



**PERIODIC REVIEW REPORT
(July 1, 2018 - August 2, 2019)**

**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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October 23, 2019

"Serving our clients and the environment since 1993"

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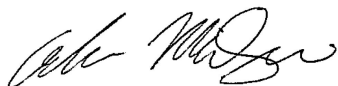
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CERTIFICATION

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.

10/23/19

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.

An annual Periodic Review Report (PRR) is required to document site management activities outlined in the SMP. This PRR covers the period July 1, 2018 to August 2, 2019.

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 of activities performed from July 2018 through August 2019, 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 eastern most 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. Some deeper rooted vegetation is present in drainage structures across the Landfill. 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 Timber Rattlesnake habitats.

An annual Periodic Review Report (PRR) is required to document site management activities outlined in the Site Management Plan (SMP). This PRR covers the period July 1, 2018 to August 2, 2019 and includes the 2019 Post-Closure Monitoring (PCM) event conducted July 29 to August 1, 2019. A Landfill inspection, air monitoring, leachate monitoring, groundwater monitoring, and an evaluation of institutional controls (IC) and engineering controls (EC) was completed in support of the 2019 PCM event.

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 July 1, 2018 through August 2, 2019, 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 PCM:

- The Annual PCM Landfill inspection was performed by Sterling Environmental Engineering, P.C. (STERLING) on July 29, 2019. Site Location and Property Features Maps are provided as Figures 1 and 2. The 2019 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 are 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 2019 air quality monitoring event was conducted on July 29, 2019. 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 as well as monitoring wells 1-R, 2-I, 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 at the same time as 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 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 is included in Table 20.
- Analytical results from 2009 through the 2019 sampling event for leachate/groundwater pumped to the Western Ramapo Treatment Plant are provided in Appendix E and summarized in Table 21.

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 and H₂S measurements were obtained with a QRAE multi-gas monitor, and VOC measurements were obtained with a miniRAE 3000 photoionization detector (PID). The presence of VOCs, H₂S, and explosive gas were not detected in any of the air monitoring 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). The bedrock groundwater elevation for well 6-R was not utilized as the measured elevation was not consistent with historical data. Groundwater gradients are similar in both aquifer systems and downward vertical gradients are noted throughout the Landfill perimeter, except at monitoring well clusters UP, 7-OS/7-I, 8, 9, and 10, which were observed to be slight (7-OS/7-I and 8) to moderately (UP, 9, and 10) upward. 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 2019 PCM groundwater analytical results are provided on Tables 4 and 5. A duplicate sample was collected from intermediate monitoring well 8-R and is labeled as “Duplicate”.

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 1998). 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 (UP-R, 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 seven (7) shallow overburden monitoring wells (UP-OS, 1-OS, 2-OS, 3-OS/I, 4-OS, 7-OS, and 8-OS), one (1) intermediate overburden monitoring well (8-I), and two (2) of the 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)	NYS Groundwater Standard	Onsite Monitoring Well Location Analytical Result
Chromium	0.05 mg/L	1-OS (0.3083 mg/L), 3-OS/I (8.58 mg/L), and 4-OS (0.07353 mg/L)
Iron	0.3 mg/L*	UP-OS (1.15 mg/L), 1-OS (7.15 mg/L), 2-OS (3.71 mg/L), 3-OS/I (37.6 mg/L), 4-OS (0.633 mg/L), 7-OS (0.348 mg/L), 8-OS (0.2 mg/L), 8-I (8.93 mg/L), and 9-R (1.65 mg/L)
Magnesium	35 mg/L	4-OS (35.9 mg/L) and 8-R (45.4 mg/L)
Manganese	0.3 mg/L*	1-OS (0.7723 mg/L), 2-OS (0.4536 mg/L), 3-OS/I (3.728 mg/L), 4-OS (0.2119 mg/L), 8-OS (2.318 mg/L), 8-I (3.198 mg/L), and 9-R (1.45 mg/L)
Nickel	0.1 mg/L	3-OS/I (1.044 mg/L)
Sodium	20 mg/L	1-OS (115 mg/L), 2-OS (133 mg/L), 3-OS/I (52.1 mg/L), 4-OS (93.5 mg/L), 8-OS (52.4 mg/L), 8-I (96.8 mg/L), 8-R (42 mg/L), and 9-R (39.6 mg/L)

* 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.

General trends indicate chromium, manganese, nickel, and sodium are increasing with time while magnesium is stable for applicable onsite monitoring wells. Concentration of iron is mostly decreasing with time.

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): 1-OS, 3-OS/I, and 4-OS.

Monitoring wells 1-OS, 3-OS/I, and 4-OS show an increasing trend over time. The review of historical chromium concentrations at wells 1-OS and 4-OS revealed a decreasing trend over the last four (4) sampling events.

Iron (Table 13)

The following monitoring wells exceeded the TOGS 1.1.1 standard for iron (0.3 mg/L): UP-OS, 1-OS, 2-OS, 3-OS/I, 4-OS, 7-OS, 8-OS, 8-I, and 9-R.

Monitoring wells UP-OS, 3-OS/I, and 9-R show an increasing trend over time. The following monitoring wells show a decreasing trend over time: 1-OS, 2-OS, 4-OS, 7-OS, 8-OS, and 8-I.

Magnesium (Table 15)

Monitoring well 4-OS and 8-R exceeded the TOGS 1.1.1 standard for magnesium (35 mg/L). This is the first TOGS 1.1.1 exceedance for magnesium at monitoring well 4-OS. 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): 1-OS, 2-OS, 3-OS/I, 4-OS, 8-OS, 8-I, and 9-R. Monitoring wells 2-OS, 3-OS/I, 4-OS, and 8-OS show a decreasing trend over time while monitoring well 1-OS exhibits a stable trend over time. The following wells show an increasing trend over time: 8-I and 9-R.

Nickel (Table 17)

The following monitoring wells exceeded the TOGS 1.1.1 standard for nickel (0.1 mg/L): 3-OS/I, which shows an increasing trend over time.

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-OS, 8-I, 8-R, and 9-R. The following monitoring wells show an increasing trend over time: 1-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. This is the second exceedance for sodium at monitoring well 2-OS.

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 PW-2 is below the Applicable or Relevant and Appropriate Requirements (ARAR) standard of 20 mg/L while sodium results for PW-1 and 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 (1,4-Dioxane and Perfluorinated Compounds) 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 350 nanograms per liter (ng/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 (Tables 4 and 5). 1,4-Dioxane was detected at 3.16 µg/L, 0.0576 µg/L (estimated), and 0.36 µg/L in groundwater sampled from monitoring well 9-R and public water supply wells SVWC-94 and SVWC-95, respectively (Tables 4 and 5). The NYSDEC emerging contaminant screening level for 1,4-Dioxane in groundwater (0.35 µg/L) was exceeded at monitoring well 9-R (3.16 µg/L) and slightly exceeded at public water supply well SVWC-95 (0.36 µg/L).

Perfluorinated Compounds

Groundwater samples were collected for perfluorinated compounds 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 USEPA Health Advisory (HA) level is 0.070 µg/L for PFOA and PFOS combined. The groundwater sampled from onsite and offsite monitoring wells, as part of the annual groundwater monitoring program, is not used as a drinking water supply source. Results for perfluorinated compounds in groundwater are provided in Tables 4 and 5. Perfluorinated compounds were not detected above the laboratory MDL in groundwater samples collected from monitoring wells UP-I and 10-OS. Detected total perfluorinated compounds in groundwater at monitoring wells UP-OS, UP-R, 9-OS, 9-I, 9-R, 10-I, and 10-R and from two (2) public water supply wells (SVWC-94 and SVWC-95) ranged from 0.000483 µg/L (monitoring well 10-I) to 0.034 µg/L (monitoring well 9-OS). No USEPA HA levels were exceeded in any groundwater sample analyzed.

3.3 Leachate Quality

The 2019 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, and zinc. Inorganic parameters that were not detected include antimony, arsenic, beryllium, chromium, lead, mercury, molybdenum, nickel, selenium, silver, and thallium.

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 PRR.

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.
- 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 July 29, 2019 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. No evidence of settlement, erosion, or damage was observed and the overall physical integrity of the Landfill is in good condition.

The stormwater drainage system appeared to be functioning as designed. Some deeper rooted vegetation is present within the Landfill drainage structures identified on the Landfill Inspection Form in Appendix A and should be maintained. The Landfill appears secure, stable, and the Landfill cover was observed to be well maintained and remains in good condition. The Landfill was intact with no evidence of stressed vegetation or damage due to settlement or active vector populations. The perimeter fence is currently intact and functioning as designed.

No 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 (Inactive).

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 through W-4) are deeper, ranging from 38 to 51 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.

The leachate collection system is located along the perimeter of the waste mass. The perimeter leachate collection system continues to function as designed. Annual leachate/groundwater volumes pumped from the Landfill to the Western Ramapo Sewage Treatment Plant between 1995 and July 31, 2019 are summarized in Table 20. The total leachate/groundwater removed from the Landfill from January 1, 2019 through July 31, 2019 was 9,312,788 gallons in addition to 15,001,258 gallons removed in 2018 that were directed through a force main to the Western Ramapo Sewage Treatment Plant for treatment. For comparison, the total leachate/groundwater removed from the Landfill in 2017 was 17,811,125 gallons

and the volume of leachate/groundwater pumped from the Landfill extraction wells between 2008 and 2018 has averaged 13,441,636 gallons per year. Three (3) of the last five (5) years have had annual volume removals above the most recent ten (10) year average while the 2018 extraction well discharge volume was 11.6% higher than the most recent ten (10) year average.

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 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 annual 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.

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 year with the monitoring event being rotated to the next quarter for each year. Monitoring includes collection of groundwater and leachate samples for analysis of 6 NYCRR Part 360 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 new 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 2009 through July 31, 2019 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 2009 and July 31, 2019.

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 2009 through July 31, 2019. Sampling of the discharge from the Landfill will continue on a biannual 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; and,
- Annual or more frequent clearing of drainage swales, ditches, and downchutes.

Between July 1, 2018 and August 2, 2019, 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; and,
- Air, groundwater, and leachate quality monitoring performed on July 29, 2019 to August 1, 2019.

Operation and maintenance of the property continues to protect human health and the overall integrity of the Landfill. There were no deficiencies in complying with the O&M Plan between the July 1, 2018 and August 2, 2019 reporting period. 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 of July 1, 2018 through August 2, 2019:

- 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.
- Vegetative growth is present along some sections of the Landfill's perimeter drainage structures and should be maintained.

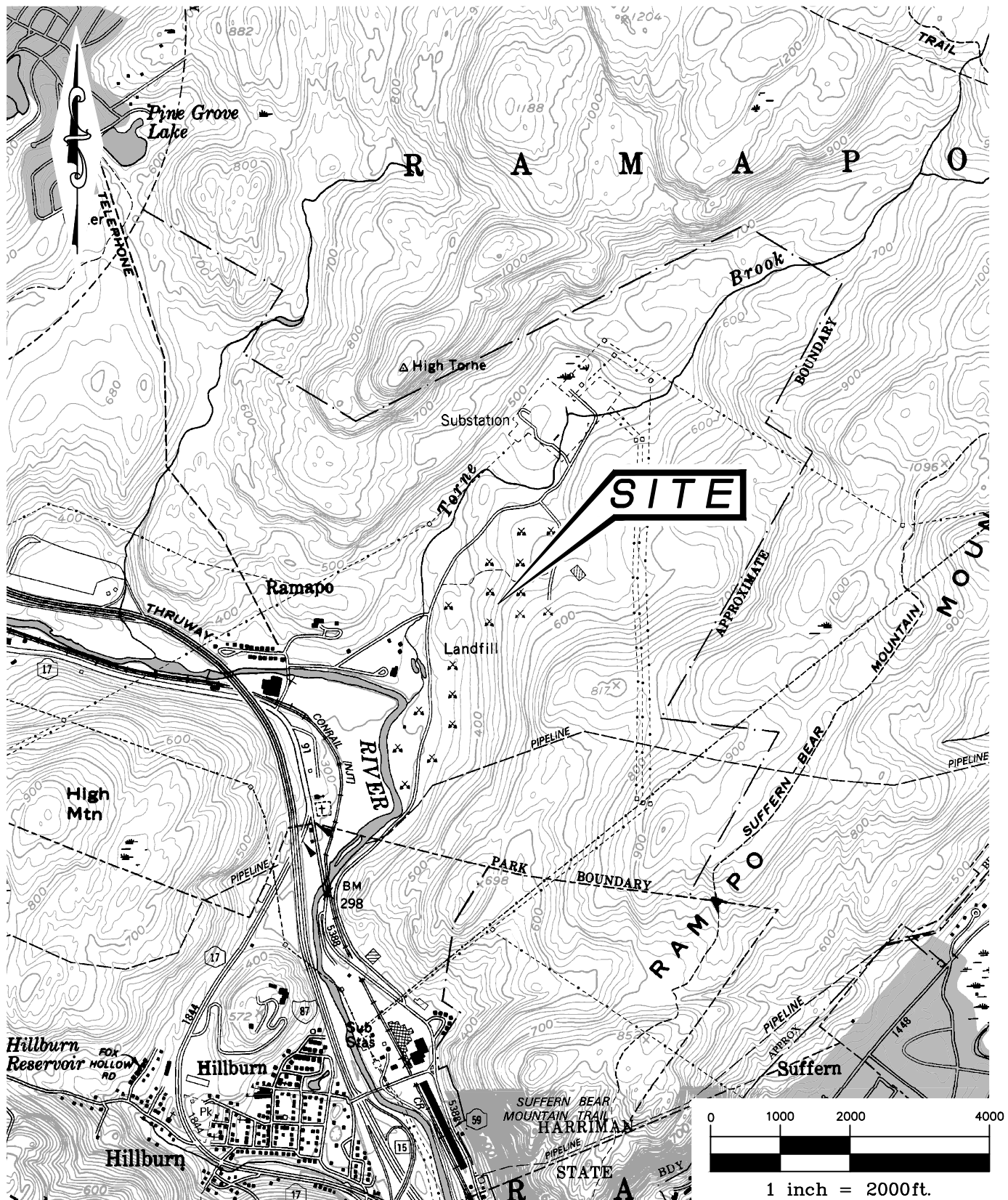
- The July 29, 2019 air quality monitoring survey for explosive gas, H₂S, and VOCs indicated the Landfill is in compliance with the requirements set forth in 6 NYCRR 360-2.15(k)(4) and 2.17(f) (effective prior to 11/4/17).
- Groundwater flow direction in the overburden and bedrock aquifer systems is to the northwest and/or west towards Torne Brook. Groundwater gradients are similar in both aquifer systems and downward vertical gradients are noted throughout the Landfill perimeter, except at monitoring well clusters UP, 7-OS/7-I, 8, 9 and 10, which were observed to be slight (7-OS/7-I and 8) to moderately (UP, 9, and 10) upward. These 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 private water well PW-1 and 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, magnesium, manganese, nickel, and sodium at one or more monitoring wells in each hydrogeologic unit.
- Historical trends are relatively consistent with the 2018 PCM analytical results. This was the third sampling event to include the newly installed upgradient monitoring well cluster (UP-OS, UP-I and UP-R).
- The NYSDEC emerging contaminant screening level for 1,4-Dioxane in groundwater (0.35 µg/L) was exceeded at monitoring well 9-R (3.16 µg/L) and slightly exceeded at public water supply well SVWC-95 (0.36 µg/L).
- No USEPA HA levels were exceeded in any groundwater sample analyzed for perfluorinated compounds.
- The volume of leachate/groundwater pumped from Landfill extraction wells to the RCSD No. 1 Western Ramapo Treatment Plant has averaged slightly greater than 13.44 million gallons per year from 2008 through 2018.
- 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 following recommendations are made based on analytical results and observations during the reporting period:

- Vegetative growth from Landfill drainage features should be removed, as indicated in the annual site inspection checklist in Appendix A.
- 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.

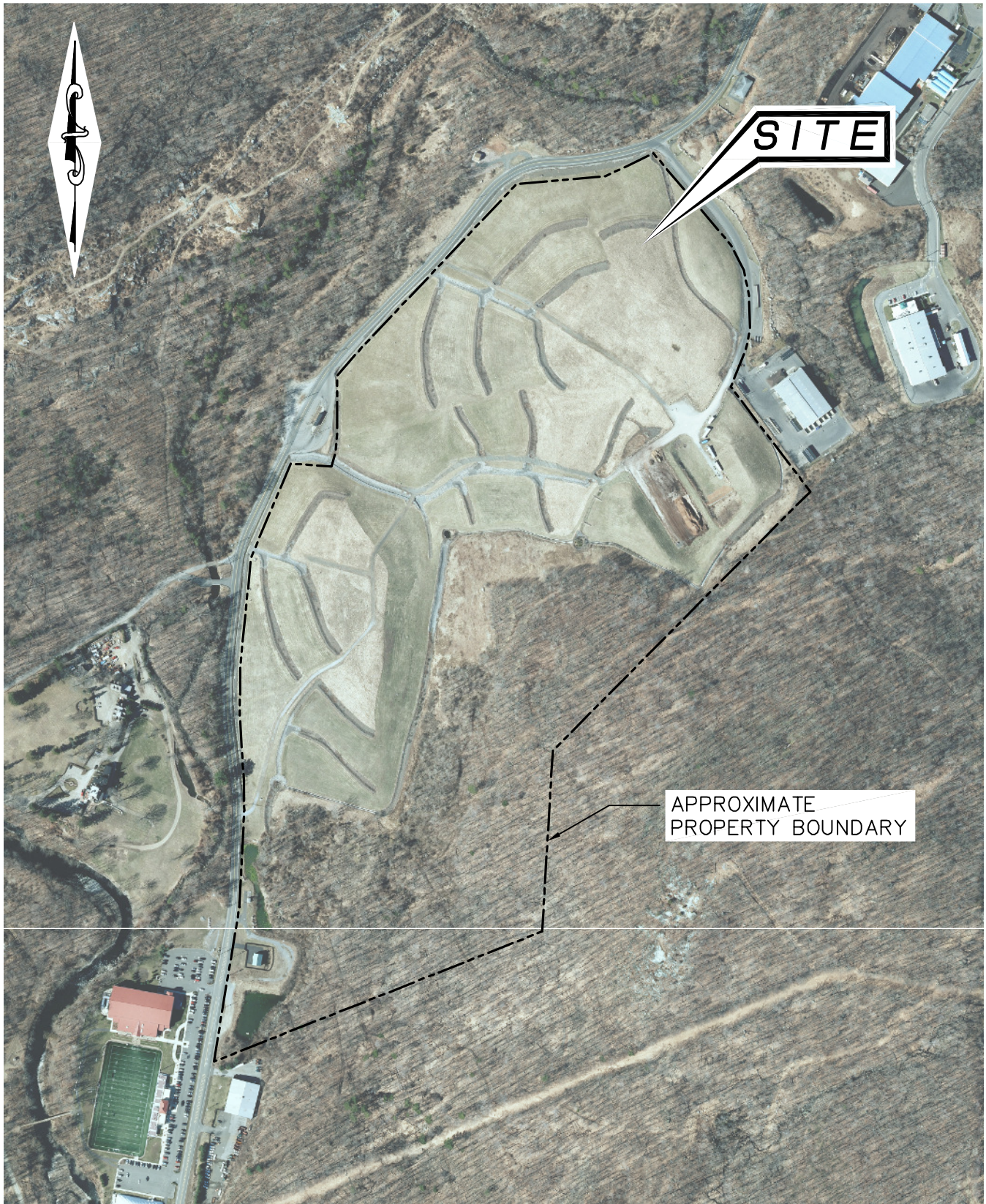
24 Wade Road ♦ Latham, New York 12110

SITE LOCATION
TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

PROJ. No.: 20010	DATE: 8/1/14	SCALE: 1" = 2000'	DWG. NO. 20010035	FIGURE 1



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

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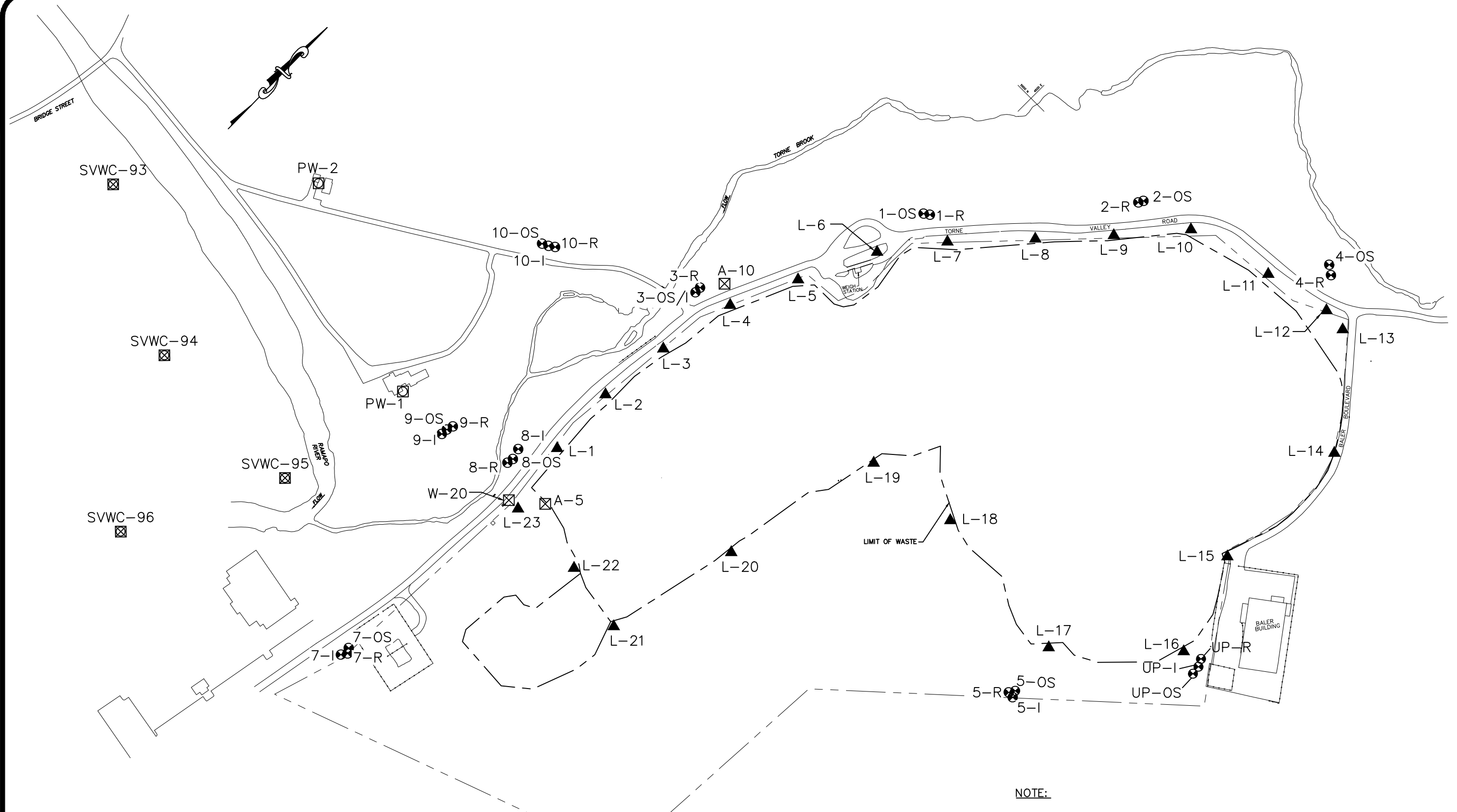
PROPERTY FEATURES
TOWN OF RAMAPO
LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

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

S:\Drawings\20010 - Town of Ramapo\20010037, Proposed MW Locations_2016-10-14.dwg 9/18/2019 12:47 PM



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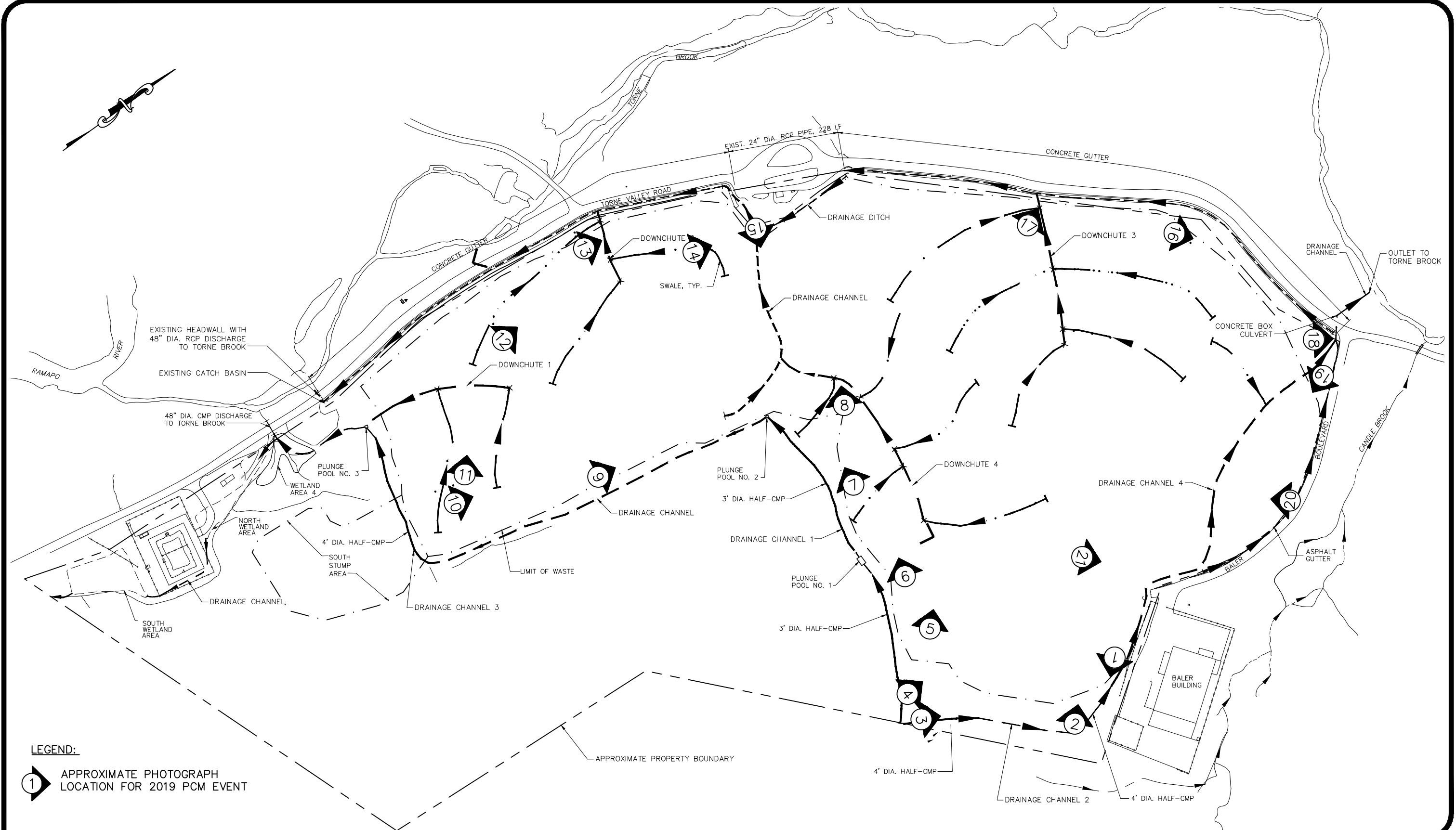
GROUNDWATER MONITORING WELLS AND
AIR QUALITY MONITORING LOCATIONS
TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

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

S:\Drawings\20010 - Town of Ramapo\20010052_F-4-Surface WaterAndControlFeatures 2019.dwg/4/2019 11:58 AM

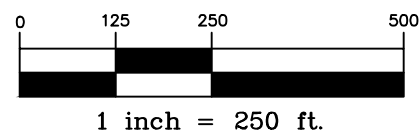


LEGEND:

- 1 APPROXIMATE PHOTOGRAPH LOCATION FOR 2019 PCM EVENT

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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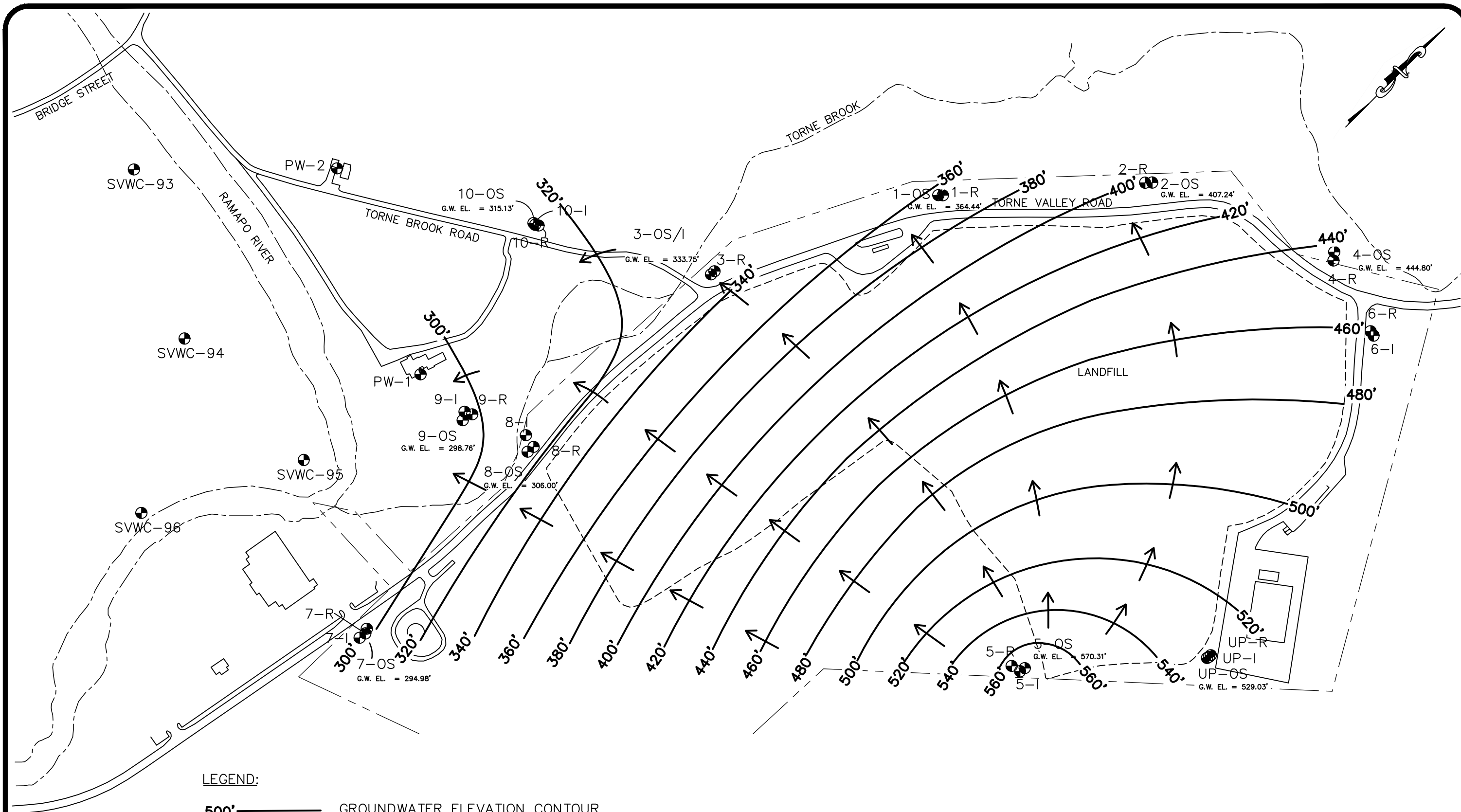
24 Wade Road • Latham, New York 12110

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: 9/4/2019 | SCALE: 1" = 250' | DWG. NO. 20010052 | FIGURE 4



LEGEND:

- 500' ——— GROUNDWATER ELEVATION CONTOUR
- ← GROUNDWATER FLOW DIRECTION
- APPROXIMATE LANDFILL COVER SYSTEM BOUNDARY
- - - - - APPROXIMATE LANDFILL PROPERTY BOUNDARY
- 1-OS MONITORING WELL
- G.W. EL. = 364.44' GROUNDWATER ELEVATION FOR JULY 29, 2019 MONITORING EVENT

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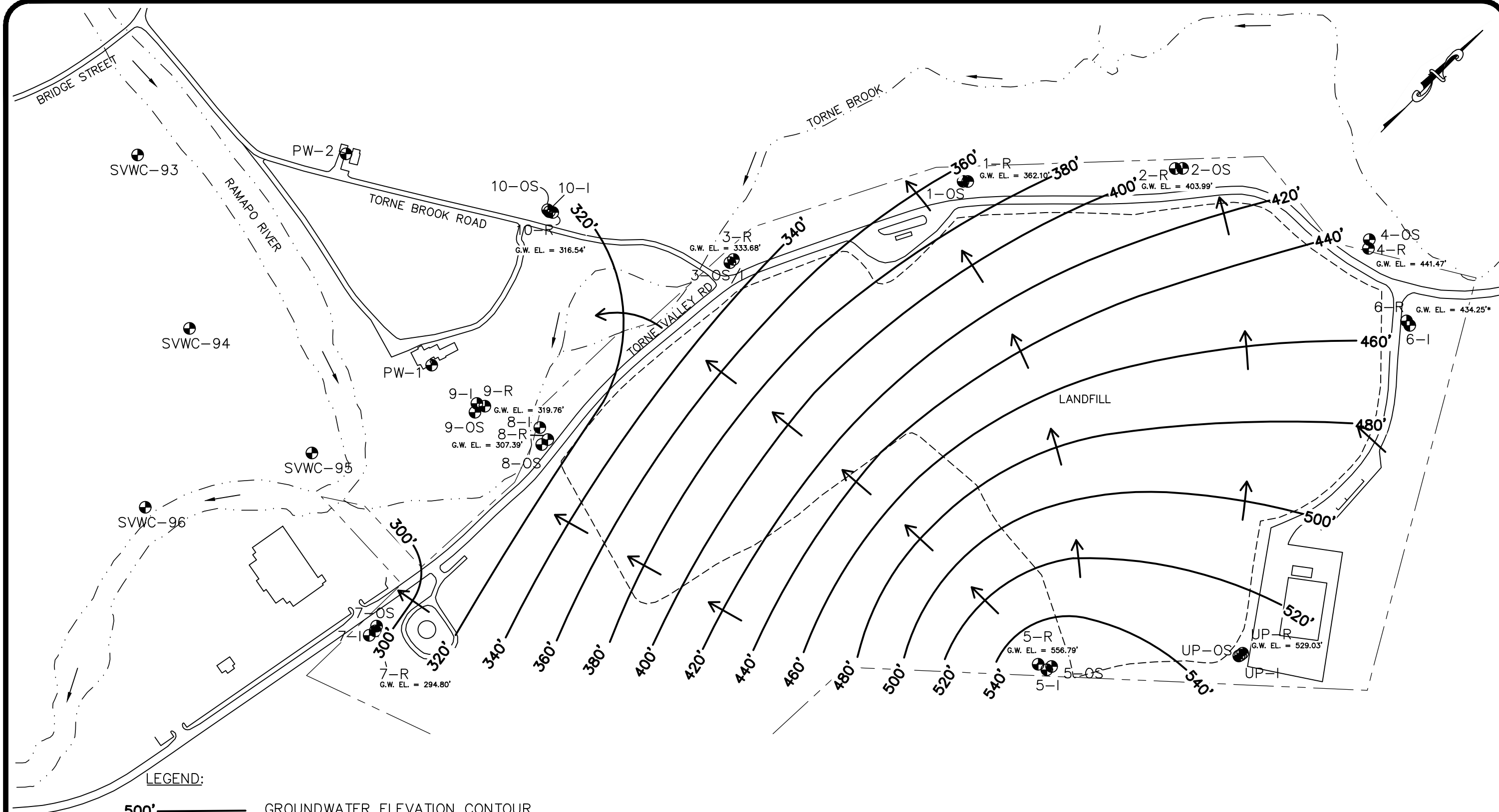
SHALLOW OVERBURDEN AQUIFER GROUNDWATER
ELEVATION CONTOURS – JULY 29, 2019
TOWN OF RAMAPO
LANDFILL

TOWN OF RAMAPO

ROCKLAND CO., N.Y.

