2325098**Project Number:** 20010**Report Date:** 05/19/23**SAMPLE RESULTS**

Lab ID: L2325098-01

Date Collected: 05/05/23 08:00

Client ID: RPD RANGE

Date Received: 05/05/23

Sample Location: SUFFERN, NY

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	0.00100		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/18/23 15:48	EPA 3005A	1,6020B	SMV



Project Name: RAMAPO LF RANGE

Lab Number: L2325098

Project Number: 20010

Report Date: 05/19/23

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1777866-1										
Lead, Total	ND		mg/l	0.00100	0.00034	1	05/17/23 00:15	05/17/23 22:21	1,6020B	NTB

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis
Batch Quality Control**Project Name:** RAMAPO LF RANGE**Project Number:** 20010**Lab Number:** L2325098**Report Date:** 05/19/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1777866-2								
Lead, Total	104		-		80-120	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: RAMAPO LF RANGE

Lab Number: L2325098

Project Number: 20010

Report Date: 05/19/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1777866-3 WG1777866-4 QC Sample: L2325061-01 Client ID: MS Sample												
Lead, Total	ND	0.53	0.5472	103		0.5401	102		75-125	1		20

Project Name: RAMAPO LF RANGE
Project Number: 20010

Serial_No:05192312:21
Lab Number: L2325098
Report Date: 05/19/23

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(*)
L2325098-01A	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-6020T(180)

Project Name: RAMAPO LF RANGE**Lab Number:** L2325098**Project Number:** 20010**Report Date:** 05/19/23

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: RAMAPO LF RANGE
Project Number: 20010

Lab Number: L2325098
Report Date: 05/19/23

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.

Chlordane: 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.)

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'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

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. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: 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 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

Report Format: DU Report with 'J' Qualifiers



Project Name: RAMAPO LF RANGE
Project Number: 20010

Lab Number: L2325098
Report Date: 05/19/23

Data Qualifiers

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.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: RAMAPO LF RANGE
Project Number: 20010

Lab Number: L2325098
Report Date: 05/19/23

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

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 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; 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.

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, SM4500CI-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, SM9222D.**

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, EPA 537.1.

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.

[illegible]

APPENDIX E

LABORATORY ANALYTICAL RESULTS - LEACHATE / GROUNDWATER

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340
Orangeburg, New York 10962
Phone: (845) 365-6111 Fax: (845) 365-6686
RCSD@co.rockland.ny.us

George Hoehmann
Chairman

Michael R. Saber, P.E.
Executive Director

June 9, 2022

Michael Sadowski, PE
Deputy Director
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

TOWN OF RAMAPO

JUN 16 2022

Re: Wastewater Analysis Report/s - 2022

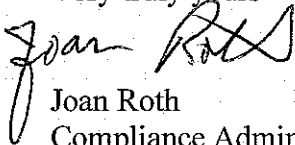
**DEPARTMENT OF
PUBLIC WORKS**

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on May 19, 2022. The sampling is conducted to comply with the requirements of the Wastewater Discharge Permit and the Pretreatment Program. The charges for such services as deemed applicable by the district will be billed to you in the early part of 2023.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: M.R. Saber, PE M. Dolphin, PE

File: Ramapo Landfill (P) - 2022
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340

Orangeburg, N.Y. 10962

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

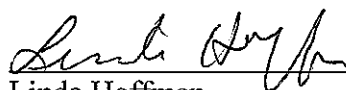
REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

MATRIX: Water DATE SAMPLED: 05/19/2022 Sample ID: IS-210519-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	6.90	05/19/2022	KW	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	17	05/25/2022	KW	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	53	05/20/2022	VP	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	9	05/20/2022	VP	SM 2540 D
Other Analyses	See Attached			

I certify under penalty of law that the documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



June 8, 2022

Linda Hoffman

Laboratory Director

NYSDOH ID No. 10447

No. of pages in this report: 7

CHAIN OF CUSTODY DOCUMENT

FACILITY SAMPLED:

RAMAPO LANDFILL, Hillburn

(Permit No. 9 - Expired; 8/14/2025)

LOCATION SAMPLED:

Manhole immediately upstream of wetwell near road

SAMPLE ID NO. *IS-- 220519* *--RLF*

pH CALIBRATION DATE: 1st 5/18/27 2nd

TIME: 1st 7:10A 2nd 7:03A

ANALYST: 1st *KW* 2nd *KW*

Buffer 4 Reading: 400 Buffer 7 Reading: 702

Buffer 10 Reading: 6.04

Slope: 45

*****NOTE: If the collected sample is not within the range of 5.0 - 11.0 SU.

Notify the Discharger immediately.

Name of Person Notified:

if a violation, the sample collected should be brought back to the Lab for pH check.

Temp: 0C

Time: _____ Done By: _____

[illegible]

COOLER IN SAMPLE COOLER? Circle YES or NO

SAMPLES IN PROPER CONTAINERS? ☒ YES or ☐ NO

NOTE: IF "NO" ICE IS CIRCLED OR SAMPLES ARE NOT COLLECTED & PRESERVED IN PROPER CONTAINERS, NOTIFY LAB DIRECTOR IMMEDIATELY. RE-SAMPLE UNLESS INSTRUCTED OTHERWISE BY LAB DIRECTOR AND RECORD SUCH IN "COMMENTS" SPACE BELOW

SAMPLE/S RELINQUISHED BY:

400 M 103

DATE:

SAMPLE/S RECEIVED BY:

DATE:

COMMENTS:

Metals (16) to be analyzed are B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, Zn

Analytical Results Summary

All projects

2051081-28 (Wastewater)

IS-220519-RLF

Collected
05/19/2022 11:40

Received
05/19/2022 15:00

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Ammonia as N	SM 4500-NH3 B plus D-11	05/20/22 13:30	05/20/22 13:30	1.04			0.200	mg/L
Chloride	EPA 300.0	05/25/22 14:48	05/25/22 14:48	141	D		15.0	mg/L
Phosphorus	SM 4500-P B5-11 plus E-11	05/19/22 19:07	05/20/22 12:00	0.120			0.0200	mg/L
Total Dissolved Solids	SM 2540 C-11	05/23/22 11:00	05/23/22 11:00	752			20.0	mg/L
Total Kjeldahl Nitrogen	SM 4500-N Org B	05/24/22 14:30	05/24/22 14:30	2.90			0.200	mg/L
Total Suspended Solids	SM 2540 D-11	05/20/22 14:30	05/20/22 14:30	ND	U		3.00	mg/L
Total Metals								
Antimony	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00600	mg/L
Arsenic	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Beryllium	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00100	mg/L
Boron	EPA 200.7	05/23/22 10:30	05/23/22 11:06	0.163			0.0500	mg/L
Cadmium	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Chromium	EPA 200.6	05/22/22 14:59	05/23/22 18:46	ND	U		0.0100	mg/L
Copper	EPA 200.8	05/22/22 14:59	05/23/22 18:46	0.00801			0.00200	mg/L
Lead	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Manganese	EPA 200.8	05/22/22 14:59	05/23/22 18:46	0.259			0.00200	mg/L
Mercury	EPA 245.1	05/23/22 10:30	05/23/22 11:06	ND	U		0.000500	mg/L
Molybdenum	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Nickel	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Selenium	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00600	mg/L
Silver	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Thallium	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.00200	mg/L
Zinc	EPA 200.8	05/22/22 14:59	05/23/22 18:46	ND	U		0.0300	mg/L

FootNotes

RL - Reporting limit
MDL - Minimum detection limit
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E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
 2051081-29 (Wastewater)

IS-220519-RLF

Collected
 05/19/2022 11:40

Received
 05/19/2022 15:00

Contact
 Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Cyanide	SM 4500-CN C-11 plus E-11	05/27/22 10:00	05/27/22 10:00	ND	U		0.0100	mg/L
Cyanide (amenable)	EPA 835.1/ 4500CN-G	05/24/22 17:55	05/24/22 17:55	ND	U		0.0100	mg/L
Oil & Grease	EPA 1664A	05/25/22 12:00	05/25/22 12:00	ND	U		5.00	mg/L
Oil & Grease (HEM-SGT)	EPA 1664A (SGT)	05/25/22 19:00	05/25/22 19:00	ND	U		5.00	mg/L
Phenols	EPA 420.1	05/24/22 10:00	05/24/22 16:00	ND	U		0.0500	mg/L
BNA+25 Semivolatile Organics - GC/MS								
1,2-Diphenylhydrazine	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.130	2.00	ug/L
2,4,6-Trichlorophenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.137	2.00	ug/L
2,4-Dichlorophenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.135	2.00	ug/L
2,4-Dimethylphenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.179	2.00	ug/L
2,4-Dimethylphenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.179	2.00	ug/L
2,4-Dinitrotoluene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.108	2.00	ug/L
2,6-Dinitrotoluene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.143	2.00	ug/L
Chloronaphthalene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.122	2.00	ug/L
2-Chlorophenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.111	2.00	ug/L
2-Nitrophenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.162	2.00	ug/L
3,3'-Dichlorobenzidine	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.110	2.00	ug/L
4,6-Dinitro-2-methylphenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0793	2.00	ug/L
4-Bromophenyl-phenylether	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.191	2.00	ug/L
4-Chloro-3-methylphenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.141	2.00	ug/L
4-Chlorophenyl-phenylether	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.136	2.00	ug/L
4-Nitrophenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.168	2.00	ug/L
Acenaphthene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.106	2.00	ug/L
Acenaphthylene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.140	2.00	ug/L
Anthracene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.121	2.00	ug/L
Benzidine	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	7.86	10.0	ug/L
Benzo(a)anthracene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.110	2.00	ug/L
Benzo(a)pyrene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.147	2.00	ug/L
Benzo(b)fluoranthene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.113	2.00	ug/L
Benzo(g,h,i)perylene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0652	2.00	ug/L
Benzo(k)fluoranthene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0761	2.00	ug/L
bis(2-chloroethoxy)methane	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.112	2.00	ug/L
bis(2-chloroethyl)ether	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.121	2.00	ug/L
bis(2-chloroisopropyl)ether	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.132	2.00	ug/L
bis(2-ethylhexyl)phthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	3.49	B	0.183	2.00	ug/L
Butylbenzylphthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.190	2.00	ug/L

FootNotes

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AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

Analytical Results Summary

All projects
2051081-29 (Wastewater)

IS-220519-RLF

Collected
05/19/2022 11:40

Received
05/19/2022 15:00

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
BNA+25 Semivolatile Organics - GC/MS								
Chrysene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.129	2.00	ug/L
Dibenzo(a,h)anthracene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0900	2.00	ug/L
Diethylphthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.123	2.00	ug/L
Dimethylphthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.388	2.00	ug/L
Di-n-butylphthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	0.423	J	0.131	2.00	ug/L
Di-n-octylphthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.139	2.00	ug/L
Fluoranthene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.129	2.00	ug/L
Fluorene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.109	2.00	ug/L
Hexachlorobenzene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.183	2.00	ug/L
Hexachlorobutadiene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.279	2.00	ug/L
Hexachlorocyclopentadiene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.235	2.00	ug/L
Hexachloroethane	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.111	2.00	ug/L
Indeno(1,2,3-cd)pyrene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0974	2.00	ug/L
Isophorone	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.111	2.00	ug/L
Naphthalene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0607	2.00	ug/L
o-Toluenesulfonamide	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.146	2.00	ug/L
n-Nitroso-dimethylamine	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.107	2.00	ug/L
n-Nitroso-di-n-propylamine	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.130	2.00	ug/L
n-Nitrosodiphenylamine	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0626	2.00	ug/L
Pentachlorophenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.152	2.00	ug/L
Phenanthrene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0725	2.00	ug/L
Phenol	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.0973	2.00	ug/L
Pyrene	EPA 625.1	05/20/22 18:14	05/23/22 23:26	ND	U	0.115	2.00	ug/L

BNA+25 Semivolatile Organics - GC/MS TIC

Di(2-ethylhexyl)isophthalate	EPA 625.1	05/20/22 18:14	05/23/22 23:26	8.82	J		ug/L

TIC Total: 8.82

Pesticides

4,4'-DDD	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000378	0.0200	ug/L
4,4'-DDE	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000234	0.0200	ug/L
4,4'-DDT	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000319	0.0200	ug/L
Aldrin	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000527	0.0200	ug/L
alpha-BHC	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000255	0.0200	ug/L
beta-BHC	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000371	0.0200	ug/L
Chlordane	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000327	0.0500	ug/L
delta-BHC	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000320	0.0200	ug/L
Dieldrin	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000271	0.0200	ug/L

FootNotes

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D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
2051081-29 (Wastewater)

IS-220519-RLF

Collected
05/19/2022 11:40

Received
05/19/2022 15:00

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
Pesticides								
Endosulfan I	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000380	0.0200	ug/L
Endosulfan II	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000254	0.0200	ug/L
Endosulfan sulfate	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000138	0.0200	ug/L
Endrin	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000229	0.0200	ug/L
Endrin aldehyde	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000318	0.0200	ug/L
gamma-BHC (Lindane)	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000241	0.0200	ug/L
Heptachlor	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000563	0.0200	ug/L
Heptachlor Epoxide	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000302	0.0200	ug/L
Methoxychlor	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.000343	0.0200	ug/L
Toxaphene	EPA 608.3	05/20/22 23:09	05/31/22 22:59	ND	U	0.0237	0.200	ug/L
PCBs								
Aroclor-1016	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.0497	0.500	ug/L
Aroclor-1221	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.352	0.500	ug/L
Aroclor-1232	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.109	0.500	ug/L
Aroclor-1242	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.165	0.500	ug/L
Aroclor-1248	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.0933	0.500	ug/L
Aroclor-1254	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.103	0.500	ug/L
Aroclor-1260	EPA 608.3	05/20/22 23:05	05/31/22 18:57	ND	U	0.0784	0.500	ug/L
VO+15 Volatile Organics - GC/MS								
1,1,1-Trichloroethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.216	1.00	ug/L
1,1,2,2-Tetrachloroethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.218	1.00	ug/L
1,1,2-Trichloroethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.476	1.00	ug/L
1,1-Dichloroethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.393	1.00	ug/L
1,1-Dichloroethene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.149	1.00	ug/L
1,2,4-Trichlorobenzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.437	1.00	ug/L
1,2-Dichlorobenzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.210	1.00	ug/L
1,2-Dichloroethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.306	1.00	ug/L
1,2-Dichloropropane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.267	1.00	ug/L
1,3-Dichlorobenzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.287	1.00	ug/L
1,4-Dichlorobenzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.238	1.00	ug/L
2-Chloroethylvinyl Ether	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.601	1.00	ug/L
Acrolein	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	1.57	2.00	ug/L
Acrylonitrile	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.606	1.00	ug/L
Benzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.129	1.00	ug/L
Bromodichloromethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.258	1.00	ug/L

FootNotes

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Certified Environmental Testing

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2051081-29 (Wastewater)

IS-220519-RLF

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05/19/2022 11:40

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Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
VO+15 Volatile Organics - GC/MS								
Bromoform	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.421	1.00	ug/L
Bromomethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.702	5.00	ug/L
Carbon tetrachloride	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.372	1.00	ug/L
Chlorobenzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.300	1.00	ug/L
Chlorodibromomethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.504	1.00	ug/L
Chloroethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.299	2.00	ug/L
Chloroform	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.365	1.00	ug/L
Chloromethane	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.758	1.00	ug/L
cis-1,3-Dichloropropene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.294	1.00	ug/L
EthylBenzene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.244	1.00	ug/L
Methylene Chloride	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.683	1.00	ug/L
Tetrachloroethene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.466	1.00	ug/L
Toluene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.235	1.00	ug/L
trans-1,2-Dichloroethene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.241	1.00	ug/L
trans-1,3-Dichloropropene	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.279	1.00	ug/L
vinyl chloride	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.146	1.00	ug/L
Vinyl Chloride	EPA 624.1	06/01/22 04:20	06/01/22 04:20	ND	U	0.157	1.00	ug/L

VO+15 Volatile Organics - GC/MS TIC

Isopropyl alcohol	EPA 624.1	06/01/22 04:20	06/01/22 04:20	3.40	J			ug/L
TIC Total: 3.40								

FootNotes

RL - Reporting limit
MDL - Minimum detection limit
ND, U - Indicates compound analyzed for but not detected
J - Indicates estimated value

B - Indicates compound found in associated blank
E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

APL

AQUA PRO-TECH LABORATORIES
www.aquaprotechlabs.com
1275 Bloomfield Avenue Building 6
Fairfield, NJ 07004

TEL: 973-227-0422
FAX: 973-227-2813

Contamination Level

Low	Medium	High

CHAIN OF CUSTODY

Client:	Rockland County Sewer District #1	Send Report To:	Linda Hoffman
Address:	4 Route 340 Orangeburg, NY 10962	Address:	4 Route 340 Orangeburg, NY 10962
Phone:	845-385-6526	Phone:	845-385-6526
E-Mail:	l.hoffman@co.rockland.ny.us	Send Invoice To:	Linda Hoffman
Project Name:	RC220519	Address:	4 Route 340 Orangeburg, NY 10962
Project Manager:	Linda Hoffman	Sampling Location:	Rockland
Project or PO #:	RC220519	Sampled By:	KW

Turn-Around Time
☒ APL Standard 2 Weeks
☐ Rush (Choose One Below)
☐ 1 Day
☐ 2 Days
☐ 3 Days
☐ Other (Specify Below)

Date and Time Required:
 **May Need Lab Approval

Report / Electronic Format
☒ Results Only / NY ASP-A
☐ Reduced NI DEP
☐ Full NI DEP / NY ASP-B
☐ State Form/E2 Reporting

Excel Summary
 EQUIS
 EniroData
 Hazle EDS

PWSID # _____ SRP# _____

Comments/Special Instructions:

Cooler Temp: 4

Sample #	APL Order #	APL (WJ) Provide	Sample ID	Field ID	Date	Time	Matrix	Grab	Comp	No. of Bottles	Preserv active	ANALYSIS REQUESTED									
												PHOSPHATE	CHLORIDES, TD	TOTAL AND AVAILABLE	CYANIDE	PHENOLS	OIL AND GREASE AND TPH	VOC	SEMI VOLATILES	PCBS AND PESTICIDES	FORMALDEHYDE
-28			IS-220519-RLF		5/19/2022	11:40:00 AM	WW		X	1	HNO ₃	X									
I			IS-220519-RLF		5/19/2022	11:40:00 AM	WW		X	1	H ₂ SO ₄	X									
-29			IS-220519-RLF		5/19/2022	11:40:00 AM	WW		X	1	NONE		X								
I			IS-220519-RLF		5/19/2022	11:40:00 AM	WW	X		1	NaOH			X							
I			IS-220519-RLF		5/19/2022	11:40:00 AM	WW	X		1	H ₂ SO ₄				X						
I			IS-220519-RLF		5/19/2022	11:40:00 AM	WW	X		3	HCl						X			X	
I			IS-220519-RLF		5/19/2022	11:40:00 AM	WW	X		5	NONE									X	

RELINQUISHED BY:	Print: <u>Linda Hoffman</u>	Sign: <u>[Signature]</u>	RECEIVED BY:	Print: <u>[Signature]</u>	Sign: <u>[Signature]</u>	Date: <u>5/19/22</u>
RELINQUISHED BY:	Print: <u>[Signature]</u>	Sign: <u>[Signature]</u>	RECEIVED BY:	Print: <u>[Signature]</u>	Sign: <u>[Signature]</u>	Date: <u>5/19/22</u>
RELINQUISHED BY:	Print: <u>[Signature]</u>	Sign: <u>[Signature]</u>	RECEIVED BY:	Print: <u>[Signature]</u>	Sign: <u>[Signature]</u>	Date: <u>5/19/22</u>

CERTIFICATIONS: NELAP (National Environmental Accreditation Program) NJDEP #07010 PADEP #68-02903 NYDOH #11634
 By signing this Chain of Custody Agreement, customer expressly agrees to pay APL for all charges, reasonably incurred in connection with analysis and reporting for these samples.