PROJ. No.: 20010	DATE: 9/3/2019	SCALE: 1" = 300'	DWG. NO. 20010051	FIGURE 5

S:\Drawings\20010 - Town of Ramapo\20010051_F-6 - Bedrock GW Cont 2019.dwg sweett 9/19/2019



LEGEND:

- 500' ——— GROUNDWATER ELEVATION CONTOUR
- ← GROUNDWATER FLOW DIRECTION
- - - - - APPROXIMATE LANDFILL COVER SYSTEM BOUNDARY
- - - - - APPROXIMATE LANDFILL PROPERTY BOUNDARY
- 1-R MONITORING WELL

G.W. EL. = 362.10'
*

GROUNDWATER ELEVATION FOR JULY 29, 2019 MONITORING EVENT
BEDROCK GROUNDWATER ELEVATION FOR WELL 6-R WAS NOT UTILIZED AS THE
MEASURED ELEVATION WAS NOT CONSISTENT WITH HISTORICAL DATA

STERLING

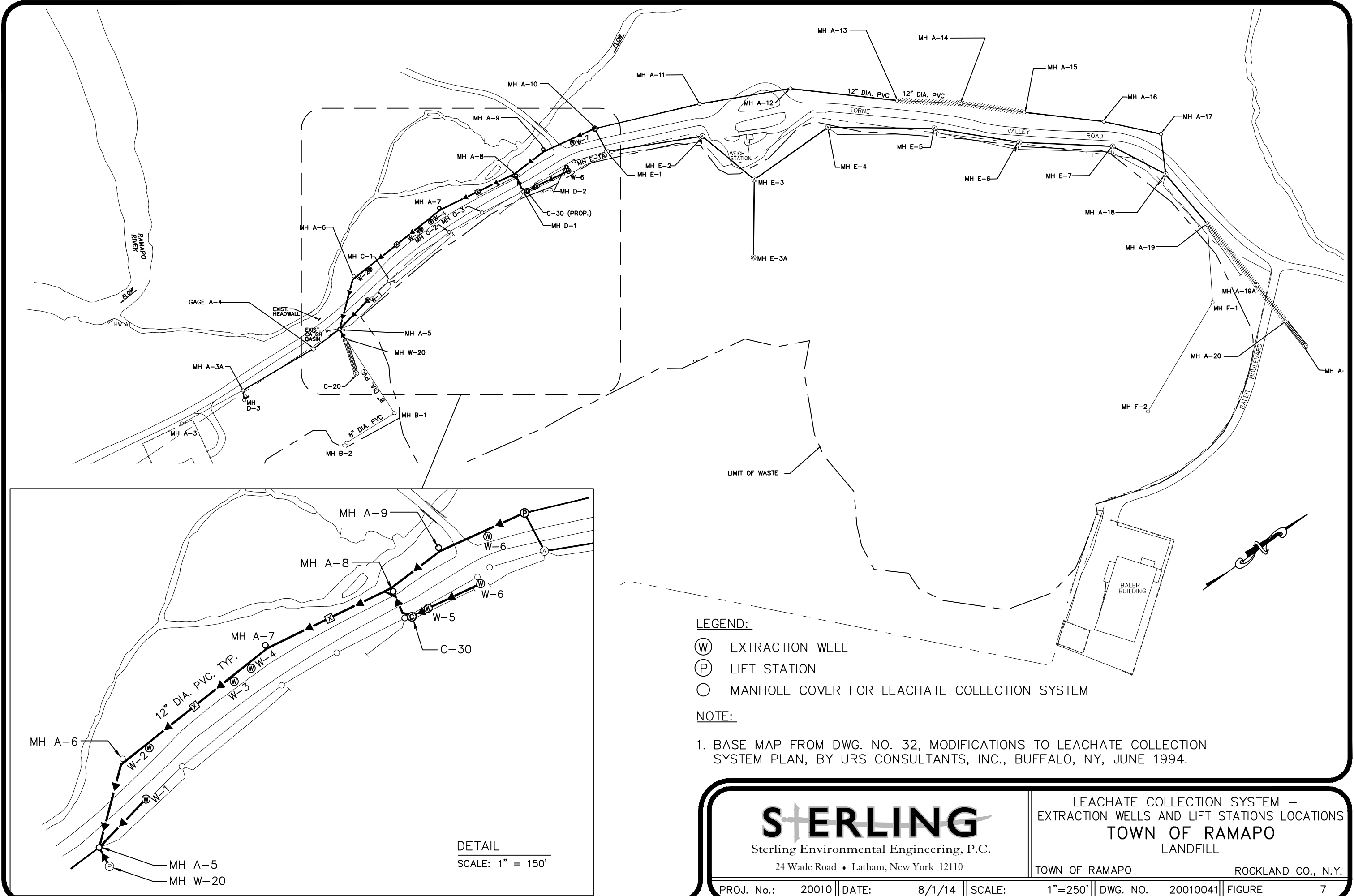
Sterling Environmental Engineering, P.C.
24 Wade Road • Latham, New York 12110

BEDROCK AQUIFER GROUNDWATER ELEVATION
CONTOURS - JULY 29, 2019
TOWN OF RAMAPO LANDFILL

TOWN OF RAMAPO ROCKLAND CO., N.Y.

PROJ. No.: 20010 | DATE: 9/3/2019 | SCALE: 1" = 300' | DWG. NO. 20010051 | FIGURE 6

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TABLES

Summary of Air Monitoring Results (7/29/19)
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	---	---
Floaters 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
Vinyl Chloride	624	1
Benzene	625	1
Chlorobenzene	625	1
TAL Metals	NYSDEC ASP	1

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

--- Parameters will be measured by Field Personnel or Reference is not available

Notes:

- (1) Revised in Accordance with the NYSDEC's October 27, 2003 post-closure monitoring variance approval
- (2) 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 ug/L or less and for Thallium must be 0.5 µg/L or less.

TABLE 3

Summary of Field Parameter Measurements (7/29/19 - 8/1/19)
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	8/1/2019	14.77	1.076	13.0	6.85	90.6	65.71
1-R	7/29/2019	17.49	---	---	---	---	---
2-OS	8/1/2019	15.50	0.898	13.5	7.20	114.9	11.96
2-I	---	---	---	---	---	---	---
2-R	7/29/2019	18.02	---	---	---	---	---
3-OS/I	8/1/2019	12.02	0.739	14.1	6.69	139.0	291.60
3-R	7/29/2019	11.83	---	---	---	---	---
4-OS	7/31/2019	7.62	1.223	14.0	6.31	69.6	12.89
4-I	7/29/2019	9.35	---	---	---	---	---
4-R	7/29/2019	11.37	---	---	---	---	---
5-OS	7/29/2019	14.56	---	---	---	---	---
5-I	7/29/2019	16.31	---	---	---	---	---
5-R	7/29/2019	27.95	---	---	---	---	---
6-I	7/29/2019	17.65	---	---	---	---	---
6-R	7/29/2019	28.50	---	---	---	---	---
7-OS	7/31/2019	14.45	0.365	13.2	6.63	92.6	10.78
7-I	7/29/2019	14.26	---	---	---	---	---
7-R	7/29/2019	14.55	---	---	---	---	---
8-OS	7/31/2019	14.21	0.577	13.2	6.50	24.4	5.78
8-I	7/31/2019	14.82	1.224	13.1	6.82	-29.3	23.78
8-R	7/31/2019	13.13	1.173	14.4	7.23	186.1	1.96
9-OS	7/30/2019	9.24	0.087	13.9	6.07	144.1	70.60
9-I	7/30/2019	11.20	0.104	12.0	6.31	119.8	1.82
9-R	7/30/2019	12.41	0.464	12.6	6.96	118.6	9.58
10-OS	7/31/2019	16.89	0.035	11.0	5.20	219.0	7.00
10-I	7/31/2019	15.20	0.094	10.8	6.37	181.2	2.96
10-R	7/31/2019	14.20	0.092	11.7	6.35	181.5	3.76
UP-OS	7/30/2019	9.86	0.236	13.5	8.24	134.0	361.44
UP-I	7/30/2019	8.55	0.162	11.4	8.67	133.5	15.21
UP-R	7/29/2019	0.00 ²	0.118	13.5	6.34	205.4	7.70
PW-1	7/29/2019	---	0.293	13.7	6.72	151.6	1.46
PW-2	7/29/2019	---	0.218	13.5	8.05	141.5	2.25
SVWC-93	7/30/2019	---	0.476	13.8	6.67	195.0	152.99
SVWC-94	7/30/2019	---	0.491	16.7	6.92	128.0	135.81
SVWC-95	7/30/2019	---	0.464	14.4	6.72	177.0	87.21
SVWC-96	7/30/2019	---	0.499	15.0	6.94	176.7	155.76

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 (7/29/2019 - 8/1/2019)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	SAMPLE ID:	UP-OS	UP-I	UP-R	1-OS	2-OS	3-OS/I	4-OS	7-OS	8-OS	8-I
		COLLECTION DATE:	7/30/2019	7/30/2019	7/29/2019	8/1/2019	8/1/2019	8/1/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019
		EPA-PFAS-HA										
LEACHATE INDICATOR PARAMETERS, mg/L												
Alkalinity, Total	---	---	114	70.2	40.8	334	403	194	118	134	125	373
Chemical Oxygen Demand	---	---	13	2.7 U	8.5 J	28	26	23	2.7 U	2.7 U	6 J	11
Hardness	---	---	108	70.4	44.5	281.8	157.6	250	355	149	148	346
Total Kjeldahl Nitrogen	---	---	0.168 J	0.092 J	0.694	0.438	0.81	0.578 J	0.615	0.11 J	0.463	5.21
VOLATILE ORGANIC COMPOUNDS, µg/L												
1,1-Dichloroethane	5	---	0.07 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.07 U	0.07 U	0.07 U	0.07 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	---	---	-	-	-	-	-	-	-	-	-	-
1,4 DIOXANE, µg/L												
1,4-Dioxane	---	---	0.0326 U	0.0326 U	0.0314 U	NS	NS	NS	NS	NS	NS	NS
PERFLUORINATED ALKYL ACIDS, µg/L												
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	---	---	0.00106 U	0.00104 U	0.00113 U	NS	NS	NS	NS	NS	NS	NS
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	---	---	0.00116 U	0.00199	0.00124 U	NS	NS	NS	NS	NS	NS	NS
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	---	---	0.000703 U	0.000688 U	0.000747 U	NS	NS	NS	NS	NS	NS	NS
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	---	---	0.000727 J	0.000555 U	0.00125 J	NS	NS	NS	NS	NS	NS	NS
Perfluorobutanesulfonic Acid (PFBS)	---	---	0.000343 J	0.000204 U	0.000221 U	NS	NS	NS	NS	NS	NS	NS
Perfluorobutanoic Acid (PFBA)	---	---	0.000468 J	0.000349 U	0.000379 U	NS	NS	NS	NS	NS	NS	NS
Perfluorodecanesulfonic Acid (PFDS)	---	---	0.000857 U	0.000839 U	0.000911 U	NS	NS	NS	NS	NS	NS	NS
Perfluorodecanoic Acid (PFDA)	---	---	0.000266 U	0.00026 U	0.000282 U	NS	NS	NS	NS	NS	NS	NS
Perfluorododecanoic Acid (PFDoA)	---	---	0.000325 U	0.000318 U	0.000346 U	NS	NS	NS	NS	NS	NS	NS
Perfluoroheptanesulfonic Acid (PFHpS)	---	---	0.000601 U	0.000589 U	0.000639 U	NS	NS	NS	NS	NS	NS	NS
Perfluoroheptanoic Acid (PFHpA)	---	---	0.000388 J	0.000193 U	0.00055 J	NS	NS	NS	NS	NS	NS	NS
Perfluorohexanesulfonic Acid (PFHxS)	---	---	0.000329 U	0.000322 U	0.000349 U	NS	NS	NS	NS	NS	NS	NS
Perfluorohexanoic Acid (PFHxA)	---	---	0.000605 J	0.00039 J	0.000405 J	NS	NS	NS	NS	NS	NS	NS
Perfluorononanoic Acid (PFNA)	---	---	0.000318 J	0.000267 U	0.00029 U	NS	NS	NS	NS	NS	NS	NS
Perfluorooctanesulfonamide (FOSA)	---	---	0.000507 U	0.000496 U	0.000539 U	NS	NS	NS	NS	NS	NS	NS
Perfluorooctanesulfonic Acid (PFOS)	---	0.07	0.000769 J	0.000432 U	0.000885 J	NS	NS	NS	NS	NS	NS	NS
Perfluorooctanoic Acid (PFOA)	---	0.07	0.00153 J	0.000202 U	0.000546 J	NS	NS	NS	NS	NS	NS	NS
Perfluoropentanoic Acid (PFPeA)	---	---	0.000346 U	0.000339 U	0.000368 U	NS	NS	NS	NS	NS	NS	NS
Perfluorotetradecanoic Acid (PFTA)	---	---	0.000217 U	0.000212 U	0.00023 U	NS	NS	NS	NS	NS	NS	NS
Perfluorotridecanoic Acid (PFTrDA)	---	---	0.000286 U	0.00028 U	0.000304 U	NS	NS	NS	NS	NS	NS	NS
Perfluoroundecanoic Acid (PFUnA)	---	---	0.000227 U	0.000223 U	0.000242 U	NS	NS	NS	NS	NS	NS	NS
PFOA/PFOS, Total	---	0.07	0.0023 J	0.000202 U	0.00143 J	NS	NS	NS	NS	NS	NS	NS

Notes:
NY-AWQS: New York T.O.G.S. 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 8-R
** = 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.
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TABLE 4

Summary of Groundwater Analytical Results (7/29/2019 - 8/1/2019)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	SAMPLE ID:	UP-OS	UP-I	UP-R	1-OS	2-OS	3-OS/I	4-OS	7-OS	8-OS	8-I	
		COLLECTION DATE:	7/30/2019	7/30/2019	7/29/2019	8/1/2019	8/1/2019	8/1/2019	7/31/2019	7/31/2019	7/31/2019	7/31/2019	
		EPA-PFAS-HA											
TOTAL METALS, mg/L													
Aluminum	---	---	0.699	0.042	0.0225	0.141	0.735	1.12	0.0184	0.111	0.00489 J	0.00327 U	
Antimony	0.003	---	0.00042 U	0.00042 U	0.00172 J	0.00108 J	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	
Arsenic	0.025	---	0.0005	0.00045 J	0.00016 U	0.00138	0.00191	0.00148	0.00016 U	0.00035 J	0.00017 J	0.00454	
Barium	1	---	0.01152	0.0048	0.00268	0.07528	0.04815	0.08412	0.04009	0.02292	0.01092	0.03721	
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	
Cadmium	0.005	---	0.00005 U	0.00005 U	0.00005 U	0.00014 J	0.00005 U	0.00017 J	0.00005 U	0.00005 U	0.00008 J	0.00005 U	
Calcium	---	---	31.1	21.7	12.1	84.2	33	82.6	106	50.4	49.2	110	
Chromium	0.05	---	0.00253	0.00194	0.00732	0.3083	0.00229	8.58	0.07353	0.01642	0.0127	0.00064 J	
Cobalt	---	---	0.00095	0.00018 J	0.00026 J	0.00891	0.00998	0.02034	0.00067	0.00369	0.00051	0.00719	
Copper	0.2	---	0.00766	0.00097 J	0.00075 J	0.00455	0.00315	0.059	0.00085 J	0.00143	0.00134	0.00038 U	
Iron	0.3**	---	1.15	0.106	0.2	7.15	3.71	37.6	0.633	0.348	0.24	8.93	
Lead	0.025	---	0.00096 J	0.00034 U	0.00034 U	0.00226	0.00269	0.00111	0.00034 U	0.00059 J	0.00034 U	0.00034 U	
Magnesium	35	---	8.13	4.58	3.55	17.4	18.2	10.6	35.9	10.7	11.2	27.8	
Manganese	0.3**	---	0.03922	0.00339	0.00703	0.7723	0.4536	3.728	0.2119	0.07451	2.318	3.198	
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	0.00009 U	0.00009 U	
Nickel	0.1	---	0.00195 J	0.00831	0.00556	0.04278	0.00326	1.044	0.05196	0.0008 J	0.06892	0.00898	
Potassium	---	---	0.912	0.501	0.676	2.43	15.6	3.71	2.04	4.24	2.58	11.7	
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	---	3.87	3.59	4.38	115	133	52.1	93.5	14.9	52.4	96.8	
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	---	---	0.00235 J	0.00237 J	0.0017 J	0.00198 J	0.00521	0.02933	0.00157 U	0.00157 U	0.00157 U	0.00157 U	
Zinc	2	---	0.00464 J	0.00341 U	0.00579 J	0.00728 J	0.01685	0.01908	0.00557 J	0.00341 U	0.00341 U	0.00341 U	

Notes:
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TABLE 4

Summary of Groundwater Analytical Results (7/29/2019 - 8/1/2019)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	SAMPLE ID:	8-R	DUP*	9-OS	9-I	9-R	FB-073019	10-OS	10-I	10-R
		COLLECTION DATE:	7/31/2019	7/31/2019	7/30/2019	7/30/2019	7/30/2019	7/30/2019	7/31/2019	7/31/2019	7/31/2019
		EPA-PFAS-HA									
LEACHATE INDICATOR PARAMETERS, mg/L											
Alkalinity, Total	---	---	464	465	16.1	23.1	119	NS	ND	24.3	24.4
Chemical Oxygen Demand	---	---	11	8.5 J	3.6 J	2.7 U	2.7 U	NS	6 J	2.7 U	2.7 U
Hardness	---	---	519	540	21.1	22.1	110	NS	7.48	32.9	31.8
Total Kjeldahl Nitrogen	---	---	0.36	0.178 J	0.448	0.17 J	0.784	NS	0.097 J	0.085 J	0.102 J
VOLATILE ORGANIC COMPOUNDS, µg/L											
1,1-Dichloroethane	5	---	0.07 U	0.07 U	0.7 U	0.7 U	0.7 U	NS	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	NS	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	NS	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	NS	0.07 U	0.07 U	0.07 U
Total VOCs	---	---	-	-	-	-	-	NS	-	-	-
1,4 DIOXANE, µg/L											
1,4-Dioxane	---	---	NS	NS	0.0326 U	0.0326 U	3.16	NS	0.0326 U	0.0326 U	0.0314 U
PERFLUORINATED ALKYL ACIDS, µg/L											
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	---	---	NS	NS	0.0011 U	0.00108 U	0.00109 U	0.00114 U	0.0011 U	0.00113 U	0.00103 U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	---	---	NS	NS	0.00121 U	0.00118 U	0.00119 U	0.00126 U	0.00122 U	0.00202	0.00114 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	---	---	NS	NS	0.00336	0.000715 U	0.00102 J	0.000758 U	0.000734 U	0.000753 U	0.000686 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	---	---	NS	NS	0.000801 J	0.000644 J	0.000581 U	0.000611 U	0.000898 J	0.000607 U	0.000553 U
Perfluorobutanesulfonic Acid (PFBS)	---	---	NS	NS	0.00149 J	0.000769 J	0.00402	0.000224 U	0.000217 U	0.000223 U	0.000203 U
Perfluorobutanoic Acid (PFBA)	---	---	NS	NS	0.0041	0.00535	0.0479	0.000385 U	0.000372 U	0.000382 U	0.000348 U
Perfluorodecanesulfonic Acid (PFDS)	---	---	NS	NS	0.000888 U	0.000872 U	0.000878 U	0.000924 U	0.000894 U	0.000918 U	0.000836 U
Perfluorodecanoic Acid (PFDA)	---	---	NS	NS	0.000275 U	0.000388 J	0.000322 J	0.000287 U	0.000277 U	0.000285 U	0.000259 U
Perfluorododecanoic Acid (PFDoA)	---	---	NS	NS	0.000337 U	0.000331 U	0.000333 U	0.000351 U	0.000339 U	0.000348 U	0.000317 U
Perfluoroheptanesulfonic Acid (PFHpS)	---	---	NS	NS	0.000623 U	0.000612 U	0.000616 U	0.000649 U	0.000628 U	0.000644 U	0.000587 U
Perfluoroheptanoic Acid (PFHpA)	---	---	NS	NS	0.00267	0.00362	0.00674	0.000212 U	0.000205 U	0.000225 J	0.000192 U
Perfluorohexanesulfonic Acid (PFHxS)	---	---	NS	NS	0.00175 J	0.000334 U	0.00262	0.000355 U	0.000343 U	0.000352 U	0.000321 U
Perfluorohexanoic Acid (PFHxA)	---	---	NS	NS	0.00275	0.00442	0.0113	0.000415 J	0.000438 J	0.000607 J	0.000406 J
Perfluorononanoic Acid (PFNA)	---	---	NS	NS	0.00194	0.000445 J	0.0463	0.000294 U	0.000285 U	0.000292 U	0.000266 U
Perfluorooctanesulfonamide (FOSA)	---	---	NS	NS	0.000525 U	0.000516 U	0.00052 U	0.000547 U	0.000529 U	0.000543 U	0.000495 U
Perfluorooctanesulfonic Acid (PFOS)	---	0.07	NS	NS	0.0151	0.00188	0.00705	0.000475 U	0.00046 U	0.000483 J	0.00111 J
Perfluorooctanoic Acid (PFOA)	---	0.07	NS	NS	0.0189	0.00502	0.0126	0.000411 J	0.000215 U	0.000221 U	0.000201 U
Perfluoropentanoic Acid (PFPeA)	---	---	NS	NS	0.000518 J	0.00531	0.00969	0.000374 U	0.000361 U	0.000371 U	0.000338 U
Perfluorotetradecanoic Acid (PFTA)	---	---	NS	NS	0.000225 U	0.000221 U	0.000222 U	0.000234 U	0.000226 U	0.000232 U	0.000212 U
Perfluorotridecanoic Acid (PFTTrDA)	---	---	NS	NS	0.000296 U	0.000291 U	0.000293 U	0.000309 U	0.000298 U	0.000306 U	0.000279 U
Perfluoroundecanoic Acid (PFUnA)	---	---	NS	NS	0.000236 U	0.000231 U	0.00028 J	0.000245 U	0.000237 U	0.000243 U	0.000222 U
PFOA/PFOS, Total	---	0.07	NS	NS	0.034	0.0069	0.0197	0.000411 J	0.000215 U	0.000483 J	0.00111 J

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Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY-AWQS	SAMPLE ID:	8-R	DUP*	9-OS	9-I	9-R	FB-073019	10-OS	10-I	10-R
		COLLECTION DATE:	7/31/2019	7/31/2019	7/30/2019	7/30/2019	7/30/2019	7/30/2019	7/31/2019	7/31/2019	7/31/2019
		EPA-PFAS-HA									
TOTAL METALS, mg/L											
Aluminum	---	---	0.00327 U	0.00426 J	0.0408	0.00698 J	0.0254	NS	0.262	0.0384	0.0348
Antimony	0.003	---	0.00042 U	0.00042 U	0.00248 J	0.00103 J	0.0008 J	NS	0.00042 U	0.00042 U	0.0014 J
Arsenic	0.025	---	0.00034 J	0.00035 J	0.00039 J	0.00016 U	0.00142	NS	0.00036 J	0.00016 U	0.00016 U
Barium	1	---	0.00706	0.00736	0.00544	0.00397	0.01845	NS	0.00736	0.00125	0.00376
Beryllium	0.003	---	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	NS	0.00012 J	0.0001 U	0.0001 U
Cadmium	0.005	---	0.00005 U	0.00005 U	0.00032	0.00005 U	0.00071	NS	0.00005 U	0.00005 U	0.00017 J
Calcium	---	---	160	162	6.21	6.25	32.9	NS	2.57	9.41	10.2
Chromium	0.05	---	0.04565	0.04731	0.01202	0.01542	0.00546	NS	0.00017 U	0.00026 J	0.01136
Cobalt	---	---	0.00185	0.00203	0.00016 U	0.00016 U	0.00195	NS	0.00026 J	0.00016 U	0.0006
Copper	0.2	---	0.00166	0.01657	0.00754	0.00084 J	0.00242	NS	0.00106	0.00102	0.00267
Iron	0.3**	---	0.195	0.186	0.27	0.113	1.65	NS	0.0194 J	0.0954	0.0778
Lead	0.025	---	0.00034 J	0.00121	0.01474	0.00034 U	0.00034 U	NS	0.00034 U	0.00034 U	0.00395
Magnesium	35	---	45.4	47.6	1.48	1.6	7.5	NS	0.428	2.72	2.02
Manganese	0.3**	---	0.127	0.1443	0.00903	0.03312	1.45	NS	0.02476	0.00106	0.01807
Mercury	0.0007	---	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	NS	0.00009 U	0.00009 U	0.00009 U
Nickel	0.1	---	0.00917	0.01035	0.00186 J	0.00101 J	0.00472	NS	0.00061 J	0.00055 U	0.01356
Potassium	---	---	3.27	3.32	1.01	0.577	9.38	NS	0.298	0.838	0.818
Selenium	0.01	---	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	NS	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	NS	0.00016 U	0.00016 U	0.00016 U
Sodium	20	---	42	44.1	6.7	9.68	39.6	NS	2.09	3.91	4.41
Thallium	0.0005	---	0.00014 U	0.00014 U	0.00014 U	0.00037 J	0.00014 U	NS	0.00014 U	0.00014 U	0.00014 U
Vanadium	---	---	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	NS	0.00157 U	0.00157 U	0.00157 U
Zinc	2	---	0.00797 J	0.0039 J	0.02252	0.00341 U	0.00524 J	NS	0.00341 U	0.00341 U	0.01498

Notes:
NY-AWQS: New York T.O.G.S. 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 8-R
** = 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.
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 (7/29/2019 - 7/30/2019)
Town of Ramapo Landfill, Hillburn, New York

ANALYTE	NY- AWQS ⁽¹⁾	EPA- MCL ⁽²⁾	SAMPLE ID:	PW-1	PW-2	SVWC-93	SVWC-94	SVWC-95	SVWC-96
			COLLECTION						
			DATE:	7/29/2019	7/29/2019	7/30/2019	7/30/2019	7/30/2019	7/30/2019
			SAMPLE MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER
EPA-PFAS-HA									
LEACHATE INDICATOR PARAMETERS, mg/L									
Alkalinity, Total	---	---	---	26	68.8	51.1	53.8	52.3	51.9
Chemical Oxygen Demand	---	---	---	8.5 J	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U
Hardness	---	---	---	41.6	81.4	76.9	81.5	74.6	73.5
Nitrogen, Total Kjeldahl	---	---	---	0.542	0.394	0.143 J	0.162 J	0.227 J	0.356
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
Benzene	1	5	---	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U
Chlorobenzene	5	100	---	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Vinyl chloride	2	2	---	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Total VOCs	---	---	---	-	-	NS	-	-	-
1,4 DIOXANE, µg/L									
1,4-Dioxane	---	---	---	NS	NS	NS	0.0576 J	0.36	NS
PERFLUORINATED ALKYL ACIDS, µg/L									
I,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	---	---	---	NS	NS	NS	0.00106 U	0.00103 U	NS
H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	---	---	---	NS	NS	NS	0.00116 U	0.00114 U	NS
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	---	---	---	NS	NS	NS	0.000703 U	0.000686 U	NS
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	---	---	---	NS	NS	NS	0.000706 J	0.000553 U	NS
Perfluorobutanesulfonic Acid (PFBS)	---	---	---	NS	NS	NS	0.0046	0.00431	NS
Perfluorobutanoic Acid (PFBA)	---	---	---	NS	NS	NS	0.00885	0.00919	NS
Perfluorodecanesulfonic Acid (PFDS)	---	---	---	NS	NS	NS	0.000857 U	0.000836 U	NS
Perfluorodecanoic Acid (PFDA)	---	---	---	NS	NS	NS	0.000748 J	0.000369 J	NS
Perfluorododecanoic Acid (PFDoA)	---	---	---	NS	NS	NS	0.000325 U	0.000317 U	NS
Perfluoroheptanesulfonic Acid (PFHpS)	---	---	---	NS	NS	NS	0.000601 U	0.000587 U	NS
Perfluoroheptanoic Acid (PFHpA)	---	---	---	NS	NS	NS	0.00444	0.00386	NS
Perfluorohexanesulfonic Acid (PFHxS)	---	---	---	NS	NS	NS	0.00296	0.00298	NS
Perfluorohexanoic Acid (PFHxA)	---	---	---	NS	NS	NS	0.0135	0.00984	NS
Perfluorononanoic Acid (PFNA)	---	---	---	NS	NS	NS	0.00206	0.00775	NS
Perfluorooctanesulfonamide (FOSA)	---	---	---	NS	NS	NS	0.000507 U	0.000495 U	NS
Perfluorooctanesulfonic Acid (PFOS)	---	---	0.07	NS	NS	NS	0.00638	0.00529	NS
Perfluorooctanoic Acid (PFOA)	---	---	0.07	NS	NS	NS	0.00864	0.00849	NS
Perfluoropentanoic Acid (PFPeA)	---	---	---	NS	NS	NS	0.0102	0.00991	NS
Perfluorotetradecanoic Acid (PFTA)	---	---	---	NS	NS	NS	0.000217 U	0.000212 U	NS
Perfluorotridecanoic Acid (PFTrDA)	---	---	---	NS	NS	NS	0.000286 U	0.000279 U	NS
Perfluoroundecanoic Acid (PFUnA)	---	---	---	NS	NS	NS	0.000448 J	0.000655 J	NS
PFOA/PFOS, Total	---	---	0.07	NS	NS	NS	0.015	0.0138	NS
TOTAL METALS, mg/L									
Aluminum	---	0.05 - 0.2**	---	0.00327 U	0.00391 J	0.00327 U	0.00327 U	0.00327 U	0.00327 U
Antimony	0.006	0.006	---	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U	0.00042 U
Arsenic	0.01	0.01	---	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Barium	2.0	2.0	---	0.01096	0.0014	0.0098	0.01667	0.01418	0.00985
Beryllium	0.004	0.004	---	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U	0.0001 U
Cadmium	0.005	0.005	---	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U	0.00005 U
Calcium	---	---	---	12.3	29.3	23.2	24.2	21.6	21
Chromium	0.1	0.1	---	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00018 J
Cobalt	---	---	---	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Copper	---	1.3	---	0.06062	0.02332	0.00339	0.00313	0.0043	0.00262
Iron	0.3*	0.3**	---	0.0214 J	0.0319 J	0.0191 U	0.054	0.054	0.0191 U
Lead	---	0.015	---	0.00053 J	0.00513	0.00034 U	0.00034 U	0.00034 U	0.00034 U
Magnesium	---	---	---	3.18	3.26	5.84	6.19	5.52	5.46
Manganese	0.3*	0.05**	---	0.00101	0.00174	0.00063 J	0.00123	0.04306	0.00053 J
Mercury	0.002	0.002	---	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U	0.00009 U
Nickel	---	---	---	0.00055 U	0.00124 J	0.00055 U	0.00057 J	0.00055 U	0.00055 U
Potassium	---	---	---	1.51	1.02	1.97	2.11	1.84	1.51
Selenium	0.05	0.05	---	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U	0.00173 U
Silver	0.1	0.1**	---	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U	0.00016 U
Sodium	--- ³	--- ³	---	37.9	7.08	58.2	61.3	55.6	62.9
Thallium	0.002	0.002	---	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U
Vanadium	---	---	---	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U	0.00157 U
Zinc	5.0	5.0**	---	0.04216	0.1144	0.01374	0.01085	0.01794	0.00341 U

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⁾: 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.
* = 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.
--- Denotes no applicable water quality standard.
NS = Not Sampled.

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	45	147	15	183	306	47	NA	NA	NA	NA	NA	NA	NA	30	26	36	29	24	26
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	10,800	470	17,800	770	382	268	6,640	217	30,800	NA	2,900	2,810	121 B	50 B	1,270	62 B	1,300	1,440	212	NA	NA	NA	NA	NA	NA	< 9.8	< 9.8	< 9.8	< 9.8	< 9.8	< 9.8	
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	20,200	4,990	20,300	66 B	2,030	829	2,680	32 B	15,400	NA	483	2,790 N	62 B,N	591 N	17,600 N	483 N	2,310 N	12,700 N	368 N	NA	NA	NA	NA	NA	NA	< 10.4	< 10.4	<10.4	113 B	237	150 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	13,600	495	6,050	3,770	195 B	325	1,410	164 B	NA	4,150	6,210	4,440	15 U	1,020	1,470	22 B	487	1,010	< 14.9	NA	NA	NA	NA	NA	NA	< 14.9	< 14.9	< 14.9	< 14.9	< 14.9	< 14.9	
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	49 B	20,300	1,960	2,740	1,150	6,950	255	NA	1,350	1,110	1,240	NA	149 B	6,820	54 B	968	2,120	36 B	NA	NA	NA	NA	NA	NA	< 15.8	< 15.8	< 15.8	< 15.8	< 15.8	< 15.8	
Mar-04	NA	NA	8,880	NA	3,570	NA	1,370	NA	98,800	NA	NA	25,000	NA	48 B	7,040	< 18.2	311	965	286	NA	NA	NA	NA	NA	NA	NA	< 18.2	< 18.2	< 18.2	< 18.2	< 18.2	< 18.2
Jun-05	765	NA	1,190	NA	< 10.4	NA	386	NA	NA	247	NA	1,520	NA	735	184 B	< 10.4	291	173 B	27 B	NA	NA	NA	NA	NA	NA	NA	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4	< 10.4
Sep-06	39,000	NA	4,500	NA	580	NA	2,500	NA	230,000	NA	NA	11,000	NA	140	8,700	1,200	1,000	12,000	73	NA	NA	NA	NA	NA	NA	NA	76	67	63	56	37	14
Oct-07	47,000	NA	12,000	NA	520	NA	9,800	NA	370	NA	NA	7,900	NA	89	10,000	66	4,000	21,000	140	NA	NA	NA	NA	NA	NA	NA	< 50	< 50	< 50	< 50	< 50	< 50
Mar-09	12,000	NA	3,200	NA	870	NA	3,800	NA	65,000	NA	NA	4,000	NA	< 100	8,300	< 100	3,900	13,000	< 100	NA	NA	NA	NA	NA	NA	NA	< 100	< 100	< 100	NA	< 100	< 100
May-10	14,600	NA	3,200	NA	629	NA	2,350	NA	115,000	NA	NA	15,000	NA	< 200	5,970	< 200	2,430	18,300	495	NA	NA	NA	NA	NA	NA	NA	< 200	< 200	< 200	NA	< 105	< 200
Sep-11	20,100	280	2,400	120 J	970	250	1,200	NA	42,500	1,100	19,900	12,800	NA	110 J	<200	<200	3,500	21,900	<200	NA	NA	NA	NA	NA	NA	NA	<200	<200	<200	<200	NA	NA
Nov-12	12,900	NA	1,600	NA	170 J	NA	4,400	NA	42,000	NA	NA	8,700	NA	< 200	230	< 200	520	< 200	< 200	NA	NA	NA	NA	NA	NA	NA	< 200	< 200	< 200	< 200	< 200	NA
Mar-14	17,500	NA	3,100	NA	1,700	NA	3,000	NA	36,300	NA	NA	17,800	NA	ND	180 J	ND	1,800	ND	ND	NA	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	<100 U	1,580	2,590	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	3,220	NA	176	NA	36	NA	304	NA	6,580	NA	NA	723	NA	9.9 J	18	2 J	750	8 J	8 J	608	240	90	NA	NA	NA	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Jan-17	915	NA	131	NA	13	NA	38	NA	NA	NA	NA	29	NA	17	9 J	11	9 J	15	11	390	12	40	159	120	131	< 3	< 3 J	10	< 3	< 3	4 J	
May-18	85	NA	140	NA	83.5	NA	50.2	NA	NA	NA	NA	58.2	NA	7.9 J	9.3 J	7.3 J	19.8	17.3	71	448	92	418	122	1,540	5 J	10 U	10 U	10 U	10 U	10 U	10 U	
Jul-19	141	NA	735	NA	1,120	NA	18.4	NA	NA	NA	NA	111	NA	4.89 J	3.27 U	3.27 U	40.8	6.98 J	25.4	262	38.4	34.8	699	42	22.5	3.27 U	3.91 J	3.27 U	3.27 U	3.27 U	3.27 U	

Notes:
ARAR Standard = None Listed; USEPA Secondary MCL = 50 - 200 µg/L; and, PART 5 MCL = Not Available
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
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

Laboratory Qualifier Definitions
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.
ND or U = Not Detected

Table 6

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

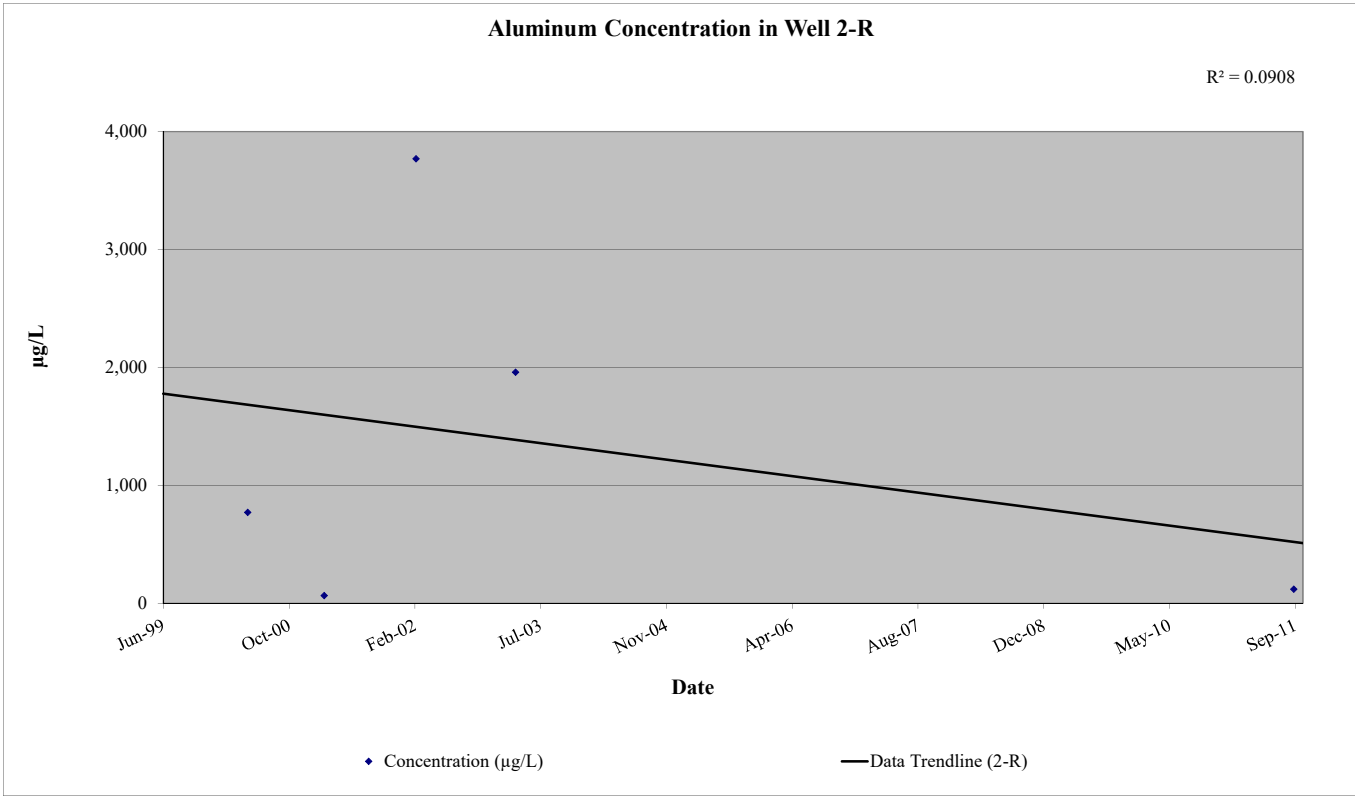
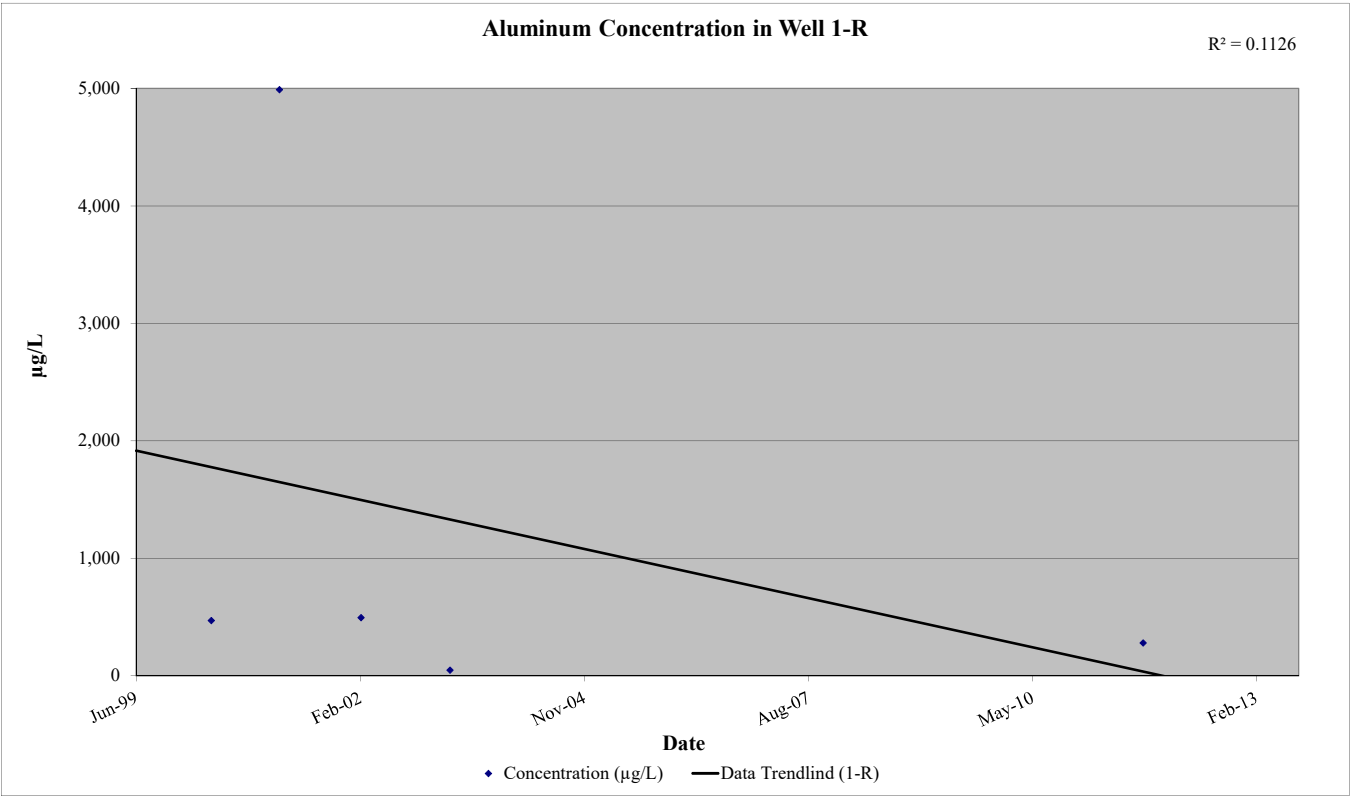
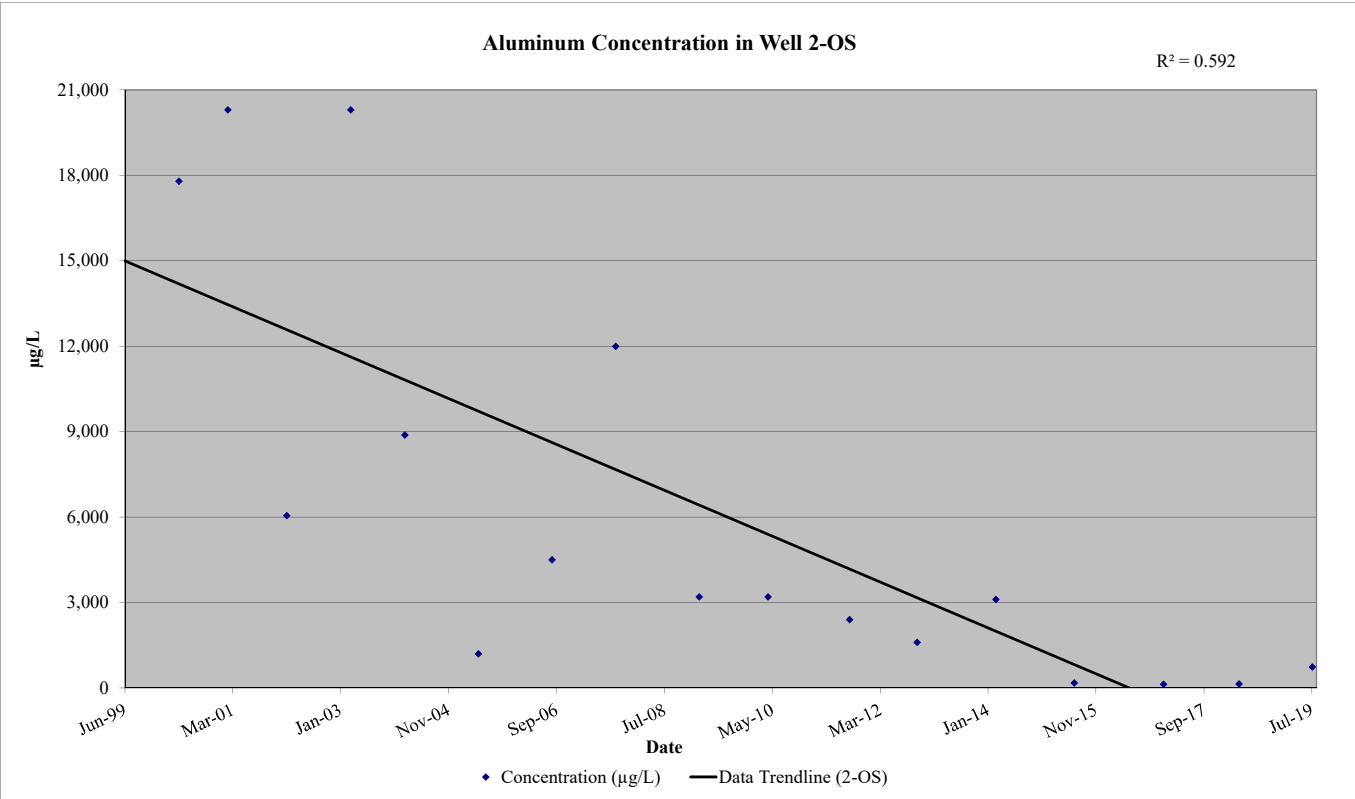
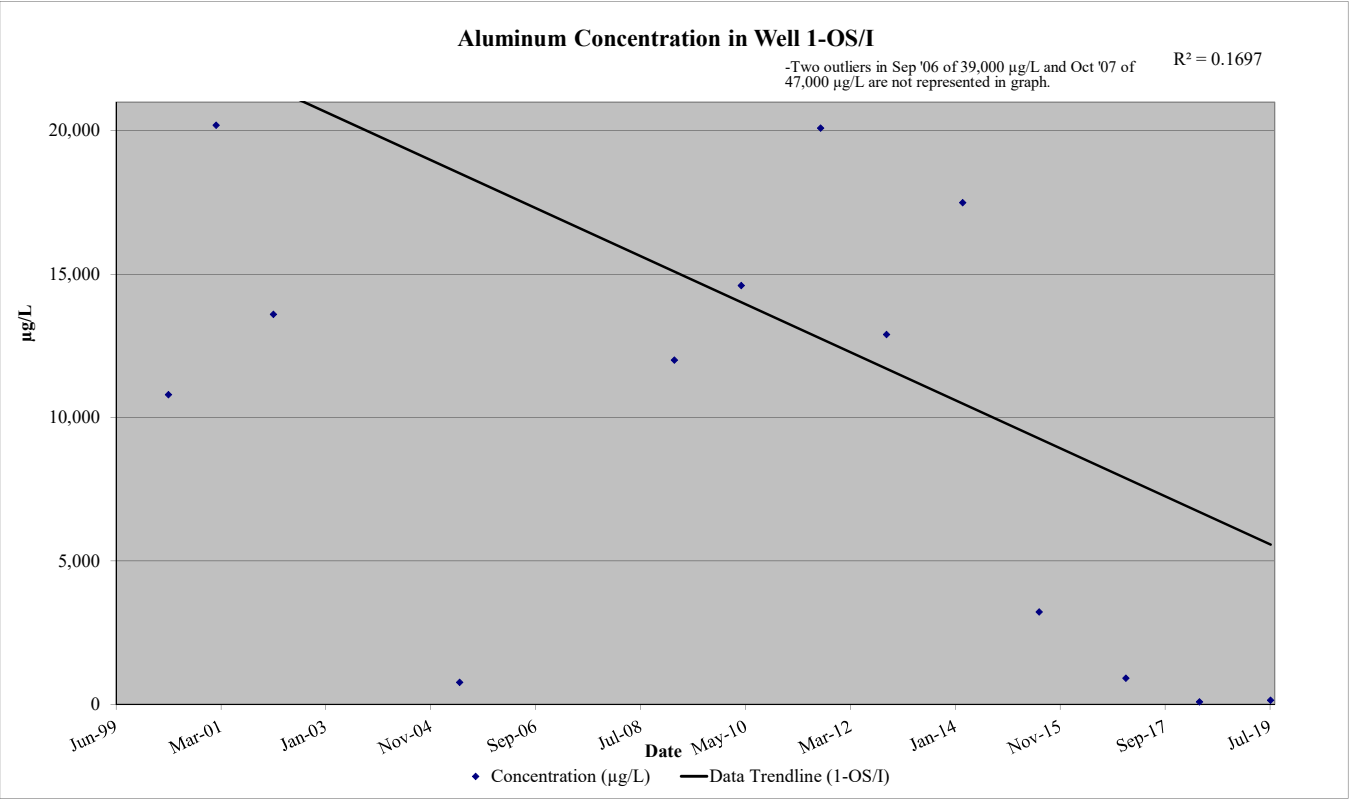


Table 6
Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

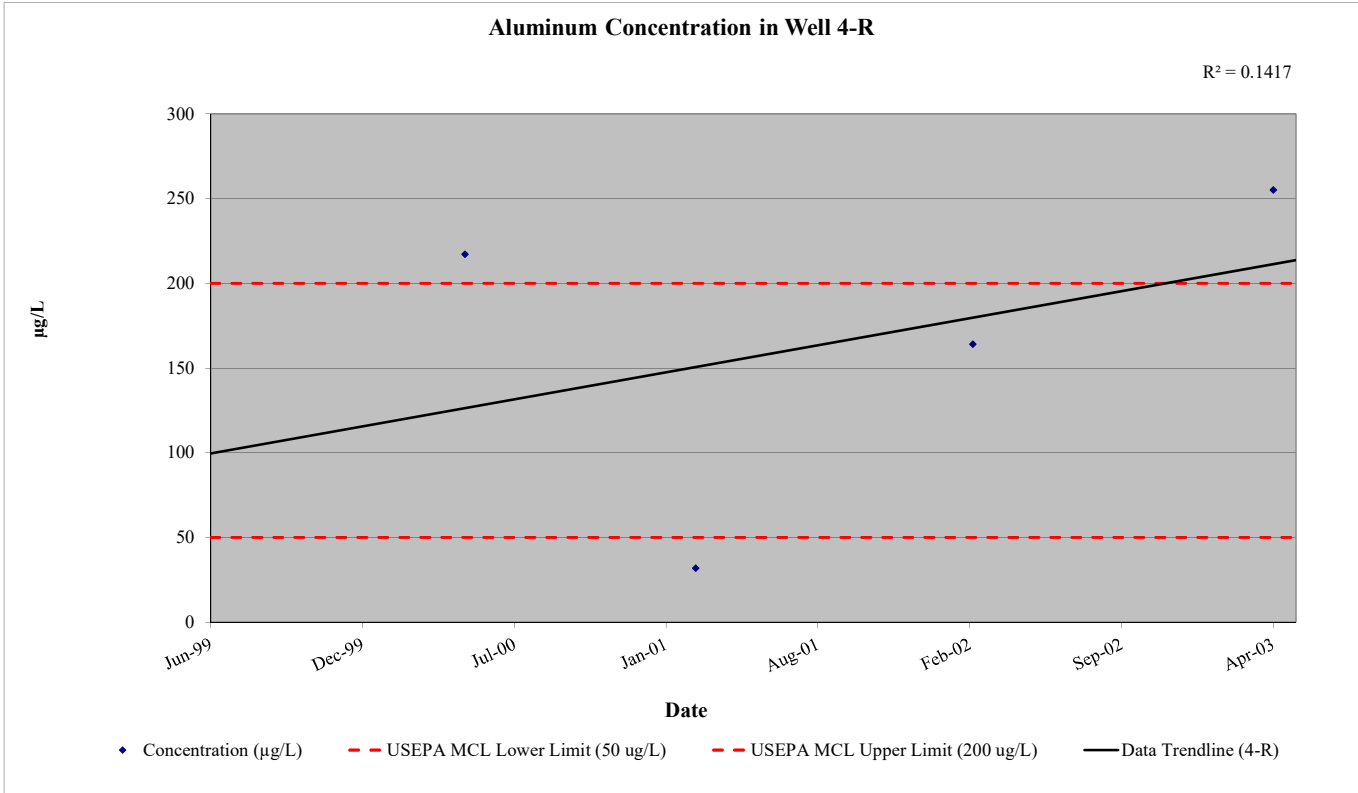
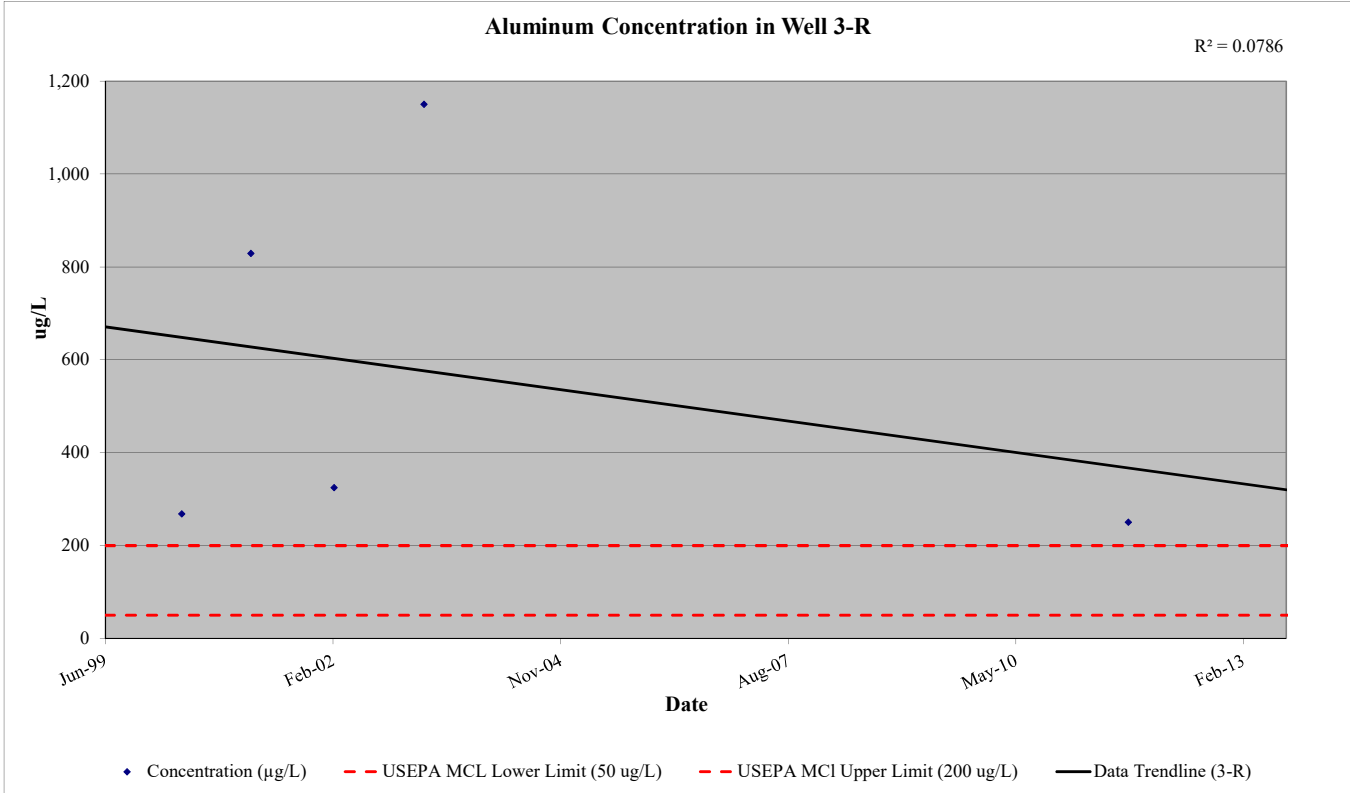
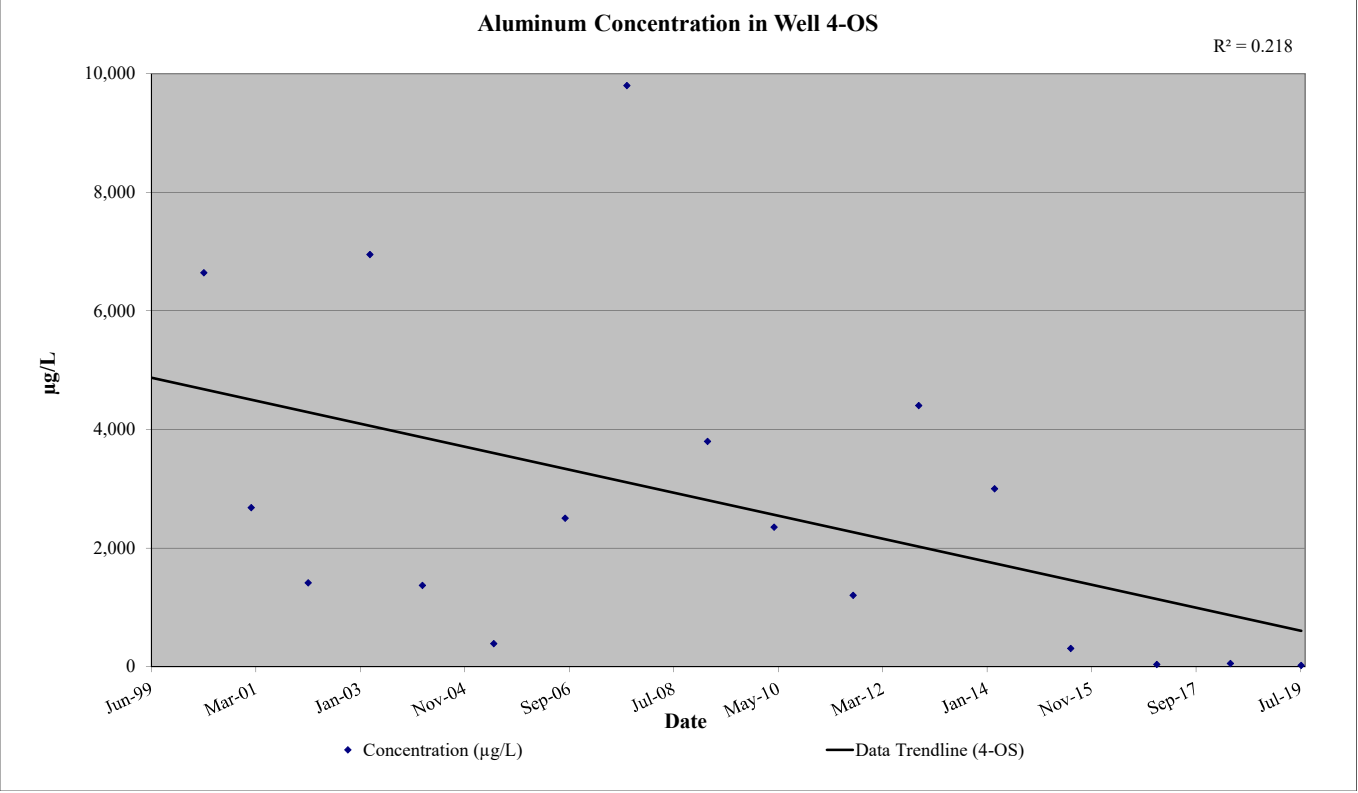
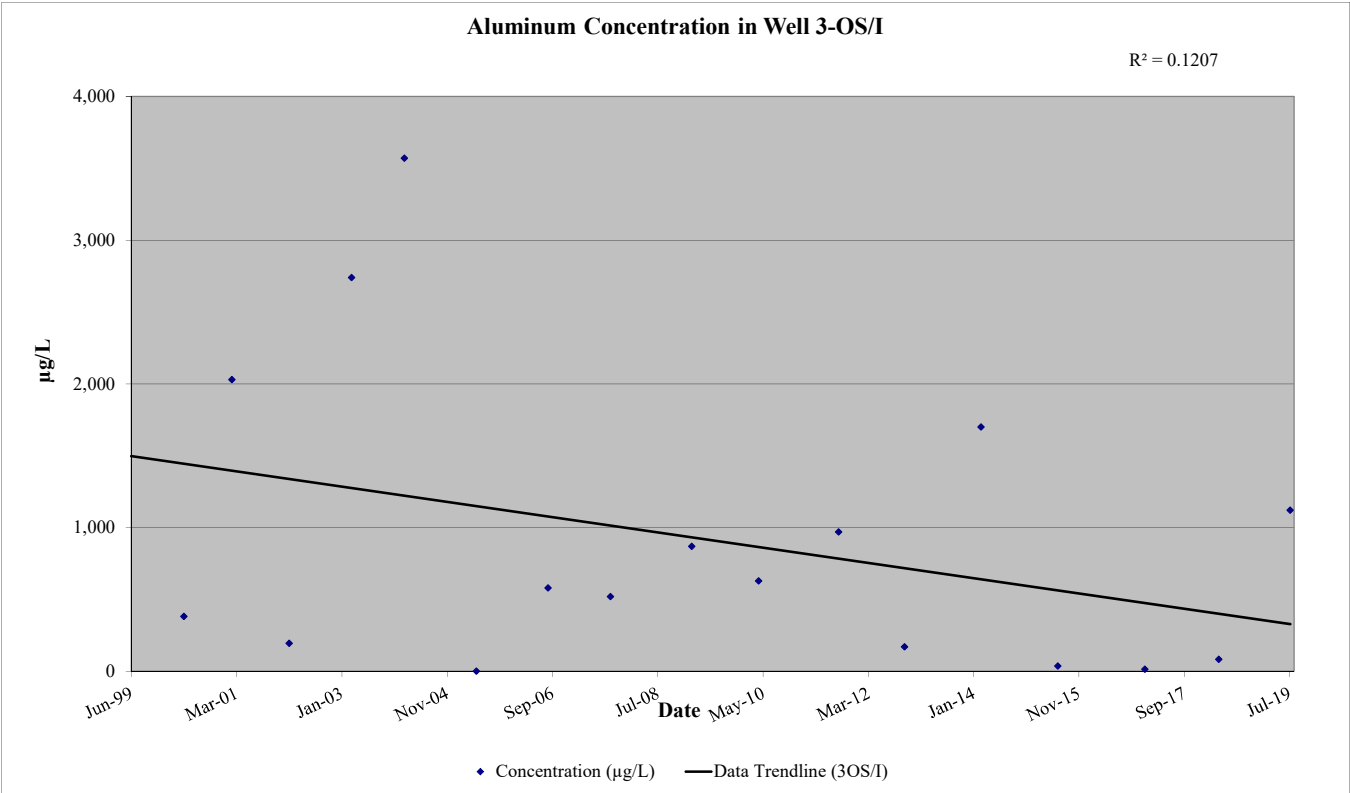