Rockland County

Ed Day, Rockland County Executive

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340
Orangeburg, New York 10962
Phone: (845) 365-6111 Fax: (845) 365-6686
RCSD@co.rockland.ny.us

George Hoehmann
Chairman

Michael R. Saber, P.E.
Executive Director

September 21, 2022

TOWN OF RAMAPO

Michael Sadowski, PE
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

SEP 27 2022

DEPARTMENT OF
PUBLIC WORKS

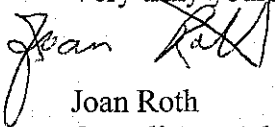
Re: Wastewater Analysis Report/s - 2022

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on August 24, 2022. The sampling is conducted to comply with the requirements of the Wastewater Discharge Permit and the Pretreatment Program. The charges for such services as deemed applicable by the district will be billed to you in the early part of 2023.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: M.R. Saber, PE M. Dolphin, PE

File: Ramapo Landfill (P) - 2022
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340

Orangeburg, N.Y. 10962

TOWN OF RAMAPO

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

SEP 27 2022

REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

DEPARTMENT OF
PUBLIC WORKS

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

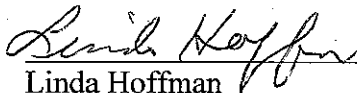
MATRIX: Water

DATE SAMPLED: 08/24/2022

Sample ID: IS-220824-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	7.51	08/24/2022	KW	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	22	08/30/2022	KW	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	141	08/25/2022	VP	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	6	08/25/2022	VP	SM 2540 D
Other Analyses	See Attached			

I certify under penalty of law that the documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



September 19, 2022

Linda Hoffman

Laboratory Director

NYSDOH ID No. 10447

No. of pages in this report: 2

Analytical Results Summary

All projects
2081264-39 (Wastewater)

IS-220824-RLF

Collected
08/24/2022 12:31

Received
08/24/2022 14:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Ammonia as N	SM 4500-NH3 B plus D-11	08/29/22 14:00	08/29/22 14:00	1.34			0.200	mg/L
Chloride	EPA 300.0	08/31/22 13:15	08/31/22 13:15	200			4.00	mg/L
Phosphorus	SM 4500-P B5-11 plus E-11	08/26/22 08:00	08/26/22 17:00	0.0820			0.0200	mg/L
Total Dissolved Solids	SM 2540 C-11	08/30/22 14:00	08/30/22 14:00	722			20.0	mg/L
Total Kjeldahl Nitrogen	SM 4500-N Org B	09/02/22 14:00	09/02/22 14:00	4.42			0.200	mg/L
Total Metals								
Antimony	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00600	mg/L
Arsenic	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00200	mg/L
Beryllium	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00100	mg/L
Boron	EPA 200.7	08/26/22 09:50	09/08/22 12:59	0.155			0.0500	mg/L
Cadmium	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00200	mg/L
Chromium	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.0100	mg/L
Copper	EPA 200.8	08/30/22 13:08	08/31/22 15:16	0.0730			0.00200	mg/L
Cobalt	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00200	mg/L
Fluoride	EPA 200.8	08/30/22 13:08	08/31/22 15:16	0.185			0.00200	mg/L
Mercury	EPA 245.1	08/30/22 12:30	08/30/22 15:36	ND	U		0.000500	mg/L
Molybdenum	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00200	mg/L
Nickel	EPA 200.8	08/30/22 13:08	08/31/22 15:16	0.00342			0.00200	mg/L
Selenium	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00600	mg/L
Silver	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00200	mg/L
Thallium	EPA 200.8	08/30/22 13:08	08/31/22 15:16	ND	U		0.00200	mg/L
Zinc	EPA 200.8	08/30/22 13:08	08/31/22 15:16	0.117			0.0300	mg/L

FootNotes

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MDL - Minimum detection limit
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D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)



AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

Analytical Results Summary

All projects
2081264-40 (Wastewater)

IS-220824-RLF

Collected
08/24/2022 12:31

Received
08/24/2022 14:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Cyanide	SM 4500-CN C-11 plus E-11	08/31/22 09:00	09/06/22 18:08	ND	U		0.0100	mg/L
Cyanide (amenable)	EPA 335.1/4500-CN-G	09/06/22 18:00	09/06/22 18:00	ND	U		0.0100	mg/L
Oil & Grease	EPA 1664A	09/06/22 17:00	09/06/22 17:00	ND	U		5.00	mg/L
Oil & Grease (HEM-SGT)	EPA 1664A (SGT)	09/06/22 17:14	09/06/22 17:15	ND	U		5.00	mg/L
Phenols	EPA 420.1	08/25/22 14:17	08/25/22 14:25	ND	U		0.0500	mg/L
BNA+25 Semivolatile Organics - GC/MS								
1,2-Dichlorobenzene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.180	2.00	ug/L
2,4,6-Trichlorophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.137	2.00	ug/L
2,4-Dichlorophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.152	2.00	ug/L
2,4-Dimethylphenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.179	2.00	ug/L
2,4-Dinitrophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.326	5.00	ug/L
2,4-Dinitrotoluene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.108	2.00	ug/L
2,6-Dinitrotoluene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.143	2.00	ug/L
2-Chloronaphthalene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.122	2.00	ug/L
3-Chlorophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.111	2.00	ug/L
2-Nitrophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.162	2.00	ug/L
3,3'-Dichlorobenzidine	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.110	2.00	ug/L
4,6-Dinitro-2-methylphenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0793	2.00	ug/L
4-Bromophenyl phenyl ether	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.191	2.00	ug/L
4-Chloro-3-methylphenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.141	2.00	ug/L
4-Chlorophenyl phenyl ether	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.136	2.00	ug/L
4-Nitrophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.168	2.00	ug/L
Acenaphthene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.100	2.00	ug/L
Acenaphthylene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.140	2.00	ug/L
Anthracene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.121	2.00	ug/L
Benzidine	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	7.86	10.0	ug/L
Benzo(a)anthracene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.110	2.00	ug/L
Benzo(a)pyrene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.147	2.00	ug/L
Benzo(b)fluoranthene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.111	2.00	ug/L
Benzo(g,h,i)perylene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0652	2.00	ug/L
Benzo(k)fluoranthene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0468	2.00	ug/L
bis(2-chloroethoxy)methane	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.112	2.00	ug/L
bis(2-chloroethyl)ether	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.121	2.00	ug/L
bis(2-chloroisopropyl)ether	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.132	2.00	ug/L
bis(2-ethylhexyl)phthalate	EPA 625.1	08/25/22 22:11	09/01/22 23:24	1.51	J	0.103	2.00	ug/L
Butylbenzylphthalate	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.190	2.00	ug/L

FootNotes

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E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
2081264-40 (Wastewater)

IS-220824-RLF

Collected
08/24/2022 12:31

Received
08/24/2022 14:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
BNA+25 Semivolatile Organics - GC/MS								
Chrysene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.129	2.00	ug/L
Dibenzo(a,h)anthracene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0900	2.00	ug/L
Diethylphthalate	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.123	2.00	ug/L
Dimethylphthalate	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.388	2.00	ug/L
Di-n-butylphthalate	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.131	2.00	ug/L
Di-n-octylphthalate	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.139	2.00	ug/L
Fluoranthene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.129	2.00	ug/L
Fluorene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.109	2.00	ug/L
Hexachlorobenzene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.183	2.00	ug/L
Hexachlorobutadiene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.279	2.00	ug/L
Hexachlorocyclopentadiene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.285	2.00	ug/L
Hexachloroethane	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.111	2.00	ug/L
Indeno(1,2,3-cd)pyrene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0974	2.00	ug/L
Isophorone	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.111	2.00	ug/L
Naphthalene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0607	2.00	ug/L
Nitrobenzene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.146	2.00	ug/L
Nitroso-dimethylamine	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.107	2.00	ug/L
n-Nitroso-di-n-propylamine	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.130	2.00	ug/L
n-Nitrosodiphenylamine	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0626	2.00	ug/L
Pentachlorophenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.152	2.00	ug/L
Phenanthrene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0725	2.00	ug/L
Phenol	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.0973	2.00	ug/L
Pyrene	EPA 625.1	08/25/22 22:11	09/01/22 23:24	ND	U	0.115	2.00	ug/L
Pesticides								
4,4'-DDD	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000378	0.0200	ug/L
4,4'-DDE	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000234	0.0200	ug/L
4,4'-DDT	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000319	0.0200	ug/L
Aldrin	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000527	0.0200	ug/L
alpha-BHC	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000255	0.0200	ug/L
beta-BHC	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000371	0.0200	ug/L
Chlordane	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000327	0.0500	ug/L
delta-BHC	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000320	0.0200	ug/L
Dieldrin	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000271	0.0200	ug/L
Endosulfan I	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000380	0.0200	ug/L
Endosulfan II	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000254	0.0200	ug/L
Endosulfan sulfate	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000138	0.0200	ug/L

FootNotes

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ND, U - Indicates compound analyzed for but not detected
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D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
2081264-40 (Wastewater)

IS-220824-RLF

Collected
08/24/2022 12:31

Received
08/24/2022 14:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
Pesticides								
Endrin	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000229	0.0200	ug/L
Endrin aldehyde	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000318	0.0200	ug/L
gamma-BHC (Lindane)	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000241	0.0200	ug/L
Heptachlor	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000563	0.0200	ug/L
Heptachlor Epoxide	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000302	0.0200	ug/L
Methoxychlor	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.000343	0.0200	ug/L
Toxaphene	EPA 608.3	08/29/22 17:15	08/30/22 16:45	ND	U	0.0237	0.200	ug/L
PCBs								
Aroclor-1016	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.0497	0.500	ug/L
Aroclor-1221	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.352	0.500	ug/L
Aroclor-1232	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.109	0.500	ug/L
Aroclor-1242	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.185	0.500	ug/L
Aroclor-1248	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.0933	0.500	ug/L
Aroclor-1254	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.103	0.500	ug/L
Aroclor-1260	EPA 608.3	08/29/22 17:17	09/03/22 17:43	ND	U	0.0784	0.500	ug/L
VO+15 Volatile Organics - GC/MS								
1,1,1-Trichloroethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.216	1.00	ug/L
1,1,2,2-Tetrachloroethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.218	1.00	ug/L
1,1,2-Trichloroethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.476	1.00	ug/L
1,1-Dichloroethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.393	1.00	ug/L
1,1-Dichloroethene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.149	1.00	ug/L
1,2,4-Trichlorobenzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.437	1.00	ug/L
1,2-Dichlorobenzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.210	1.00	ug/L
1,2-Dichloroethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.306	1.00	ug/L
1,2-Dichloropropane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.267	1.00	ug/L
1,3-Dichlorobenzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.287	1.00	ug/L
1,4-Dichlorobenzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.238	1.00	ug/L
2-Chloroethylvinyl Ether	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.601	1.00	ug/L
Acrolein	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	1.57	5.00	ug/L
Acrylonitrile	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.606	5.00	ug/L
Benzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.129	1.00	ug/L
Bromodichloromethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.258	1.00	ug/L
Bromoform	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.421	1.00	ug/L
Bromomethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.702	10.0	ug/L
Carbon Tetrachloride	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.372	1.00	ug/L

FootNotes

RL - Reporting limit
MDL - Minimum detection limit
ND, U - Indicates compound analyzed for but not detected
J - Indicates estimated value

B - Indicates compound found in associated blank
E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)



AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

Analytical Results Summary

All projects
2081264-40 (Wastewater)

IS-220824-RLF

Collected
08/24/2022 12:31

Received
08/24/2022 14:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
VO+15 Volatile Organics - GC/MS								
Chlorobenzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.300	1.00	ug/L
Chlorodibromomethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.504	1.00	ug/L
Chloroethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.299	2.00	ug/L
Chloroform	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.365	1.00	ug/L
Chloromethane	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.756	1.00	ug/L
cis-1,3-Dichloropropene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.294	1.00	ug/L
Ethyl Benzene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.244	1.00	ug/L
Methylene Chloride	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	3.00	3.00	ug/L
Tetrachloroethene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.466	1.00	ug/L
Toluene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.205	1.00	ug/L
trans-1,2-Dichloroethene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.241	1.00	ug/L
trans-1,3-Dichloropropene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.279	1.00	ug/L
Trichloroethene	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.146	1.00	ug/L
Vinyl chloride	EPA 624.1	08/26/22 20:17	08/26/22 20:17	ND	U	0.157	1.00	ug/L
VO+15 Volatile Organics - GC/MS TIC								
Sum, 2 (perfluorinated)	EPA 624.1	08/26/22 20:17	08/26/22 20:17	3.38	J			ug/L

TIC Total: 3.38

FootNotes

RL - Reporting limit
MDL - Minimum detection limit
ND, U - Indicates compound analyzed for but not detected
J - Indicates estimated value

B - Indicates compound found in associated blank
E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Project Name: 2081264

Lab Number: L2246068

Project Number: 2081264

Report Date: 09/09/22

SAMPLE RESULTS

Lab ID: L2246068-01

Date Collected: 08/24/22 12:31

Client ID: 2081264-40

Date Received: 08/25/22

Sample Location: Not Specified

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Formaldehyde by EPA 8315A - Westborough Lab										
Formaldehyde	ND		mg/l	0.075	0.022	1	08/27/22 07:40	08/27/22 21:14	1,8315A	SH



CHAIN OF CUSTODY

www.aquaprotechlabs.com

FAX: 973-227-2813

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Client	Rockland County Sewer District #1	Send Report To	Linda Hoffman
Address	4 Route 340	Address	4 Route 340
Property	Orangeburg, NY 10962	Phone	Orangeburg, NY 10962
E-Mail	845-365-6626	Send Invoice To	845-365-6626
Project Name	halfmillionrocklandcounty	Address	Linda Hoffman
Project Manager	RC220824		4 Route 340 Orangeburg, NY 10962
Order #	Linda Hoffman	Sampling Location	Rockland
Order #	RC220824	Sampled By	KW

Turn-Around Time:		2 Days		3 Days	
K	All standard 2 weeks				
	Bulk (Choose One Below)	1 Day	2 Days	3 Days	5 Days
		1 Week			

(Order Specifics Below)

Estimated Time Required:
of My Blend Lab Approval

[illegible]

Comments & Special Instructions

[illegible]

RELINQUISHED BY:	Print: Linda Hoffman	RECEIVED BY:	Print: <i>[Signature]</i>	Print: <i>[Signature]</i>	Date: 8/28/99
	Sign: <i>[Signature]</i>		Sign: <i>[Signature]</i>	Sign: <i>[Signature]</i>	Time: 2:45 PM
RELINQUISHED BY:	Print:	RECEIVED BY:	Print:	Print:	
	Sign:		Sign:	Sign:	
RELINQUISHED BY:	Print:	RECEIVED BY:	Print:	Print:	
	Sign:		Sign:	Sign:	

CERTIFICATIONS: NEPA/National Environmental Policy Act

CERTIFICATIONS: NELAP (National Environmental Accreditation Program) NUMBER 007010, PADIER 683-9293, NYDOH #1634



Rockland County

Ed Day, Rockland County Executive

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340
Orangeburg, New York 10962
Phone: (845) 365-6111 Fax: (845) 365-6686
RCSD@co.rockland.ny.us

George Hoehmann
Chairman

Michael R. Saber, P.E.
Executive Director

November 16, 2022

Michael Sadowski, PE
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

TOWN OF RAMAPO
NOV 29 2022
**DEPARTMENT OF
PUBLIC WORKS**

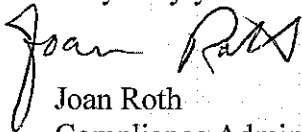
Re: Wastewater Analysis Report/s - 2022

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on October 12, 2022. The sampling is conducted to comply with the requirements of the Wastewater Discharge Permit and the Pretreatment Program. The charges for such services as deemed applicable by the district will be billed to you in the early part of 2023.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: M.R. Saber, PE M. Dolphin, PE

File: Ramapo Landfill (P) - 2022
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340

Orangeburg, N.Y. 10962

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

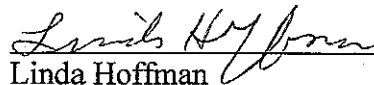
REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

MATRIX: Water DATE SAMPLED: 10/12/2022 Sample ID: IS-221012-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	8.07	10/12/2022	VP	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	4	10/18/2022	VP	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	54	10/13/2022	SH	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	5	10/13/2022	SH	SM 2540 D
Other Analyses	See Attached			

I certify under penalty of law that the documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

 November 14, 2022
Linda Hoffman
Laboratory Director
NYSDOH ID No. 10447

No. of pages in this report: 8

ROCKLAND COUNTY SEWER DISTRICT #1
4 RTE 340 ORANGEBURG, NY 10962

CHAIN OF CUSTODY DOCUMENT

RAMAPO LANDFILL, Hillburn

(Permit No. 9 - Expired: 8/14/2015)

SEMI-ANNUAL

FACILITY SAMPLED:

LOCATION SAMPLED: Manhole immediately upstream of wetwell near road
ID Format (YY - MM - DD)

-- R L F

SAMPLE ID NO. 15 -- 221012

pH CALIBRATION DATE: 1st 10/11/22 2nd 10/12/22 ANALYST: 1st VP 2nd VP
Buffer: 4 Reading: 7.01 7.02 Buffer: 10 Reading: 16.44 10.11 Slope: 8.94 96.0

*****NOTE: If the collected sample is not within the range of 5.0 - 11.0 SU, Notify the Discharger immediately.
Name of Person Notified: _____
If a violation; the sample collected should be brought back to the Lab for pH check.
pH: _____ Temp. 0C _____
Time: _____ Done By: _____

SAMPLE INFORMATION

COMPOSITE	DATE	TIME	SAMPLER'S SIGNATURE	pH	TEMP. (°C)	TYPE	PLASTIC OR GLASS	TOTAL # OF BOTTLES	VOLUME ml	BOB. COD. TSS (unpreserved)	METALS (HNO ₃) (unpreserved)	CHLORIDES, TDS (unpreserved)	AMMONIA, TKN, Total Phosphate (H ₂ SO ₄)	TOTAL AVAILABLE CYANIDE (NaOH)	Formaldehyde (none)	PHENOL (H ₂ SO ₄)	Oil and Grease, TPH (HCl)	VOCs, EPA 624, (BC)	SEMI-VOLATILES, EPA625 (unpreserved)	PCB's & Pesticides (unpreserved)
START	10/11/22	16:18	[Signature]	7.86	16.9	COMP.	PLASTIC	1	1000	X										
END	10/12/22	10:24	[Signature]	8.07	17.1	COMP.	PLASTIC	1	250		X									
						COMP.	PLASTIC	1	250			X								
						COMP.	PLASTIC	1	500				X							
						GRAB	PLASTIC	1	500					X						
						GRAB	AMBER	1	1000						X					
						GRAB	AMBER	1	500							X				
						GRAB	AMBER	1	1000								X			
						GRAB	Glass Vial	2	40									X		
						GRAB	Glass Amber	2	1000										X	
						GRAB	Glass Amber	2	1000											X

ICE IN SAMPLE COOLER? Circle YES or NO
SAMPLES IN PROPER CONTAINERS? Circle YES or NO

NOTE: IF "NO" ICE IS CIRCLED OR SAMPLES ARE NOT COLLECTED & PRESERVED IN PROPER CONTAINERS, NOTIFY LAB DIRECTOR IMMEDIATELY. RE-SAMPLE UNLESS INSTRUCTED OTHERWISE BY LAB DIRECTOR AND RECORD SUCH IN "COMMENTS" SPACE BELOW.

SAMPLES RELINQUISHED BY: [Signature] DATE: 10/12/22
SAMPLES RECEIVED BY: [Signature] DATE: 10/12/22

COMMENTS: Metals (16) to be analyzed are B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Ti, Zn

Analytical Results Summary

All projects
 2100616-01 (Wastewater)

IS-221012-RLF

Collected
 10/12/2022 10:24

Received
 10/13/2022 16:37

Contact
 Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Ammonia as N	SM 4500-NH3 B plus D-11	10/25/22 18:00	10/25/22 18:00	1.83			0.200	mg/L
Chloride	EPA 300.0	10/28/22 19:38	10/28/22 19:38	215			4.00	mg/L
Phosphorus	SM 4500-P B5-11 plus E-11	10/14/22 17:14	10/14/22 19:45	0.135			0.0200	mg/L
Total Dissolved Solids	SM 2540 C-11	10/18/22 17:00	10/18/22 17:00	78.4			20.0	mg/L
Total Kjeldahl Nitrogen	SM 4500-N Org B	10/23/22 18:00	10/23/22 18:00	4.82			0.200	mg/L
Total Metals								
Antimony	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	D		0.00500	mg/L
Arsenic	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Beryllium	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00100	mg/L
Boron	EPA 200.7	10/25/22 15:43	10/28/22 16:16	0.156			0.0500	mg/L
Cadmium	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Chromium	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.0100	mg/L
Copper	EPA 200.8	10/28/22 16:14	10/31/22 13:45	0.00071			0.00200	mg/L
Lead	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Manganese	EPA 200.8	10/28/22 16:14	10/31/22 13:45	0.138			0.00200	mg/L
Mercury	EPA 245.1	10/28/22 08:00	10/28/22 13:19	ND	U		0.000500	mg/L
Molybdenum	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Nickel	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Selenium	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00500	mg/L
Silver	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Thallium	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.00200	mg/L
Zinc	EPA 200.8	10/28/22 16:14	10/31/22 13:45	ND	U		0.0300	mg/L

FootNotes

RL - Reporting limit
 MDL - Minimum detection limit
 ND, U - Indicates compound analyzed for but not detected
 J - Indicates estimated value

B - Indicates compound found in associated blank
 E - Concentration exceeds highest calibration standard
 D - Indicates result is based on a dilution
 P - Greater than 25% diff. between 2 GC columns
 H - Indicates a Hold Time violation
 D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
2100616-02 (Wastewater)