Table 6

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

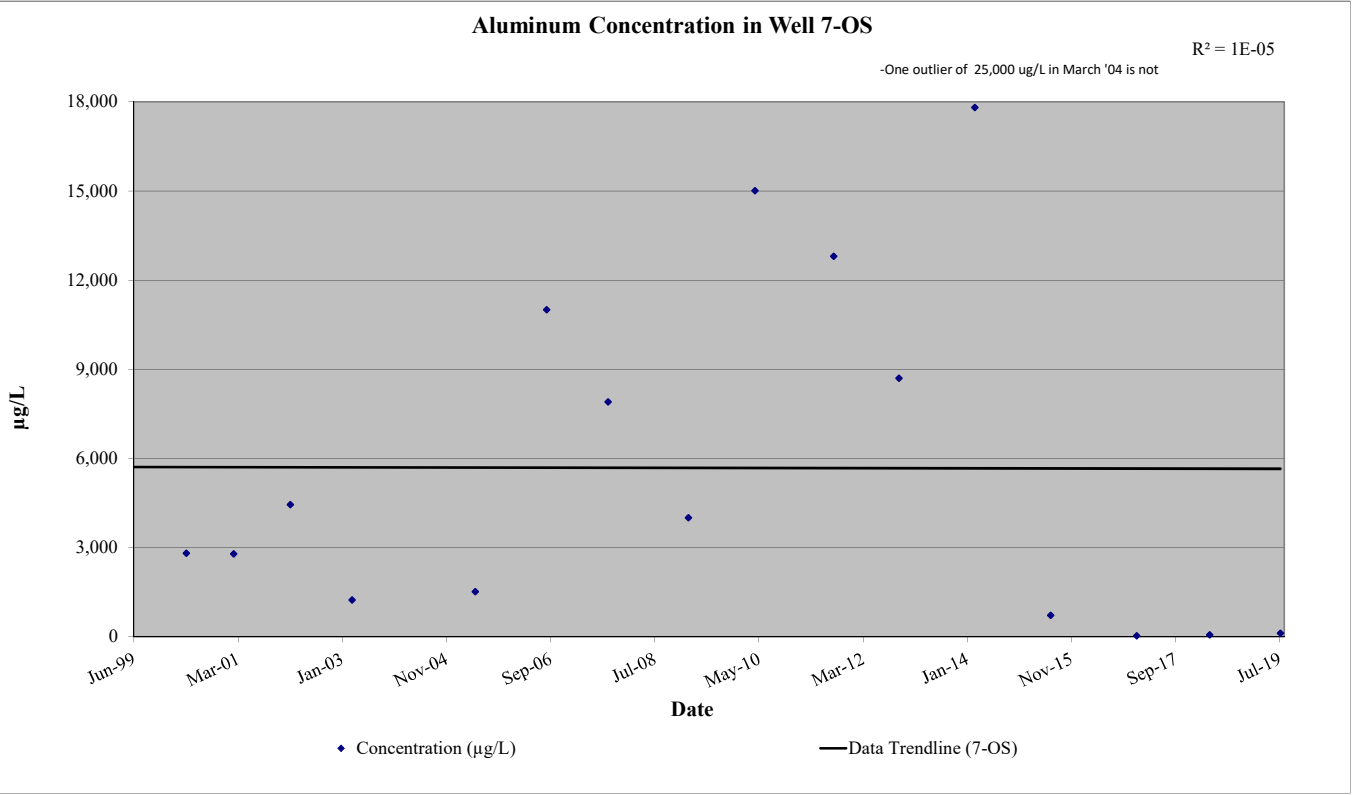
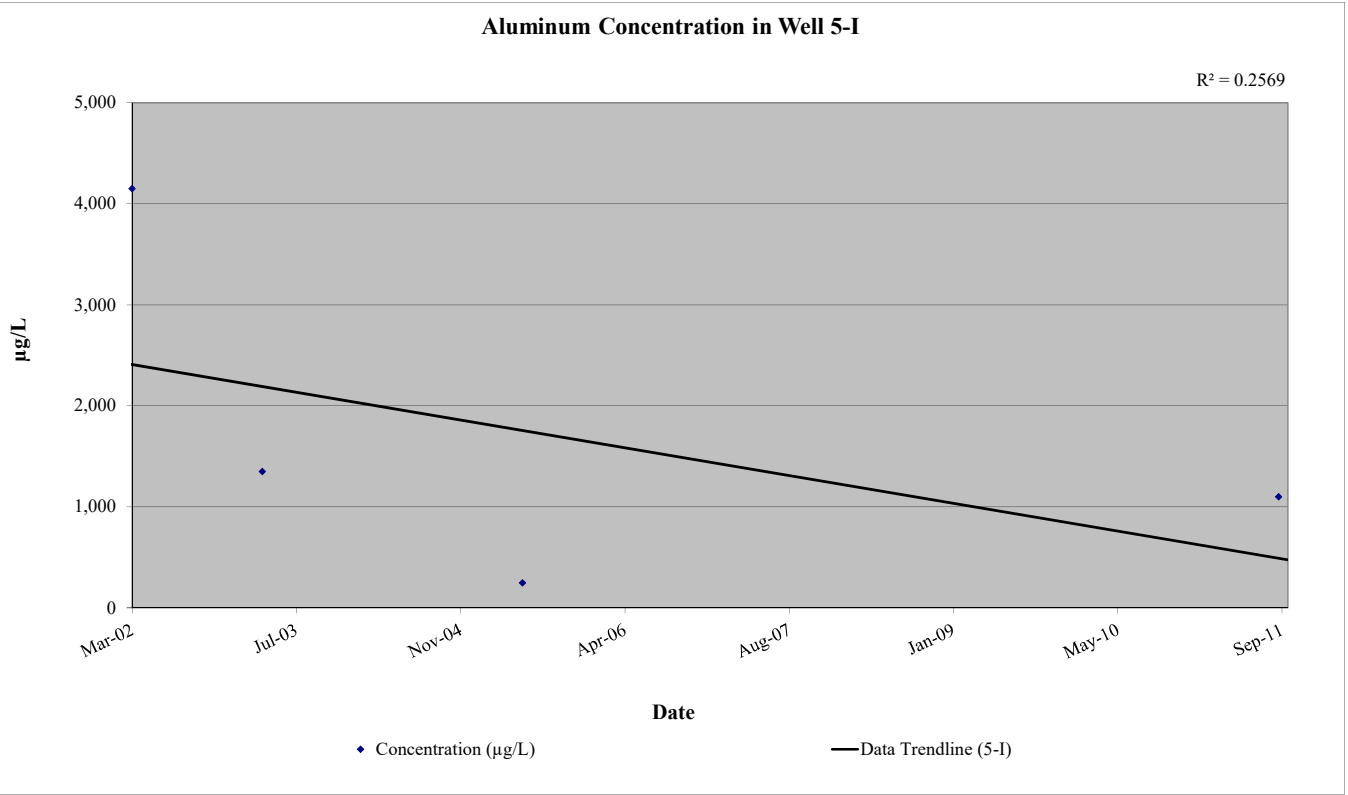
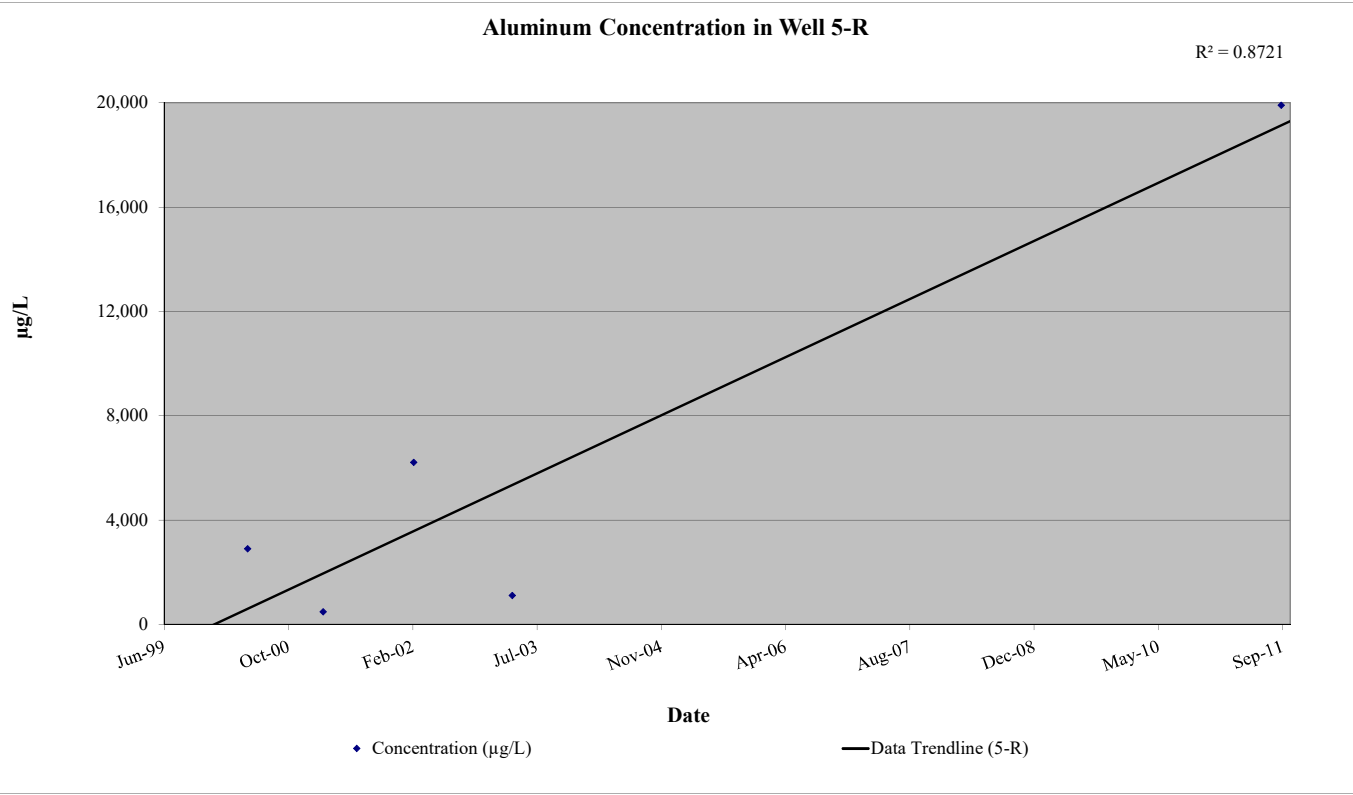
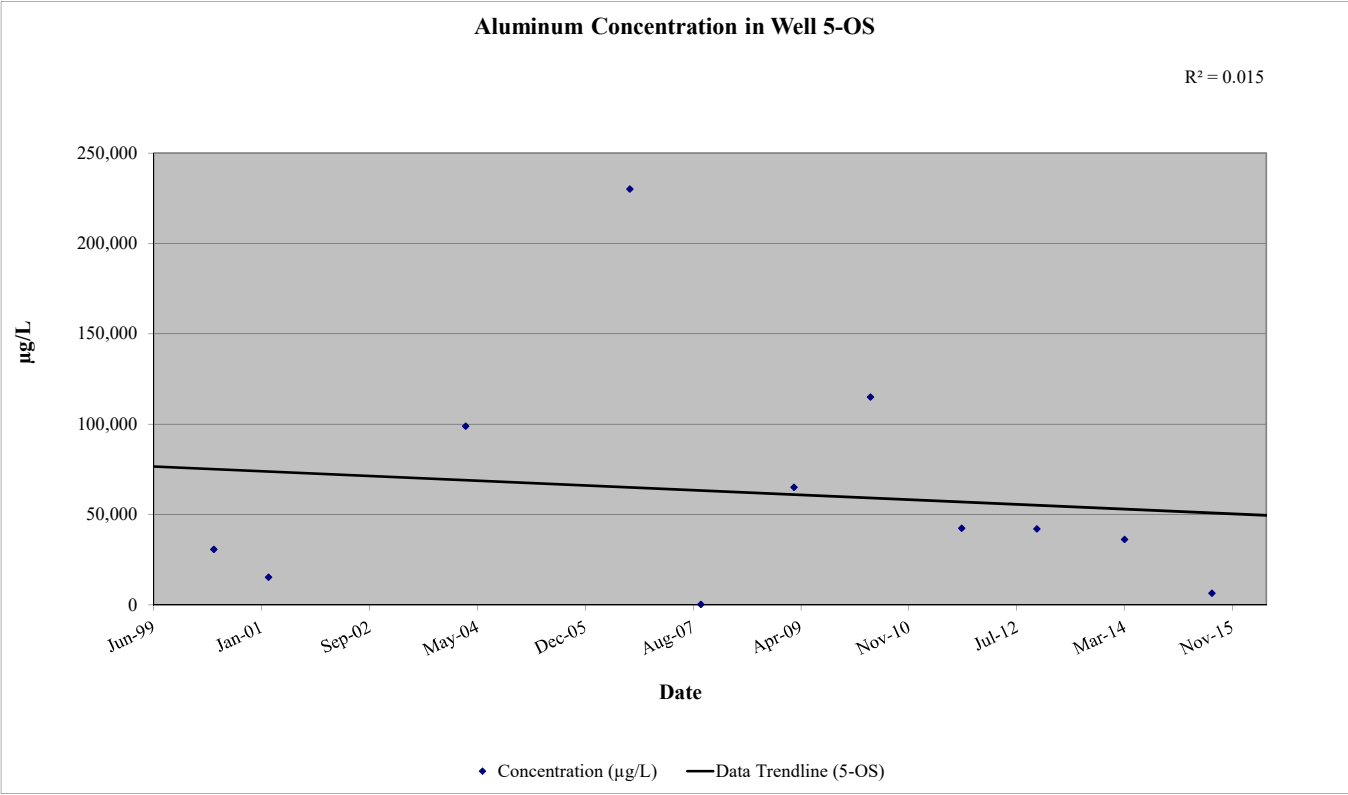


Table 6
Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

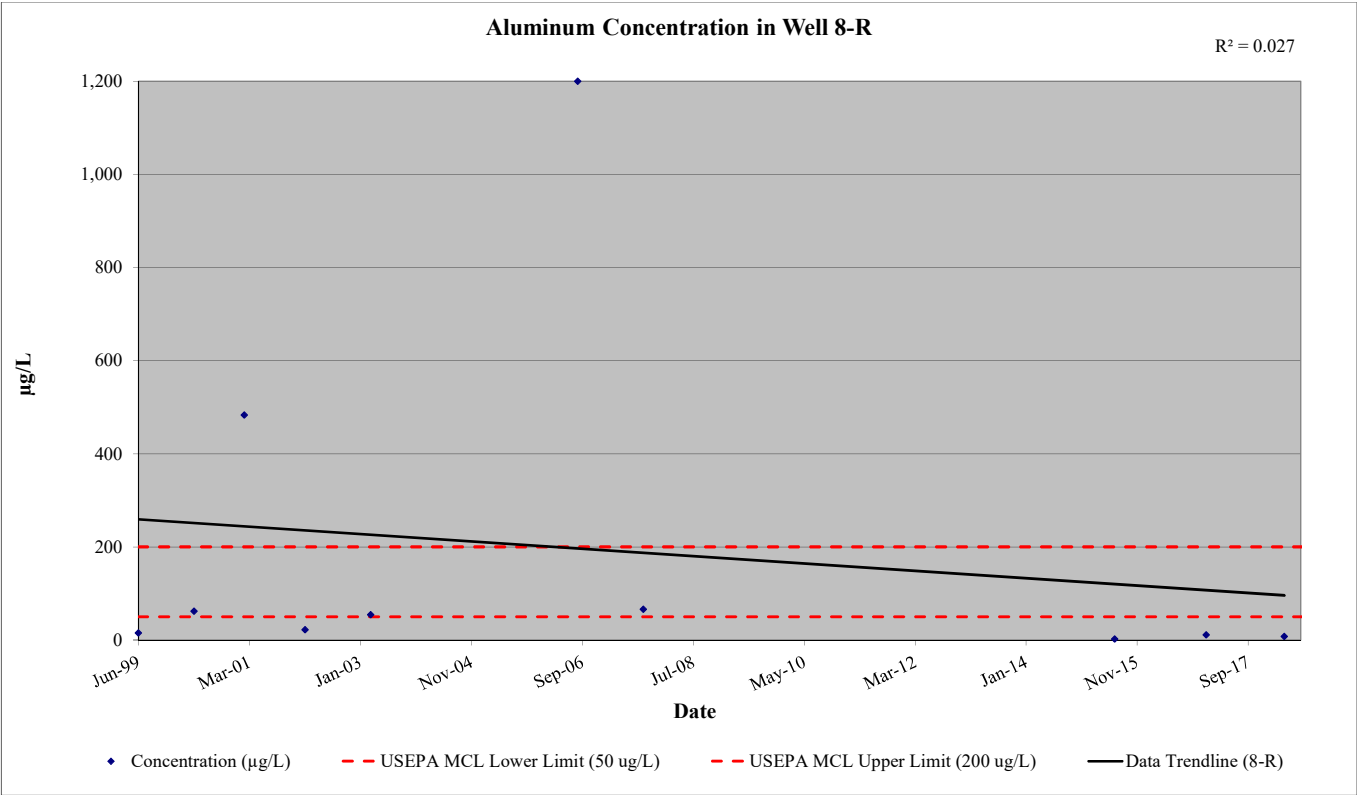
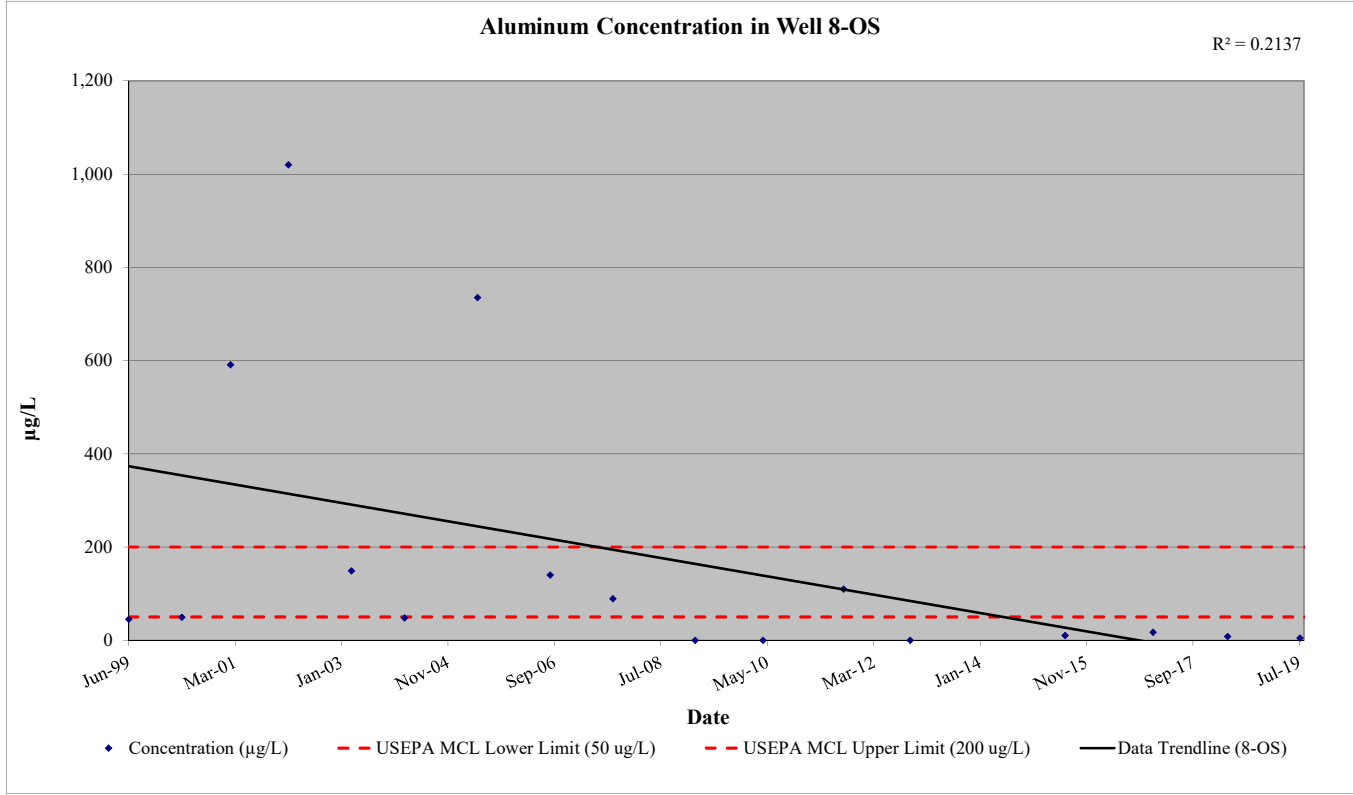
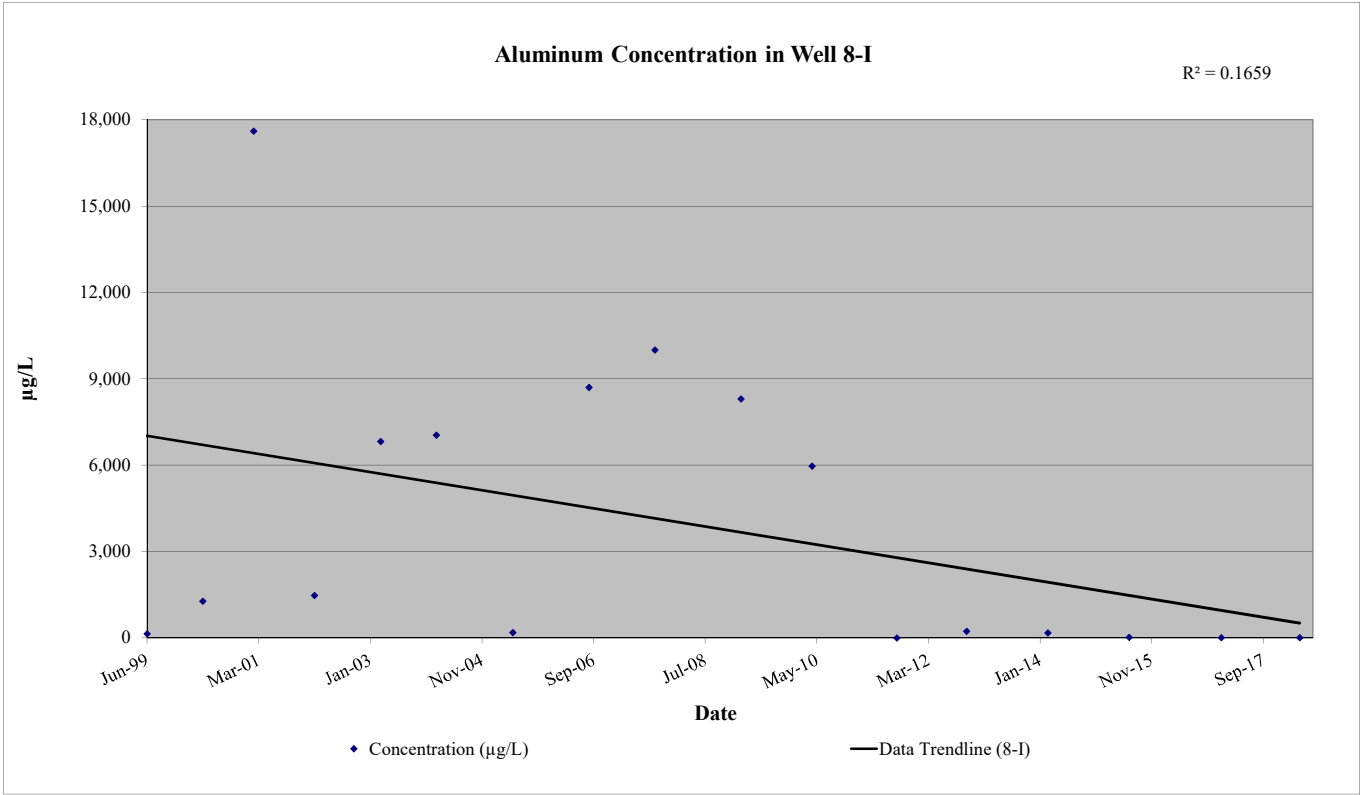
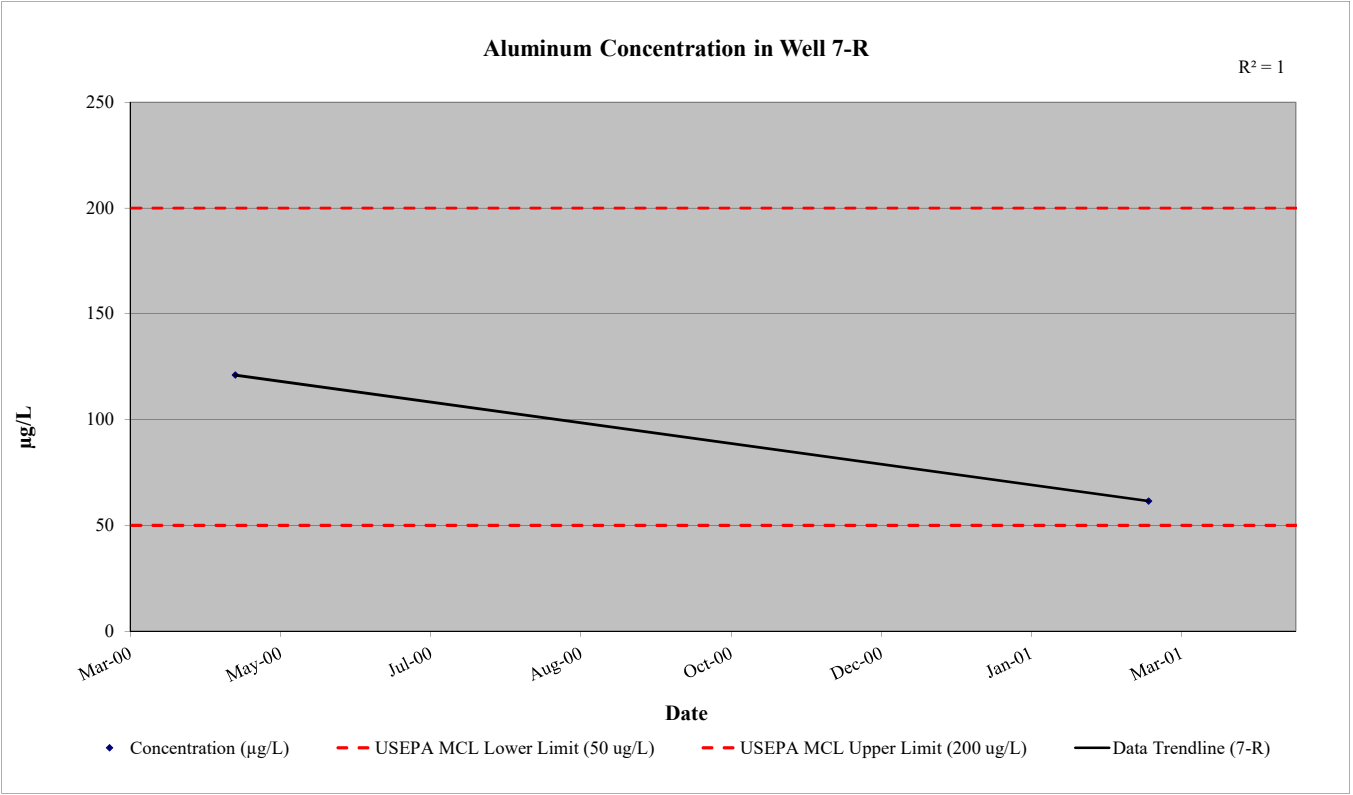


Table 6
Summary of Historical Groundwater Quality Results - Aluminum (µg/L)
Town of Ramapo Landfill

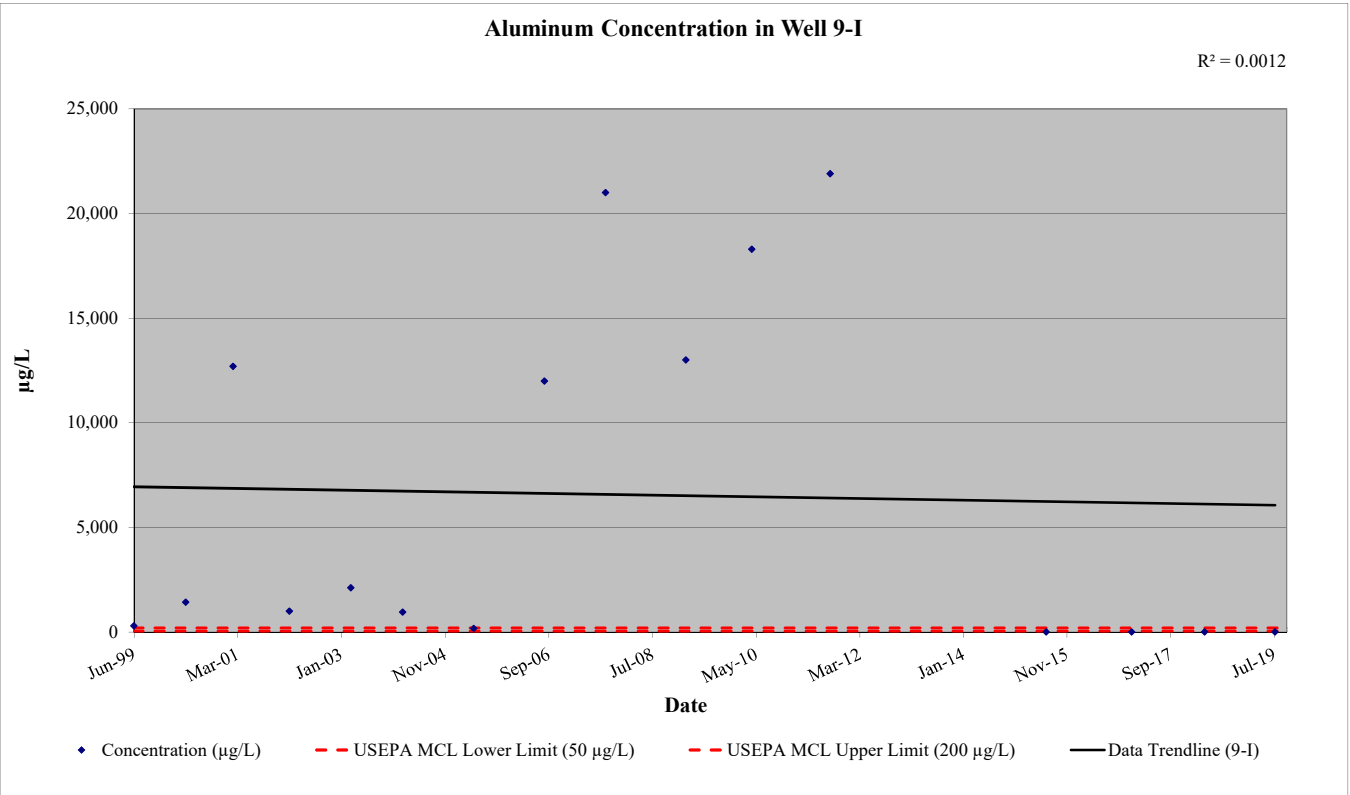
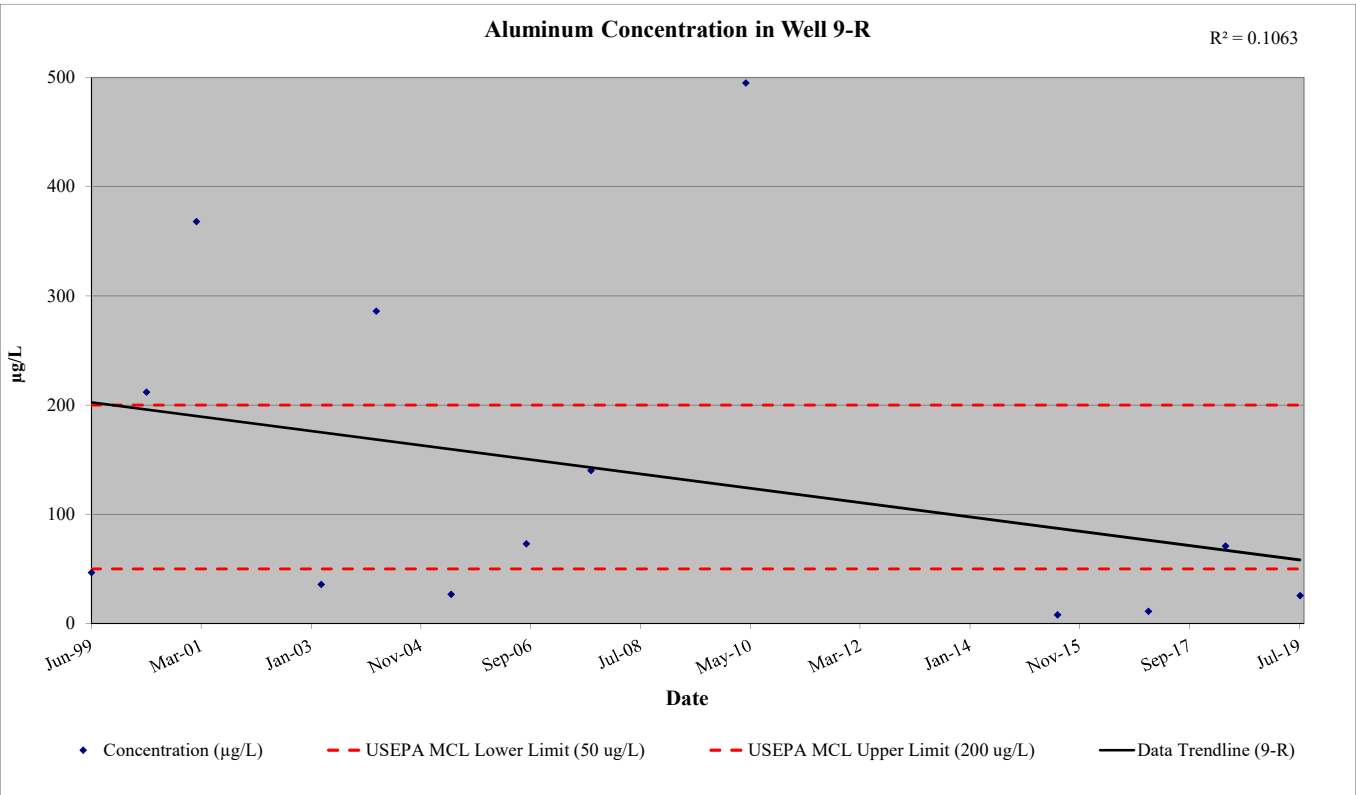
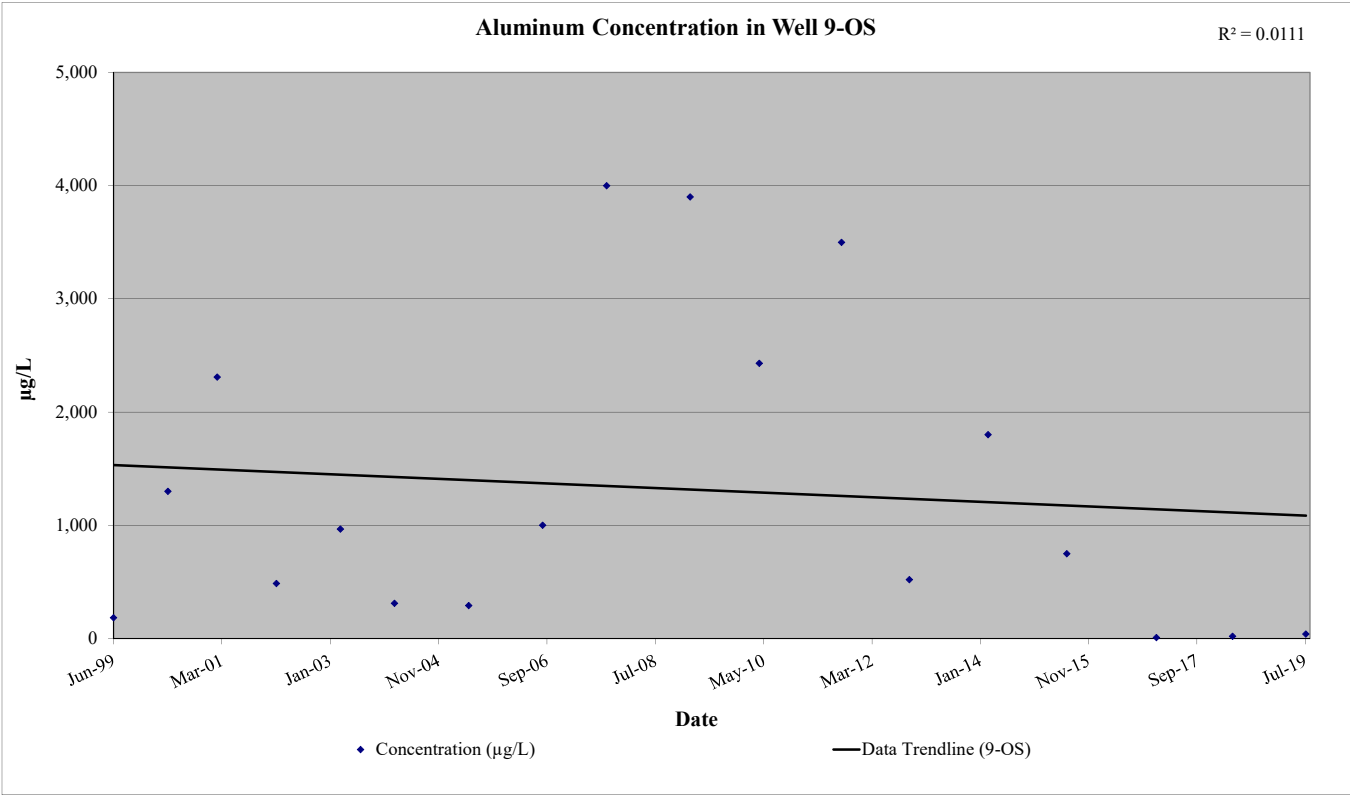


Table 7

Summary of Historical Groundwater Quality Results - Beryllium (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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	1.1	ND	1.4	1.3	1.4	1.3	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	0.31 B	< 0.1	0.83 B	< 0.1	< 0.1	< 0.1	0.36 B	< 0.1	1.5 B	NA	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	NA	NA	NA	NA	NA	NA	< 0.1	< 0.1	0.39 B	< 0.1	< 0.1	< 0.1
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	1.1 B	0.26 B	0.88 B	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	0.97 B	NA	0.52 B	0.24 B	< 0.2	0.32 B	1.1 B	< 0.2	0.42 B	1.2 B	0.87 B	NA	NA	NA	NA	NA	NA	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
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	1.2 B	< 0.35	0.44 B	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	NA	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	NA	NA	NA	NA	NA	NA	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0.35
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	< 0.2	1 B	< 0.2	< 0.2	< 0.2	0.38 B	< 0.2	NA	< 0.2	< 0.2	< 0.2	NA	< 0.2	0.41 B	< 0.2	< 0.2	< 0.2	< 0.2	NA	NA	NA	NA	NA	NA	< 0.2	0.25 B	< 0.2	< 0.2	< 0.2	< 0.2
Mar-04	NA	NA	0.5 B	NA	< 0.3	NA	< 0.4	NA	4.9	NA	NA	< 0.3	NA	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	NA	NA	NA	NA	NA	NA	0.38 B	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Jun-05	< 0.4	NA	< 0.4	NA	< 0.4	NA	< 0.4	NA	NA	< 0.4	NA	< 0.4	NA	0.51 B	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	NA	NA	NA	NA	NA	NA	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Sep-06	2.2 J	NA	0.44 J	NA	0.23 J	NA	0.43 J	NA	13	NA	NA	0.73 J	NA	0.16 J	0.66 J	0.28 J	0.14 J	0.77 J	< 1	NA	NA	NA	NA	NA	NA	< 3	0.12 J	0.14 J	< 3	< 3	< 3
Oct-07	2.6 J	NA	0.66 J	NA	0.1 J	NA	0.6 J	NA	< 3	NA	NA	0.51 J	NA	< 3	0.67 J	< 3	0.34 J	1.2 J	0.1 J	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	< 3	< 3	< 3
Mar-09	0.61 J	NA	< 3	NA	< 3	NA	< 3	NA	3.2	NA	NA	0.24 J	NA	< 3	0.46 J	< 3	0.25 J	0.71 J	< 3	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	NA	< 3	< 3
May-10	0.7 J	NA	0.2 J	NA	< 2	NA	0.2 J	NA	5.5	NA	NA	0.7 J	NA	< 2	0.4 J	< 2	< 2	0.9 J	< 2	NA	NA	NA	NA	NA	NA	< 2	< 2	< 2	NA	< 2	< 2
Sep-11	0.94 J	< 2	< 2	< 2	< 2	< 2	< 2	NA	2.4	< 2	1.4 J	0.6 J	NA	< 2	< 2	< 2	< 2	1.8 J	< 2	NA	NA	NA	NA	NA	NA	< 2	< 2	< 2	< 2	NA	NA
Nov-12	0.67 J	NA	< 2	NA	< 2	NA	< 2	NA	2.1	NA	NA	0.47 J	NA	< 2	< 2	< 2	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	< 2	< 2	< 2	< 2	< 2	NA
Mar-14	0.48 J	NA	< 2	NA	< 2	NA	< 2	NA	1.9 J	NA	NA	0.56 J	NA	< 2	< 2	< 2	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	< 2	< 2	< 2	< 2	< 2	< 2
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.1	< 0.1	0.21 J	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	< 0.21 J	NA	< 0.2	NA	< 0.2	NA	< 0.2	NA	1.1	NA	NA	< 0.2	NA	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	NA	NA	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	
Jan-17	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	NA	NA	NA	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 J	0.1 U	0.1 U	0.1 U	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U
May-18	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.13 J	0.5 U	0.5 U	0.5 U	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U
Jul-19	0.1 U	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	NA	NA	NA	0.1 U	NA	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.12 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U

Notes:
ARAR Standard = 3 µg/L; USEPA MCL = 4 µg/L; and, PART 5 MCL = 4 µg/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
< = The compound was analyzed for but not detected at the listed laboratory detection limit.
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.

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.

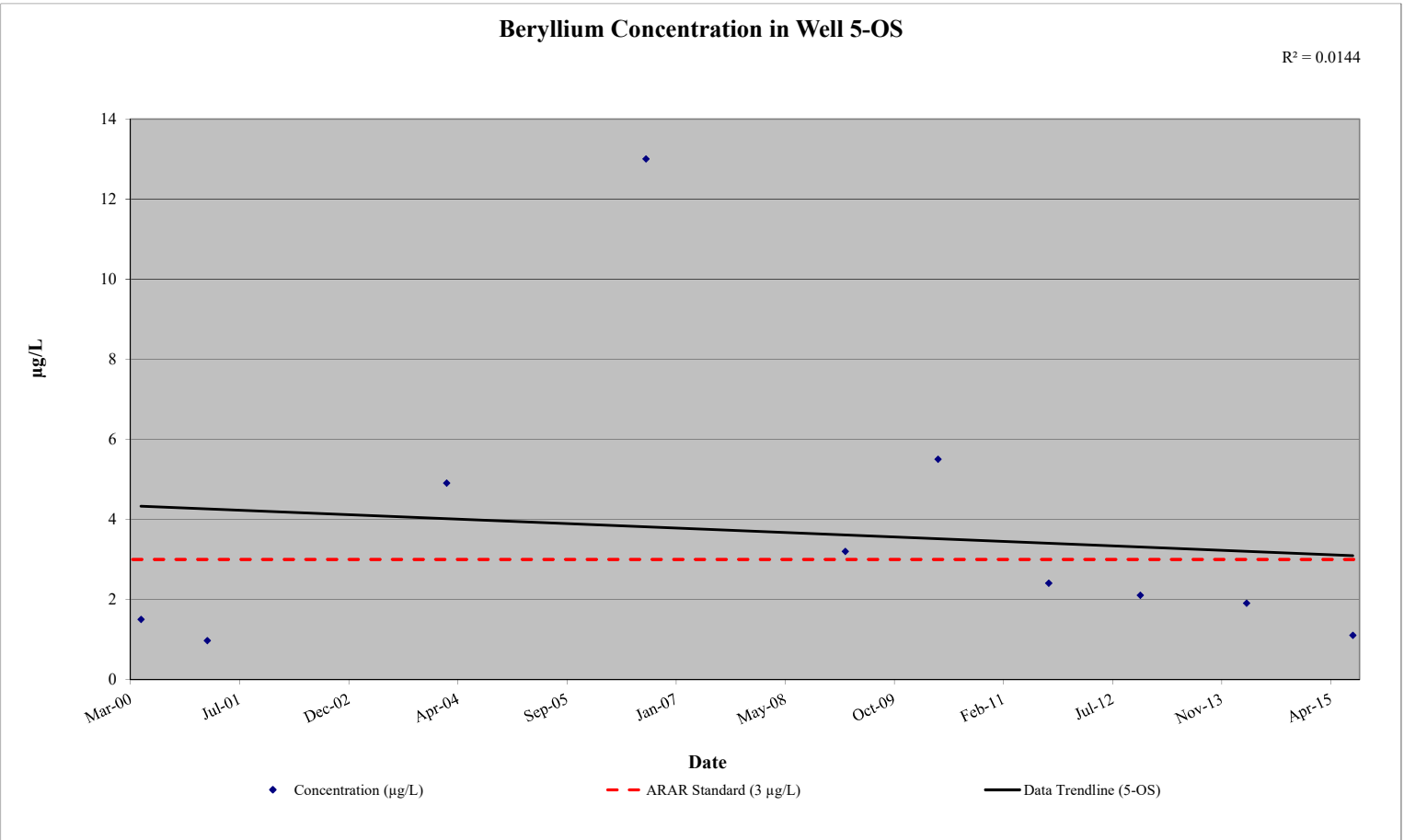


Table 8

Summary of Historical Groundwater Quality Results - Cadmium (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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	1.3	3		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	3.8	24.2		NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
May-00	0.92 B	0.61 B	2.4	< 0.4	< 0.4	< 0.4	0.45 B	< 0.4	1.3 B	NA	1.4 B	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	9.4		NA	NA	NA	NA	NA	NA	< 0.4	< 0.4	0.61 B	< 0.4	< 0.4	< 0.4
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.2	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1		NA	NA	NA	NA	NA	NA	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1
Dec-00	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1	3.4 B	NA	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1 NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	< 3.1	< 3.1	< 3.1	< 3.1	< 3.1
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.81 B	< 0.3	0.88 B		NA	NA	NA	NA	NA	NA	< 3	NA	NA	NA	NA	NA
Mar-01	1.2 B	< 0.3	1.3 B	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.31 B	NA	0.42 B	< 0.3	< 0.3	0.4 B	1.2 B	0.35 B	0.42 B	0.9 B	1.7 B		NA	NA	NA	NA	NA	NA	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.91 B	0.68 B	< 0.3	< 0.3	< 0.3	0.37 B		NA	NA	NA	NA	NA	NA	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Oct-01	< 0.3	< 0.3	1.1 B	0.36 B	< 0.3	< 0.3	< 0.3	< 0.3	NA	0.84 B	< 0.3	0.37 B	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3		NA	NA	NA	NA	NA	NA	< 0.3	< 0.3	NA	NA	NA	NA
Mar-02	< 0.26	< 0.26	< 0.26	0.66 B	< 0.26	< 0.26	< 0.26	< 0.26	NA	< 0.26	0.45 B	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26		NA	NA	NA	NA	NA	NA	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48		NA	NA	NA	NA	NA	NA	< 0.48	< 0.48	< 0.48	2.4 B	< 0.48	< 0.48
Oct-02	< 0.48	1.5 B	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	NA	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48		NA	NA	NA	NA	NA	NA	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48
Apr-03	NA	< 0.3	1.7 B	< 0.3	1.2 B	< 0.3	0.33 B	< 0.3	NA	< 0.3	< 0.3	< 0.3	NA	< 0.3	0.55 B	< 0.3	< 0.3	< 0.3	< 0.3		NA	NA	NA	NA	NA	NA	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Mar-04	NA	NA	< 0.4	NA	0.58	NA	< 0.4	NA	< 0.4	NA	NA	2.1 B	NA	0.42 B	< 0.4	< 0.4	< 0.4	< 0.4	0.9 B		NA	NA	NA	NA	NA	NA	0.88 B	< 0.4	< 0.4	0.52 B	< 0.4	< 0.4
Jun-05	< 0.8	NA	< 0.8	NA	1.6 B	NA	< 0.8	NA	NA	< 0.8	NA	< 0.8 N	NA	< 0.8 N	< 0.8 N	< 0.8 N	< 0.8 N	< 0.8 N	< 0.8 N		NA	NA	NA	NA	NA	NA	< 0.8 N	< 0.8 N	< 0.8 N	< 0.8 N	< 0.8 N	< 0.8 N
Sep-06	4.3	NA	1.6	NA	3.2	NA	2.2	NA	11	NA	NA	1	NA	0.92 J	1.5	1.2	0.67 J	0.73 J	0.53 J		NA	NA	NA	NA	NA	NA	0.53 J	0.62 J	0.59 J	< 1	< 1	< 1
Oct-07	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1		NA	NA	NA	NA	NA	NA	< 1	< 1	< 1	< 1	< 1	< 1
Mar-09	< 5	NA	< 5	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	< 5	< 5	< 5	< 5	< 5	< 5		NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	< 5	< 5
May-10	< 1	NA	< 1	NA	< 1	NA	< 1	NA	< 5 D02	NA	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1		NA	NA	NA	NA	NA	NA	< 1	< 1	< 1	NA	< 1	< 1
Sep-11	0.67 J	< 1	< 1	< 1	0.47 J	0.61 J	< 1	NA	0.42 J	< 1	2.2	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1		NA	NA	NA	NA	NA	NA	< 1	< 1	< 1	< 1	NA	NA
Nov-12	< 1	NA	< 1	NA	< 1	NA	< 1	NA	0.69	NA	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1		NA	NA	NA	NA	NA	NA	< 1	< 1	< 1	< 1	< 1	NA
Mar-14	0.66 J	NA	< 1	NA	< 1	NA	< 1	NA	< 1	NA	NA	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1		NA	NA	NA	NA	NA	NA	< 1	< 1	< 1	< 1	< 1	< 1
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	0.29	NA	0.1 J	NA	0.1 U	NA	0.1 U	NA	0.4	NA	NA	0.1 J	NA	0.1 U	0.1 U	0.1 U	0.4	0.1 U	0.1 J		0.1 J	0.1 U	0.1 U	NA	NA	NA	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Jan-17	0.3	NA	0.1 U	NA	0.1 U	NA	0.1 U	NA	NA	NA	NA	0.1 U	NA	0.1 U	0.1 U	0.1 J	0.18 J	0.18 J	0.6		0.1 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
May-18	0.2 U	NA	0.2 U	NA	0.12 J	NA	0.2 U	NA	NA	NA	NA	0.2 U	NA	0.2 U	0.2 U	0.22 J	0.2 U	0.2 U	0.3		0.48	0.12 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Jul-19	0.14 J	NA	0.05 U	NA	0.17 J	NA	0.05 U	NA	NA	NA	NA	0.05 U	NA	0.08 J	0.05 U	0.22 J	0.32	0.05 U	0.71		0.05 U	0.05 U	0.17 J	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U

Notes:
ARAR Standard = 5 µg/L; USEPA MCL = 5 µg/L; and, Part 5 MCL = 5 µg/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
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

Laboratory Qualifier Definitions
B = The analyte was detected above the reporting limit in the associated method blank.
D02 = Dilution required due to sample matrix effects.
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.
ND or U = Not Detected

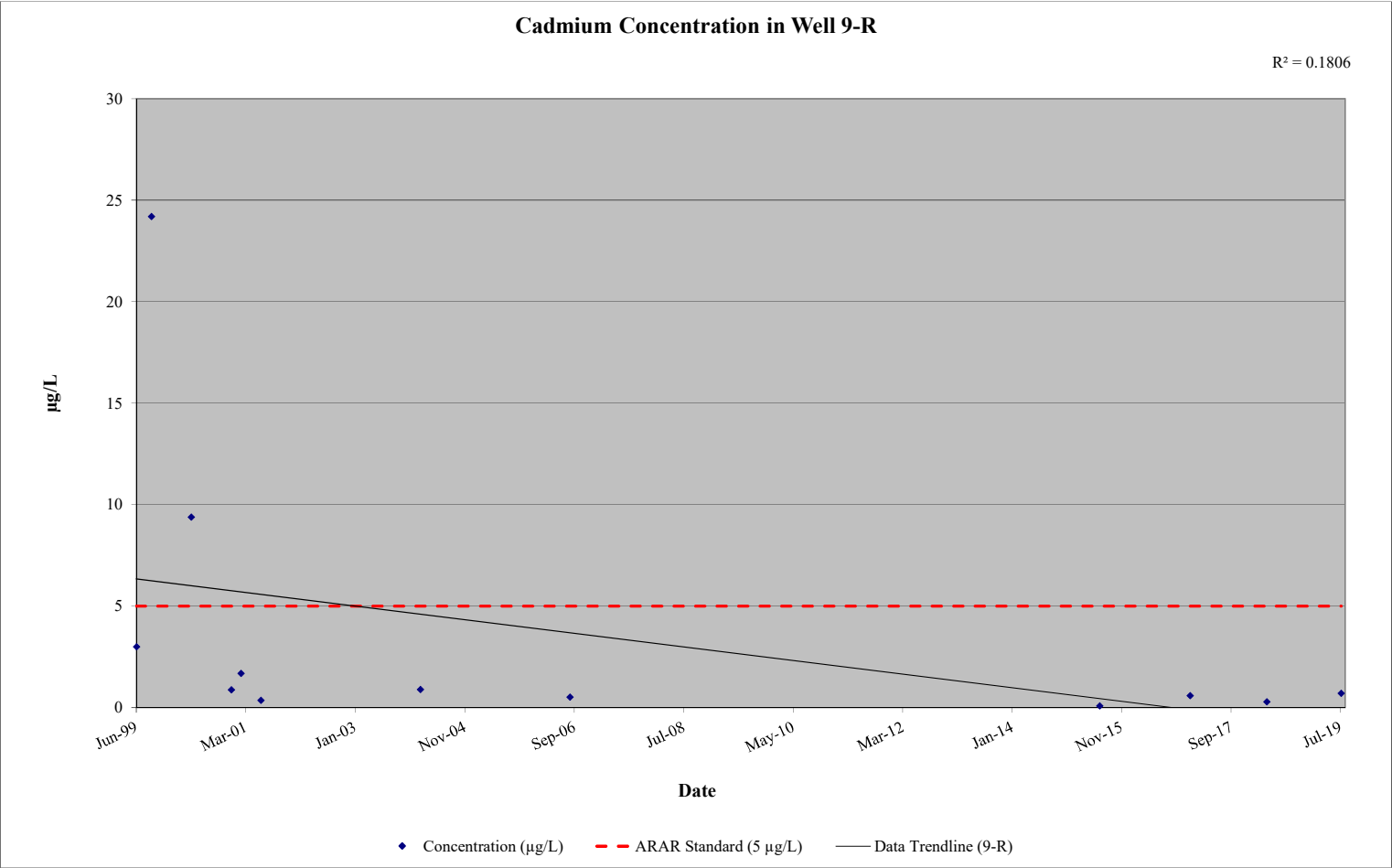


Table 9

Summary of Historical Groundwater Quality Results - Copper (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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	12	37.2	12.7	9.5	10	12.8	NA	NA	NA	NA	NA	NA	97.2	29.1	25.8	32.3	25.8	29.1
Sep-99	104	10.6	23.4	ND	7.8	23.8	79.8	17.3	NA	6	10.1 B	34.5	5.8	7.2	18.2	23.5	ND	8.7	19.1	NA	NA	NA	NA	NA	NA	39.7	7.5	NA	NA	NA	NA
May-00	68	6.8 B	56.9	6.3 B	13.5 B	5.2 B	19.1 B	< 2	53.9	NA	9.2 B	10.8 B	4.4 B	2.1 B	3.4 B	5.4 B	< 2	3.1 B	3.9 B	NA	NA	NA	NA	NA	NA	99.1	18.6 B	3.1 B	5.6 B	3.5 B	4 B
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.1 B	18.5 B	22.9 B	< 2.1	3.4 B	5 B	NA	NA	NA	NA	NA	NA	173	39.6	3.2 B	4.9 B	< 2.1	5.1 B
Dec-00	49.3	5 B	45.1	15.4 B	10 B	8.2 B	15.8 B	3.5 B	142	NA	6.6 B	24.5 B	4.9 B	11.7 B	30.4	26.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.4 B	10.3 B	7.1 B	7 B	17.8 B
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.3 B	3.4 B	2.7 B	NA	NA	NA	NA	NA	NA	52.7	NA	NA	NA	NA	NA
Mar-01	75	36.9	57.3	< 1.6	10.2 B	4.6 B	8.3 B	< 1.6	26.2	NA	3.2 B	8 B	< 1.6	5.3 B	53.8	29.9	4.3 B	29.5	3.1 B	NA	NA	NA	NA	NA	NA	59.1	7.2 B	1.7 B	7 B	4.2 B	2.8 B
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.3 B	20.3 B	9.5 B	2.4 B	3.4 B	4.3 B	NA	NA	NA	NA	NA	NA	53.6	21.3 B	3.9 B	4.1 B	2.7 B	4 B
Oct-01	22.2 B	15.4 B	39	1.9 B	8 B	2.4 B	5.2 B	3.4 B	NA	21.8 B	5.6 B	25.9	7.1 B	5.9 B	< 1.6	4.6 B	8.9 B	4 B	< 1.6	NA	NA	NA	NA	NA	NA	64.9	80.6	NA	NA	NA	NA
Mar-02	47.4	17.1 B	16.5 B	19.2 B	5 B	< 3	< 3	< 3	NA	5 B	23.9 B	7.8 B	< 3	< 3	< 3	< 3	< 3	< 3	< 3	NA	NA	NA	NA	NA	NA	57.6	17.8 B	< 3	3.6 B	6.8 B	8.2 B
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 6.9	15.8 B	8.1 B	< 6.9	< 6.9	< 6.9	NA	NA	NA	NA	NA	NA	121	13 B	< 6.9	< 6.9	< 6.9	< 6.9
Oct-02	86.3	20.4 B	83.4	< 6.9	31.6	8.8 B	45.4	< 6.9	NA	< 6.9	< 6.9	39.5	NA	12.9 B	14.1 B	22 B	< 6.9	< 6.9	< 6.9	NA	NA	NA	NA	NA	NA	50.6	18.4 B	< 6.9	< 6.9	7.9 B	< 6.9
Apr-03	NA	3.6 B	55.3	11.3 B	59.9	5.3 B	17.6 B	3.1 B	NA	4.2 B	5.6 B	4.4 B	NA	3 B	18.6 B	4.6 B	< 2.8	5.3 B	< 2.8	NA	NA	NA	NA	NA	NA	58.7	13.9 B	6.4 B	4.4 B	4 B	3.6 B
Mar-04	NA	NA	25.4	NA	13.7 B	NA	7.4 B	NA	183	NA	NA	51.6	NA	1.7 B	14.2 B	1.8 B	< 1.6	2.8 B	2.2 B	NA	NA	NA	NA	NA	NA	59.5	17.4 B	10.6 B	9.8 B	5.6 B	5.4 B
Jun-05	25.9	NA	15.9 B	NA	51.8	NA	4.2 B	NA	NA	2.9 B	NA	5.2 B	NA	32.1	< 1.2	3 B	< 1.2	< 1.2	< 1.2	NA	NA	NA	NA	NA	NA	83.4	197	3.9 B	5.4 B	3 B	3.9 B
Sep-06	130	NA	15	NA	69	NA	10	NA	500	NA	NA	28	NA	2 J	23	84	3.6 J	27	< 10	NA	NA	NA	NA	NA	NA	69	50	7.6 J	7 J	6.1 J	6.8 J
Oct-07	140	NA	35	NA	27	NA	23	NA	< 10	NA	NA	18	NA	< 10	29	2.9 J	14	44	< 10	NA	NA	NA	NA	NA	NA	60	200	8 J	12	4.4 J	4.3 J
Mar-09	33	NA	21	NA	44	NA	11	NA	110	NA	NA	10	NA	11	27	5 J	16	27	< 10	NA	NA	NA	NA	NA	NA	100	61	3.9 J	NA	5.4 J	6.3 J
May-10	57.6	NA	36	NA	21.1	NA	7.4 J	NA	202	NA	NA	30.9	NA	1.7 J	12.4	< 10 J	7.2 J	33 B	< 10	NA	NA	NA	NA	NA	NA	117	53.4	19.3	NA	11.2	8.5 J
Sep-11	160	15	34	1.8 J	200	34	4.2 J	NA	72	2.9 J	53	32	NA	9.2 J	< 10	< 10	6.7 J	48	< 10	NA	NA	NA	NA	NA	NA	87	16	4.6 J	3.9 J	NA	NA
Nov-12	48	NA	11	NA	55	NA	14	NA	85	NA	NA	27	NA	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	250	26	3.1 J	5.4 J	4.1	NA
Mar-14	90	NA	34	NA	28	NA	12	NA	66	NA	NA	39	NA	2.6 J	2.4 J	4 J	3.8 J	ND	ND	NA	NA	NA	NA	NA	NA	160	63	7.9 J	8 J	11	8.1 J
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5	< 5	331	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	95.26	NA	5.2	NA	4.7	NA	3.4	NA	37.6	NA	NA	20	NA	2.8	<0.3	0.8 J	4	<0.3	0.3 J	12	1.5	1.2	NA	NA	NA	111	24	8.32	7.52	2.5	7.66
Jan-17	42.9	NA	11.9	NA	5.4	NA	0.9 J	NA	NA	NA	NA	2.3	NA	3.8	0.6 J	2.1	0.5 J	0.8 J	1.7	1.5	0.96 J	2.9	13.4	3.8	3.1	91.8	55.6	9.8	4.9	5.3	7
May-18	4.60	NA	11.32	NA	32.48	NA	0.88 J	NA	NA	NA	NA	1.01	NA	1 U	1 U	5.1	1 U	0.58 J	1.81	1.23	0.93 J	4.61	0.51 J	20.28	1 U	320.20	52.88	2.79	4.63	5.10	6.01
Jul-19	4.55	NA	3.15	NA	59	NA	0.85 J	NA	NA	NA	NA	1.43	NA	1.34	0.38 U	1.66	7.54	0.84 J	2.42	1.06	1.02	2.67	7.66	0.97 J	0.75 J	60.62	23.32	3.39	3.13	4.30	2.62