IS-221012-RL^F
lv

Collected
10/12/2022 10:24

Received
10/13/2022 16:37

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Cyanide	SM 4500-CN C-11 plus E-11	10/24/22 16:10	10/24/22 17:24	ND	U		0.0100	mg/L
Cyanide (amenable)	EPA 335.1/4500CN-C	10/24/22 19:00	10/24/22 19:00	ND	U		0.0100	mg/L
Oil & Grease	EPA 1664A	10/25/22 08:44	10/28/22 09:16	ND	U		5.00	mg/L
Oil & Grease (HEM SGT)	EPA 1664A (SGT)	10/28/22 08:56	10/31/22 09:11	ND	U		5.00	mg/L
Phenols	EPA 420.1	10/28/22 21:50	10/28/22 21:55	ND	U		0.0500	mg/L
BNA+25 Semivolatile Organics - GC/MS								
1,2-Dichlorobenzene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.180	2.00	ug/L
2,4,6-Trichlorophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.137	2.00	ug/L
2,4-Dichlorophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.152	2.00	ug/L
2,4-Dimethylphenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.179	2.00	ug/L
2,4-Dinitrophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.325	5.00	ug/L
2,4-Dinitrotoluene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.108	2.00	ug/L
2,6-Dinitrotoluene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.145	2.00	ug/L
1-Chloronaphthalene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.122	2.00	ug/L
2-Chlorophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.111	2.00	ug/L
2-Nitrophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.162	2.00	ug/L
3,3'-Dichlorobenzidine	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.110	2.00	ug/L
4,6-Dinitro-2-methylphenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0793	2.00	ug/L
4-Bromophenyl-phenyl ether	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.191	2.00	ug/L
4-Chloro-3-methylphenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.141	2.00	ug/L
4-Chlorophenyl-phenyl ether	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.136	2.00	ug/L
4-Nitrophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.168	2.00	ug/L
Acenaphthene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.100	2.00	ug/L
Acenaphthylene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.140	2.00	ug/L
Acenaphthene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.122	2.00	ug/L
Benzidine	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	7.86	10.0	ug/L
Benzo(a)anthracene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.110	2.00	ug/L
Benzo(a)pyrene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.147	2.00	ug/L
Benzo(b)fluoranthene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.111	2.00	ug/L
Benzo(g,h,i)perylene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0652	2.00	ug/L
Benzo(k)fluoranthene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0468	2.00	ug/L
bis(2-chloroethoxy)methane	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.112	2.00	ug/L
bis(2-chloroethyl)ether	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.121	2.00	ug/L
bis(2-chloroisopropyl)ether	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.132	2.00	ug/L
bis(2-ethylhexyloxy)methane	EPA 625.1	10/14/22 21:16	10/18/22 03:55	2.45		0.132	2.00	ug/L
Butylbenzylphthalate	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.190	2.00	ug/L

FootNotes

RL - Reporting limit
MDL - Minimum detection limit
ND, U - Indicates compound analyzed for but not detected
J - Indicates estimated value

B - Indicates compound found in associated blank
E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
2100616-02 (Wastewater)

IS-221012-RL²
ELW

Collected
10/12/2022 10:24

Received
10/13/2022 16:37

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
BNA+25 Semivolatile Organics - GC/MS								
Chrysene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.123	2.00	ug/L
Dibenzo(a,h)anthracene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0900	2.00	ug/L
Diethylphthalate	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.123	2.00	ug/L
Dimethylphthalate	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.388	2.00	ug/L
Di-n-butylphthalate	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.131	2.00	ug/L
Di-n-octylphthalate	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.139	2.00	ug/L
Fluoranthene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.125	2.00	ug/L
Fluorene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.109	2.00	ug/L
Hexachlorobenzene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.183	2.00	ug/L
Hexachlorobutadiene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.279	2.00	ug/L
Hexachlorocyclopentadiene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.255	2.00	ug/L
Hexachloroethane	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.111	2.00	ug/L
Indeno(1,2,3-cd)pyrene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.054	2.00	ug/L
Isophorone	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.111	2.00	ug/L
Naphthalene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.037	2.00	ug/L
p-benzene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.146	2.00	ug/L
n-Nitroso-di-n-propylamine	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.107	2.00	ug/L
n-Nitroso-di-n-propylamine	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.130	2.00	ug/L
n-Nitrosodipropylamine	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0626	2.00	ug/L
Pentachlorophenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.152	2.00	ug/L
Pyrene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0725	2.00	ug/L
Phenol	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.0973	2.00	ug/L
Pyrene	EPA 625.1	10/14/22 21:16	10/18/22 03:55	ND	U	0.115	2.00	ug/L

Pesticides

4,4'-DDD	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000378	0.0200	ug/L
4,4'-DDE	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000234	0.0200	ug/L
4,4'-DDT	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000319	0.0200	ug/L
Aldrin	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000527	0.0200	ug/L
alpha-BHC	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000255	0.0200	ug/L
gamma-BHC	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000371	0.0200	ug/L
Chlordane	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000327	0.0500	ug/L
delta-BHC	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000320	0.0200	ug/L
Dieldrin	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000271	0.0200	ug/L
Endosulfan	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000360	0.0200	ug/L
Endosulfan II	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000254	0.0200	ug/L
Endosulfan sulfate	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000133	0.0200	ug/L

FootNotes

RL - Reporting limit
MDL - Minimum detection limit
ND, U - Indicates compound analyzed for but not detected
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B - Indicates compound found in associated blank
E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
 2100616-02 (Wastewater)

IS-221012-RL^F
 2/2

Collected
 10/12/2022 10:24

Received
 10/13/2022 16:37

Contact
 Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
Pesticides								
Endrin	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000229	0.0200	ug/L
Endrin aldehyde	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000318	0.0200	ug/L
gamma-BHC (Lindane)	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000241	0.0200	ug/L
Heptachlor	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000563	0.0200	ug/L
Heptachlor Epoxide	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000302	0.0200	ug/L
Methoxychlor	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.000343	0.0200	ug/L
Toxaphene	EPA 608.3	10/17/22 18:11	10/18/22 22:37	ND	U	0.0237	0.200	ug/L
PCBs								
Aroclor-1221	EPA 608.3	10/17/22 18:09	10/25/22 16:17	ND	U	0.0497	0.500	ug/L
Aroclor-1222	EPA 608.3	10/17/22 18:09	10/25/22 16:17	ND	U	0.0495	0.500	ug/L
Aroclor-1242	EPA 608.3	10/17/22 18:09	10/25/22 16:17	ND	U	0.185	0.500	ug/L
Aroclor-1248	EPA 608.3	10/17/22 18:09	10/25/22 16:17	ND	U	0.0033	0.500	ug/L
Aroclor-1254	EPA 608.3	10/17/22 18:09	10/25/22 16:17	ND	U	0.103	0.500	ug/L
Aroclor-1260	EPA 608.3	10/17/22 18:09	10/25/22 16:17	ND	U	0.0784	0.500	ug/L
VO+15 Volatile Organics - GC/MS								
1,1,1-Trichloroethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.216	1.00	ug/L
1,1,2,2-Tetrachloroethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.218	1.00	ug/L
1,1,2-Trichloroethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.476	1.00	ug/L
1,1-Dichloroethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.393	1.00	ug/L
1,1-Dichloroethene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.149	1.00	ug/L
1,2,4-Trichlorobenzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.437	1.00	ug/L
1,2-Dichlorobenzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.210	1.00	ug/L
1,2-Dichloroethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.305	1.00	ug/L
1,2-Dichloropropane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.267	1.00	ug/L
1,3-Dichlorobenzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.267	1.00	ug/L
1,4-Dichlorobenzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.238	1.00	ug/L
2-Chloroethanol	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.601	1.00	ug/L
Acrolein	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	1.57	5.00	ug/L
Acrylonitrile	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.506	5.00	ug/L
Benzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.129	1.00	ug/L
Bromodichloromethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.258	1.00	ug/L
Bromoform	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.421	1.00	ug/L
Bromochloromethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.702	1.00	ug/L
Carbon Tetrachloride	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.372	1.00	ug/L

FootNotes

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 D - Indicates result is based on a dilution
 P - Greater than 25% diff. between 2 GC columns
 H - Indicates a Hold Time violation
 D1 - Sample was Decanted (Dissolved)



AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

Analytical Results Summary

All projects
2100616-02 (Wastewater)

IS-221012-RLF *ew*

Collected
10/12/2022 10:24

Received
10/13/2022 16:37

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
VO+15 Volatile Organics - GC/MS								
Chlorobenzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.300	1.00	ug/L
Chlorodibromomethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.504	1.00	ug/L
Chloroethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.298	2.00	ug/L
Chloroform	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.365	1.00	ug/L
Chloromethane	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.758	1.00	ug/L
cis-1,3-Dichloropropene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.294	1.00	ug/L
Ethylbenzene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.244	1.00	ug/L
Methylene Chloride	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	3.00	3.00	ug/L
Tetrachloroethene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.468	1.00	ug/L
Toluene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.205	1.00	ug/L
trans-1,2-Dichloroethene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.241	1.00	ug/L
trans-1,3-Dichloropropene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.279	1.00	ug/L
Trichloroethene	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.145	1.00	ug/L
Vinyl chloride	EPA 624.1	10/23/22 10:26	10/23/22 10:26	ND	U	0.157	1.00	ug/L

FootNotes

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D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Client	Rockland County Sewer District #1	Send Report To	Linda Hoffman
Address	4 Route 340	Address	4 Route 340
Phone	949-366-8828	Phone	949-366-8828
Email	LHoffman@rocklandcounty.org	Send Report To	Linda Hoffman
Project Name	RC221013	Address	4 Route 340 Orangeburg, NY 10962
Project Manager	Linda Hoffman	Send Report To	Rockland
Project ID	RC221013	Sample ID	VP

[illegible]

Comments/Special Instructions:

Содержание

[illegible]

RELINQUISHED BY:

RELINQUISHED BY:

RELINQUISHED BY:

RECEIVED BY:

RECEIVED BY:

RECEIVED BY:

xxviii

xxviii

xxviii

Date: _____

Date: _____

Date: _____

Date: _____

CERTIFICATION: NELAP (National Environmental Accreditation Program) NUDEP #07010 PADEP #GB-07013 NYDOH #11834

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340
Orangeburg, New York 10962
Phone: (845) 365-6111 Fax: (845) 365-6686
RCSD@co.rockland.ny.us

Michael Specht
Chairman

Michael R. Saber, P.E.
Executive Director

May 8, 2023

Michael Sadowski, PE
Deputy Director
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

TOWN OF RAMAPO

MAY 16 2023

**DEPARTMENT OF
PUBLIC WORKS**

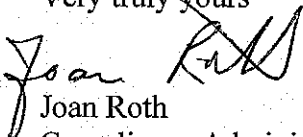
Re: Wastewater Analysis Report/s - 2023

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on April 13, 2022. The sampling is conducted to comply with the requirements of the Wastewater Discharge Permit and the Pretreatment Program. The charges for such services as deemed applicable by the district will be billed to you in the early part of 2024.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: M.R. Saber, PE M. Dolphin, PE

File: Ramapo Landfill (P) - 2023
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1
4 Route 340
Orangeburg, N.Y. 10962

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

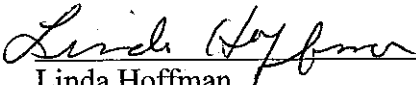
REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

MATRIX: Water DATE SAMPLED: 04/13/23 Sample ID: IS-230413-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	7.49	04/13/23	VP	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	6	04/19/23	VP	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	46	04/14/23	SH	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	6	04/14/23	SH	SM 2540 D
Other Analyses	See Attached			

I certify under penalty of law that the documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



May 4, 2023

Linda Hoffman
Laboratory Director
NYSDOH ID No. 10447

No. of pages in this report: 2

CHAIN OF CUSTODY DOCUMENT

(Permit No. 9 - Expired: 8/14/2025)

FACILITY SAMPLED:

LOCATION SAMPLED: Manhole immediately upstream of wetwell near road ID Formant (YY - MM - DD)

SAMPLE ID NO. IS-- 230413 --RLF

pH CALIBRATION DATE: 4/12/23 2nd 4/13/23
 Buffer 4 Reading: 9.04/9.00
 TIME: 1st 8:28g 2nd 8:11
 ANALYST: 1st VP 2nd VP
 Buffer 7 Reading: 7.01/7.01
 Buffer 10 Reading: 10.03/10.02 Slope: 96.0/96.0
 Buffer 7: 7.05/7.05

*****NOTE: If the collected sample is not within the range of 5.0 - 11.0 SU.

Notify the Discharger immediately.

Name of Person Notified:

If a violation; the sample collected should be brought back to the Lab for pH check.

pH: _____ Temp. 0C _____

Time: _____ Done By: _____

		SAMPLE INFORMATION				
COMPOSITE	DATE	TIME	SAMPLER'S SIGNATURE	pH	TEMP. (°C)	TYPE
START	4/12/23	11:05a		7.05	17.6	
END	4/13/23	10:43a		7.49	22.1	

[illegible]

COOLER TEMP 2.4 °C

ICE IN SAMPLE COOLER? Circle YES or NO

SAMPLES IN PROPER CONTAINERS? Circle YES or NO

NOTE: IF "NO" ICE IS CIRCLED OR SAMPLES ARE NOT COLLECTED & PRESERVED IN PROPER CONTAINERS, NOTIFY LAB DIRECTOR IMMEDIATELY. RE-SAMPLE UNLESS INSTRUCTED OTHERWISE BY LAB DIRECTOR AND RECORD SUCH IN "COMMENTS" SPACE BELOW.

SAMPLE/S RELINQUISHED BY:

SAMPLE/S RECEIVED BY:

DATE:

DATE:

COMMENTS: *Metals (16) to be analyzed are B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, Zn*



AQUA PRO-TECH LABORATORIES
Certified Environmental Testing

Analytical Results Summary

All projects
23D0588-07 (Wastewater)

IS-230413-RLF

Collected
04/13/2023 10:43

Received
04/13/2023 13:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Ammonia as N	SM 4500-NH3 B plus D-11	04/27/23 11:00	04/27/23 15:00	1.58			0.200	mg/L
Chloride	EPA 200.0	04/14/23 16:09	04/14/23 16:09	167			4.00	mg/L
Phosphorus	SM 4500-P B5-11 plus E-11	04/18/23 21:07	04/18/23 21:21	0.232			0.0200	mg/L
Total Dissolved Solids	SM 2540 C-21	04/20/23 18:00	04/20/23 18:00	624			25.0	mg/L
Total Kjeldahl Nitrogen	SM 4500-N Org B	04/27/23 13:00	04/27/23 17:00	4.66			0.200	mg/L
Total Metals								
Antimony	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	D		0.00500	mg/L
Arsenic	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00200	mg/L
Beryllium	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00100	mg/L
Boron	EPA 200.7	04/19/23 14:10	04/24/23 12:04	0.147			0.0500	mg/L
Cadmium	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00200	mg/L
Chromium	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.0100	mg/L
Copper	EPA 200.8	04/17/23 13:06	04/19/23 12:34	0.0010			0.00200	mg/L
Cobalt	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00200	mg/L
Manganese	EPA 200.8	04/17/23 13:06	04/19/23 12:34	0.217			0.00200	mg/L
Mercury	EPA 245.1	04/21/23 08:00	04/21/23 12:05	ND	U		0.000200	mg/L
Molybdenum	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00200	mg/L
Nickel	EPA 200.8	04/17/23 13:06	04/19/23 12:34	0.00378			0.00200	mg/L
Selenium	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00500	mg/L
Silver	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00200	mg/L
Titanium	EPA 200.8	04/17/23 13:06	04/19/23 12:34	ND	U		0.00200	mg/L
Zinc	EPA 200.8	04/17/23 13:06	04/19/23 12:34	0.130			0.0300	mg/L

FootNotes

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D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects

23D0588-08 (Wastewater)

IS-230413-RLF

Collected
04/13/2023 10:43

Received
04/13/2023 13:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
General Chemistry								
Cyanide	SM 4500-CN C-16 plus E-16	04/24/23 12:13	04/26/23 10:03	ND	U		0.0100	mg/L
Cyanide (amenable)	SM 4500-CN C-16 plus G-16	04/21/23 10:30	04/21/23 10:30	ND	U		0.0100	mg/L
Oil & Grease	EPA 1664A	04/25/23 12:53	04/27/23 15:54	ND	U		5.00	mg/L
Oil & Grease (HEM-SGT)	EPA 1664A (SGT)	04/25/23 15:55	04/26/23 09:52	ND	U		5.00	mg/L
Phenols	EPA 420.1	04/25/23 18:18	04/27/23 18:23	ND	U		0.0500	mg/L
BNA+25 Semivolatile Organics - GC/MS								
1,2-Dichlorobenzene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.180	2.00	ug/L
2,4,6-Trichlorophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.137	2.00	ug/L
2,4-Dichlorophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.152	2.00	ug/L
2,4-Dimethylphenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.179	2.00	ug/L
2,4-Dinitrophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.326	5.00	ug/L
2,4-Dinitrotoluene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.108	2.00	ug/L
2,6-Dinitrotoluene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.145	2.00	ug/L
Chloronaphthalene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.122	2.00	ug/L
2-Chlorophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.111	2.00	ug/L
2-Nitrophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.162	2.00	ug/L
3,5-Dichlorobenzene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.110	2.00	ug/L
4,6-Dinitro-2-methylphenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0793	2.00	ug/L
4-Chlorophenyl phenyl ether	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.181	2.00	ug/L
4-Chloro-3-methylphenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.141	2.00	ug/L
4-Chlorophenyl phenyl ether	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.136	2.00	ug/L
4-Nitrophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.168	2.00	ug/L
Acenaphthene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.100	2.00	ug/L
Acenaphthylene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.140	2.00	ug/L
Anthracene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.121	2.00	ug/L
Benzidine	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	7.86	10.0	ug/L
Benzo(a)anthracene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.110	2.00	ug/L
Benzo(a)pyrene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.147	2.00	ug/L
Benzo(b)fluoranthene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.111	2.00	ug/L
Benzo(g,h,i)perylene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0652	2.00	ug/L
Benzo(k)fluoranthene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0463	2.00	ug/L
bis(2-chloroethoxy)methane	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.112	2.00	ug/L
bis(2-chloroethyl)ether	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.121	2.00	ug/L
bis(2-chloroisopropyl)ether	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.132	2.00	ug/L
bis(2-ethoxyethyl)phthalate	EPA 625.1	04/18/23 23:02	04/19/23 16:29	3.95		0.183	2.00	ug/L

FootNotes

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D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
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D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
23D0588-08 (Wastewater)

IS-230413-RLF

Collected
04/13/2023 10:43Received
04/13/2023 13:45Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
BNA+25 Semivolatile Organics - GC/MS								
Butylbenzylphthalate	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.190	2.00	ug/L
Chrysene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.129	2.00	ug/L
Dibenzo(a,h)anthracene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0900	2.00	ug/L
Diethylphthalate	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.123	2.00	ug/L
Dimethylphthalate	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.388	2.00	ug/L
Di-n-butylphthalate	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.131	2.00	ug/L
Di-n-octylphthalate	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.139	2.00	ug/L
Fluoranthene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.129	2.00	ug/L
Fluorene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.109	2.00	ug/L
Heptachlorocyclopentadiene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.183	2.00	ug/L
Hexachlorobutadiene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.279	2.00	ug/L
Hexachlorocyclopentadiene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.205	2.00	ug/L
Hexachloroethane	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.111	2.00	ug/L
Indeno(1,2,3-cd)pyrene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0974	2.00	ug/L
Isophorone	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.111	2.00	ug/L
Methylene chloride	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0607	2.00	ug/L
Nitrobenzene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.146	2.00	ug/L
n-Nitroso-dimethylamine	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.107	2.00	ug/L
n-Nitroso-di-n-propylamine	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.130	2.00	ug/L
n-Nitrosodimethylamine	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0626	2.00	ug/L
Pentachlorophenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.152	2.00	ug/L
Polychlorinated biphenyls	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0725	2.00	ug/L
Phenol	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.0973	2.00	ug/L
Pyrene	EPA 625.1	04/18/23 23:02	04/19/23 16:29	ND	U	0.115	2.00	ug/L

BNA+25 Semivolatile Organics - GC/MS TIC

unknown	EPA 625.1	04/18/23 23:02	04/19/23 16:29	9.30	J	ug/L

TIC Total: 9.30

Pesticides

4,4'-DDD	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000378	0.0200	ug/L
4,4'-DDE	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000234	0.0200	ug/L
4,4'-DDT	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000315	0.0200	ug/L
Aldrin	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000527	0.0200	ug/L
alpha-BHC	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000255	0.0200	ug/L
beta-BHC	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000371	0.0200	ug/L
Chlordane	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000327	0.0500	ug/L
delta-BHC	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000320	0.0200	ug/L

FootNotes

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E - Concentration exceeds highest calibration standard
D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Analytical Results Summary

All projects
23D0588-08 (Wastewater)

IS-230413-RLF

Collected
04/13/2023 10:43

Received
04/13/2023 13:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
Pesticides								
Dieldrin	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000271	0.0200	ug/L
Endosulfan I	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000380	0.0200	ug/L
Endosulfan II	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000254	0.0200	ug/L
Endosulfan sulfate	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000138	0.0200	ug/L
Endrin	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000229	0.0200	ug/L
Endrin aldehyde	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000318	0.0200	ug/L
gamma-BHC (Lindane)	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000241	0.0200	ug/L
Heptachlor	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000563	0.0200	ug/L
Heptachlor Epoxide	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000302	0.0200	ug/L
Methoxychlor	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.000343	0.0200	ug/L
Toxaphene	EPA 608.3	04/17/23 16:05	04/24/23 20:13	ND	U	0.0237	0.200	ug/L
PCBs								
Aroclor-1016	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.0497	0.500	ug/L
Aroclor-1221	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.352	0.500	ug/L
Aroclor-1232	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.109	0.500	ug/L
Aroclor-1242	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.185	0.500	ug/L
Aroclor-1248	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.0933	0.500	ug/L
Aroclor-1254	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.103	0.500	ug/L
Aroclor-1260	EPA 608.3	04/17/23 16:02	04/21/23 15:55	ND	U	0.0784	0.500	ug/L
VO+15 Volatile Organics - GC/MS								
1,1,1-Trichloroethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.218	1.00	ug/L
1,1,2,2-Tetrachloroethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.218	1.00	ug/L
1,1,2-Trichloroethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.476	1.00	ug/L
1,1-Dichloroethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.393	1.00	ug/L
1,1-Dichloroethene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.449	1.00	ug/L
1,2,4-Trichlorobenzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.437	1.00	ug/L
1,2-Dichlorobenzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.210	1.00	ug/L
1,2-Dichloroethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.306	1.00	ug/L
1,2-Dichloropropane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.287	1.00	ug/L
1,3-Dichlorobenzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.287	1.00	ug/L
1,4-Dichlorobenzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.238	1.00	ug/L
2-Chloroethylvinyl Ether	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.601	1.00	ug/L
Acrolein	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	1.57	5.00	ug/L
Acrylonitrile	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.606	5.00	ug/L
Benzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.128	1.00	ug/L