Notes:
ARAR Standard = 200 µg/L; MCL Guidance = 1,000 µg/L*; and, Part 5 MCL = Not Available
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.
* USEPA National Secondary Drinking Water Regulation
NA = Not Analyzed
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

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.

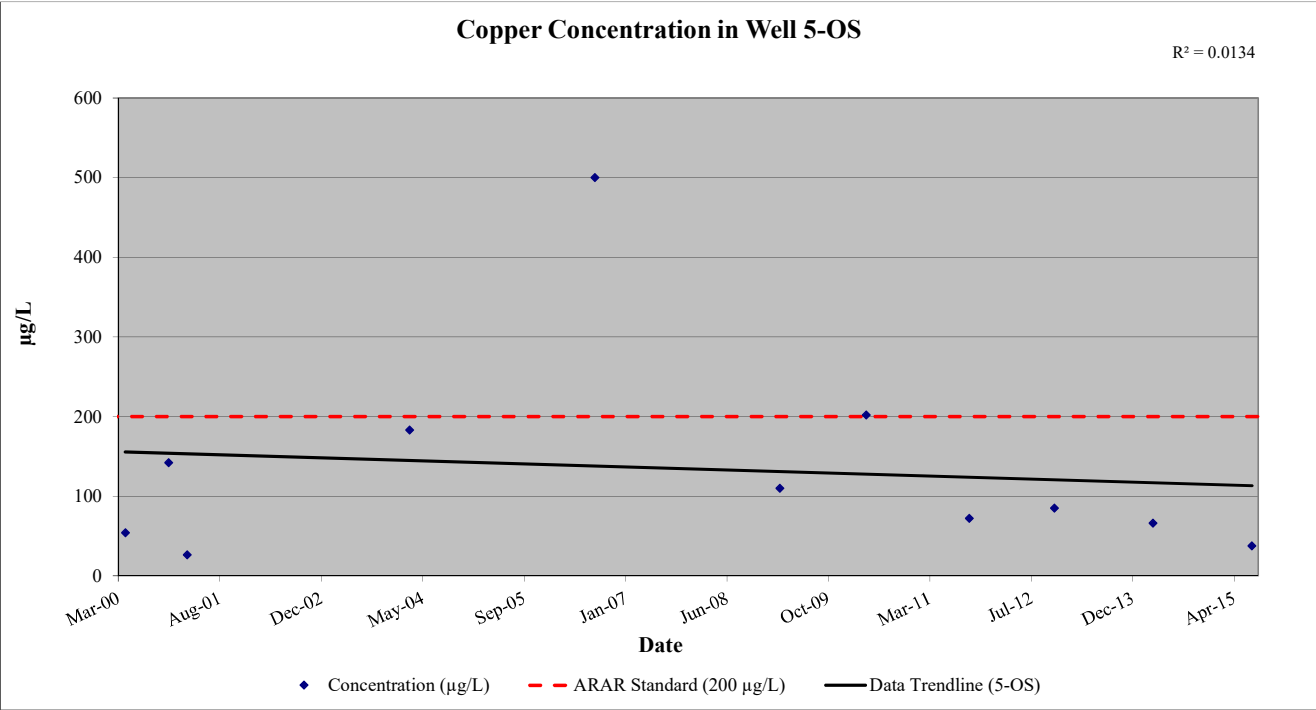


Table 10

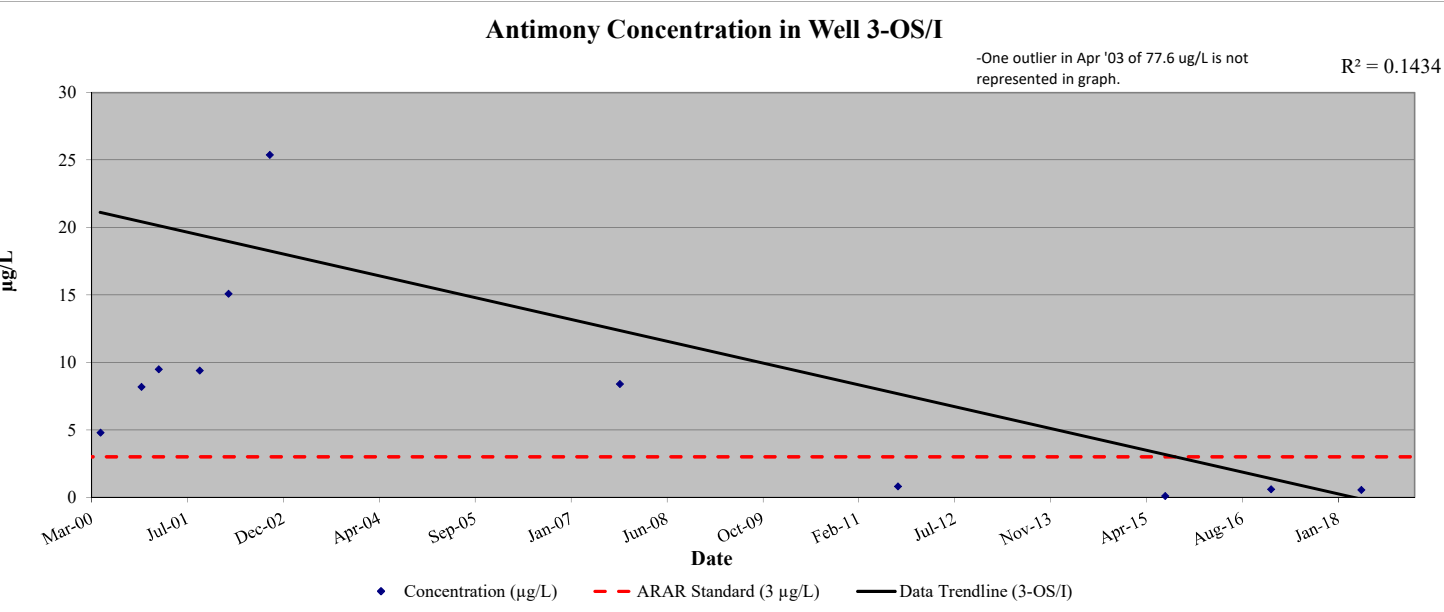
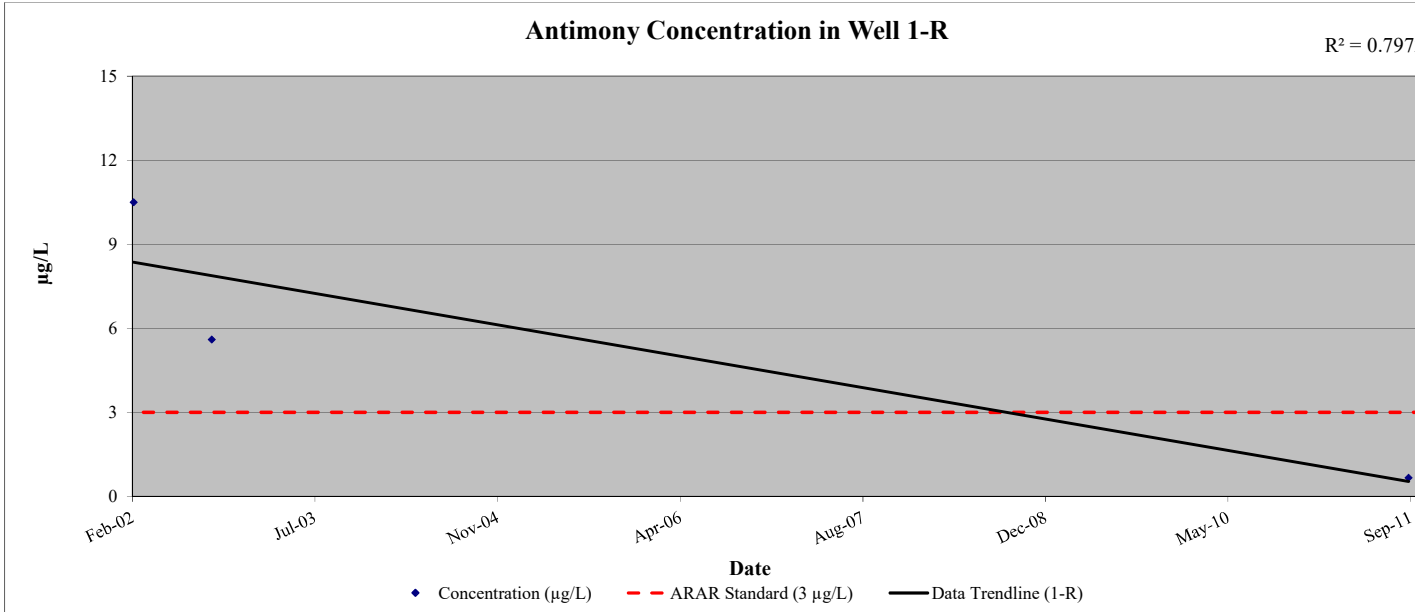
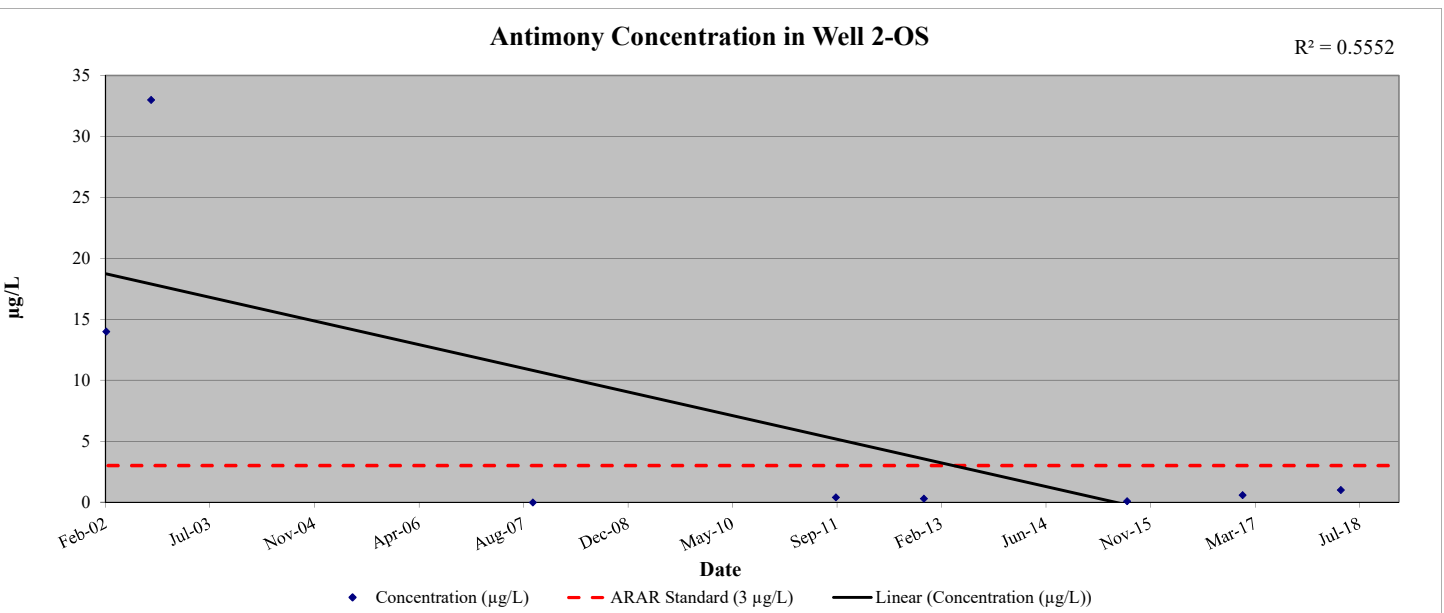
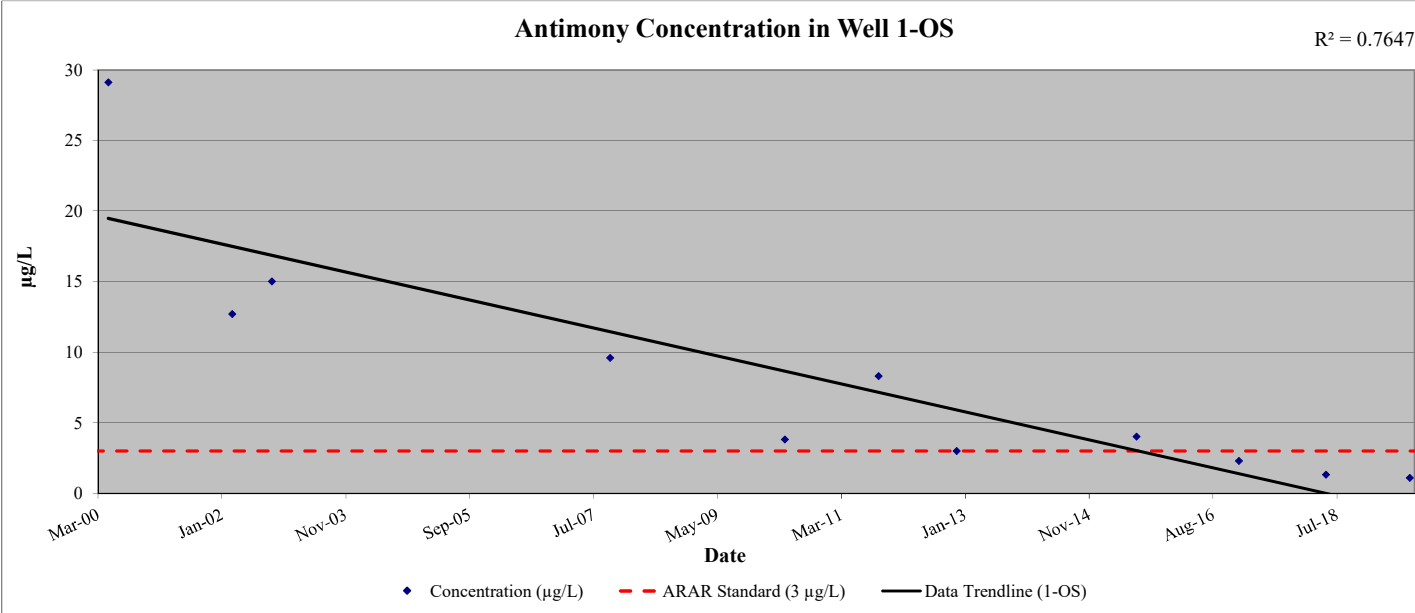
Summary of Historical Groundwater Quality Results - Antimony (µg/L)
Town of Ramapo Landfill

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-10R	UP-OS	UP-I	UP-R	Well PW-1	Well 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	ND	NA	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	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	NA	
May-00	29.1 B	< 3.4	< 3.4	< 3.4	4.8 B	< 3.4	< 3.4	< 3.4	< 3.4	NA	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	NA	NA	NA	NA	NA	NA	NA	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 11.0	< 5.5	< 5.5	< 5.5	< 5.5	NA	NA	NA	NA	NA	NA	NA	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	< 5.5	
Dec-00	< 5.5	< 5.5	< 5.5 N	< 5.5	8.2 B, N	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N	NA	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N	< 5.5 N
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4.7		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mar-01	< 4.7 Site V	< 4.7	< 4.7	< 4.7	9.5 B, N	< 4.7	< 4.7	< 4.7	< 4.7	NA	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7		NA	NA	NA	NA	NA	NA	NA	NA	< 4.7	NA	NA	NA	NA	NA	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4.7	< 4.7	< 4.7	< 4.7		NA	NA	NA	NA	NA	NA	NA	NA	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	
Oct-01	< 4.7	< 4.7	< 4.7	< 4.7	9.4 B	< 4.7	< 4.7	< 4.7	NA	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7	< 4.7		NA	NA	NA	NA	NA	NA	NA	NA	< 4.7	< 4.7	NA	NA	NA	NA	
Mar-02	12.7 B	10.5 B	14 B	13.8 B	15.1 B	11.9 B	< 7.4	9.7 B	NA	< 7.4	< 7.4	13.2 B	13 B	< 7.4	10.9 B	12 B	< 7.4		NA	NA	NA	NA	NA	NA	NA	NA	< 7.4	9.3 B	8 B	11.4 B	< 7.4	< 7.4	< 7.4
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 5.3	< 5.3	< 5.3	< 5.3		NA	NA	NA	NA	NA	NA	NA	NA	< 5.3	< 5.3	8.1 B	< 5.3	< 5.3	< 5.3	
Oct-02	15 B,N	5.6 B, N	33 B, N	< 5.3 N	25.4 B, N	5.5 B, N	< 5.3 N	< 5.3 N	NA	< 5.3 N	< 5.3 N	< 5.3 N	NA	< 5.3 N	< 5.3 N	6.3 B, N	< 5.3 N		N	NA	NA	NA	NA	NA	NA	NA	< 5.3 N	< 5.3 N	17.2 B, N	5.5 B, N	< 5.3 N	< 5.3 N	
Apr-03	NA	< 5	< 5	< 5	77.6	< 5	< 5	< 5	NA	< 5	< 5	< 5	NA	< 5	< 5	< 5	< 5		NA	NA	NA	NA	NA	NA	NA	NA	< 5	9.3 B	< 5	< 5	< 5	< 5	
Mar-04	NA	NA	< 7.1	NA	< 5.8	NA	< 7.1	NA	< 7.1	NA	NA	< 5.8	NA	< 5.8	< 5.8	< 5.8	< 5.8		NA	NA	NA	NA	NA	NA	NA	NA	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	< 5.8	
Jun-05	<0.12	NA	< 0.12	NA	< 0.12	NA	< 0.12	NA	NA	< 0.12	NA	< 0.12	NA	0.13 B	< 0.12	< 0.12	0.15 B		NA	NA	NA	NA	NA	NA	NA	NA	< 0.12	< 0.12	0.14 B	< 0.12	< 0.12	< 0.12	
Sep-06	<3	NA	< 3	NA	< 3	NA	< 3	NA	< 3	NA	NA	< 3	NA	< 3	< 3	< 3	< 3		NA	NA	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	< 3	< 3	< 3	
Oct-07	9.6	NA	2.4 J	NA	8.4	NA	1.8 J	NA	< 3	NA	NA	< 3	NA	< 3	< 3	< 3	2 J		NA	NA	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	< 3	< 3	< 3	
Mar-09	<60	NA	< 60	NA	< 60	NA	< 60	NA	< 60	NA	NA	< 60	NA	< 60	< 60	< 60	< 60		NA	NA	NA	NA	NA	NA	NA	NA	< 60	< 60	< 60	NA	< 60	< 60	
May-10	3.8	NA	< 3	NA	< 3	NA	< 3	NA	< 5 D14	NA	NA	< 3	NA	< 3	< 3	< 3	< 3		NA	NA	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	NA	< 3	< 3	
Sep-11	8.3	0.67 J	0.4 J	< 3	0.82 J	< 15	0.24 J	NA	< 3	< 3	0.41 J	0.2 J	NA	< 3	< 3	< 3	0.15 J		NA	NA	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	< 3	NA	NA	
Nov-12	3.0	NA	0.3 J	NA	< 3	NA	< 3	NA	< 3	NA	NA	< 3	NA	< 3	< 3	< 3	0.24 J	< 3	NA	NA	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	< 3	< 3	NA	
Mar-14	< 3	NA	< 3	NA	< 3	NA	< 3	NA	< 3	NA	NA	< 3	NA	< 3	< 3	< 3	< 3		NA	NA	NA	NA	NA	NA	NA	NA	< 3	< 3	< 3	< 3	< 3	< 3	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	<2.3	<2.3	<2.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	4.01	NA	0.1 J	NA	0.1 J	NA	0.1 U	NA	0.1 U	NA	NA	0.1 J	NA	0.1 J	0.1 U	0.1 J	0.1 J	0.1 U	NA	0.1 J	0.1 J	0.9 J	NA	NA	NA	0.1 U	0.14 J	0.14 J	0.32 J	0.16 J	0.11 J	NA	
Jan-17	2.3 J	NA	0.6 J	NA	0.6 J	NA	0.4 U	NA	NA	NA	NA	0.5 J	NA	0.7 J	1.2 J	0.9 J	0.4 U	0.4 U	NA	0.4 U	0.4 U	0.7 J	0.4 U	0.4 U	0.4 U	0.4 U	0.7 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	
May-18	1.31 J	NA	1.0 J	NA	0.56 J	NA	4 U	NA	NA	NA	NA	4 U	NA	4 U	4 U	4 U	0.77 J	1.13 J	1.54 J	0.43 J	4.5 U	4 U	1.16 J	0.43 J	3.82 J	0.81 J	0.59 J	0.94 J	0.65 J	0.58 J	0.43 J	NA	
Jul-19	1.08 J	NA	0.42 U	NA	0.42 U	NA	0.42 U	NA	NA	NA	NA	0.42 U	NA	0.42 U	0.42 U	0.42 U	2.48 J	1.03 J	0.8 J	0.42 U	0.42 U	1.4 J	0.42 U	0.42 U	1.72 J	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	

Notes:
ARAR Standard = 3 µg/L; USEPA MCL = 6 µg/L; and, Part 5 MCL = 6 µg/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
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

Laboratory Qualifier Definitions
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.
ND or U = Not Detected

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



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

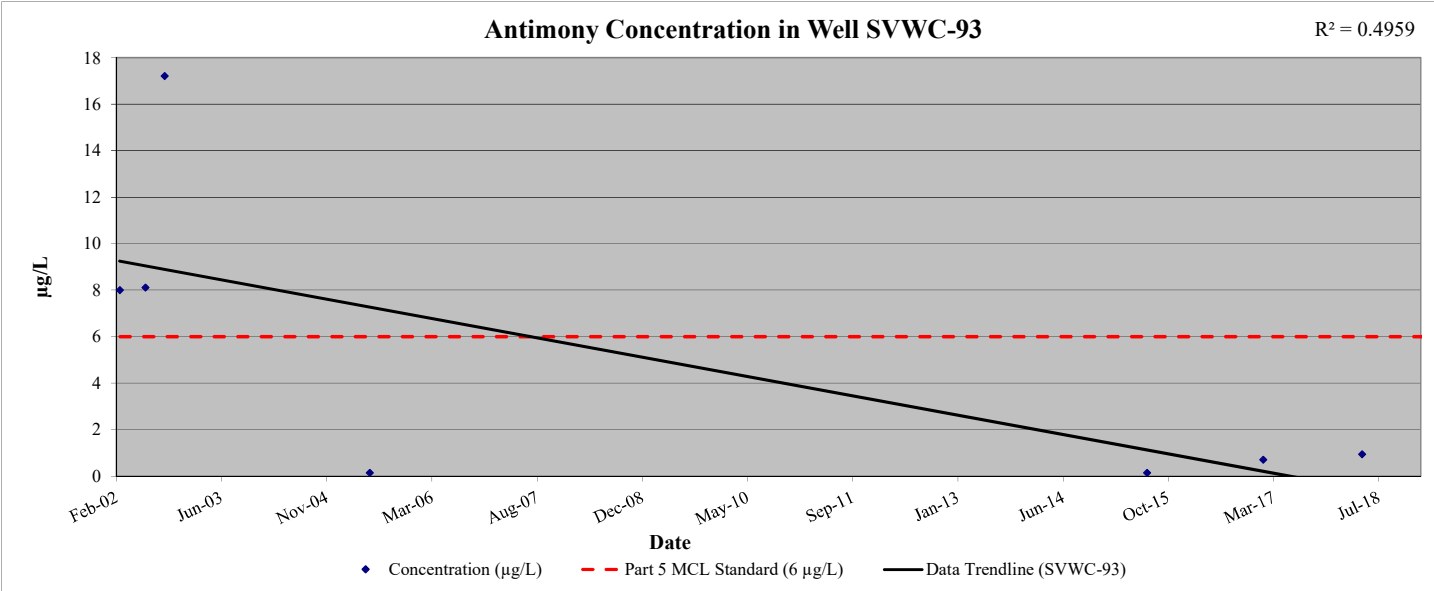
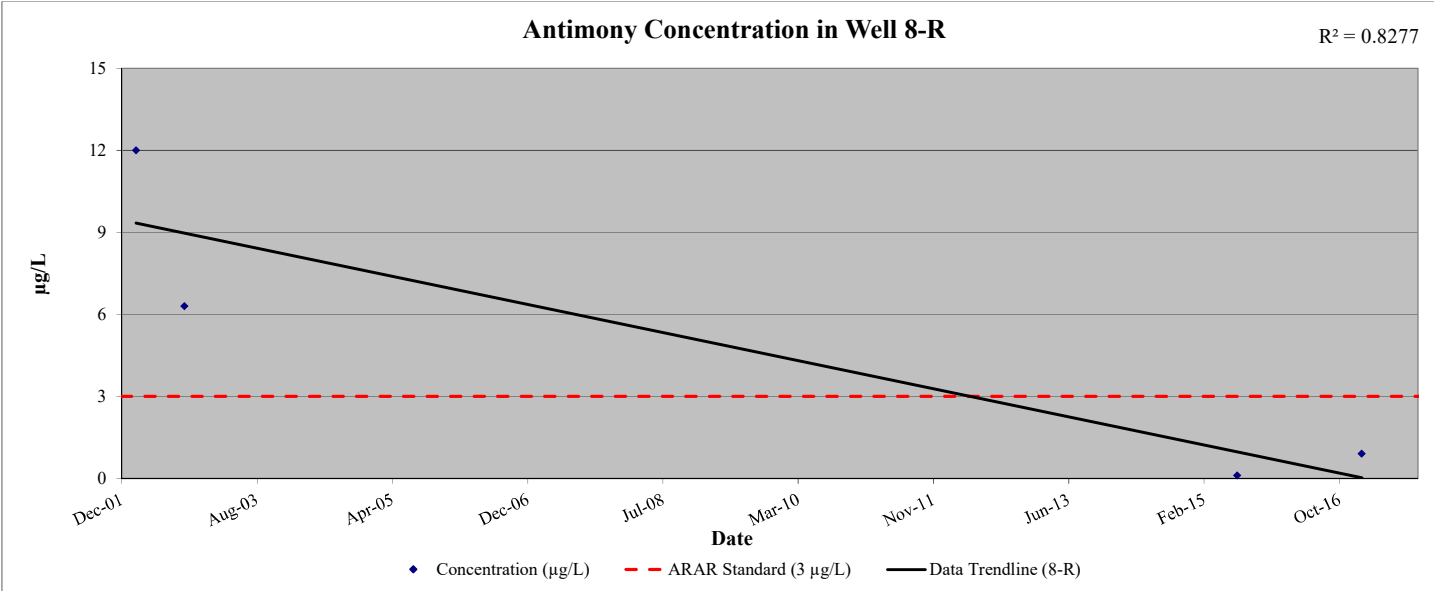
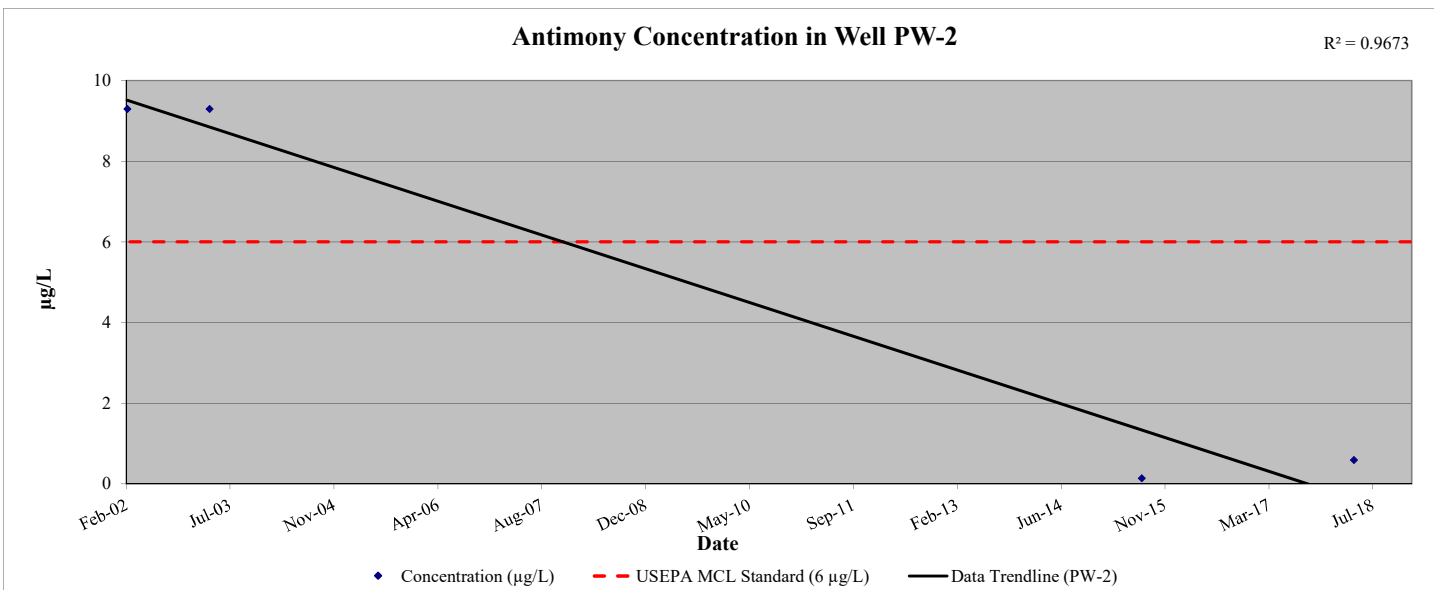
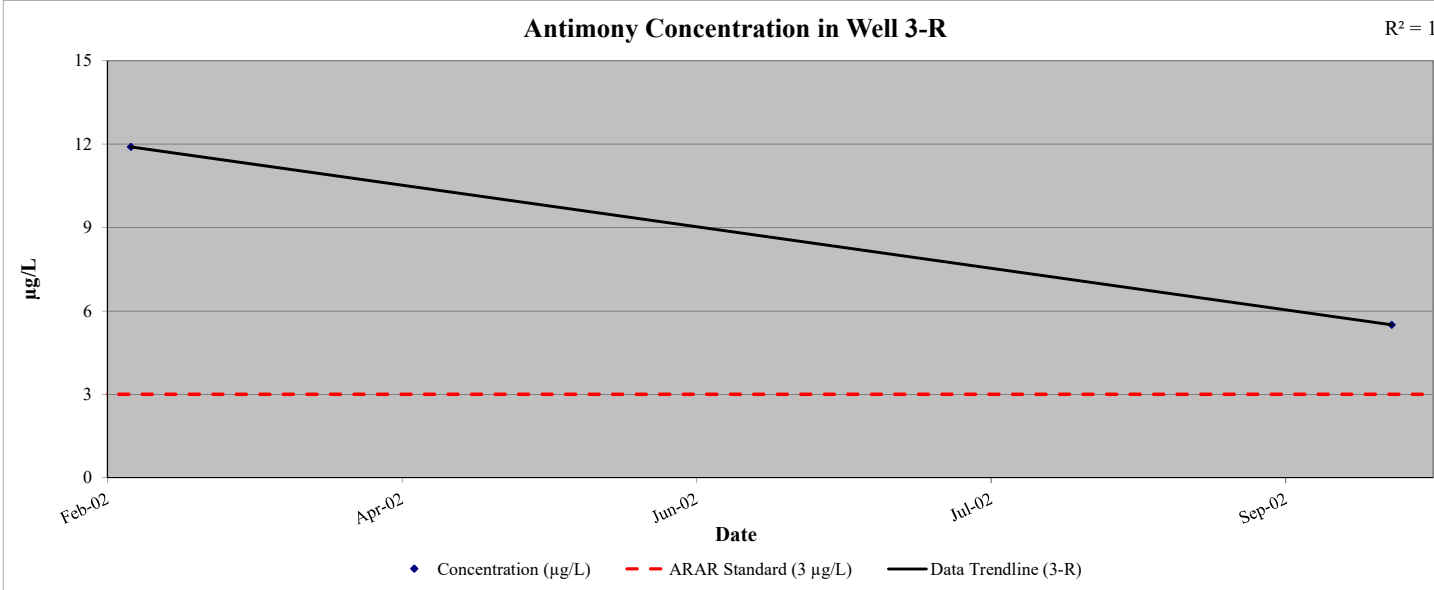


Table 10
Summary of Historical Groundwater Quality Results - Antimony (µg/L)
Town of Ramapo Landfill

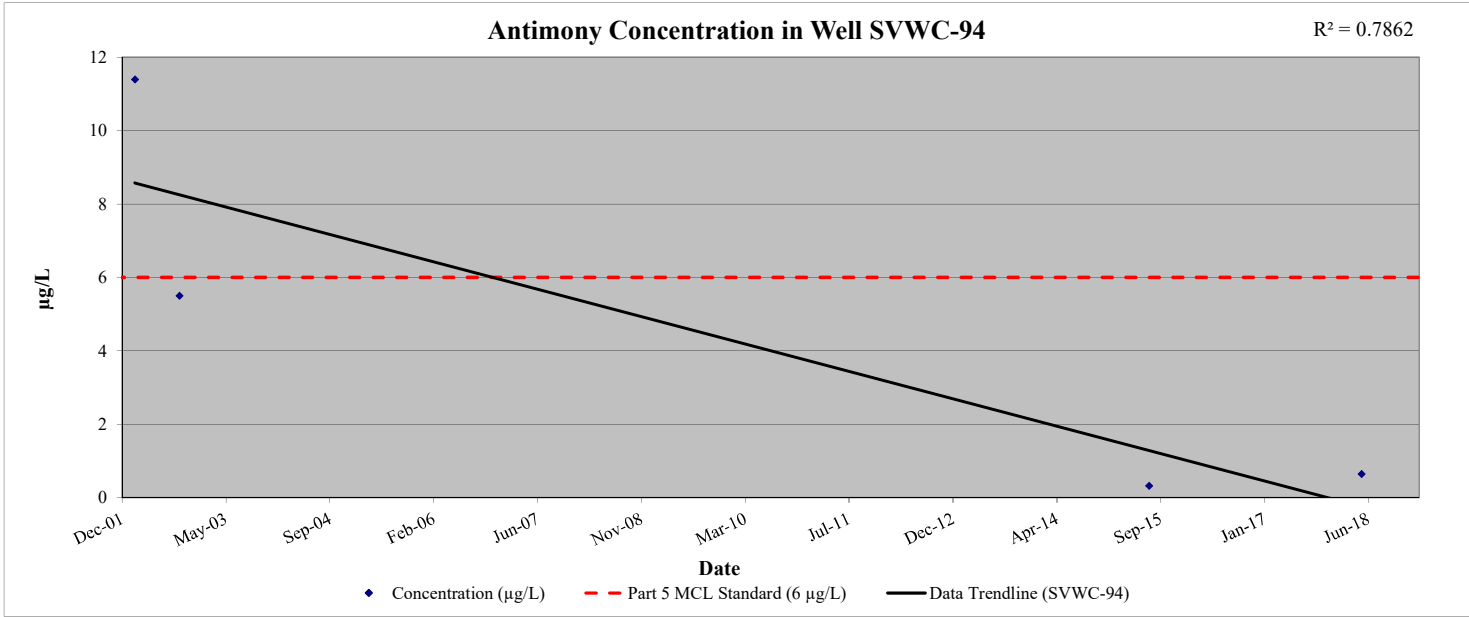


Table 11

Summary of Historical Groundwater Quality Results - Arsenic (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	11.7	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	9.7	7.1	ND	ND	ND	ND
Sep-99	11.4	ND	ND	ND	ND	7.9	8.5	ND	NA	ND	ND	ND	ND	ND	ND	6.2	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
May-00	7.3 B	< 2.6	6.6 B	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	3.2 B	NA	< 2.6	< 2.6	< 2.6	< 2.6	6.6 B	< 2.6	< 2.6	< 2.6	< 2.6	NA	NA	NA	NA	NA	NA	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.9 B	11.8	< 1.8	< 1.8	< 1.8	7.7 B	NA	NA	NA	NA	NA	NA	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Dec-00	11.8	< 1.8	9.4 B	< 1.8	< 1.8	< 1.8	< 1.8	3.3 B	16.8	NA	< 1.8	3.4 B	< 1.8	2.6 B	10 B	< 1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2.2	< 2.2	3 B	NA	NA	NA	NA	NA	NA	< 2.2	NA	NA	NA	NA	NA
Mar-01	13.5	3.7 B	10.5	< 2.2	< 2.2	< 2.2	2.6 B	< 2.2	3.9 B	NA	< 2.2	< 2.2	< 2.2	2.6 B	13.4	< 2.2	< 2.2	5.8 B	6.3 B	NA	NA	NA	NA	NA	NA	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2.2	10.5	< 2.2	< 2.2	< 2.2	3.7 B	NA	NA	NA	NA	NA	NA	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2
Oct-01	5.9 B	2.6 B	8.4 B	< 2.2	< 2.2	< 2.2	< 2.2	< 2.2	NA	2.7 B	< 2.2	2.6 B	< 2.2	2.4 B	6.9 B	< 2.2	< 2.2	< 2.2	4 B	NA	NA	NA	NA	NA	NA	< 2.2	< 2.2	NA	NA	NA	NA
Mar-02	9.1 B	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	NA	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	9.7 B	3.4 B	< 2.6	< 2.6	< 2.6	NA	NA	NA	NA	NA	NA	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9 B	10.2	2.7 B	< 2.6	< 2.6	5.5 B	NA	NA	NA	NA	NA	NA	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
Oct-02	91.3	4 B	13.3	< 2.6	< 2.6	< 2.6	7.5 B	< 2.6	NA	< 2.6	< 2.6	5.2 B	NA	< 2.6	5.2 B	< 2.6	< 2.6	< 2.6	< 2.6	NA	NA	NA	NA	NA	NA	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
Apr-03	NA	< 2.4	10.3	< 2.4	5.4 B	< 2.4	4 B	4.4 B	NA	< 2.4	< 2.4	< 2.4	NA	< 2.4	7.5 B	< 2.4	< 2.4	< 2.4	3.7 B	NA	NA	NA	NA	NA	NA	< 2.4	2.7	< 2.4	< 2.4	< 2.4	< 2.4
Mar-04	NA	NA	7.4 B	NA	< 1.9	NA	< 2.7	NA	30.4	NA	NA	9.8 B	NA	< 1.9	8.9 B	< 1.9	< 1.9	< 1.9	3.4 B	NA	NA	NA	NA	NA	NA	5.6 B	< 1.9	< 1.9	2.9 B	< 1.9	< 1.9
Jun-05	8.1 B	NA	4 B	NA	< 3.1	NA	< 3.1 N	NA	NA	< 3.1	NA	3.1 N	NA	3.7 B, N	8.6 B, N	< 3.1 N	< 3.1 N	< 3.1 N	< 3.1 N	NA	NA	NA	NA	NA	NA	< 3.1 N	< 3.1 N	4.2 B, N	< 3.1 N	< 3.1 N	< 3.1 N
Sep-06	43	NA	2.8 J	NA	6.9	NA	2.8 J	NA	33	NA	NA	4.7 J	NA	< 5	26	3.1 J	< 5	4.5 J	5.9	NA	NA	NA	NA	NA	NA	< 5	< 5	1.2 J	< 5	2 J	1.3 J
Oct-07	31	NA	6.2	NA	< 5	NA	< 5	NA	< 5	NA	NA	< 5	NA	< 5	15	< 5	4.2 J	4.4 J	6.1	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 5
Mar-09	7.1 J	NA	< 10	NA	< 10	NA	< 10	NA	9.8 J	NA	NA	< 10	NA	< 10	12	< 10	< 10	< 10	5.7 J	NA	NA	NA	NA	NA	NA	< 100	< 10	< 10	NA	< 10	< 10
May-10	11.2	NA	< 10	NA	< 10	NA	< 10	NA	15.5	NA	NA	< 10	NA	< 10	10.1	< 10	< 10	< 10	8.4 J	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	< 10	< 10
Sep-11	40	< 10	< 10	< 10	53	7.3 J	< 10	NA	9.5 J	< 10	< 10	< 10	NA	< 10	6.1 J	< 10	< 10	7.6 J	7.9 J	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	NA	NA
Nov-12	18	NA	< 10	NA	15	NA	9.8 J	NA	9.3 J	NA	NA	8.8 J	NA	< 10	12	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	NA
Mar-14	14		< 10	NA	< 10	NA	< 10	NA	6.7 J	NA	NA	9.3 J	NA	< 10	11	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 10
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	7.32	NA	0.7	NA	0.3 J	NA	0.7	NA	3.1	NA	NA	1	NA	0.4 J	6.8	0.6	1	0.1 U	3.8	0.2 J	0.2 J	0.2 J	NA	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.22 J	0.2 U
Jan-17	3.1	NA	1	NA	0.2 U	NA	0.2 J	NA	NA	NA	NA	0.2 J	NA	0.2 J	3.8	0.6	0.2 U	0.2 U	0.6	0.4 J	0.2 U	0.2 U	0.3 J	0.47 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 J	0.2 U	
May-18	0.51	NA	1.22	NA	0.87	NA	0.18 J	NA	NA	NA	NA	0.5 U	NA	0.5 U	4.32	0.28 J	0.5 U	0.5 U	23.54	0.5 U	0.5 U	0.5 U	0.58	0.42 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Jul-19	1.38	NA	1.91	NA	1.48	NA	0.16 U	NA	NA	NA	NA	0.35 J	NA	0.17 J	4.54	0.34 J	0.39 J	0.16 U	1.42	0.36 J	0.16 U	0.16 U	0.5	0.45 J	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	0.16 U	

Notes:
ARAR Standard = 25 µg/L; USEPA MCL = 10 µg/L; and, Part 5 MCL = 10 µg/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
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

Laboratory Qualifier Definitions
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.
ND or U = Not Detected

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

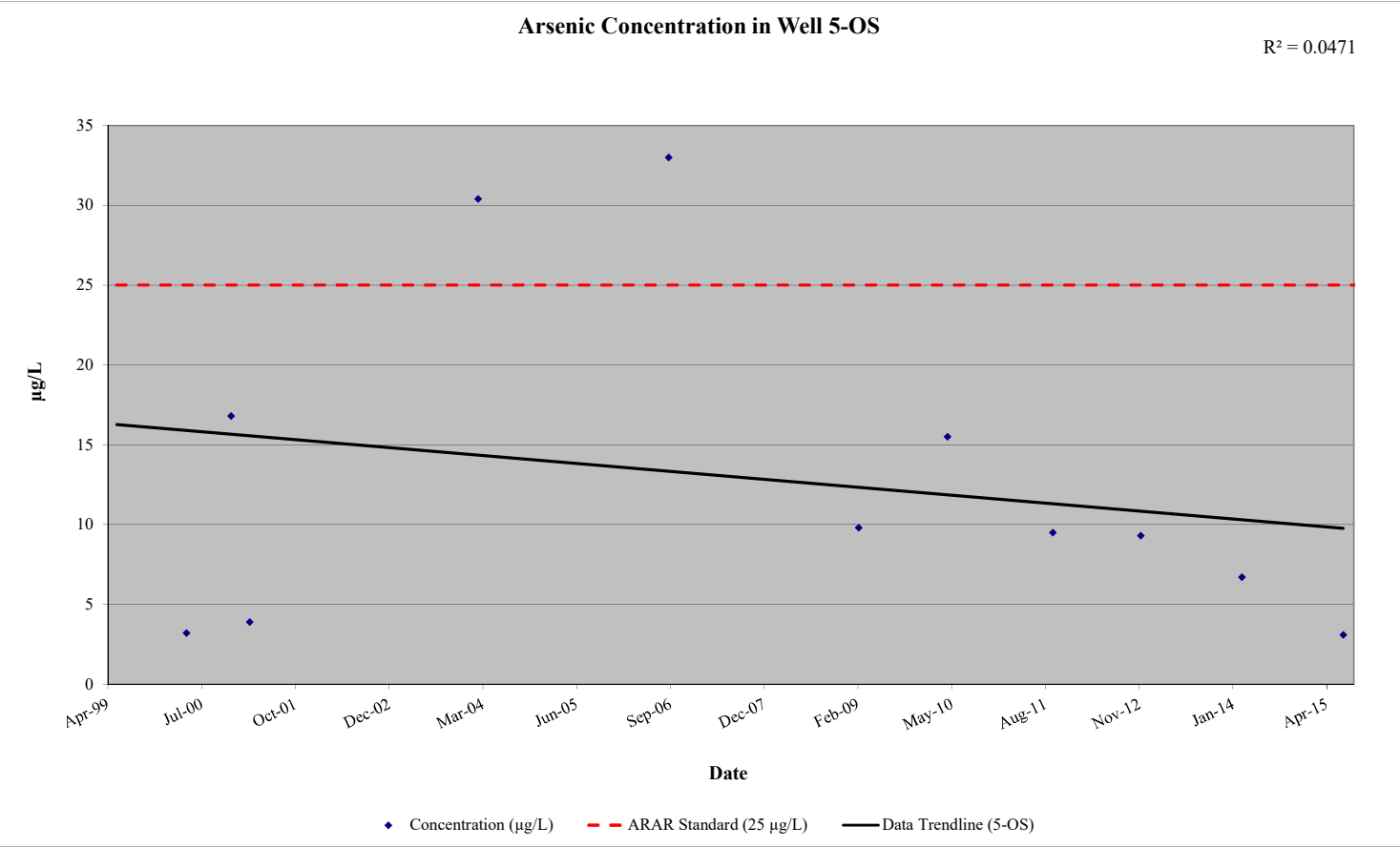
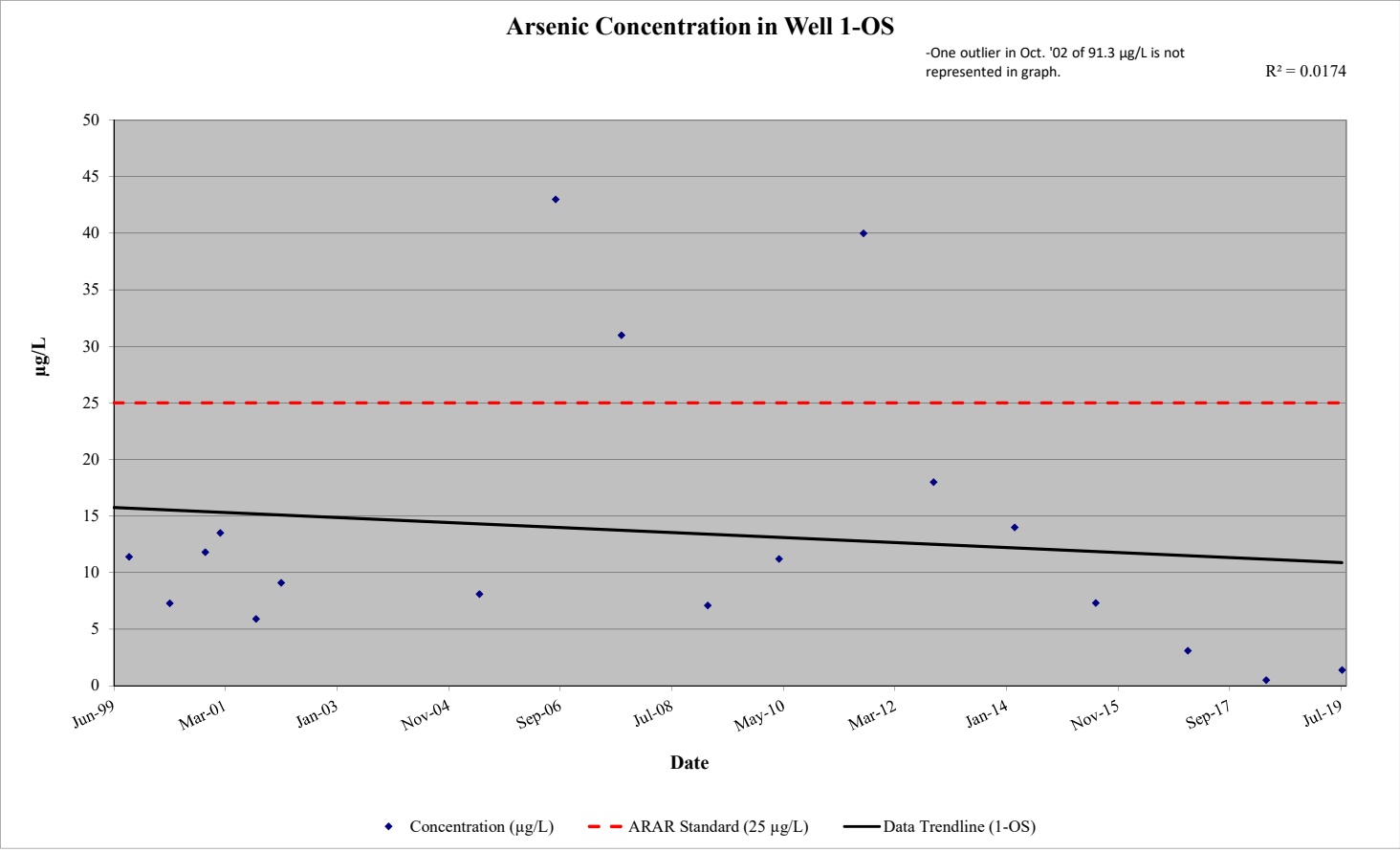


Table 12

Summary of Historical Groundwater Quality Results - Chromium (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	20.2	56.8	2	1.1	6.8	15	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	
Sep-99	1850	73.4	285	ND	321	75.7	87.7	ND	NA	10.6	2.7	59.2	ND	31	ND	ND	ND	ND	47.3	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA	
May-00	2100	58.6	415	4 B	687	51.2	36.8	< 0.5	69.3	NA	14.7	200	< 0.5	30.1	10	1.1 B	34.5	10.8	3 B	NA	NA	NA	NA	NA	NA	0.75 B	< 0.5	< 0.5	0.53 B	< 0.5	< 0.5	
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16.9 B	17.3	2.2 B	7.4 B	5 B	1.6 B	NA	NA	NA	NA	NA	NA	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	
Dec-00	405	9.8 B	120	4.7 B	453	213	17.9	< 0.9	165	NA	7.2 B	34.7	< 0.9	8.8 B	22.9	3.6 B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 0.9	< 0.9	1.4 B	< 0.9	< 0.9	< 0.9
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.1	4.1 B	2.4 B	NA	NA	NA	NA	NA	NA	< 0.9	NA	NA	NA	NA	NA	
Mar-01	253	119	128	< 0.9	522	124	13.2	< 0.9	38.6	NA	3.9 B	51.9	< 0.9	25.8	49.9	7.7 B	17	28.8	4.1 B	NA	NA	NA	NA	NA	NA	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.55 B	19.9	5.56 B	< 0.9	2.35 B	1.12 B	NA	NA	NA	NA	NA	NA	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	
Oct-01	20.6	47.1	87.1	3.9 B	467	12.7	4 B	2.2 B	NA	3.3 B	3.3 B	48.4	2.3 B	20.6	2.3 B	3.9 B	17.4	1.2 B	1.9 B	NA	NA	NA	NA	NA	NA	1.2 B	1.8 B	NA	NA	NA	NA	
Mar-02	60.1	10.2	35.6	9.6 B	257	33.5	8.7 B	< 0.83	NA	10.5	24.6	22.1	< 0.83	16.4	4.8 B	1.2 B	12.5	2.4 B	< 0.83	NA	NA	NA	NA	NA	NA	< 0.83	< 0.83	< 0.83	< 0.83	< 0.83	< 0.83	
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7 B	9.5 B	1.7 B	5.2 B	3.8 B	< 0.83	NA	NA	NA	NA	NA	NA	< 0.83	< 0.83	< 0.83	< 0.83	< 0.83	< 0.83	
Oct-02	386 E	82.9 E	2040 E	4.6 B, E	1,400 E	31.2 E	35 E	1.3 B, E	NA	1.2 B, E	9.9 B, E	108 E	NA	33.8 E	9.5 B, E	6.1 B, E	9.7 B, E	< 0.83 E	< 0.83 E	NA	NA	NA	NA	NA	NA	< 0.83 E	< 0.83 E	< 0.83	< 0.83	< 0.83	< 0.83	
Apr-03	NA	< 0.8	89.8	4.8 B	4,250	86.8	17.9	< 0.8	NA	5.6 B	5.6 B	36	NA	10.4	15.5	< 0.8	19.2	4.2 B	< 0.8	NA	NA	NA	NA	NA	NA	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	
Mar-04	NA	NA	87.1	NA	816	NA	9.4 B	NA	237	NA	NA	133	NA	10.3	19.4	2 B	10.4	2.8 B	2.6 B	NA	NA	NA	NA	NA	NA	1.3 B	1.5 B	1.4 B	1.9 B	1.5 B	1.2 B	
Jun-05	31.4	NA	101	NA	2,020	NA	56.7	NA	NA	5.6 B	NA	5.7 B	NA	29.6	3.3 B	2.5 B	2.4 B	1.4 B	1.9 B	NA	NA	NA	NA	NA	NA	< 0.9	< 0.9	< 0.9	0.93 B	< 0.9	0.94 B	
Sep-06	2,400	NA	120	NA	7,200	NA	1300	NA	690	NA	NA	87	NA	140	30	42	55	36	4.1 J	NA	NA	NA	NA	NA	NA	2.7 J	2.8 J	3.2 J	2 J	< 10	< 10	
Oct-07	530	NA	250	NA	3,400	NA	270	NA	32	NA	NA	96	NA	85	41	11	330	150	4.3 J	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 10	
Mar-09	140	NA	480	NA	3,900	NA	230	NA	170	NA	NA	61	NA	680	27	11	300	38	< 10	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	< 10	< 10	
May-10	1,990	NA	722	NA	2,570	NA	522	NA	278	NA	NA	158	NA	152	14	< 4	176	53.9	2.5 J	NA	NA	NA	NA	NA	NA	< 4	< 4	< 4	NA	< 4	< 4	
Sep-11	11,100	970	1000	2.7 J	29,700	2600	290	NA	120	11	93	480	NA	1500	< 4	< 4	430	380	< 4	NA	NA	NA	NA	NA	NA	< 4	< 4	< 4	< 4	NA	NA	
Nov-12	2,400	NA	280	NA	4,100	NA	1700	NA	130	NA	NA	230	NA	140	2.9 J	< 4	100	2.6 J	< 4	NA	NA	NA	NA	NA	NA	< 4	< 4	< 4	< 4	< 4	NA	
Mar-14	5,200	NA	1100	NA	2,800	NA	540	NA	96	NA	NA	300	NA	85	3.7 J	ND	290	11	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	2 U	2 U	3.3 J	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	6,604	NA	62.2	NA	229	NA	132.9	NA	40.6	NA	NA	254.2	NA	230.4	2.8	2.4	56.7	2.5	2.4	2.4	1.5 J	7.9	NA	NA	NA	0.27 J	0.24 J	0.21 J	0.54 J	2 U	0.23 J	
Jan-17	1,259	NA	229.2	NA	595	NA	210	NA	NA	NA	NA	131.5	NA	296.7	2.7	19.2	3.7	36.8	13	0.4 J	1.9	5.2	2	2	3.3	0.4 J	0.3 J	1.3	1.3	0.4 J	0.4 J	
May-18	60.24	NA	10.30	NA	3,375	NA	156.6	NA	NA	NA	NA	18.74	NA	3.77	0.88 J	1.01	4.0	44.67	46.0	0.35 J	0.71 J	181.1	0.59 J	11.38	1.21	0.30 J	0.22 J	0.31 J	0.23 J	0.31 J	0.40 J	
Jul-19	308.30	NA	2.29	NA	8,580	NA	73.53	NA	NA	NA	NA	16.42	NA	12.7	0.64 J	45.65	12.02	15.42	5.46	0.17 U	0.26 J	11.36	2.53	1.94	7.32	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.18 J	

Notes:

ARAR Standard = 50 µg/L; USEPA MCL = 100 µg/L; and, Part 5 MCL = 100 µg/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

< = The compound was analyzed for but not detected at the laboratory detection limit listed.

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.

Laboratory Qualifier Definitions

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.