FootNotes

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D - Indicates result is based on a dilution
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Analytical Results Summary

All projects
23D0588-08 (Wastewater)

IS-230413-RLF

Collected
04/13/2023 10:43

Received
04/13/2023 13:45

Contact
Linda Hoffman

Lab Section/ Analysis	Method	Prepared	Analyzed	Result	Qual	MDL	RL	Units
VO-15 Volatile Organics - GC/MS								
Bromodichloromethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.258	1.00	ug/L
Bromoform	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.421	1.00	ug/L
Bromomethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.702	10.0	ug/L
Carbon Tetrachloride	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.372	1.00	ug/L
Chlorobenzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.300	1.00	ug/L
Chlorodibromomethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.505	1.00	ug/L
Chloroethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.299	2.00	ug/L
Chloroform	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.365	1.00	ug/L
Chloromethane	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.758	1.00	ug/L
cis-1,3-Dichloropropene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.294	1.00	ug/L
EthylBenzene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.244	1.00	ug/L
Methylene Chloride	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	3.00	3.00	ug/L
Tetrachloroethene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.466	1.00	ug/L
Toluene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.265	1.00	ug/L
trans-1,2-Dichloroethene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.241	1.00	ug/L
cis-1,3-Dichloropropene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.273	1.00	ug/L
Trichloroethene	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.146	1.00	ug/L
Vinyl chloride	EPA 624.1	04/20/23 18:53	04/20/23 18:53	ND	U	0.157	1.00	ug/L

FootNotes

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D - Indicates result is based on a dilution
P - Greater than 25% diff. between 2 GC columns
H - Indicates a Hold Time violation
D1 - Sample was Decanted (Dissolved)

Project Name: Not Specified
Project Number: 23D0588

Lab Number: L2320445
Report Date: 04/25/23

SAMPLE RESULTS

Lab ID: L2320445-01
Client ID: 23D0588-08
Sample Location: Not Specified

Date Collected: 04/13/23 10:43
Date Received: 04/17/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Formaldehyde by EPA 8315A - Westborough Lab										
Formaldehyde	ND		ug/l	75.0	22.0	1	04/18/23 10:00	04/18/23 18:35	1,8315A	AAS



APPENDIX F

DATA USABILITY SUMMARY REPORT (DUSR)



Geology

Hydrology

Remediation

Water Supply

June 12, 2023

Mr. Paul W. Scholar
Geologist
Sterling Environmental Engineering, P.C.
24 Wade Road
Latham, New York 12110

Re: Data Validation Report
Ramapo Landfill (#20010)
May 2023 Ground Water Sampling Events

Dear Mr. Scholar:

The data usability summary reports (DUSRs) and QA/QC reviews are attached to this letter for the above referenced project sampling events. The data for Alpha Analytical, SDG numbers L2324371, L2324741, and L2325099 are acceptable with some minor issues that are identified and discussed in the validation summaries. There are no data that were flagged unusable, rejected (R) in the data packs.

A list of common data validation acronyms is attached to this letter to assist you interpreting the validation summaries. If you have any questions concerning the work performed, please contact me at (518) 348-6995. Thank you for the opportunity to assist Sterling Environmental Engineering, P.C.

Sincerely,
Alpha Geoscience

Donald Anné
Senior Chemist

DCA:dca
attachments

c:\users\andrea\validation\alpha\ramapo landfill-22615\2023\pdf\ramapo landfill-231.ltr.docx

L2324371



Geology

Hydrology

Remediation

Water Supply

**Data Usability Summary Report
for Alpha Analytical Labs
SDG Number: L2324371**

**6 Ground Water Samples, 1 Field Duplicate,
and 1 Equipment Blank
Collected May 3, 2023**

Prepared by: Donald Anné
June 12, 2023

The data package contained the documentation as required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appeared legible and complete. The data pack contained the results for PFAS analyses for 6 ground water samples, 1 field duplicate, and 1 equipment blank, and results for 1,4-dioxane analyses for 6 ground water samples and 1 field duplicate.

The overall performances of the analyses are acceptable. Alpha Analytical Labs did fulfill the requirements of the analytical methods.

The data are acceptable with some minor issues that are identified in the accompanying data validation reviews. There were no data were qualified either estimated or rejected (R); therefore, all data are considered usable. Detailed information on data quality is included in the data validation review.

Qualified Data Section

(No Data Qualified)

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324371-01 Client ID : UP-0S Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 1,8270E-SIM Lab File ID : F605082325 Sample Amount : 260 ml Extraction Method : EPA 3510C Extract Volume : 2500 uL GPC Cleanup : N	Lab Number : L2324371 Project Number : 20010 Date Collected : 05/03/23 11:45 Date Received : 05/03/23 Date Analyzed : 05/09/23 02:34 Date Extracted : 05/06/23 Dilution Factor : 1 Analyst : AMV Instrument ID : GCMS6 GC Column : RTX-5 %Solids : N/A Injection Volume : 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	144	32.6	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324371
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324371-02	Date Collected	: 05/03/23 12:55
Client ID	: UP-I	Date Received	: 05/03/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/09/23 02:59
Sample Matrix	: WATER	Date Extracted	: 05/06/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F605082326	Analyst	: AMV
Sample Amount	: 255 ml	Instrument ID	: GCMS6
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	147	33.2	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client : Sterling Environmental Engineering	Lab Number : L2324371
Project Name : RAMAPO LF	Project Number : 20010
Lab ID : L2324371-03	Date Collected : 05/03/23 13:00
Client ID : UP-R	Date Received : 05/03/23
Sample Location : SUFFERN, NY	Date Analyzed : 05/09/23 03:24
Sample Matrix : WATER	Date Extracted : 05/06/23
Analytical Method : 1,8270E-SIM	Dilution Factor : 1
Lab File ID : F605082327	Analyst : AMV
Sample Amount : 265 ml	Instrument ID : GCMS6
Extraction Method : EPA 3510C	GC Column : RTX-5
Extract Volume : 2500 uL	%Solids : N/A
GPC Cleanup : N	Injection Volume : 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	142	32.0	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324371
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324371-04	Date Collected	: 05/03/23 14:10
Client ID	: 10-R	Date Received	: 05/03/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/09/23 03:48
Sample Matrix	: WATER	Date Extracted	: 05/06/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F605082328	Analyst	: AMV
Sample Amount	: 255 ml	Instrument ID	: GCMS6
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	147	33.2	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324371
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324371-06	Date Collected	: 05/03/23 15:25
Client ID	: 10-I	Date Received	: 05/03/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/09/23 05:01
Sample Matrix	: WATER	Date Extracted	: 05/06/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F605082331	Analyst	: AMV
Sample Amount	: 265 ml	Instrument ID	: GCMS6
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	142	32.0	U



Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324371
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324371-07	Date Collected	: 05/03/23 16:30
Client ID	: 10-0S	Date Received	: 05/03/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/10/23 12:03
Sample Matrix	: WATER	Date Extracted	: 05/08/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F1105102312	Analyst	: TPR
Sample Amount	: 245 ml	Instrument ID	: BNA11
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	153	34.6	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client : Sterling Environmental Engineering	Lab Number : L2324371
Project Name : RAMAPO LF	Project Number : 20010
Lab ID : L2324371-09	Date Collected : 05/03/23 00:00
Client ID : DUP05032023	Date Received : 05/03/23
Sample Location : SUFFERN, NY	Date Analyzed : 05/10/23 12:26
Sample Matrix : WATER	Date Extracted : 05/08/23
Analytical Method : 1,8270E-SIM	Dilution Factor : 1
Lab File ID : F1105102313	Analyst : TPR
Sample Amount : 245 ml	Instrument ID : BNA11
Extraction Method : EPA 3510C	GC Column : RTX-5
Extract Volume : 2500 uL	%Solids : N/A
GPC Cleanup : N	Injection Volume : 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	153	34.6	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-01
 Client ID : UP-0S
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_56
 Sample Amount : 526.95 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 11:45
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 00:04
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.07	0.972	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.04	0.812	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.52	0.508	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.07	1.59	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.52	0.448	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.52	0.266	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.52	0.304	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.52	0.364	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.987	1.52	0.660	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.07	2.05	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.52	0.410	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.52	0.478	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.52	0.691	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.52	0.615	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.07	2.36	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.52	0.471	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.52	0.827	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.52	0.660	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-01
 Client ID : UP-0S
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_56
 Sample Amount : 526.95 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 11:45
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 00:04
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.52	0.349	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.52	0.410	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.52	0.820	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.52	0.698	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.52	0.569	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.52	0.402	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.07	0.850	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.07	0.956	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.52	0.577	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.07	1.25	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.07	1.25	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.52	0.660	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.52	0.698	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.2	3.57	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-01
 Client ID : UP-0S
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_56
 Sample Amount : 526.95 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 11:45
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 00:04
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.2	1.86	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.04	0.433	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.04	0.402	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.04	0.334	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.04	1.79	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.59	2.50	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	38.0	8.88	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	38.0	5.99	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-02
 Client ID : UP-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_57
 Sample Amount : 506.23 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 12:55
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 00:16
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.32	1.01	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.16	0.845	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.58	0.529	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.32	1.65	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.58	0.466	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.58	0.276	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.58	0.316	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.58	0.379	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.58	0.687	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.32	2.13	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.58	0.427	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.58	0.498	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.58	0.719	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.58	0.640	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.32	2.46	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.58	0.490	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.58	0.861	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.58	0.687	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-02
 Client ID : UP-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_57
 Sample Amount : 506.23 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 12:55
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 00:16
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.58	0.363	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.58	0.427	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.58	0.853	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.58	0.727	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.58	0.593	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.58	0.419	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.32	0.885	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.32	0.996	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.58	0.600	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.32	1.30	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.32	1.30	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.58	0.687	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.58	0.727	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.8	3.71	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-02
 Client ID : UP-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_57
 Sample Amount : 506.23 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 12:55
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 00:16
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.8	1.94	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.16	0.450	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.16	0.419	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.16	0.348	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.16	1.86	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.90	2.61	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	39.5	9.24	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	39.5	6.23	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-03
 Client ID : UP-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_21
 Sample Amount : 533.73 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 13:00
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 11:00
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.00	0.959	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.00	0.802	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.50	0.502	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.00	1.57	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.50	0.442	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.50	0.262	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.50	0.300	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.50	0.360	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.50	0.652	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.00	2.02	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.50	0.405	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.50	0.472	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.50	0.682	U
335-76-2	Perfluorodecanoic Acid (PFDA)	1.72	1.50	0.607	
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.00	2.33	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.50	0.465	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.50	0.817	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.50	0.652	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-03
 Client ID : UP-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_21
 Sample Amount : 533.73 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 13:00
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 11:00
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.50	0.345	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.50	0.405	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.50	0.809	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.50	0.689	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.50	0.562	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.50	0.397	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.00	0.839	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.00	0.944	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.50	0.570	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.00	1.24	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.00	1.24	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.50	0.652	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.50	0.689	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.0	3.52	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324371-03 Client ID : UP-R Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230602_21 Sample Amount : 533.73 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324371 Project Number : 20010 Date Collected : 05/03/23 13:00 Date Received : 05/03/23 Date Analyzed : 06/02/23 11:00 Date Extracted : 05/29/23 Dilution Factor : 1 Analyst : AC Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.0	1.84	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.00	0.427	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.00	0.397	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.00	0.330	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.00	1.77	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.49	2.47	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	37.5	8.77	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	37.5	5.91	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-04
 Client ID : 10-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_61
 Sample Amount : 513.54 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 14:10
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 01:18
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.23	0.997	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.12	0.833	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.56	0.522	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.23	1.63	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.56	0.460	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.56	0.273	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.56	0.312	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.56	0.374	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.56	0.678	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.23	2.10	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.56	0.421	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.56	0.491	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.56	0.709	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.56	0.631	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.23	2.42	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.56	0.483	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.56	0.849	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.56	0.678	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-04
 Client ID : 10-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_61
 Sample Amount : 513.54 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 14:10
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 01:18
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.56	0.358	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.56	0.421	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.56	0.841	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.56	0.716	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.56	0.584	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.56	0.413	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.23	0.872	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.23	0.981	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.56	0.592	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.23	1.28	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.23	1.28	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.56	0.678	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.56	0.716	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.6	3.66	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-04
 Client ID : 10-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_61
 Sample Amount : 513.54 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 14:10
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 01:18
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.6	1.91	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.12	0.444	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.12	0.413	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.12	0.343	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.12	1.84	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.79	2.57	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	38.9	9.11	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	38.9	6.14	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-05
 Client ID : EB05032023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_65
 Sample Amount : 529.36 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 13:25
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 01:56
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.04	0.967	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.02	0.808	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.51	0.506	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.04	1.58	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.51	0.446	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.51	0.264	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.51	0.302	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.51	0.363	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.51	0.657	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.04	2.04	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.51	0.408	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.51	0.476	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.51	0.688	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.51	0.612	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.04	2.35	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.51	0.468	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.51	0.824	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.51	0.657	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-05
 Client ID : EB05032023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_65
 Sample Amount : 529.36 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 13:25
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 01:56
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.51	0.348	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.51	0.408	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.51	0.816	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.51	0.695	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.51	0.567	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.51	0.400	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.04	0.846	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.04	0.952	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.51	0.574	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.04	1.25	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.04	1.25	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.51	0.657	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.51	0.695	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.1	3.55	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324371-05 Client ID : EB05032023 Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_65 Sample Amount : 529.36 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324371 Project Number : 20010 Date Collected : 05/03/23 13:25 Date Received : 05/03/23 Date Analyzed : 06/02/23 01:56 Date Extracted : 05/29/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.1	1.85	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.02	0.431	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.02	0.400	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.02	0.332	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.02	1.78	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.56	2.49	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	37.8	8.84	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	37.8	5.96	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-06
 Client ID : 10-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_66
 Sample Amount : 541.48 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 15:25
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 02:09
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	5.91	0.946	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.95	0.790	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.48	0.495	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	5.91	1.54	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.48	0.436	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.48	0.258	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.48	0.295	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.48	0.354	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.48	0.643	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	5.91	1.99	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.48	0.399	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.48	0.465	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.48	0.672	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.48	0.598	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	5.91	2.30	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.48	0.458	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.48	0.805	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.48	0.643	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-06
 Client ID : 10-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_66
 Sample Amount : 541.48 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 15:25
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 02:09
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.48	0.340	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.48	0.399	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.48	0.798	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.48	0.680	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.48	0.554	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.48	0.392	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	5.91	0.827	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	5.91	0.931	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.48	0.561	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	5.91	1.22	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	5.91	1.22	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.48	0.643	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.48	0.680	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	14.8	3.47	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324371-06 Client ID : 10-I Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_66 Sample Amount : 541.48 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324371 Project Number : 20010 Date Collected : 05/03/23 15:25 Date Received : 05/03/23 Date Analyzed : 06/02/23 02:09 Date Extracted : 05/29/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	14.8	1.81	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	2.95	0.421	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	2.95	0.392	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	2.95	0.325	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	2.95	1.74	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.39	2.44	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	36.9	8.64	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	36.9	5.83	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-07
 Client ID : 10-0S
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_67
 Sample Amount : 545.95 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 16:30
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 02:21
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	5.86	0.938	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.93	0.784	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.46	0.491	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	5.86	1.53	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.46	0.432	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.46	0.256	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.46	0.293	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.46	0.352	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.46	0.637	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	5.86	1.98	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.46	0.396	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.46	0.462	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.46	0.667	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.46	0.593	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	5.86	2.28	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.46	0.454	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.46	0.799	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.46	0.637	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-07
 Client ID : 10-0S
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_67
 Sample Amount : 545.95 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 16:30
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 02:21
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.46	0.337	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.46	0.396	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.46	0.791	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.46	0.674	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.46	0.550	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.46	0.388	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	5.86	0.820	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	5.86	0.923	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.46	0.557	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	5.86	1.21	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	5.86	1.21	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.46	0.637	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.46	0.674	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	14.6	3.44	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324371-07 Client ID : 10-0S Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_67 Sample Amount : 545.95 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324371 Project Number : 20010 Date Collected : 05/03/23 16:30 Date Received : 05/03/23 Date Analyzed : 06/02/23 02:21 Date Extracted : 05/29/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	14.6	1.80	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	2.93	0.418	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	2.93	0.388	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	2.93	0.322	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	2.93	1.73	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.33	2.42	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	36.6	8.57	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	36.6	5.78	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-09
 Client ID : DUP05032023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_68
 Sample Amount : 541.1 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 00:00
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 02:34
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	5.91	0.946	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.96	0.791	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.48	0.495	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	5.91	1.54	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.48	0.436	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.48	0.259	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.48	0.296	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.48	0.355	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.48	0.643	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	5.91	2.00	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.48	0.399	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.48	0.466	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.48	0.673	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.48	0.599	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	5.91	2.30	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.48	0.458	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.48	0.806	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.48	0.643	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324371-09
 Client ID : DUP05032023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_68
 Sample Amount : 541.1 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324371
 Project Number : 20010
 Date Collected : 05/03/23 00:00
 Date Received : 05/03/23
 Date Analyzed : 06/02/23 02:34
 Date Extracted : 05/29/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.48	0.340	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.48	0.399	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.48	0.798	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.48	0.680	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.48	0.554	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.48	0.392	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	5.91	0.828	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	5.91	0.931	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.48	0.562	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	5.91	1.22	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	5.91	1.22	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.48	0.643	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.48	0.680	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	14.8	3.47	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324371-09 Client ID : DUP05032023 Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_68 Sample Amount : 541.1 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324371 Project Number : 20010 Date Collected : 05/03/23 00:00 Date Received : 05/03/23 Date Analyzed : 06/02/23 02:34 Date Extracted : 05/29/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	14.8	1.81	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	2.96	0.421	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	2.96	0.392	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	2.96	0.325	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	2.96	1.74	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.39	2.44	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	37.0	8.65	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	37.0	5.83	U

1,4-Dioxane

Data Section



Geology

Hydrology

Remediation

Water Supply

**QA/QC Review of Method 8270D SIM 1,4-Dioxane
Data for Alpha Analytical, SDG Number: L2324371**

**6 Ground Water Samples and 1 Field Duplicate
Collected May 3, 2023**

Prepared by: Donald Anné
June 12, 2023

Holding Times: The samples were extracted and analyzed within USEPA SW-846 holding times.

Initial Calibration: The average RRFs for 1,4-dioxane were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for 1,4-dioxane were above the allowable minimum (0.010) and the %Ds were below the allowable maximum (20%), as required.

Blanks: The analyses of the method blanks reported 1,4-dioxane as not detected.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples.

Matrix Spike/Matrix Spike Duplicate: The relative percent difference for 1,4-dioxane was below the allowable maximum and the percent recoveries were within QC limits for aqueous MS/MSD sample 10-R.

Laboratory Control Sample: The relative percent differences for 1,4-dioxane were below the allowable maximum and the percent recoveries were within QC limits for aqueous samples WG1775719-2/3 and WG1776417-2/3.

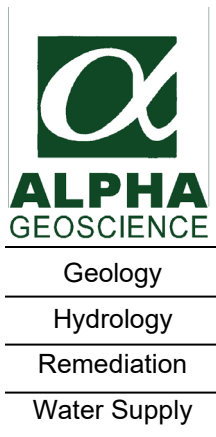
Field Duplicates: The analyses of aqueous field duplicate 10-I/DUP0503023 reported 1,4-dioxane as not detected; therefore, a valid relative percent difference could not be calculated. The analyses for the field duplicate pair were acceptable.

Compound ID: Checked surrogate results were within quantitation limits. The analyses of the ground water samples reported 1,4-dioxane as not detected.

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PFAS

Data Section



**QA/QC Review of Method 1633 PFAS Data for
Alpha Analytical Labs SDG Number: L2324371**

**6 Ground Water Samples, 1 Field Duplicate,
and 1 Equipment Blank
Collected May 3, 2023**

Prepared by: Donald Anné
June 12, 2023

Holding Times: Samples were extracted and analyzed within USEPA holding time.

Initial Calibration: The %RSDs for applicable PFASs were below the method maximum (20%) or the R or R squared were above the method minimums, as required.

Continuing Calibration: The percent recoveries (%Rs) for PFOS, NMeFOSAA, and NFDHA were above QC limits (70-130%) on 06-01-23 (SCI05_230601_39). The %Rs for NFDHA and 7:3FTCA were above QC limits (70-130%) on 06-01-23 (SCI05_230601_41). The %R for NFDHA was above QC limits (70-130%) on 06-02-23 (SCI05_230601_58). Positive results for these PFAS should be considered estimated (J) in associated samples.

Blanks: The analyses of the method and equipment blanks reported target PFAS as not detected.

Surrogate Recovery: One of twenty-eight surrogate recoveries for sample UP-R was above QC limits. Positive results for PFAS that were quantitated using this surrogate should be considered estimated (J) in the sample.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences for target PFAS were below the allowable maximum, but 2 of 2 percent recoveries for NFDHA were above QC limits for aqueous MS/MSD sample 10-R. Sample 10-R reported NFDHA as “not detected”; therefore, no action is taken.

Laboratory Control Sample: The percent recoveries (%Rs) for target PFAS were within QC limits for aqueous sample WG1784487-3.

The %R for NFDHA was above QC limits for aqueous sample WG1784487-2. Positive results for NFDHA should be considered estimated, biased high (J+) in associated aqueous samples.

Field Duplicates: The analyses of aqueous field duplicate pair 10-I/DUP0503023 reported target PFAS as either not detected or below the lowest standard; therefore, valid relative percent differences could not be calculated. The analyses for the field duplicate pair were acceptable.

Compound ID: Checked compound and surrogate results were within LC quantitation limits.

Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324371
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1784487-2** Analysis Date : 06/01/23 21:56 File ID : SCI05_230601_46.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
Perfluorobutanoic Acid (PFBA)	12.8	13.7	107				-	40-150	30
Perfluoropentanoic Acid (PFPeA)	6.4	6.24	98				-	40-150	30
Perfluorobutanesulfonic Acid (PFBS)	2.84	3.52	124				-	40-150	30
1H,1H,2H,2H-Perfluorohexanesulfon ic Acid (4:2FTS)		12.5	104				-	40-150	30
Perfluorohexanoic Acid (PFHxA)	3.2	3.44	108				-	40-150	30
Perfluoropentanesulfonic Acid (PFPeS)	3.01	2.96	98				-	40-150	30
Perfluoroheptanoic Acid (PFHpA)	3.2	2.48	78				-	40-150	30
Perfluorohexanesulfonic Acid (PFHxS)	2.92	2.64	90				-	40-150	30
Perfluorooctanoic Acid (PFOA)	3.2	2.64	82				-	40-150	30
1H,1H,2H,2H-Perfluorooctanesulfon ic Acid (6:2FTS)	12.2	11.8	97				-	40-150	30
Perfluoroheptanesulfonic Acid (PFHpS)	3.05	2.64	86				-	40-150	30
Perfluorononanoic Acid (PFNA)	3.2	3.20	100				-	40-150	30
Perfluorooctanesulfonic Acid	2.97	3.20	108				-	40-150	30

Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324371
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1784487-2** Analysis Date : 06/01/23 21:56 File ID : SCI05_230601_46.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
(PFOS)									
Perfluorodecanoic Acid (PFDA)	3.2	2.80	88				-	40-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	12.3	10.7	87				-	40-150	30
Perfluorononanesulfonic Acid	3.08	2.56	83				-	40-150	30
(PFNS)									
N-Methyl Perfluorooctanesulfonamide	3.2	2.56	80				-	40-150	30
Perfluoroundecanoic Acid (NMeFOSAA)									
Perfluoroundecanoic Acid (PFUnA)	3.2	3.28	102				-	40-150	30
Perfluorodecanesulfonic Acid	3.09	2.96	96				-	40-150	30
(PFDS)									
Perfluorooctanesulfonamide	3.2	3.20	100				-	40-150	30
(PFOSA)									
N-Ethyl Perfluorooctanesulfonamide	3.2	3.04	95				-	40-150	30
Perfluorododecanoic Acid (NEtFOSAA)									
Perfluorododecanoic Acid (PFDoA)	3.2	2.64	82				-	40-150	30
Perfluorotridecanoic Acid	3.2	3.20	100				-	40-150	30
(PFTTrDA)									

Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324371
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1784487-2** Analysis Date : 06/01/23 21:56 File ID : SCI05_230601_46.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
Perfluorotetradecanoic Acid (PFTeDA)	3.2	3.52	110				-	40-150	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	12.6	99				-	40-150	30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	12.1	10.8	89				-	40-150	30
Perfluorododecanesulfonic Acid (PFDoS)	3.1	2.80	90				-	40-150	30
9-Chlorohexadecafluoro-3-Oxanone- 1-Sulfonic Acid (9CI-PF3ONS)	12	9.12	76				-	40-150	30
11-Chloroeicosafluoro-3-Oxaundeca- ne-1-Sulfonic Acid (11CI-PF3OUdS)	12.1	8.88	73				-	40-150	30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	3.2	2.64	82				-	40-150	30
N-Ethyl Perfluorooctane Sulfonami- de (NEtFOSA)	3.2	3.36	105				-	40-150	30
N-Methyl Perfluorooctanesulfonami	32	28.3	88				-	40-150	30



Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324371
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1784487-2** Analysis Date : 06/01/23 21:56 File ID : SCI05_230601_46.wiff
 LCSD Sample ID : Analysis Date : File ID :

	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
Parameter	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
do Ethanol (NMeFOSE)									
N-Ethyl Perfluorooctanesulfonamid	32	32.2	100				-	40-150	30
o Ethanol (NEtFOSE)									
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	6.4	6.80	106				-	40-150	30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	6.4	7.44	116				-	40-150	30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	5.7	5.04	88				-	40-150	30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	6.4	11.6	181 Q				-	40-150	30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)									
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	80	66.1	83				-	40-150	30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	80	53.9	67				-	40-150	30

Matrix Spike Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Client Sample ID : 10-R
 Lab Sample ID : L2324371-04
 Matrix Spike : WG1784487-4
 Matrix Spike Dup : WG1784487-5

Lab Number : L2324371
 Project Number : 20010
 Matrix (Level) : WATER ()
 Analysis Date : 06/02/23 01:18
 MS Analysis Date : 06/02/23 01:30
 MSD Analysis Date : 06/02/23 01:43

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
Perfluorobutanoic Acid (PFBA)	ND	79.4	77.1	97	79.5	81.7	103	6	40-150	30
Perfluoropentanoic Acid (PFPeA)	ND	39.7	34.9	88	39.8	33.0	83	6	40-150	30
Perfluorobutanesulfonic Acid (PFBS)	ND	17.6	18.9	107	17.6	18.8	107	1	40-150	30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	74.5	74.6	100	74.5	81.4	109	9	40-150	30
Perfluorohexanoic Acid (PFHxA)	ND	19.9	18.8	95	19.9	20.1	101	7	40-150	30
Perfluoropentanesulfonic Acid (PFPeS)	ND	18.7	18.6	100	18.7	20.0	107	7	40-150	30
Perfluoroheptanoic Acid (PFHpA)	ND	19.9	16.4	83	19.9	16.8	84	2	40-150	30
Perfluorohexanesulfonic Acid (PFHxS)	ND	18.2	14.7	81	18.2	16.2	89	10	40-150	30
Perfluorooctanoic Acid (PFOA)	ND	19.9	16.4	83	19.9	16.1	81	2	40-150	30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	75.5	82.6	109	75.5	83.0	110	0	40-150	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	18.9	16.9	89	18.9	17.6	93	4	40-150	30
Perfluorononanoic Acid (PFNA)	ND	19.9	22.2	112	19.9	22.6	114	2	40-150	30
Perfluorooctanesulfonic Acid (PFOS)	ND	18.4	19.2	104	18.4	19.6	106	2	40-150	30
Perfluorodecanoic Acid (PFDA)	ND	19.9	17.8	90	19.9	19.8	100	11	40-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	ND	76.3	72.1	94	76.3	75.3	99	4	40-150	30



Matrix Spike Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Client Sample ID : 10-R
 Lab Sample ID : L2324371-04
 Matrix Spike : WG1784487-4
 Matrix Spike Dup : WG1784487-5

Lab Number : L2324371
 Project Number : 20010
 Matrix (Level) : WATER ()
 Analysis Date : 06/02/23 01:18
 MS Analysis Date : 06/02/23 01:30
 MSD Analysis Date : 06/02/23 01:43

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
ic Acid (8:2FTS)										
Perfluorononanesulfonic Acid (PFNS)	ND	19.1	15.5	81	19.1	16.8	88	8	40-150	30
N-Methyl Perfluorooctanesulfonamide (NMeFOSAA)	ND	19.9	20.3	102	19.9	21.1	106	4	40-150	30
Perfluoroundecanoic Acid (PFUnA)	ND	19.9	24.1	121	19.9	22.2	112	8	40-150	30
Perfluorodecanesulfonic Acid (PFDS)	ND	19.2	17.9	93	19.2	17.9	93	0	40-150	30
Perfluorooctanesulfonamide (PFOSA)	ND	19.9	20.8	105	19.9	21.6	109	4	40-150	30
N-Ethyl Perfluorooctanesulfonamide (NEtFOSAA)	ND	19.9	19.0	96	19.9	17.6	88	8	40-150	30
Perfluorododecanoic Acid (PFDoA)	ND	19.9	17.2	87	19.9	17.5	88	2	40-150	30
Perfluorotridecanoic Acid (PFTTrDA)	ND	19.9	21.5	108	19.9	22.7	114	5	40-150	30
Perfluorotetradecanoic Acid (PFTeDA)	ND	19.9	28.1	141	19.9	27.0	136	4	40-150	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	79.4	86.1	108	79.5	97.8	123	13	40-150	30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	75.1	65.1	87	75.1	67.0	89	3	40-150	30
Perfluorododecanesulfonic Acid	ND	19.3	16.4	85	19.3	18.3	95	11	40-150	30



Matrix Spike Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Client Sample ID : 10-R
 Lab Sample ID : L2324371-04
 Matrix Spike : WG1784487-4
 Matrix Spike Dup : WG1784487-5

Lab Number : L2324371
 Project Number : 20010
 Matrix (Level) : WATER ()
 Analysis Date : 06/02/23 01:18
 MS Analysis Date : 06/02/23 01:30
 MSD Analysis Date : 06/02/23 01:43

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
(PFDoS)										
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	74.3	59.3	80	74.3	64.5	87	8	40-150	30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	75.1	53.5	71	75.1	59.6	79	11	40-150	30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	19.9	17.8	90	19.9	18.2	92	2	40-150	30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	19.9	21.9	110	19.9	20.8	105	5	40-150	30
N-Methyl Perfluorooctanesulfonamide Ethanol (NMeFOSE)	ND	199	193	97	199	189	95	2	40-150	30
N-Ethyl Perfluorooctanesulfonamide Ethanol (NEtFOSE)	ND	199	224	113	199	222	112	1	40-150	30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	39.7	37.5	94	39.8	36.2	91	4	40-150	30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	39.7	43.3	109	39.8	41.5	104	4	40-150	30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	35.4	31.8	90	35.4	35.3	100	10	40-150	30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	39.7	63.9	161 Q	39.8	66.6	168 Q	4	40-150	30
3-Perfluoropropyl Propanoic Acid	ND	99.3	101	102	99.4	99.6	100	1	40-150	30



Matrix Spike Sample Summary

Form 3

Semivolatiles

Client	: Sterling Environmental Engineering	Lab Number	: L2324371
Project Name	: RAMAPO LF	Project Number	: 20010
Client Sample ID	: 10-R	Matrix (Level)	: WATER ()
Lab Sample ID	: L2324371-04	Analysis Date	: 06/02/23 01:18
Matrix Spike	: WG1784487-4	MS Analysis Date	: 06/02/23 01:30
Matrix Spike Dup	: WG1784487-5	MSD Analysis Date	: 06/02/23 01:43

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
(3:3FTCA)										
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	496	429	86	497	473	95	10	40-150	30
(7:3FTCA)										
3-Perfluoroheptyl Propanoic Acid	ND	496	434	87	497	473	95	9	40-150	30

Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324371
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S1 ()	S2 ()	S3 ()	S4 ()	S5 ()	S6 ()	S7 ()
UP-0S (L2324371-01)	90	97	86	119	86	103	86
UP-I (L2324371-02)	88	94	95	103	93	106	88
UP-R (L2324371-03)	63	53	65	196*	50	58	64
10-R (L2324371-04)	91	92	99	130	87	102	91
EB05032023 (L2324371-05)	95	98	97	112	86	99	89
10-I (L2324371-06)	89	78	91	131	71	82	90
10-0S (L2324371-07)	100	90	108	124	91	103	96
DUP05032023 (L2324371-09)	91	83	97	140	86	92	88
WG1784487-1BLANK	76	77	88	88	76	86	74
WG1784487-2LCS	85	83	75	98	90	100	85
WG1784487-3LCS	92	89	101	111	92	103	92
10-RMS	94	88	90	124	88	98	88
10-RMSD	87	91	88	116	82	99	86

QC LIMITS

- (20-150) S1 = PERFLUORO[13C4]BUTANOIC ACID (MPFBA)
 (20-150) S2 = PERFLUORO[13C5]PENTANOIC ACID (M5PFPEA)
 (20-150) S3 = PERFLUORO[2,3,4-13C3]BUTANESULFONIC ACID (M3PFBS)
 (20-150) S4 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]HEXANESULFONIC ACID (M2-4:2FTS)
 (20-150) S5 = PERFLUORO[1,2,3,4,6-13C5]HEXANOIC ACID (M5PFHXA)
 (20-150) S6 = PERFLUORO[1,2,3,4-13C4]HEPTANOIC ACID (M4PFHPA)
 (20-150) S7 = PERFLUORO[1,2,3-13C3]HEXANESULFONIC ACID (M3PFHXS)

* Values outside of QC limits

FORM II A2-1633-DRAFT



Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324371
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S8 ()	S9 ()	S10 ()	S11 ()	S12 ()	S13 ()	S14 ()
UP-0S (L2324371-01)	95	95	90	82	83	86	91
UP-I (L2324371-02)	95	97	84	83	84	85	93
UP-R (L2324371-03)	63	67	56	51	58	64	55
10-R (L2324371-04)	87	108	84	72	73	83	84
EB05032023 (L2324371-05)	96	102	90	86	90	84	90
10-I (L2324371-06)	98	96	82	74	74	75	81
10-0S (L2324371-07)	103	107	93	86	86	97	102
DUP05032023 (L2324371-09)	88	93	86	84	81	83	97
WG1784487-1BLANK	80	83	68	69	62	66	65
WG1784487-2LCS	89	90	86	76	90	82	90
WG1784487-3LCS	96	104	90	81	88	92	84
10-RMS	91	97	84	75	74	78	80
10-RMSD	89	98	82	72	70	82	78

QC LIMITS

- (20-150) S8 = PERFLUORO[13C8]OCTANOIC ACID (M8PFOA)
 (20-150) S9 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]OCTANESULFONIC ACID (M2-6:2FTS)
 (20-150) S10 = PERFLUORO[13C9]NONANOIC ACID (M9PFNA)
 (20-150) S11 = PERFLUORO[13C8]OCTANESULFONIC ACID (M8PFOS)
 (20-150) S12 = PERFLUORO[1,2,3,4,5,6-13C6]DECANOIC ACID (M6PFDA)
 (20-150) S13 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]DECANESULFONIC ACID (M2-8:2FTS)
 (20-150) S14 = N-DEUTERIOMETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D3-NMEFOSAA)

* Values outside of QC limits

FORM II A2-1633-DRAFT (Continued)



Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324371
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S15 ()	S16 ()	S17 ()	S18 ()	S19 ()	S20 ()	S21 ()
UP-0S (L2324371-01)	87	68	105	87	76	89	76
UP-I (L2324371-02)	82	72	111	83	66	95	73
UP-R (L2324371-03)	62	46	73	58	51	53	49
10-R (L2324371-04)	74	67	88	71	61	90	69
EB05032023 (L2324371-05)	84	67	95	79	72	88	70
10-I (L2324371-06)	75	62	89	69	55	78	71
10-0S (L2324371-07)	88	75	120	84	70	90	79
DUP05032023 (L2324371-09)	85	69	125	79	76	84	70
WG1784487-1BLANK	54	52	75	56	53	88	54
WG1784487-2LCS	88	67	96	88	76	90	60
WG1784487-3LCS	82	59	97	78	62	94	57
10-RMS	68	61	85	67	53	93	68
10-RMSD	74	58	92	69	62	91	64

QC LIMITS

- (20-150) S15 = PERFLUORO[1,2,3,4,5,6,7-13C7]UNDECANOIC ACID (M7-PFUDA)
 (20-150) S16 = PERFLUORO[13C8]OCTANESULFONAMIDE (M8FOSA)
 (20-150) S17 = N-DEUTERIOETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D5-NETFOSAA)
 (20-150) S18 = PERFLUORO[1,2-13C2]DODECANOIC ACID (MPFDOA)
 (20-150) S19 = PERFLUORO[1,2-13C2]TETRADECANOIC ACID (M2PFTEDA)
 (20-150) S20 = 2,3,3,3-TETRAFLUORO-2-[1,1,2,2,3,3,3-HEPTAFLUOROPROPOXY]-13C3-PROPANOIC ACID (M3HFPO-DA)
 (20-150) S21 = N-METHYL-D3-PERFLUORO-1-OCTANESULFONAMIDE (D3-NMEFOSA)

* Values outside of QC limits

FORM II A2-1633-DRAFT (Continued)



Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324371
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S22 ()	S23 ()	S24 ()	S25 ()	S26 ()	S27 ()	S28 ()	TOT OUT
UP-0S (L2324371-01)	83	85	101	--	--	--	--	0
UP-I (L2324371-02)	84	90	102	--	--	--	--	0
UP-R (L2324371-03)	52	56	62	--	--	--	--	1
10-R (L2324371-04)	75	82	90	--	--	--	--	0
EB05032023 (L2324371-05)	76	84	99	--	--	--	--	0
10-I (L2324371-06)	73	71	89	--	--	--	--	0
10-0S (L2324371-07)	89	86	107	--	--	--	--	0
DUP05032023 (L2324371-09)	78	77	98	--	--	--	--	0
WG1784487-1BLANK	57	68	74	--	--	--	--	0
WG1784487-2LCS	69	86	101	--	--	--	--	0
WG1784487-3LCS	65	83	108	--	--	--	--	0
10-RMS	76	76	82	--	--	--	--	0
10-RMSD	73	79	87	--	--	--	--	0

QC LIMITS

(20-150) S22 = N-ETHYL-D5-PERFLUORO-1-OCTANESULFONAMIDE (D5-NETFOSE)
(20-150) S23 = 2-(N-METHYL-D3-PERFLUORO-1-OCTANESULFONAMIDO)ETHAN-D4-OL (D7-NMEFOSE)
(20-150) S24 = 2-(N-ETHYL-D5-PERFLUORO-1-OCTANESULFONAMIDO)ETHAN-D4-OL (D9-NETFOSE)

* Values outside of QC limits

FORM II A2-1633-DRAFT (Continued)



Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230601_39
 Sample No : WG1786160-2
 Channel :

Lab Number : L2324371
 Project Number : 20010
 Calibration Date : 06/01/23 20:01
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.930	0.800	116.3	70-130
Perfluoropentanoic Acid (PFPeA)	0.410	0.400	102	70-130
Perfluorobutanesulfonic Acid (PFBS)	0.210	0.177	117.2	70-130
Perfluorohexanoic Acid (PFHxA)	0.240	0.200	118.3	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.900	0.750	119.7	70-130
Perfluoropentanesulfonic Acid (PFPeS)	0.210	0.188	109	70-130
Perfluoroheptanoic Acid (PFHpA)	0.210	0.200	104.3	70-130
Perfluorohexanesulfonic Acid (PFHxS)	0.180	0.183	102	70-130
Perfluorooctanoic Acid (PFOA)	0.170	0.200	84	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.840	0.760	110.1	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	0.190	0.191	98.7	70-130
Perfluorononanoic Acid (PFNA)	0.210	0.200	104.7	70-130
Perfluorooctanesulfonic Acid (PFOS)	0.270	0.186	140.4*	70-130
Perfluorodecanoic Acid (PFDA)	0.190	0.200	96.5	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.730	0.768	94.3	70-130
Perfluorononanesulfonic Acid (PFNS)	0.200	0.192	106	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.280	0.200	137.7*	70-130
Perfluoroundecanoic Acid (PFUnA)	0.260	0.200	129.6	70-130
Perfluorodecanesulfonic Acid (PFDS)	0.220	0.193	115	70-130
Perfluorooctanesulfonamide (PFOSA)	0.210	0.200	103.8	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.180	0.200	90.5	70-130
Perfluorododecanoic Acid (PFDoA)	0.200	0.200	101.4	70-130
Perfluorotridecanoic Acid (PFTTrDA)	0.240	0.200	121.9	70-130
Perfluorotetradecanoic Acid (PFTeDA)	0.240	0.200	118.4	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	0.800	0.800	99.3	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	0.760	0.756	100.1	70-130
Perfluorododecanesulfonic Acid (PFDoS)	0.220	0.194	115.2	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	0.600	0.748	80	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	0.650	0.756	85.5	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	0.190	0.200	93.6	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	0.230	0.200	113.8	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	2.210	2.000	110.6	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	2.160	2.000	108.1	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	0.430	0.400	107.1	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	0.490	0.400	123.5	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	0.370	0.356	102.2	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	0.700	0.400	174.6*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	1.000	1.000	99.5	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	5.830	5.000	116.5	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	6.370	5.000	127.4	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	9.300	10.000	93	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	4.760	5.000	95.1	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.230	2.330	95.6	70-130

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230601_41
 Sample No : WG1786160-3
 Channel :

Lab Number : L2324371
 Project Number : 20010
 Calibration Date : 06/01/23 20:40
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	11.090	10.000	110.9	70-130
Perfluoropentanoic Acid (PFPeA)	4.630	5.000	92.7	70-130
Perfluorobutanesulfonic Acid (PFBS)	2.670	2.217	120.1	70-130
Perfluorohexanoic Acid (PFHxA)	2.510	2.500	100.3	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	10.460	9.375	111.5	70-130
Perfluoropentanesulfonic Acid (PFPeS)	2.320	2.353	98.7	70-130
Perfluoroheptanoic Acid (PFHpA)	2.110	2.500	84.5	70-130
Perfluorohexanesulfonic Acid (PFHxS)	1.980	2.285	86.6	70-130
Perfluorooctanoic Acid (PFOA)	2.050	2.500	81.9	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	11.000	9.500	115.8	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	2.110	2.382	88.8	70-130
Perfluorononanoic Acid (PFNA)	2.960	2.500	118.5	70-130
Perfluorooctanesulfonic Acid (PFOS)	2.570	2.320	110.8	70-130
Perfluorodecanoic Acid (PFDA)	2.190	2.500	87.4	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	8.960	9.600	93.4	70-130
Perfluorononanesulfonic Acid (PFNS)	2.130	2.405	88.4	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2.850	2.500	114	70-130
Perfluoroundecanoic Acid (PFUnA)	2.760	2.500	110.3	70-130
Perfluorodecanesulfonic Acid (PFDS)	2.690	2.413	111.6	70-130
Perfluorooctanesulfonamide (PFOSA)	2.650	2.500	105.9	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.980	2.500	79	70-130
Perfluorododecanoic Acid (PFDoA)	2.360	2.500	94.6	70-130
Perfluorotridecanoic Acid (PFTTrDA)	2.860	2.500	114.4	70-130
Perfluorotetradecanoic Acid (PFTeDA)	3.020	2.500	120.7	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	11.050	10.000	110.5	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	8.720	9.450	92.3	70-130
Perfluorododecanesulfonic Acid (PFDoS)	2.490	2.425	102.4	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	9.020	9.350	96.5	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	9.130	9.450	96.6	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	2.100	2.500	84.2	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	2.640	2.500	105.4	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24.680	25.000	98.7	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	24.750	25.000	99	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	5.150	5.000	103	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	5.860	5.000	117.3	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	3.930	4.450	88.3	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	8.610	5.000	172.1*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	13.540	12.500	108.4	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	59.510	62.500	95.2	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	84.960	62.500	135.9*	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	10.480	10.000	104.7	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	5.160	5.000	103.2	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.370	2.330	101.6	70-130

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230601_58
 Sample No : WG1786160-8
 Channel :

Lab Number : L2324371
 Project Number : 20010
 Calibration Date : 06/02/23 00:29
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	10.700	10.000	107	70-130
Perfluoropentanoic Acid (PFPeA)	4.560	5.000	91.2	70-130
Perfluorobutanesulfonic Acid (PFBS)	2.270	2.217	102.1	70-130
Perfluorohexanoic Acid (PFHxA)	2.710	2.500	108.4	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	10.140	9.375	108.2	70-130
Perfluoropentanesulfonic Acid (PFPeS)	2.500	2.353	106.5	70-130
Perfluoroheptanoic Acid (PFHpA)	2.200	2.500	88.1	70-130
Perfluorohexanesulfonic Acid (PFHxS)	2.010	2.285	87.9	70-130
Perfluorooctanoic Acid (PFOA)	2.080	2.500	83.4	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	11.020	9.500	116	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	2.010	2.382	84.6	70-130
Perfluorononanoic Acid (PFNA)	2.690	2.500	107.6	70-130
Perfluorooctanesulfonic Acid (PFOS)	2.400	2.320	103.3	70-130
Perfluorodecanoic Acid (PFDA)	2.340	2.500	93.7	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	8.480	9.600	88.3	70-130
Perfluorononanesulfonic Acid (PFNS)	2.130	2.405	88.3	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2.740	2.500	109.6	70-130
Perfluoroundecanoic Acid (PFUnA)	2.740	2.500	109.5	70-130
Perfluorodecanesulfonic Acid (PFDS)	2.410	2.413	100	70-130
Perfluorooctanesulfonamide (PFOSA)	2.510	2.500	100.5	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.300	2.500	92.1	70-130
Perfluorododecanoic Acid (PFDoA)	2.270	2.500	90.6	70-130
Perfluorotridecanoic Acid (PFTTrDA)	2.690	2.500	107.6	70-130
Perfluorotetradecanoic Acid (PFTeDA)	3.030	2.500	121.3	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	11.000	10.000	110	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	9.300	9.450	98.4	70-130
Perfluorododecanesulfonic Acid (PFDoS)	2.330	2.425	95.8	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	9.420	9.350	100.7	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	8.910	9.450	94.3	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	1.990	2.500	79.5	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	2.520	2.500	100.8	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	24.910	25.000	99.7	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	28.030	25.000	112.1	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	5.050	5.000	101	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	5.710	5.000	114.2	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	4.270	4.450	96	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	7.660	5.000	153.2*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	12.990	12.500	103.9	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	61.890	62.500	99	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	75.900	62.500	121.4	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	10.600	10.000	106	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	5.360	5.000	107.3	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.670	2.330	114.6	70-130

* Value outside of QC limits.



L2324741



**Data Usability Summary Report
for Alpha Analytical Labs
SDG Number: L2324741**

**3 Ground Water Samples and 1 Equipment Blank
Collected May 3, 2023**

Prepared by: Donald Anné
June 12, 2023

Geology

Hydrology

Remediation

Water Supply

The data package contained the documentation as required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appeared legible and complete. The data pack contained the results for PFAS analyses for 3 ground water samples and 1 equipment blank, and results for 1,4-dioxane analyses for 3 ground water samples.

The overall performances of the analyses are acceptable. Alpha Analytical Labs did fulfill the requirements of the analytical methods.

The data are acceptable with some minor issues that are identified in the accompanying data validation reviews. There were no data were qualified either estimated or rejected (R); therefore, all data are considered usable. Detailed information on data quality is included in the data validation review.

Qualified Data Section

(No Data Qualified)

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324741
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324741-03	Date Collected	: 05/04/23 09:35
Client ID	: 9-OS	Date Received	: 05/04/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/10/23 12:50
Sample Matrix	: WATER	Date Extracted	: 05/08/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F1105102314	Analyst	: TPR
Sample Amount	: 255 ml	Instrument ID	: BNA11
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	147	33.2	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324741
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324741-04	Date Collected	: 05/04/23 10:15
Client ID	: 9-I	Date Received	: 05/04/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/10/23 13:14
Sample Matrix	: WATER	Date Extracted	: 05/08/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F1105102315	Analyst	: TPR
Sample Amount	: 255 ml	Instrument ID	: BNA11
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	147	33.2	U

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2324741
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2324741-06	Date Collected	: 05/04/23 11:20
Client ID	: 9-R	Date Received	: 05/04/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/10/23 13:37
Sample Matrix	: WATER	Date Extracted	: 05/08/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F1105102316	Analyst	: TPR
Sample Amount	: 240 ml	Instrument ID	: BNA11
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	3290	156	35.3	

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-03
 Client ID : 9-OS
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_57
 Sample Amount : 524.75 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 09:35
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 19:40
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.10	0.976	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.05	0.816	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.52	0.511	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.10	1.59	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.52	0.450	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.52	0.267	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.52	0.305	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.52	0.366	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.762	1.52	0.663	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.10	2.06	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.52	0.412	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.52	0.480	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1.07	1.52	0.694	JF
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.52	0.617	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.10	2.37	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.52	0.473	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.52	0.831	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.52	0.663	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-03
 Client ID : 9-OS
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_57
 Sample Amount : 524.75 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 09:35
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 19:40
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.52	0.351	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.52	0.412	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.52	0.823	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.52	0.701	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.52	0.572	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.52	0.404	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.10	0.854	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.10	0.960	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.52	0.579	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.10	1.26	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.10	1.26	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.52	0.663	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.52	0.701	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.2	3.58	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324741-03 Client ID : 9-OS Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230602_57 Sample Amount : 524.75 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324741 Project Number : 20010 Date Collected : 05/04/23 09:35 Date Received : 05/04/23 Date Analyzed : 06/02/23 19:40 Date Extracted : 05/31/23 Dilution Factor : 1 Analyst : AC Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.2	1.87	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.05	0.434	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.05	0.404	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.05	0.335	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.05	1.80	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.62	2.52	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	38.1	8.92	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	38.1	6.01	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-04
 Client ID : 9-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_58
 Sample Amount : 525.71 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 10:15
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 19:52
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	3.12	6.09	0.974	J
2706-90-3	Perfluoropentanoic Acid (PFPeA)	2.36	3.04	0.814	J
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.14	1.52	0.510	J
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.09	1.59	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	1.67	1.52	0.449	
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.52	0.266	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	1.52	1.52	0.304	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.52	0.365	U
335-67-1	Perfluorooctanoic Acid (PFOA)	2.66	1.52	0.662	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.09	2.05	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.52	0.411	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.52	0.479	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1.83	1.52	0.692	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.52	0.616	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.09	2.37	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.52	0.472	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.52	0.829	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.52	0.662	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-04
 Client ID : 9-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_58
 Sample Amount : 525.71 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 10:15
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 19:52
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.52	0.350	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.52	0.411	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.52	0.822	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.52	0.700	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.52	0.571	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.52	0.403	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.09	0.852	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.09	0.959	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.52	0.578	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.09	1.26	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.09	1.26	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.52	0.662	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.52	0.700	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.2	3.58	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-04
 Client ID : 9-I
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_58
 Sample Amount : 525.71 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 10:15
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 19:52
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.2	1.86	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.04	0.434	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.04	0.403	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.04	0.335	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.04	1.80	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.61	2.51	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	38.0	8.90	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	38.0	6.00	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-05
 Client ID : EB05042023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_59
 Sample Amount : 511.41 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 10:35
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 20:05
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.26	1.00	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.13	0.837	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.56	0.524	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.26	1.63	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.56	0.461	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.56	0.274	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.56	0.313	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.56	0.375	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.56	0.680	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.26	2.11	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.56	0.422	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.56	0.493	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.56	0.712	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.56	0.634	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.26	2.43	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.56	0.485	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.56	0.852	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.56	0.680	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-05
 Client ID : EB05042023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_59
 Sample Amount : 511.41 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 10:35
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 20:05
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.56	0.360	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.56	0.422	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.56	0.845	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.56	0.720	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.56	0.587	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.56	0.414	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.26	0.876	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.26	0.986	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.56	0.594	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.26	1.29	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.26	1.29	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.56	0.680	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.56	0.720	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.6	3.68	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-05
 Client ID : EB05042023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_59
 Sample Amount : 511.41 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 10:35
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 20:05
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.6	1.92	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.13	0.446	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.13	0.414	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.13	0.344	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.13	1.84	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.82	2.58	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	39.1	9.15	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	39.1	6.17	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-06
 Client ID : 9-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_60
 Sample Amount : 525.81 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 11:20
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 20:18
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	25.0	6.08	0.974	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	5.48	3.04	0.814	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	3.58	1.52	0.510	
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.08	1.59	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	6.77	1.52	0.449	
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	0.532	1.52	0.266	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	3.50	1.52	0.304	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	1.60	1.52	0.365	
335-67-1	Perfluorooctanoic Acid (PFOA)	9.28	1.52	0.662	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.08	2.05	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.52	0.411	U
375-95-1	Perfluorononanoic Acid (PFNA)	30.7	1.52	0.479	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	6.92	1.52	0.692	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.52	0.616	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.08	2.36	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.52	0.472	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.52	0.829	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.52	0.662	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2324741-06
 Client ID : 9-R
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230602_60
 Sample Amount : 525.81 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2324741
 Project Number : 20010
 Date Collected : 05/04/23 11:20
 Date Received : 05/04/23
 Date Analyzed : 06/02/23 20:18
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : AC
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.52	0.350	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.52	0.411	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.52	0.822	U
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.52	0.700	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.52	0.570	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.52	0.403	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.08	0.852	U
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.08	0.958	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.52	0.578	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.08	1.26	U
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.08	1.26	U
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.52	0.662	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.52	0.700	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.2	3.58	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2324741-06 Client ID : 9-R Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230602_60 Sample Amount : 525.81 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2324741 Project Number : 20010 Date Collected : 05/04/23 11:20 Date Received : 05/04/23 Date Analyzed : 06/02/23 20:18 Date Extracted : 05/31/23 Dilution Factor : 1 Analyst : AC Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.2	1.86	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.04	0.434	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.04	0.403	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.04	0.335	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.04	1.80	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.61	2.51	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	38.0	8.90	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	38.0	6.00	U

1,4-Dioxane

Data Section



**QA/QC Review of Method 8270D SIM 1,4-Dioxane
Data for Alpha Analytical, SDG Number: L2324741**

**3 Ground Water Samples
Collected May 4, 2023**

Prepared by: Donald Anné
June 12, 2023

Geology

Hydrology

Remediation

Water Supply

Holding Times: The samples were extracted and analyzed within USEPA SW-846 holding times.

Initial Calibration: The average RRFs for 1,4-dioxane were above the allowable minimum (0.010) and the %RSDs were below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for 1,4-dioxane were above the allowable minimum (0.010) and the %Ds were below the allowable maximum (20%), as required.

Blanks: The analyses of the method blanks reported 1,4-dioxane as not detected.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

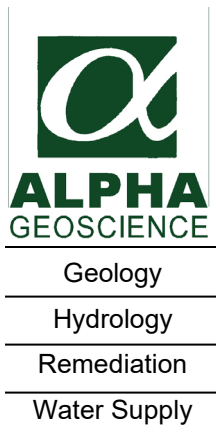
Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples.

Laboratory Control Sample: The relative percent difference for 1,4-dioxane was below the allowable maximum and the percent recoveries were within QC limits for aqueous samples WG1776417-2/3.

Compound ID: Checked surrogate and 1,4-dioxane results were within quantitation limits.

PFAS

Data Section



**QA/QC Review of Method 1633 PFAS Data for
Alpha Analytical Labs SDG Number: L2324741**

**3 Ground Water Samples and 1 Equipment Blank
Collected May 4, 2023**

Prepared by: Donald Anné
June 12, 2023

Holding Times: Samples were extracted and analyzed within USEPA holding time.

Initial Calibration: The %RSDs for applicable PFASs were below the method maximum (20%) or the R or R squared were above the method minimums, as required.

Continuing Calibration: The percent recoveries (%Rs) for PFUnA and NFDHA were above QC limits (70-130%) on 06-02-23 (SCI05_230602_45). The %R for NFDHA was above QC limits (70-130%) on 06-02-23 (SCI05_230602_46). Positive results for these PFAS should be considered estimated (J) in associated samples.

Blanks: The analyses of the method and equipment blanks reported target PFAS as not detected.

Surrogate Recovery: One of twenty-eight surrogate recoveries for samples 9-OS and 9-R was above QC limits. Positive results for PFAS that were quantitated using this surrogate should be considered estimated (J) in the samples.

Laboratory Control Sample: The percent recoveries for NFDHA were above QC limits for aqueous sample WG1785176-2 and WG1785176-3. Positive results for NFDHA should be considered estimated, biased high (J+) in associated aqueous samples.

Compound ID: Checked compound and surrogate results were within LC quantitation limits.

Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324741
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S1 ()	S2 ()	S3 ()	S4 ()	S5 ()	S6 ()	S7 ()
9-OS (L2324741-03)	101	98	103	166*	99	107	99
9-I (L2324741-04)	91	85	94	150	84	99	89
EB05042023 (L2324741-05)	99	111	103	119	101	116	94
9-R (L2324741-06)	94	76	95	176*	83	89	88
WG1785176-1BLANK	79	78	70	90	66	83	70
WG1785176-2LCS	90	86	94	112	86	94	91
WG1785176-3LCS	102	105	106	121	100	115	100

QC LIMITS

(20-150) S1 = PERFLUORO[13C4]BUTANOIC ACID (MPFBA)
 (20-150) S2 = PERFLUORO[13C5]PENTANOIC ACID (M5PFPEA)
 (20-150) S3 = PERFLUORO[2,3,4-13C3]BUTANESULFONIC ACID (M3PFBS)
 (20-150) S4 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]HEXANESULFONIC ACID (M2-4:2FTS)
 (20-150) S5 = PERFLUORO[1,2,3,4,6-13C5]HEXANOIC ACID (M5PFHXA)
 (20-150) S6 = PERFLUORO[1,2,3,4-13C4]HEPTANOIC ACID (M4PFHPA)
 (20-150) S7 = PERFLUORO[1,2,3-13C3]HEXANESULFONIC ACID (M3PFHXS)

* Values outside of QC limits

FORM II A2-1633-DRAFT



Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324741
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S8 ()	S9 ()	S10 ()	S11 ()	S12 ()	S13 ()	S14 ()
9-OS (L2324741-03)	100	113	86	79	83	94	104
9-I (L2324741-04)	90	102	79	78	69	90	87
EB05042023 (L2324741-05)	103	103	90	86	79	84	72
9-R (L2324741-06)	92	99	77	71	72	88	74
WG1785176-1BLANK	82	84	76	74	72	74	83
WG1785176-2LCS	93	101	86	78	73	89	83
WG1785176-3LCS	108	114	103	101	96	102	109

QC LIMITS

- (20-150) S8 = PERFLUORO[13C8]OCTANOIC ACID (M8PFOA)
 (20-150) S9 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]OCTANESULFONIC ACID (M2-6:2FTS)
 (20-150) S10 = PERFLUORO[13C9]NONANOIC ACID (M9PFNA)
 (20-150) S11 = PERFLUORO[13C8]OCTANESULFONIC ACID (M8PFOS)
 (20-150) S12 = PERFLUORO[1,2,3,4,5,6-13C6]DECANOIC ACID (M6PFDA)
 (20-150) S13 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]DECANESULFONIC ACID (M2-8:2FTS)
 (20-150) S14 = N-DEUTERIOMETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D3-NMEFOSAA)

* Values outside of QC limits

FORM II A2-1633-DRAFT (Continued)



Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324741
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S15 ()	S16 ()	S17 ()	S18 ()	S19 ()	S20 ()	S21 ()
9-OS (L2324741-03)	83	69	120	73	78	95	63
9-I (L2324741-04)	69	66	116	70	68	87	63
EB05042023 (L2324741-05)	72	60	91	58	50	101	48
9-R (L2324741-06)	67	60	93	64	50	85	53
WG1785176-1BLANK	79	71	109	66	55	76	52
WG1785176-2LCS	78	68	107	74	64	88	55
WG1785176-3LCS	103	80	143	97	90	104	74

QC LIMITS

(20-150) S15 = PERFLUORO[1,2,3,4,5,6,7-13C7]UNDECANOIC ACID (M7-PFUDA)
 (20-150) S16 = PERFLUORO[13C8]OCTANESULFONAMIDE (M8FOSA)
 (20-150) S17 = N-DEUTERIOETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D5-NETFOSAA)
 (20-150) S18 = PERFLUORO[1,2-13C2]DODECANOIC ACID (MPFDOA)
 (20-150) S19 = PERFLUORO[1,2-13C2]TETRADECANOIC ACID (M2PFTEDA)
 (20-150) S20 = 2,3,3,3-TETRAFLUORO-2-[1,1,2,2,3,3,3-HEPTAFLUOROPROPOXY]-13C3-PROPANOIC ACID (M3HFPO-DA)
 (20-150) S21 = N-METHYL-D3-PERFLUORO-1-OCTANESULFONAMIDE (D3-NMEFOSA)

* Values outside of QC limits

FORM II A2-1633-DRAFT (Continued)



Surrogate Recovery Summary

Form 2

Semivolatiles

Client: Sterling Environmental Engineering
Project Name: RAMAPO LF

Lab Number: L2324741
Project Number: 20010
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S22 ()	S23 ()	S24 ()	S25 ()	S26 ()	S27 ()	S28 ()	TOT OUT
9-OS (L2324741-03)	74	81	103	--	--	--	--	1
9-I (L2324741-04)	71	76	91	--	--	--	--	0
EB05042023 (L2324741-05)	55	62	72	--	--	--	--	0
9-R (L2324741-06)	61	65	80	--	--	--	--	1
WG1785176-1BLANK	58	81	92	--	--	--	--	0
WG1785176-2LCS	65	87	98	--	--	--	--	0
WG1785176-3LCS	79	98	122	--	--	--	--	0

QC LIMITS

(20-150) S22 = N-ETHYL-D5-PERFLUORO-1-OCTANESULFONAMIDE (D5-NETFOSA)
(20-150) S23 = 2-(N-METHYL-D3-PERFLUORO-1-OCTANESULFONAMIDO)ETHAN-D4-OL (D7-NMEFOSE)
(20-150) S24 = 2-(N-ETHYL-D5-PERFLUORO-1-OCTANESULFONAMIDO)ETHAN-D4-OL (D9-NETFOSA)

* Values outside of QC limits

FORM II A2-1633-DRAFT (Continued)



Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-2** Analysis Date : 06/02/23 18:23 File ID : SCI05_230602_51.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
Perfluorobutanoic Acid (PFBA)	12.8	14.6	114				-	40-150	30
Perfluoropentanoic Acid (PFPeA)	6.4	6.56	102				-	40-150	30
Perfluorobutanesulfonic Acid (PFBS)	2.84	3.12	110				-	40-150	30
1H,1H,2H,2H-Perfluorohexanesulfon ic Acid (4:2FTS)		13.7	114				-	40-150	30
Perfluorohexanoic Acid (PFHxA)	3.2	3.52	110				-	40-150	30
Perfluoropentanesulfonic Acid (PFPeS)	3.01	3.20	106				-	40-150	30
Perfluoroheptanoic Acid (PFHpA)	3.2	2.96	92				-	40-150	30
Perfluorohexanesulfonic Acid (PFHxS)	2.92	2.96	101				-	40-150	30
Perfluorooctanoic Acid (PFOA)	3.2	2.88	90				-	40-150	30
1H,1H,2H,2H-Perfluorooctanesulfon ic Acid (6:2FTS)		13.8	113				-	40-150	30
Perfluoroheptanesulfonic Acid (PFHpS)	3.05	2.64	86				-	40-150	30
Perfluorononanoic Acid (PFNA)	3.2	3.60	112				-	40-150	30
Perfluorooctanesulfonic Acid	2.97	3.52	118				-	40-150	30

Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-2** Analysis Date : 06/02/23 18:23 File ID : SCI05_230602_51.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
(PFOS)									
Perfluorodecanoic Acid (PFDA)	3.2	3.36	105				-	40-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	12.3	12.0	98				-	40-150	30
Perfluorononanesulfonic Acid	3.08	3.04	99				-	40-150	30
(PFNS)									
N-Methyl Perfluorooctanesulfonamide	3.2	3.68	115				-	40-150	30
Perfluoroundecanoic Acid (NMeFOSAA)									
Perfluoroundecanoic Acid (PFUnA)	3.2	3.52	110				-	40-150	30
Perfluorodecanesulfonic Acid	3.09	3.04	98				-	40-150	30
(PFDS)									
Perfluorooctanesulfonamide	3.2	3.44	108				-	40-150	30
(PFOSA)									
N-Ethyl Perfluorooctanesulfonamide	3.2	2.64	82				-	40-150	30
Perfluorododecanoic Acid (NEtFOSAA)									
Perfluorododecanoic Acid (PFDoA)	3.2	2.80	88				-	40-150	30
Perfluorotridecanoic Acid	3.2	3.60	112				-	40-150	30
(PFTTrDA)									



Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-2** Analysis Date : 06/02/23 18:23 File ID : SCI05_230602_51.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
Perfluorotetradecanoic Acid (PFTeDA)	3.2	3.92	122				-	40-150	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	12.8	12.8	100				-	40-150	30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	12.1	11.9	98				-	40-150	30
Perfluorododecanesulfonic Acid (PFDoS)	3.1	2.80	90				-	40-150	30
9-Chlorohexadecafluoro-3-Oxanone- 1-Sulfonic Acid (9CI-PF3ONS)	12	9.44	79				-	40-150	30
11-Chloroeicosafluoro-3-Oxaundeca- ne-1-Sulfonic Acid (11CI-PF3OUdS)	12.1	8.56	71				-	40-150	30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	3.2	2.32	72				-	40-150	30
N-Ethyl Perfluorooctane Sulfonami- de (NEtFOSA)	3.2	2.72	85				-	40-150	30
N-Methyl Perfluorooctanesulfonami	32	28.3	88				-	40-150	30



Laboratory Control Sample (Low Level) Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-2** Analysis Date : 06/02/23 18:23 File ID : SCI05_230602_51.wiff
 LCSD Sample ID : Analysis Date : File ID :

	Laboratory Control Sample (LOW)			Laboratory Control Duplicate (LOW)					
Parameter	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R	RPD	Recovery Limits	RPD Limit
do Ethanol (NMeFOSE)									
N-Ethyl Perfluorooctanesulfonamid	32	36.1	113				-	40-150	30
o Ethanol (NEtFOSE)									
Perfluoro-3-Methoxypropanoic Acid	6.4	7.28	114				-	40-150	30
(PFMPA)									
Perfluoro-4-Methoxybutanoic Acid	6.4	7.60	119				-	40-150	30
(PFMBA)									
Perfluoro(2-Ethoxyethane)Sulfonic	5.7	6.16	108				-	40-150	30
Acid (PFEESA)									
Nonafluoro-3,6-Dioxaheptanoic	6.4	11.7	182 Q				-	40-150	30
Acid (NFDHA)									
3-Perfluoropropyl Propanoic Acid	16	17.4	108				-	40-150	30
(3:3FTCA)									
2H,2H,3H,3H-Perfluorooctanoic	80	69.2	86				-	40-150	30
Acid (5:3FTCA)									
3-Perfluoroheptyl Propanoic Acid	80	45.3	57				-	40-150	30
(7:3FTCA)									

Laboratory Control Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-3** Analysis Date : 06/02/23 18:36 File ID : SCI05_230602_52.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample			Laboratory Control Duplicate			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
Perfluorobutanoic Acid (PFBA)	80	74.3	93				-	40-150	30
Perfluoropentanoic Acid (PFPeA)	40	31.2	78				-	40-150	30
Perfluorobutanesulfonic Acid (PFBS)	17.7	17.2	97				-	40-150	30
1H,1H,2H,2H-Perfluorohexanesulfon ic Acid (4:2FTS)		73.0	97				-	40-150	30
Perfluorohexanoic Acid (PFHxA)	20	18.0	90				-	40-150	30
Perfluoropentanesulfonic Acid (PFPeS)	18.8	17.4	92				-	40-150	30
Perfluoroheptanoic Acid (PFHpA)	20	15.3	76				-	40-150	30
Perfluorohexanesulfonic Acid (PFHxS)	18.3	13.9	76				-	40-150	30
Perfluorooctanoic Acid (PFOA)	20	14.0	70				-	40-150	30
1H,1H,2H,2H-Perfluorooctanesulfon ic Acid (6:2FTS)		73.7	97				-	40-150	30
Perfluoroheptanesulfonic Acid (PFHpS)	19.1	13.7	72				-	40-150	30
Perfluorononanoic Acid (PFNA)	20	17.3	86				-	40-150	30
Perfluorooctanesulfonic Acid	18.6	17.5	94				-	40-150	30

Laboratory Control Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-3** Analysis Date : 06/02/23 18:36 File ID : SCI05_230602_52.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample			Laboratory Control Duplicate			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
(PFOS)									
Perfluorodecanoic Acid (PFDA)	20	17.4	87				-	40-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	76.8	63.5	83				-	40-150	30
Perfluorononanesulfonic Acid	19.2	13.7	71				-	40-150	30
(PFNS)									
N-Methyl Perfluorooctanesulfonamide	20	18.6	93				-	40-150	30
Perfluoroundecanoic Acid (NMeFOSAA)									
Perfluoroundecanoic Acid (PFUnA)	20	19.5	98				-	40-150	30
Perfluorodecanesulfonic Acid	19.3	16.3	84				-	40-150	30
(PFDS)									
Perfluorooctanesulfonamide	20	18.3	92				-	40-150	30
(PFOSA)									
N-Ethyl Perfluorooctanesulfonamide	20	14.3	72				-	40-150	30
Perfluorododecanoic Acid (NEtFOSAA)									
Perfluorododecanoic Acid (PFDoA)	20	14.2	71				-	40-150	30
Perfluorotridecanoic Acid	20	19.1	96				-	40-150	30
(PFTTrDA)									



Laboratory Control Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-3** Analysis Date : 06/02/23 18:36 File ID : SCI05_230602_52.wiff
 LCSD Sample ID : Analysis Date : File ID :

Parameter	Laboratory Control Sample			Laboratory Control Duplicate			RPD	Recovery Limits	RPD Limit
	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
Perfluorotetradecanoic Acid (PFTeDA)	20	21.2	106				-	40-150	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	80	76.6	96				-	40-150	30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	75.6	64.8	86				-	40-150	30
Perfluorododecanesulfonic Acid (PFDoS)	19.4	15.2	78				-	40-150	30
9-Chlorohexadecafluoro-3-Oxanone- 1-Sulfonic Acid (9CI-PF3ONS)	74.8	63.0	84				-	40-150	30
11-Chloroeicosafluoro-3-Oxaundeca- ne-1-Sulfonic Acid (11CI-PF3OUdS)	75.6	57.4	76				-	40-150	30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	20	12.8	64				-	40-150	30
N-Ethyl Perfluorooctane Sulfonami- de (NEtFOSA)	20	18.1	90				-	40-150	30
N-Methyl Perfluorooctanesulfonami	200	165	82				-	40-150	30



Laboratory Control Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering Lab Number : L2324741
 Project Name : RAMAPO LF Project Number : 20010
 Matrix (Level) : WATER ()
 LCS Sample ID : **WG1785176-3** Analysis Date : 06/02/23 18:36 File ID : SCI05_230602_52.wiff
 LCSD Sample ID : Analysis Date : File ID :

	Laboratory Control Sample			Laboratory Control Duplicate			RPD	Recovery Limits	RPD Limit
Parameter	True (ng/l)	Found (ng/l)	%R	True (ng/l)	Found (ng/l)	%R			
do Ethanol (NMeFOSE)									
N-Ethyl Perfluorooctanesulfonamid	200	180	90				-	40-150	30
o Ethanol (NEtFOSE)									
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	40	36.0	90				-	40-150	30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	40	38.9	97				-	40-150	30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	35.6	31.5	88				-	40-150	30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	40	66.1	165 Q				-	40-150	30
3-Perfluoropropyl Propanoic Acid (3:3FTCA)									
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	500	408	82				-	40-150	30
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	500	358	72				-	40-150	30

Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230602_45
 Sample No : WG1786596-2
 Channel :

Lab Number : L2324741
 Project Number : 20010
 Calibration Date : 06/02/23 16:56
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.930	0.800	116	70-130
Perfluoropentanoic Acid (PFPeA)	0.420	0.400	105.1	70-130
Perfluorobutanesulfonic Acid (PFBS)	0.220	0.177	121.1	70-130
Perfluorohexanoic Acid (PFHxA)	0.220	0.200	110	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.880	0.750	117.3	70-130
Perfluoropentanesulfonic Acid (PFPeS)	0.220	0.188	114.7	70-130
Perfluoroheptanoic Acid (PFHpA)	0.190	0.200	95.5	70-130
Perfluorohexanesulfonic Acid (PFHxS)	0.190	0.183	105.5	70-130
Perfluorooctanoic Acid (PFOA)	0.160	0.200	80.7	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.750	0.760	99.2	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	0.190	0.191	97.2	70-130
Perfluorononanoic Acid (PFNA)	0.200	0.200	101.3	70-130
Perfluorooctanesulfonic Acid (PFOS)	0.240	0.186	128	70-130
Perfluorodecanoic Acid (PFDA)	0.220	0.200	109.7	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.860	0.768	111.4	70-130
Perfluorononanesulfonic Acid (PFNS)	0.200	0.192	104.2	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.170	0.200	82.6	70-130
Perfluoroundecanoic Acid (PFUnA)	0.260	0.200	130.8*	70-130
Perfluorodecanesulfonic Acid (PFDS)	0.230	0.193	122	70-130
Perfluorooctanesulfonamide (PFOSA)	0.230	0.200	116.5	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.210	0.200	104	70-130
Perfluorododecanoic Acid (PFDoA)	0.180	0.200	91.6	70-130
Perfluorotridecanoic Acid (PFTTrDA)	0.250	0.200	126.2	70-130
Perfluorotetradecanoic Acid (PFTeDA)	0.220	0.200	110.4	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	0.800	0.800	99.7	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	0.810	0.756	106.5	70-130
Perfluorododecanesulfonic Acid (PFDoS)	0.220	0.194	115.2	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	0.580	0.748	77.8	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	0.640	0.756	84.7	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	0.170	0.200	83.1	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	0.200	0.200	101.1	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	2.120	2.000	105.9	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	2.140	2.000	106.8	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	0.460	0.400	115.6	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	0.470	0.400	117.9	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	0.340	0.356	95	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	0.770	0.400	193.4*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	1.050	1.000	105.2	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	5.270	5.000	105.4	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	5.960	5.000	119.2	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	9.280	10.000	92.8	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	4.630	5.000	92.6	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.200	2.330	94.6	70-130

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230602_46
 Sample No : WG1786596-3
 Channel :

Lab Number : L2324741
 Project Number : 20010
 Calibration Date : 06/02/23 17:09
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	10.710	10.000	107.1	70-130
Perfluoropentanoic Acid (PFPeA)	4.670	5.000	93.4	70-130
Perfluorobutanesulfonic Acid (PFBS)	2.190	2.217	98.7	70-130
Perfluorohexanoic Acid (PFHxA)	2.520	2.500	100.8	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	10.440	9.375	111.3	70-130
Perfluoropentanesulfonic Acid (PFPeS)	2.490	2.353	105.8	70-130
Perfluoroheptanoic Acid (PFHpA)	1.970	2.500	79	70-130
Perfluorohexanesulfonic Acid (PFHxS)	1.990	2.285	87.1	70-130
Perfluorooctanoic Acid (PFOA)	2.100	2.500	83.9	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	11.320	9.500	119.2	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	1.940	2.382	81.4	70-130
Perfluorononanoic Acid (PFNA)	2.780	2.500	111.1	70-130
Perfluorooctanesulfonic Acid (PFOS)	2.430	2.320	104.7	70-130
Perfluorodecanoic Acid (PFDA)	2.370	2.500	94.6	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	7.860	9.600	81.8	70-130
Perfluorononanesulfonic Acid (PFNS)	2.140	2.405	88.6	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2.570	2.500	102.7	70-130
Perfluoroundecanoic Acid (PFUnA)	2.920	2.500	116.9	70-130
Perfluorodecanesulfonic Acid (PFDS)	2.500	2.413	103.6	70-130
Perfluorooctanesulfonamide (PFOSA)	2.570	2.500	102.7	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.140	2.500	85.7	70-130
Perfluorododecanoic Acid (PFDoA)	2.370	2.500	94.6	70-130
Perfluorotridecanoic Acid (PFTTrDA)	2.900	2.500	116.2	70-130
Perfluorotetradecanoic Acid (PFTeDA)	3.010	2.500	120.5	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	11.430	10.000	114.3	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	9.130	9.450	96.6	70-130
Perfluorododecanesulfonic Acid (PFDoS)	2.390	2.425	98.4	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	8.630	9.350	92.3	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	8.640	9.450	91.5	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	2.040	2.500	81.4	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	2.660	2.500	106.5	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	23.760	25.000	95	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	26.830	25.000	107.3	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	5.510	5.000	110.3	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	6.220	5.000	124.4	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	4.110	4.450	92.3	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	9.250	5.000	184.9*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	14.250	12.500	114	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	59.070	62.500	94.5	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	73.540	62.500	117.7	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	10.760	10.000	107.6	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	4.930	5.000	98.6	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.730	2.330	117.2	70-130

* Value outside of QC limits.



L2325099



**Data Usability Summary Report
for Alpha Analytical Labs
SDG Number: L2325099**

**2 Ground Water Samples and 1 Field Blank
Collected May 5, 2023**

Prepared by: Donald Anné
June 12, 2023

Geology

Hydrology

Remediation

Water Supply

The data package contained the documentation as required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appeared legible and complete. The data pack contained the results for PFAS analyses for 2 ground water samples and 1 field blank; and the results for 1,4-dioxane analyses for 2 ground water samples.

The overall performances of the analyses are acceptable. Alpha Analytical Labs did fulfill the requirements of the analytical methods.

The data are mostly acceptable with some issues that are identified in the accompanying data validation reviews. The following data were qualified:

- The positive PFAS result for PFOA was qualified as “estimated” (J) for sample SVWC-94 because the percent recovery for PFOA was below the QC limits, but not below 10% in the associated continuing calibration.
- The “not detected” PFAS results for PFHpS, NEtFOSAA, HFPO-DA, 9Cl-PF3ONS, and 11Cl-PF3OUdS were qualified as “estimated” (UJ) for samples SVWC-95, SVWC-94, and FB05052023 because the percent recoveries for these PFAS were below the QC limits, but not below 10% in the associated continuing calibration.
- The “not detected” PFAS result for PFNA was qualified as “estimated” (UJ) for sample SVWC-94 because the percent recovery for PFNA was below the QC limits, but not below 10% in the associated continuing calibration.
- The “not detected” PFAS results for PFOA and PFNA were qualified as “estimated” (UJ) for sample FB05052023 because the percent recoveries for PFOA and PFNA were below the QC limits, but not below 10% in the associated continuing calibration.

All data are considered usable with estimated (J or UJ) data associated with a higher level of quantitative uncertainty. Detailed information on data quality is included in the data validation review.

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Qualified Data Section

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client	: Sterling Environmental Engineering	Lab Number	: L2325099
Project Name	: RAMAPO LF	Project Number	: 20010
Lab ID	: L2325099-01	Date Collected	: 05/05/23 08:45
Client ID	: SVWC-95	Date Received	: 05/05/23
Sample Location	: SUFFERN, NY	Date Analyzed	: 05/17/23 01:40
Sample Matrix	: WATER	Date Extracted	: 05/12/23
Analytical Method	: 1,8270E-SIM	Dilution Factor	: 1
Lab File ID	: F605162343	Analyst	: TPR
Sample Amount	: 265 ml	Instrument ID	: GCMS6
Extraction Method	: EPA 3510C	GC Column	: RTX-5
Extract Volume	: 2500 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	338.	142	32.0	

Results Summary

Form 1

1,4 Dioxane by 8270E-SIM

Client : Sterling Environmental Engineering	Lab Number : L2325099
Project Name : RAMAPO LF	Project Number : 20010
Lab ID : L2325099-02	Date Collected : 05/05/23 08:55
Client ID : SVWC-94	Date Received : 05/05/23
Sample Location : SUFFERN, NY	Date Analyzed : 05/17/23 02:05
Sample Matrix : WATER	Date Extracted : 05/12/23
Analytical Method : 1,8270E-SIM	Dilution Factor : 1
Lab File ID : F605162344	Analyst : TPR
Sample Amount : 260 ml	Instrument ID : GCMS6
Extraction Method : EPA 3510C	GC Column : RTX-5
Extract Volume : 2500 uL	%Solids : N/A
GPC Cleanup : N	Injection Volume : 1 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
123-91-1	1,4-Dioxane	ND	144	32.6	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2325099-01
 Client ID : SVWC-95
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_20
 Sample Amount : 527.19 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2325099
 Project Number : 20010
 Date Collected : 05/05/23 08:45
 Date Received : 05/05/23
 Date Analyzed : 06/01/23 15:20
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	2.12	6.07	0.971	J
2706-90-3	Perfluoropentanoic Acid (PFPeA)	0.910	3.03	0.812	J
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.90	1.52	0.508	
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.07	1.58	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.986	1.52	0.448	J
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.52	0.266	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.455	1.52	0.303	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	0.683	1.52	0.364	J
335-67-1	Perfluorooctanoic Acid (PFOA)	2.35	1.52	0.660	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.07	2.05	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.52	0.410	U
375-95-1	Perfluorononanoic Acid (PFNA)	6.60	1.52	0.478	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	2.58	1.52	0.690	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.52	0.614	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.07	2.36	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.52	0.470	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.52	0.827	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.52	0.660	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2325099-01
 Client ID : SVWC-95
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_20
 Sample Amount : 527.19 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2325099
 Project Number : 20010
 Date Collected : 05/05/23 08:45
 Date Received : 05/05/23
 Date Analyzed : 06/01/23 15:20
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.52	0.349	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.52	0.410	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.52	0.819	U UJ
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.52	0.698	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.52	0.569	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.52	0.402	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.07	0.850	U UJ
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.07	0.956	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.52	0.577	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.07	1.25	U UJ
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.07	1.25	U UJ
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.52	0.660	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.52	0.698	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.2	3.57	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2325099-01 Client ID : SVWC-95 Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_20 Sample Amount : 527.19 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2325099 Project Number : 20010 Date Collected : 05/05/23 08:45 Date Received : 05/05/23 Date Analyzed : 06/01/23 15:20 Date Extracted : 05/31/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.2	1.86	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.03	0.432	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.03	0.402	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.03	0.334	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.03	1.79	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.59	2.50	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	37.9	8.88	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	37.9	5.99	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2325099-02
 Client ID : SVWC-94
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_23
 Sample Amount : 514.34 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2325099
 Project Number : 20010
 Date Collected : 05/05/23 08:55
 Date Received : 05/05/23
 Date Analyzed : 06/01/23 15:58
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.22	0.995	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	1.01	3.11	0.832	J
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.17	1.56	0.521	J
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.22	1.62	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	1.01	1.56	0.459	J
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.56	0.272	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.311	1.56	0.311	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	0.544	1.56	0.373	J
335-67-1	Perfluorooctanoic Acid (PFOA)	1.24	1.56	0.676	J J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.22	2.10	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.56	0.420	U JJ
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.56	0.490	U JJ
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	2.18	1.56	0.708	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.56	0.630	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.22	2.42	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.56	0.482	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.56	0.848	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.56	0.676	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2325099-02
 Client ID : SVWC-94
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_23
 Sample Amount : 514.34 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2325099
 Project Number : 20010
 Date Collected : 05/05/23 08:55
 Date Received : 05/05/23
 Date Analyzed : 06/01/23 15:58
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.56	0.358	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.56	0.420	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.56	0.840	U UJ
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.56	0.715	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.56	0.583	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.56	0.412	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.22	0.871	U UJ
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.22	0.980	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.56	0.591	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.22	1.28	U UJ
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.22	1.28	U UJ
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.56	0.676	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.56	0.715	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.6	3.66	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2325099-02 Client ID : SVWC-94 Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_23 Sample Amount : 514.34 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2325099 Project Number : 20010 Date Collected : 05/05/23 08:55 Date Received : 05/05/23 Date Analyzed : 06/01/23 15:58 Date Extracted : 05/31/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.6	1.90	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.11	0.443	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.11	0.412	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEESA)	ND	3.11	0.342	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.11	1.84	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.78	2.57	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	38.9	9.10	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	38.9	6.14	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2325099-07
 Client ID : FB05052023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_24
 Sample Amount : 510.53 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2325099
 Project Number : 20010
 Date Collected : 05/05/23 09:00
 Date Received : 05/05/23
 Date Analyzed : 06/01/23 16:11
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	6.27	1.00	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	3.13	0.838	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.57	0.525	U
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	6.27	1.64	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.57	0.462	U
2706-91-4	Perfluoropentanesulfonic Acid (PFPeS)	ND	1.57	0.274	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.57	0.313	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.57	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.57	0.682	U UJ
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	6.27	2.12	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.57	0.423	U UJ
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.57	0.494	U UJ
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.57	0.713	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.57	0.635	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	6.27	2.44	U
68259-12-1	Perfluorononanesulfonic Acid (PFNS)	ND	1.57	0.486	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.57	0.854	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.57	0.682	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Lab ID : L2325099-07
 Client ID : FB05052023
 Sample Location : SUFFERN, NY
 Sample Matrix : WATER
 Analytical Method : 144,1633
 Lab File ID : SCI05_230601_24
 Sample Amount : 510.53 g
 Extraction Method : EPA 1633
 Extract Volume : 4000 uL
 GPC Cleanup : N

Lab Number : L2325099
 Project Number : 20010
 Date Collected : 05/05/23 09:00
 Date Received : 05/05/23
 Date Analyzed : 06/01/23 16:11
 Date Extracted : 05/31/23
 Dilution Factor : 1
 Analyst : LMV
 Instrument ID : LCMS05
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.57	0.360	U
754-91-6	Perfluorooctanesulfonamide (PFOSA)	ND	1.57	0.423	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.57	0.846	U UJ
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.57	0.721	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.57	0.588	U
376-06-7	Perfluorotetradecanoic Acid (PFTeDA)	ND	1.57	0.415	U
13252-13-6	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	6.27	0.878	U UJ
919005-14-4	4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	6.27	0.987	U
79780-39-5	Perfluorododecanesulfonic Acid (PFDoS)	ND	1.57	0.595	U
756426-58-1	9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	6.27	1.29	U UJ
763051-92-9	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	6.27	1.29	U UJ
31506-32-8	N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	1.57	0.682	U
4151-50-2	N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	1.57	0.721	U
24448-09-7	N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	ND	15.7	3.68	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by EPA 1633

Client : Sterling Environmental Engineering Project Name : RAMAPO LF Lab ID : L2325099-07 Client ID : FB05052023 Sample Location : SUFFERN, NY Sample Matrix : WATER Analytical Method : 144,1633 Lab File ID : SCI05_230601_24 Sample Amount : 510.53 g Extraction Method : EPA 1633 Extract Volume : 4000 uL GPC Cleanup : N	Lab Number : L2325099 Project Number : 20010 Date Collected : 05/05/23 09:00 Date Received : 05/05/23 Date Analyzed : 06/01/23 16:11 Date Extracted : 05/31/23 Dilution Factor : 1 Analyst : LMV Instrument ID : LCMS05 GC Column : Acquity UPLC BEH C18 %Solids : N/A Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
1691-99-2	N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	ND	15.7	1.92	U
377-73-1	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	3.13	0.446	U
863090-89-5	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	3.13	0.415	U
113507-82-7	Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	3.13	0.345	U
151772-58-6	Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	3.13	1.85	U
356-02-5	3-Perfluoropropyl Propanoic Acid (3: 3FTCA)	ND	7.83	2.58	U
914637-49-3	2H,2H,3H,3H-Perfluorooctanoic Acid (5: 3FTCA)	ND	39.2	9.17	U
812-70-4	3-Perfluoroheptyl Propanoic Acid (7: 3FTCA)	ND	39.2	6.18	U

1,4-Dioxane

Data Section



**QA/QC Review of Method 8270D SIM 1,4-Dioxane
Data for Alpha Analytical, SDG Number: L2325099**

**2 Ground Water Samples
Collected May 5, 2023**

Prepared by: Donald Anné
June 12, 2023

Geology

Hydrology

Remediation

Water Supply

Holding Times: The samples were extracted and analyzed within USEPA SW-846 holding times.

Initial Calibration: The average RRF for 1,4-dioxane was above the allowable minimum (0.010) and the %RSD was below the allowable maximum (30%), as required.

Continuing Calibration: The RRFs for 1,4-dioxane were above the allowable minimum (0.010) and the %Ds were below the allowable maximum (20%), as required.

Blanks: The analyses of the method blanks reported 1,4-dioxane as not detected.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

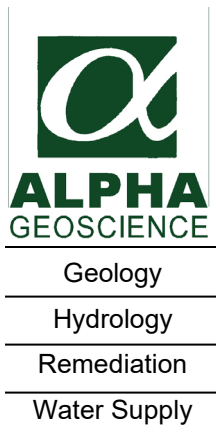
Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples.

Laboratory Control Sample: The relative percent difference for 1,4-dioxane was below the allowable maximum and the percent recoveries were within QC limits for aqueous samples WG1778206-2/3.

Compound ID: Checked surrogate and 1,4-dioxane results were within quantitation limits.

PFAS

Data Section



**QA/QC Review of Method 1633 PFAS Data for
Alpha Analytical Labs SDG Number: L2325099**

**2 Ground Water Samples and 1 Field Blank
Collected May 5, 2023**

Prepared by: Donald Anné
June 12, 2023

Holding Times: Samples were extracted and analyzed within USEPA holding time.

Initial Calibration: The %RSDs for applicable PFASs were below the method maximum (20%) or the R or R squared were above the method minimums, as required.

Continuing Calibration: The percent recoveries (%Rs) for NFDHA were above QC limits (70-130%) on 06-01-23 (SCI05_230601_05 and SCI05_230602_46). Positive results for these HFDHA should be considered estimated (J) in associated samples.

The %Rs for PFOA, PFNA, PFHpS, NMeFOSAA, HFPO-DA, 9Cl-PF3ONS, and 11Cl-PF3OUdS were below QC limits (70-130%), but not below 10% on 06-01-23 (SCI05_230601_05). Positive and “not detected” results for these HFDHA should be considered estimated (J or UJ respectively) in associated samples.

Blanks: The analyses of the method and field blanks reported target PFAS as not detected.

Surrogate Recovery: The surrogate recoveries were within QC limits for the ground water samples.

Matrix Spike/Matrix Spike Duplicate: The percent recoveries for target PFAS were within QC limits, but the relative percent difference for PFDoS was above the allowable maximum for aqueous MS/MSD sample SVWC-95. Sample SVWC-95 reported PFDoS as “not detected”; therefore, no action is taken.

Laboratory Control Sample: The percent recoveries for target PFAS were within QC limits for aqueous samples WG1785469-2 and WG1785469-3.

Compound ID: Checked compound and surrogate results were within LC quantitation limits.

Matrix Spike Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Client Sample ID : **SVWC-95**
 Lab Sample ID : L2325099-01
 Matrix Spike : WG1785469-4
 Matrix Spike Dup : WG1785469-5

Lab Number : L2325099
 Project Number : 20010
 Matrix (Level) : WATER ()
 Analysis Date : 06/01/23 15:20
 MS Analysis Date : 06/01/23 15:32
 MSD Analysis Date : 06/01/23 15:45

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
Perfluorobutanoic Acid (PFBA)	2.12J	75.9	69.5	89	78.9	72.2	89	4	40-150	30
Perfluoropentanoic Acid (PFPeA)	0.910J	38	30.1	77	39.4	28.6	70	5	40-150	30
Perfluorobutanesulfonic Acid (PFBS)	1.90	16.8	15.9	83	17.5	17.3	88	8	40-150	30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	71.2	66.1	93	74	66.7	90	1	40-150	30
Perfluorohexanoic Acid (PFHxA)	0.986J	19	18.4	92	19.7	17.6	84	4	40-150	30
Perfluoropentanesulfonic Acid (PFPeS)	ND	17.9	15.8	88	18.6	15.3	82	3	40-150	30
Perfluoroheptanoic Acid (PFHpA)	0.455J	19	13.9	71	19.7	12.5	61	11	40-150	30
Perfluorohexanesulfonic Acid (PFHxS)	0.683J	17.4	13.1	72	18	12.7	67	3	40-150	30
Perfluorooctanoic Acid (PFOA)	2.35	19	14.6	64	19.7	15.4	66	5	40-150	30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	72.1	70.2	97	74.9	68.1	91	3	40-150	30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	18.1	13.2	73	18.8	13.5	72	2	40-150	30
Perfluorononanoic Acid (PFNA)	6.60	19	21.9	81	19.7	24.4	90	11	40-150	30
Perfluorooctanesulfonic Acid (PFOS)	2.58	17.6	18.2	89	18.3	18.2	85	0	40-150	30
Perfluorodecanoic Acid (PFDA)	ND	19	14.6	77	19.7	15.7	80	7	40-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	ND	72.9	57.0	78	75.7	58.1	77	2	40-150	30



Matrix Spike Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Client Sample ID : **SVWC-95**
 Lab Sample ID : L2325099-01
 Matrix Spike : WG1785469-4
 Matrix Spike Dup : WG1785469-5

Lab Number : L2325099
 Project Number : 20010
 Matrix (Level) : WATER ()
 Analysis Date : 06/01/23 15:20
 MS Analysis Date : 06/01/23 15:32
 MSD Analysis Date : 06/01/23 15:45

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
ic Acid (8:2FTS)										
Perfluorononanesulfonic Acid (PFNS)	ND	18.3	13.2	72	19	12.4	65	6	40-150	30
N-Methyl Perfluorooctanesulfonamide (NMeFOSAA)	ND	19	19.3	102	19.7	19.6	99	2	40-150	30
Perfluoroundecanoic Acid (PFUnA)	ND	19	19.1	101	19.7	20.0	101	5	40-150	30
Perfluorodecanesulfonic Acid (PFDS)	ND	18.3	15.4	84	19	14.0	74	10	40-150	30
Perfluorooctanesulfonamide (PFOSA)	ND	19	19.2	101	19.7	17.7	90	8	40-150	30
N-Ethyl Perfluorooctanesulfonamide (NEtFOSAA)	ND	19	13.9	73	19.7	16.0	81	14	40-150	30
Perfluorododecanoic Acid (PFDoA)	ND	19	14.8	78	19.7	15.7	80	6	40-150	30
Perfluorotridecanoic Acid (PFTrDA)	ND	19	18.2	96	19.7	17.2	87	6	40-150	30
Perfluorotetradecanoic Acid (PFTeDA)	ND	19	20.4	107	19.7	24.9	126	20	40-150	30
Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	ND	75.9	74.3	98	78.9	71.8	91	3	40-150	30
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	ND	71.8	52.7	73	74.5	52.3	70	1	40-150	30
Perfluorodecanesulfonic Acid	ND	18.4	14.0	76	19.1	8.84	46	45	Q 40-150	30



Matrix Spike Sample Summary

Form 3

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Client Sample ID : **SVWC-95**
 Lab Sample ID : L2325099-01
 Matrix Spike : WG1785469-4
 Matrix Spike Dup : WG1785469-5

Lab Number : L2325099
 Project Number : 20010
 Matrix (Level) : WATER ()
 Analysis Date : 06/01/23 15:20
 MS Analysis Date : 06/01/23 15:32
 MSD Analysis Date : 06/01/23 15:45

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
(PFDoS)										
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	ND	71	53.3	75	73.8	48.9	66	9	40-150	30
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	ND	71.8	49.5	69	74.5	39.8	53	22	40-150	30
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	ND	19	15.7	83	19.7	14.9	76	5	40-150	30
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	ND	19	20.0	105	19.7	18.5	94	8	40-150	30
N-Methyl Perfluorooctanesulfonamide Ethanol (NMeFOSE)	ND	190	158	83	197	161	82	2	40-150	30
N-Ethyl Perfluorooctanesulfonamide Ethanol (NEtFOSE)	ND	190	181	95	197	191	97	5	40-150	30
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	ND	38	33.7	89	39.4	32.9	83	2	40-150	30
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	ND	38	39.1	103	39.4	36.6	93	7	40-150	30
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	ND	33.8	27.9	83	35.1	28.0	80	0	40-150	30
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	ND	38	53.5	141	39.4	52.3	133	2	40-150	30
3-Perfluoropropyl Propanoic Acid	ND	94.9	91.9	97	98.6	81.1	82	12	40-150	30



Matrix Spike Sample Summary

Form 3

Semivolatiles

Client	: Sterling Environmental Engineering	Lab Number	: L2325099
Project Name	: RAMAPO LF	Project Number	: 20010
Client Sample ID	: SVWC-95	Matrix (Level)	: WATER ()
Lab Sample ID	: L2325099-01	Analysis Date	: 06/01/23 15:20
Matrix Spike	: WG1785469-4	MS Analysis Date	: 06/01/23 15:32
Matrix Spike Dup	: WG1785469-5	MSD Analysis Date	: 06/01/23 15:45

Parameter	Sample Conc. (ng/l)	Matrix Spike Sample			Matrix Spike Duplicate			RPD	Recovery Limits	RPD Limit
		Spike Added (ng/l)	Spike Conc. (ng/l)	%R	Spike Added (ng/l)	Spike Conc. (ng/l)	%R			
(3:3FTCA)										
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	ND	475	386	81	493	361	73	7	40-150	30
(7:3FTCA)										
3-Perfluoroheptyl Propanoic Acid	ND	475	390	82	493	331	67	16	40-150	30

Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230601_05
 Sample No : WG1785921-2
 Channel :

Lab Number : L2325099
 Project Number : 20010
 Calibration Date : 06/01/23 12:02
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	0.700	0.800	87	70-130
Perfluoropentanoic Acid (PFPeA)	0.310	0.400	78.5	70-130
Perfluorobutanesulfonic Acid (PFBS)	0.180	0.177	102.9	70-130
Perfluorohexanoic Acid (PFHxA)	0.170	0.200	87	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.670	0.750	88.9	70-130
Perfluoropentanesulfonic Acid (PFPeS)	0.150	0.188	81	70-130
Perfluoroheptanoic Acid (PFHpA)	0.160	0.200	80.3	70-130
Perfluorohexanesulfonic Acid (PFHxS)	0.140	0.183	76.8	70-130
Perfluorooctanoic Acid (PFOA)	0.130	0.200	65.7*	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.560	0.760	74.2	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	0.130	0.191	68.2*	70-130
Perfluorononanoic Acid (PFNA)	0.130	0.200	65.2*	70-130
Perfluorooctanesulfonic Acid (PFOS)	0.170	0.186	92.7	70-130
Perfluorodecanoic Acid (PFDA)	0.150	0.200	72.9	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.620	0.768	81	70-130
Perfluorononanesulfonic Acid (PFNS)	0.140	0.192	70.2	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.130	0.200	64.3*	70-130
Perfluoroundecanoic Acid (PFUnA)	0.180	0.200	90	70-130
Perfluorodecanesulfonic Acid (PFDS)	0.150	0.193	78.9	70-130
Perfluorooctanesulfonamide (PFOSA)	0.160	0.200	80.4	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.150	0.200	74.3	70-130
Perfluorododecanoic Acid (PFDoA)	0.140	0.200	71.7	70-130
Perfluorotridecanoic Acid (PFTTrDA)	0.180	0.200	90.7	70-130
Perfluorotetradecanoic Acid (PFTeDA)	0.180	0.200	91.8	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	0.550	0.800	68.9*	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	0.580	0.756	76.4	70-130
Perfluorododecanesulfonic Acid (PFDoS)	0.150	0.194	77.2	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	0.350	0.748	46.8*	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	0.410	0.756	53.9*	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	0.140	0.200	71	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	0.170	0.200	82.3	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	1.570	2.000	78.6	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	1.660	2.000	83.1	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	0.340	0.400	85	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	0.380	0.400	94.7	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	0.270	0.356	76.4	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	0.610	0.400	151.4*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	0.900	1.000	89.8	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	4.370	5.000	87.4	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	4.200	5.000	84	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	10.710	10.000	107.1	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	4.960	5.000	99.1	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.420	2.330	103.8	70-130

* Value outside of QC limits.



Calibration Verification Summary

Form 7

Semivolatiles

Client : Sterling Environmental Engineering
 Project Name : RAMAPO LF
 Instrument ID : LCMS05
 Lab File ID : SCIO5_230601_06
 Sample No : WG1785921-3
 Channel :

Lab Number : L2325099
 Project Number : 20010
 Calibration Date : 06/01/23 12:15
 Init. Calib. Date(s) : 05/08/23 05/08/23
 Init. Calib. Times : 15:23 17:05

Compound	Concentration (ng/ml)	True Value (ng/ml)	% Recovery	QC Limits
Perfluorobutanoic Acid (PFBA)	9.990	10.000	99.9	70-130
Perfluoropentanoic Acid (PFPeA)	4.450	5.000	89.1	70-130
Perfluorobutanesulfonic Acid (PFBS)	2.240	2.217	101.2	70-130
Perfluorohexanoic Acid (PFHxA)	2.670	2.500	106.7	70-130
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	10.000	9.375	106.7	70-130
Perfluoropentanesulfonic Acid (PFPeS)	2.150	2.353	91.2	70-130
Perfluoroheptanoic Acid (PFHpA)	1.970	2.500	78.8	70-130
Perfluorohexanesulfonic Acid (PFHxS)	1.730	2.285	75.9	70-130
Perfluorooctanoic Acid (PFOA)	1.890	2.500	75.6	70-130
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	10.390	9.500	109.3	70-130
Perfluoroheptanesulfonic Acid (PFHpS)	1.850	2.382	77.7	70-130
Perfluorononanoic Acid (PFNA)	2.450	2.500	98.1	70-130
Perfluorooctanesulfonic Acid (PFOS)	2.180	2.320	94	70-130
Perfluorodecanoic Acid (PFDA)	2.110	2.500	84.3	70-130
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	8.260	9.600	86.1	70-130
Perfluorononanesulfonic Acid (PFNS)	1.950	2.405	81	70-130
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	2.680	2.500	107.2	70-130
Perfluoroundecanoic Acid (PFUnA)	2.570	2.500	102.9	70-130
Perfluorodecanesulfonic Acid (PFDS)	2.270	2.413	94	70-130
Perfluorooctanesulfonamide (PFOSA)	2.360	2.500	94.2	70-130
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	2.090	2.500	83.5	70-130
Perfluorododecanoic Acid (PFDoA)	1.900	2.500	75.8	70-130
Perfluorotridecanoic Acid (PFTTrDA)	2.400	2.500	96.1	70-130
Perfluorotetradecanoic Acid (PFTeDA)	3.110	2.500	124.5	70-130
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	10.690	10.000	106.9	70-130
4,8-Dioxo-3h-Perfluorononanoic Acid (ADONA)	8.080	9.450	85.5	70-130
Perfluorododecanesulfonic Acid (PFDoS)	2.060	2.425	84.9	70-130
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	8.240	9.350	88.2	70-130
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	7.740	9.450	81.9	70-130
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	2.070	2.500	82.6	70-130
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	2.400	2.500	96	70-130
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	23.680	25.000	94.7	70-130
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	24.730	25.000	98.9	70-130
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	4.850	5.000	97	70-130
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	5.700	5.000	113.9	70-130
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEEA)	4.080	4.450	91.7	70-130
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	8.450	5.000	169*	70-130
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	12.910	12.500	103.3	70-130
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	62.170	62.500	99.5	70-130
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	78.300	62.500	125.3	70-130
Perfluoro-n-[13C4]Butanoic Acid (13C4-PFBA)	9.840	10.000	98.4	70-130
Perfluoro-n-[13C5]Pentanoic Acid (13C5-PFPeA)	4.950	5.000	99.1	70-130
Perfluoro-1-[2,3,4-13C3]Butanesulfonic Acid (13C3-PFBS)	2.450	2.330	105.2	70-130

* Value outside of QC limits.



Alpha Geoscience: Acronyms and Definitions

Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlorophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region II

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.
J-	=	Analyte is present. Reported value may be biased low and associated with a higher level of uncertainty than is normally expected with the analytical method.
J+	=	Analyte is present. Reported value may be biased high and associated with a higher level of uncertainty than is normally expected with the analytical method.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

Polyfluorinated Alkyl Substances (PFAS) Acronyms

PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluoroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTriA or PFTrDA	Perfluorotridecanoic acid
PFTeA or PFTA	Perfluorotetradecanoic acid
PFBS	Perfluorobutanesulfonic acid
PFPeS	Perfluoropentanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFHpS	Perfluoroheptanesulfonic acid
PFOS	Perfluorooctanesulfonic acid
PFNS	Perfluorononanesulfonic acid
PFDS	Perfluorodecanesulfonic acid
FOSA	Perfluorooctane Sulfonamide
NMeFOSAA	N-methyl perfluorooctane sulfonamidoacetic acid
NEtFOSAA	N-ethyl perfluorooctane sulfonamidoacetic acid
4:2 FTS or 4:2	1H, 1H, 2H, 2H-perfluorohexanesulfonic acid
6:2 FTS or 6:2	1H, 1H, 2H, 2H-perfluorooctanesulfonic acid or 6:2 Fluorotelomersulfonate
8:2 FTS or 8:2	1H, 1H, 2H, 2H-perfluorodecanesulfonic acid or 8:2 Fluorotelomersulfonate