ND or U = Not Detected

Table 12

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

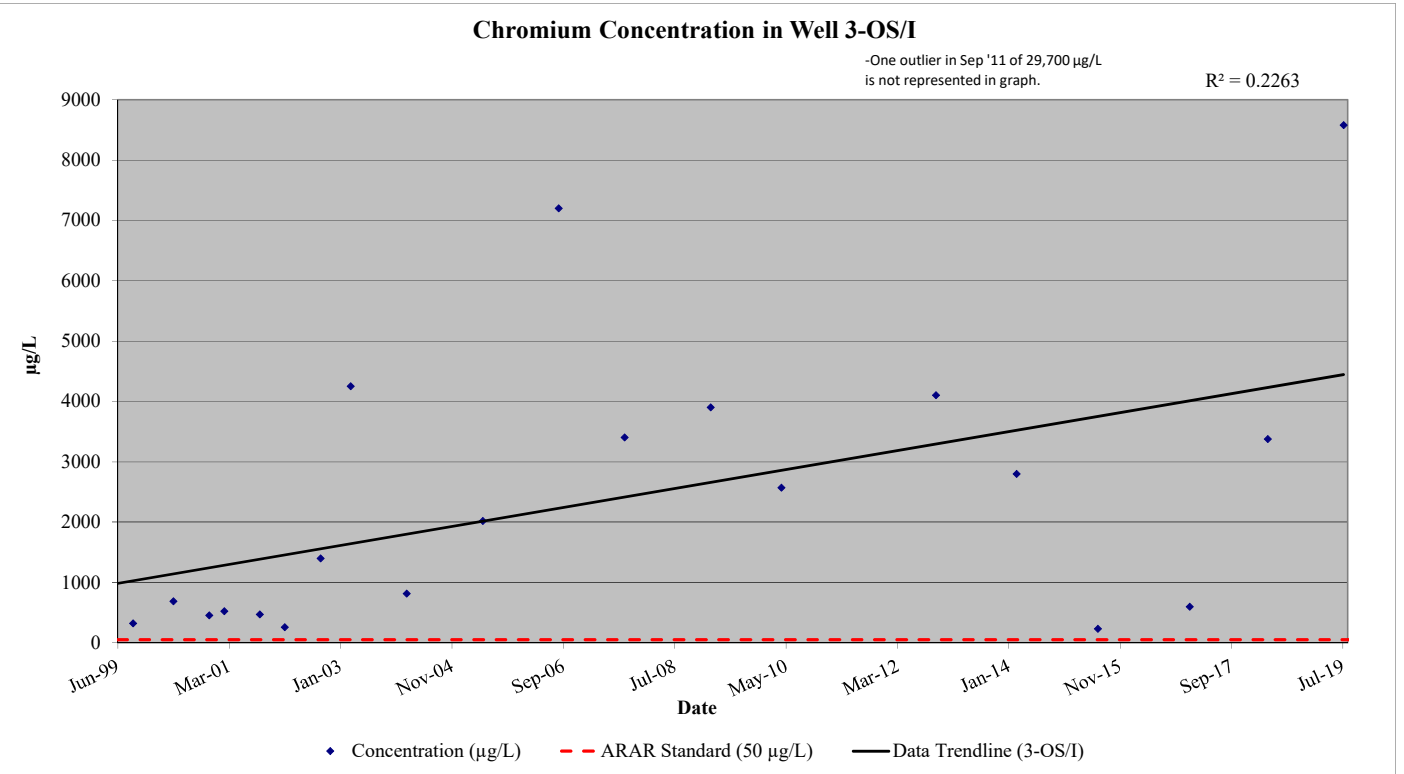
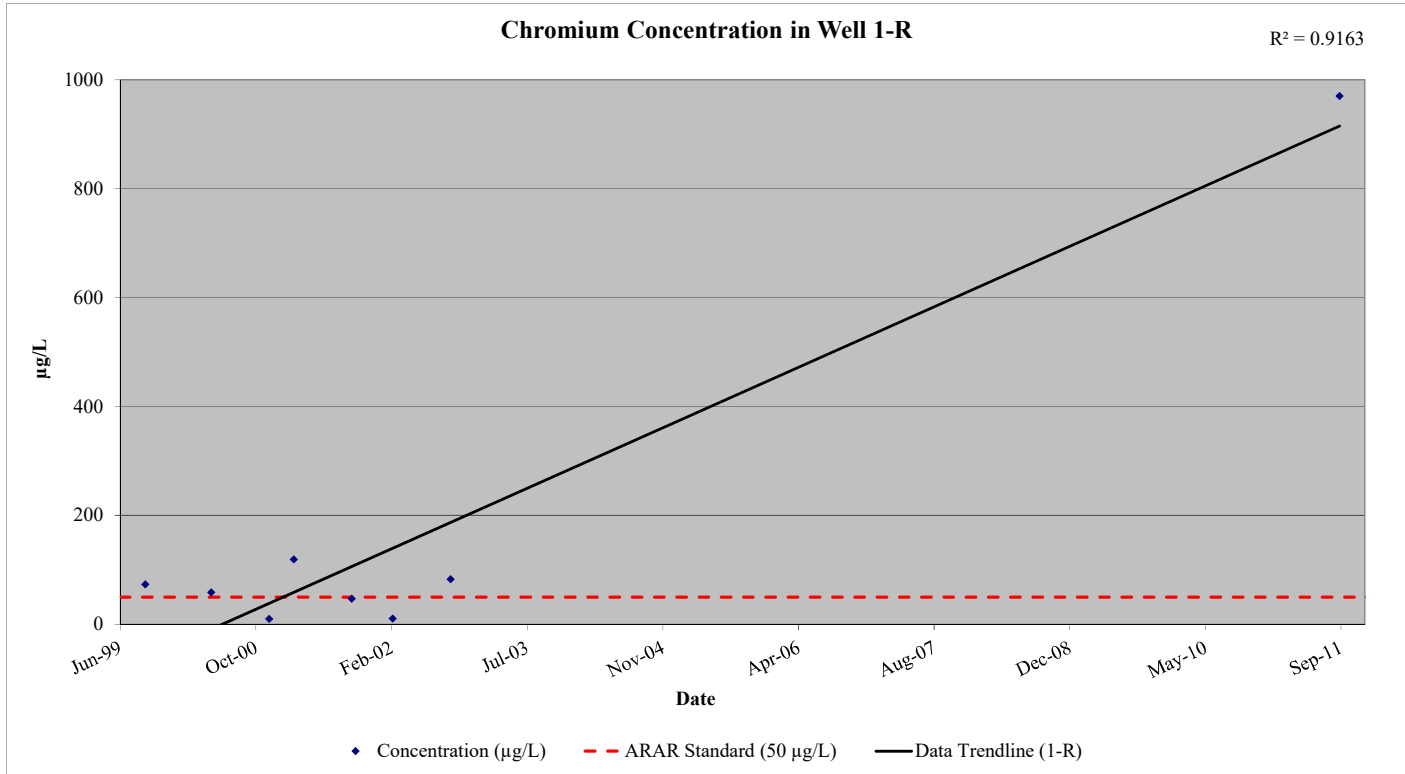
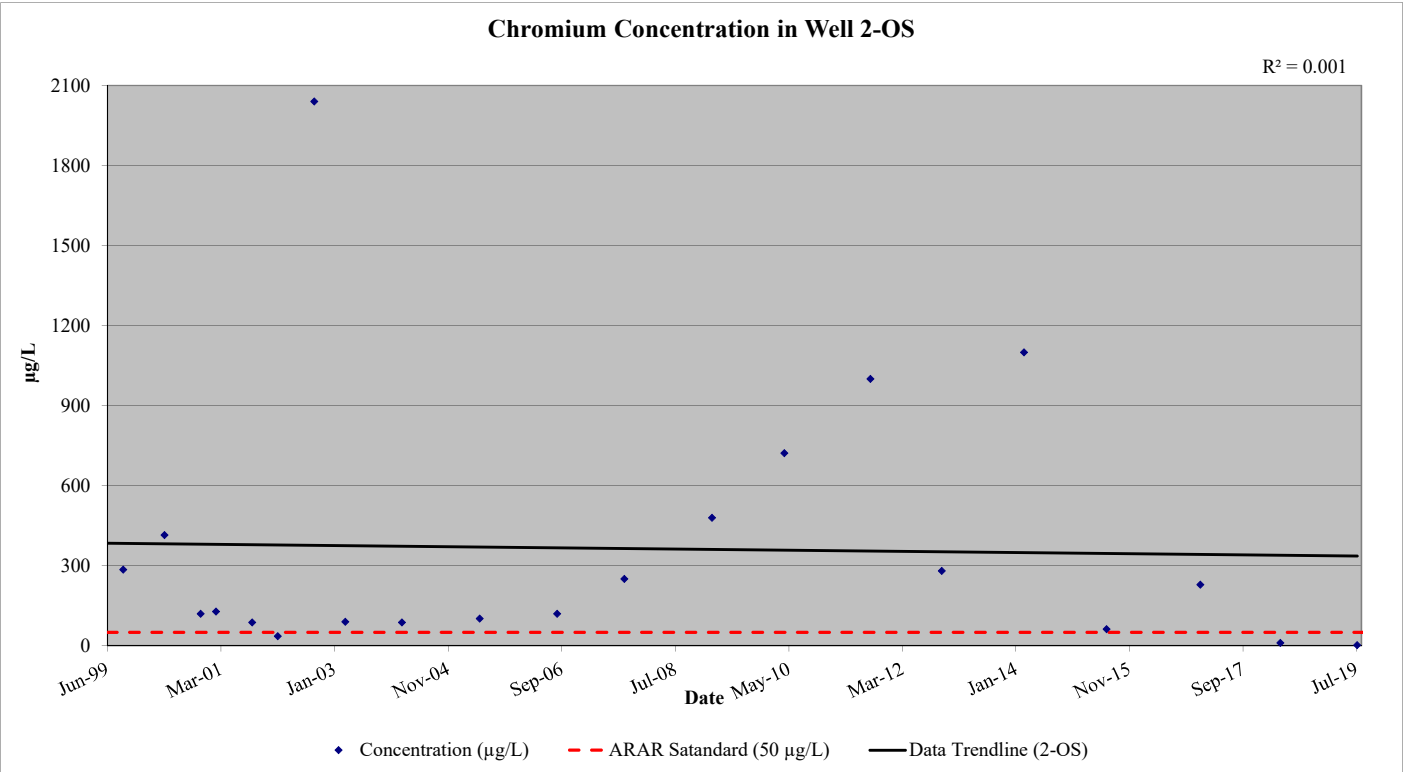
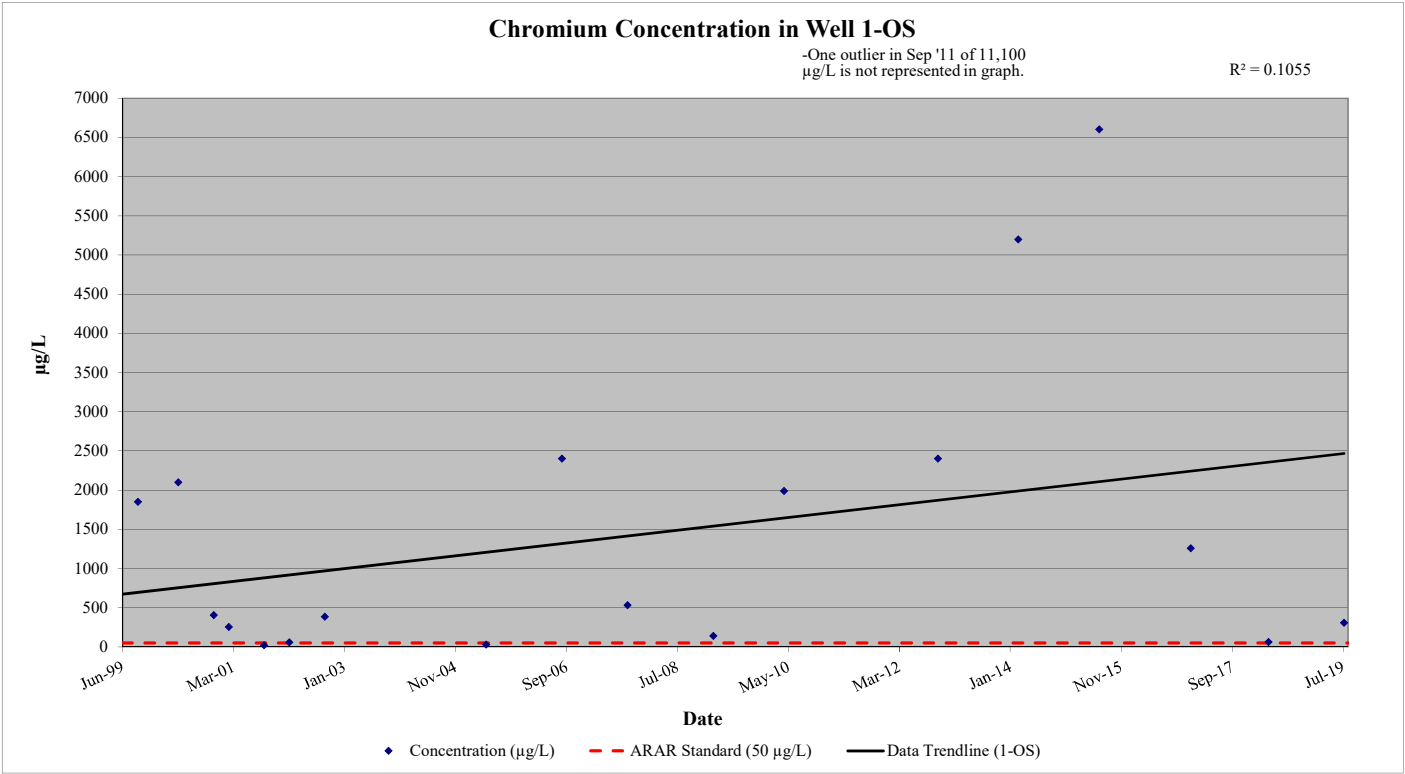


Table 12

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

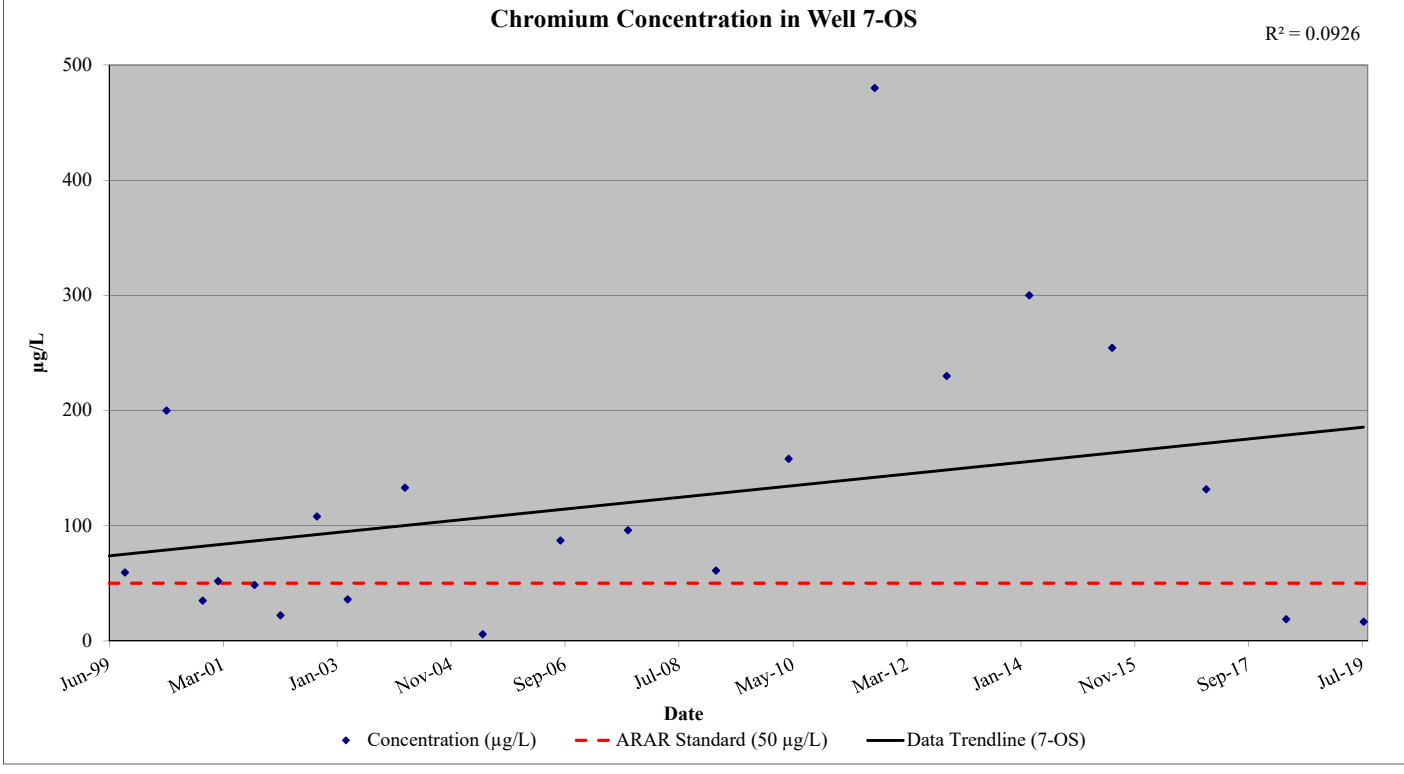
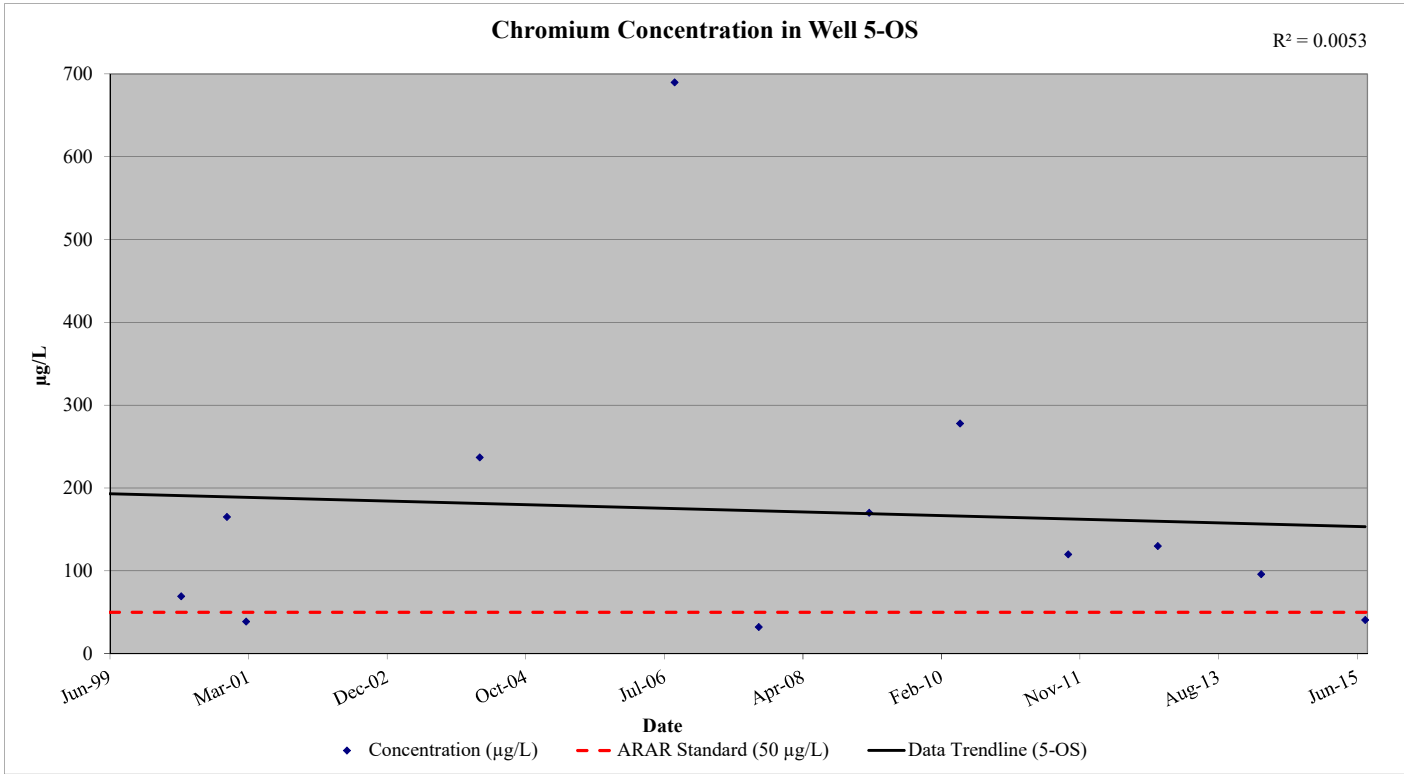
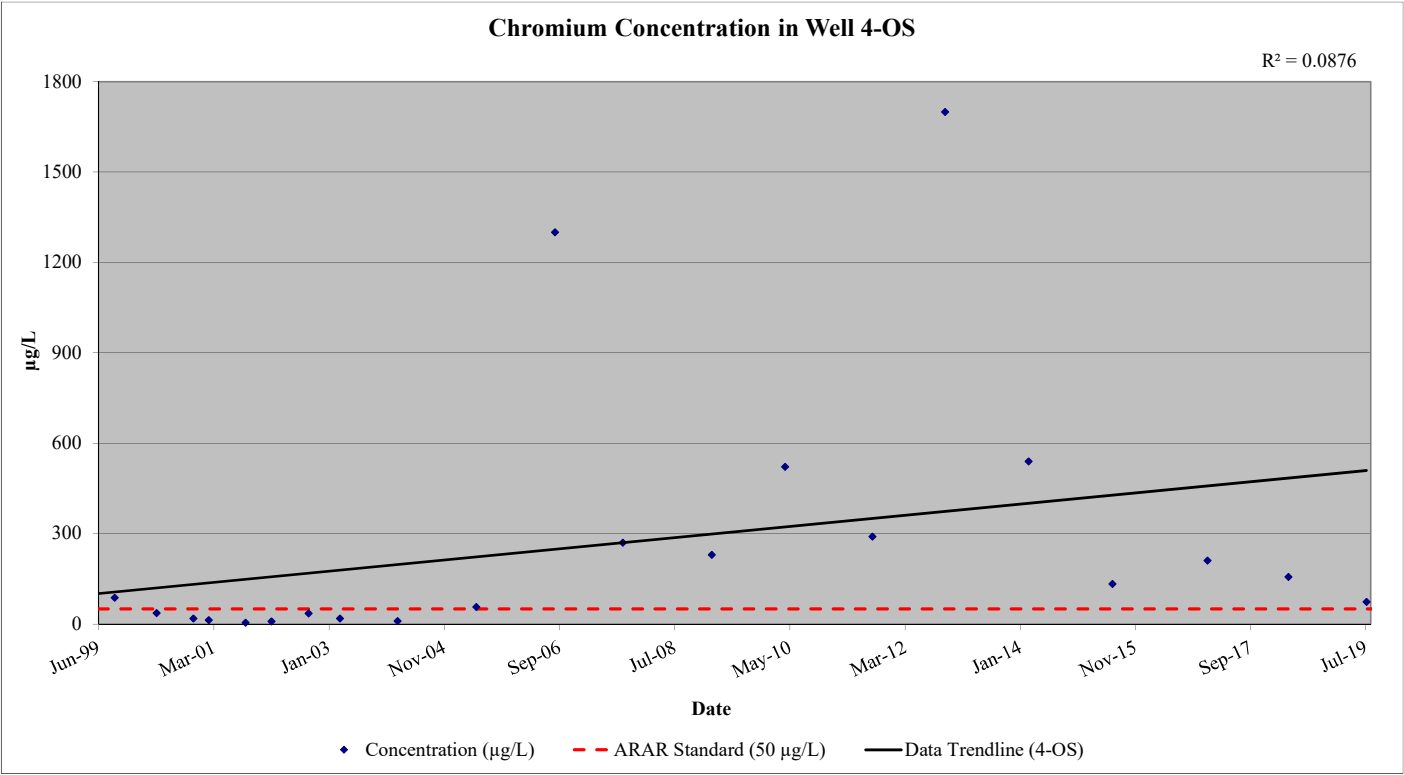
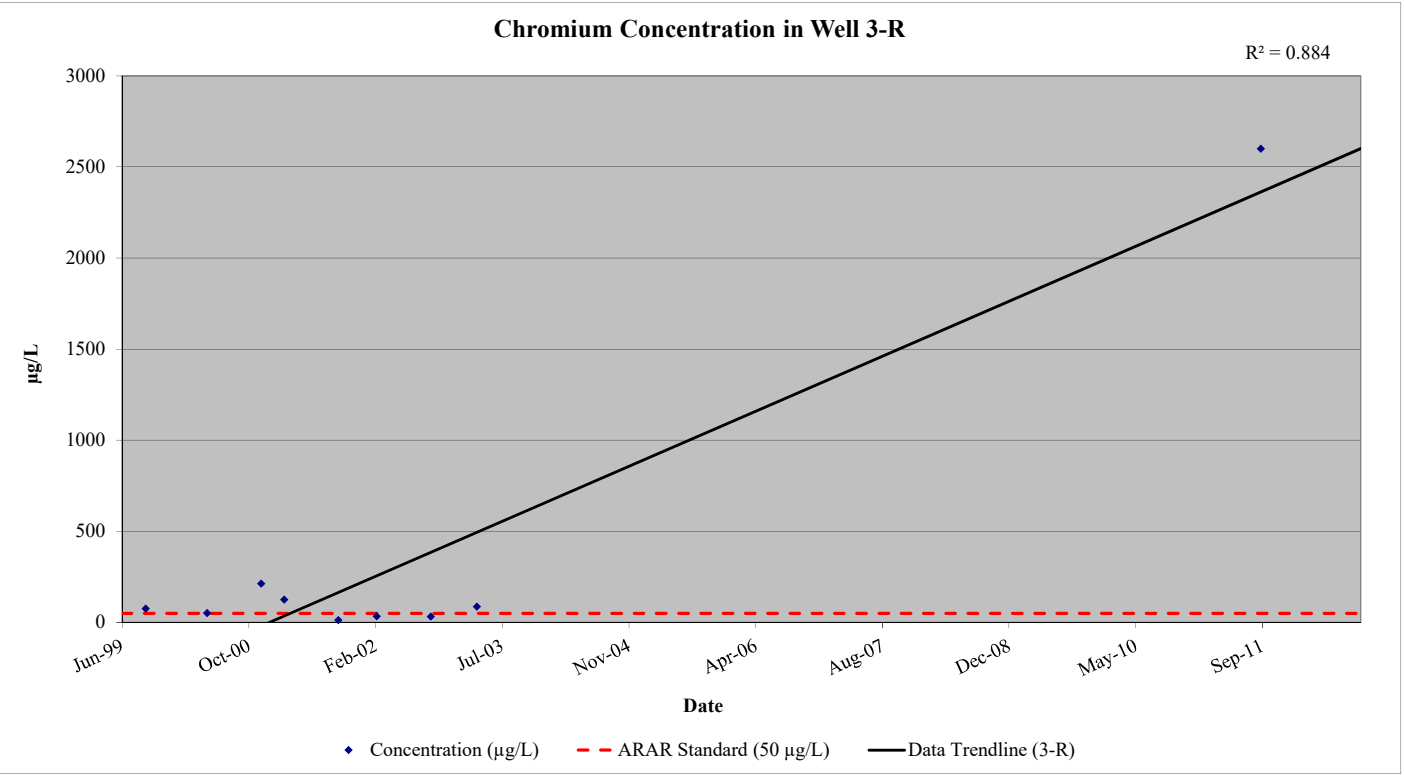


Table 12

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

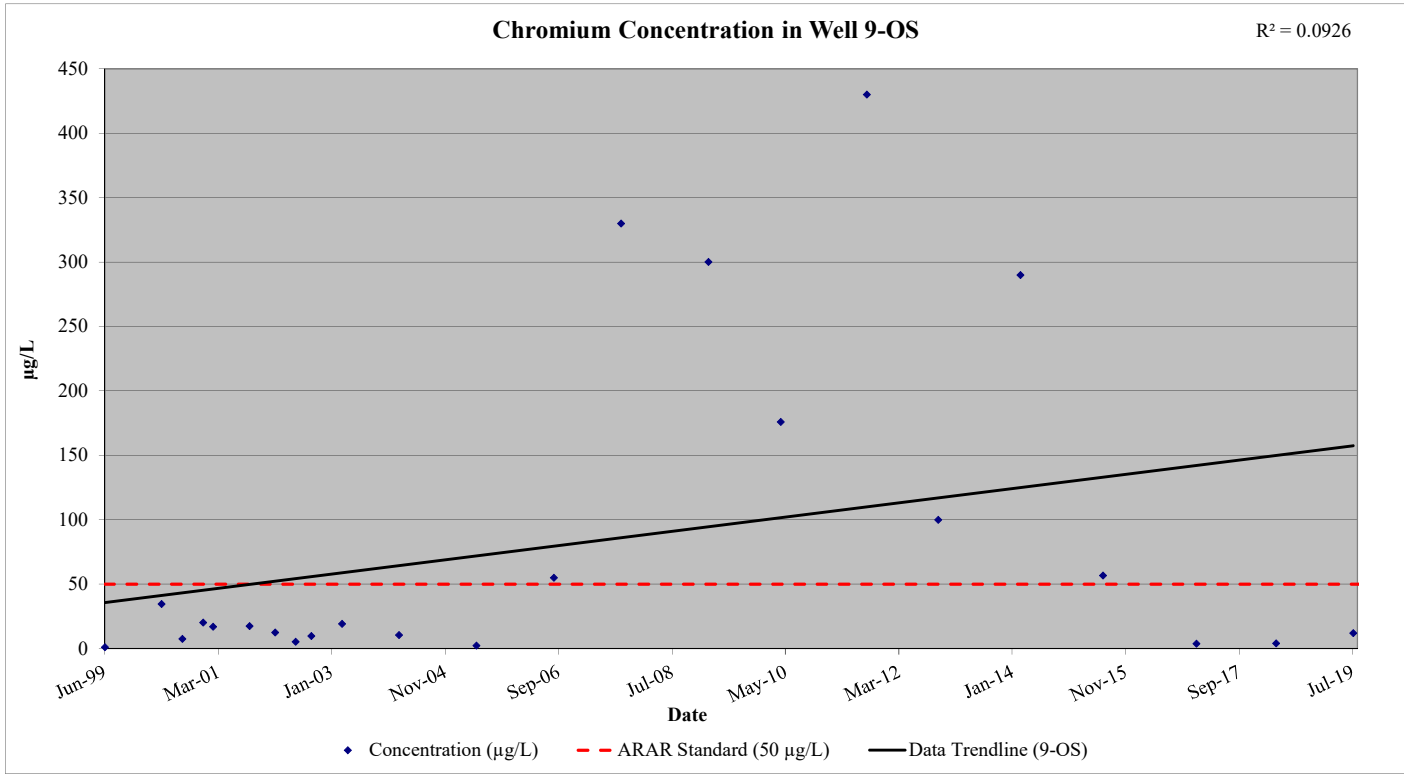
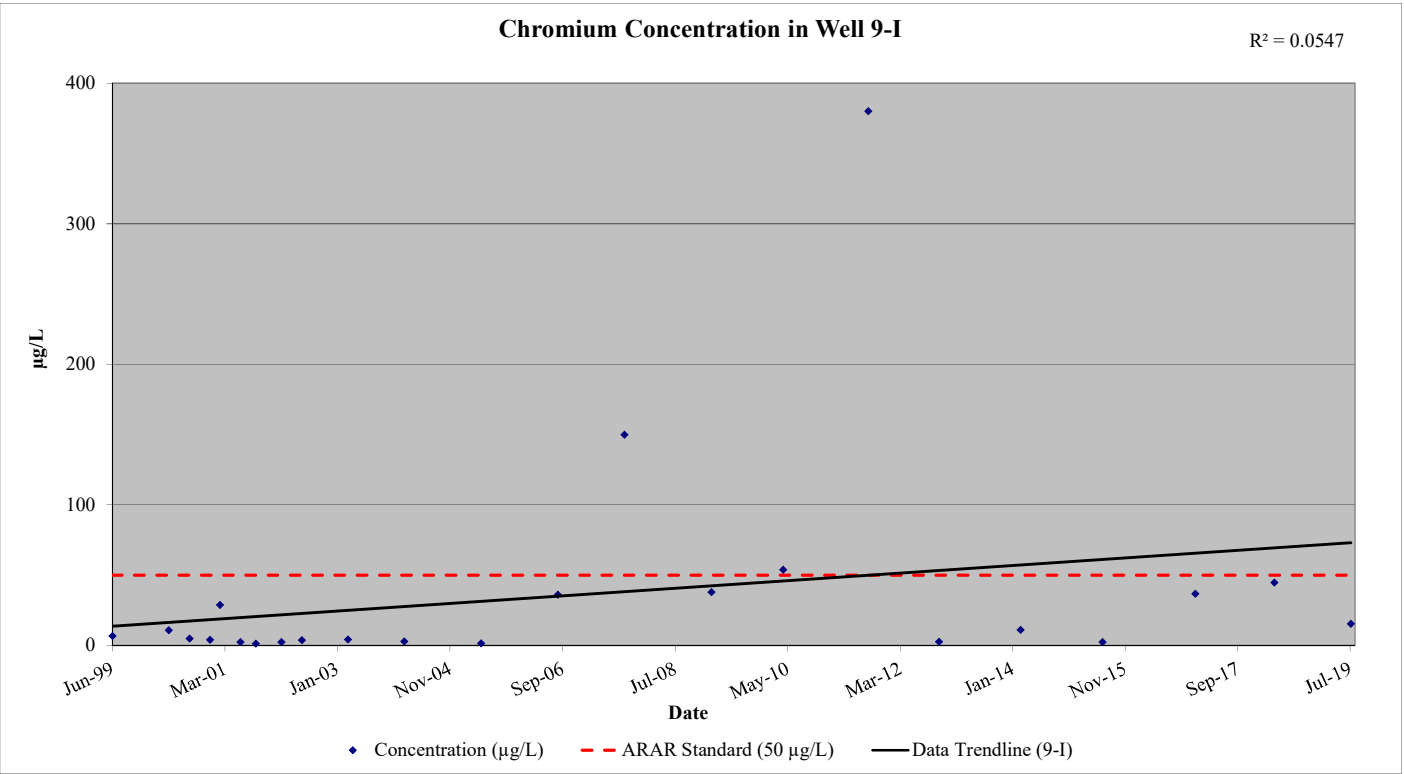
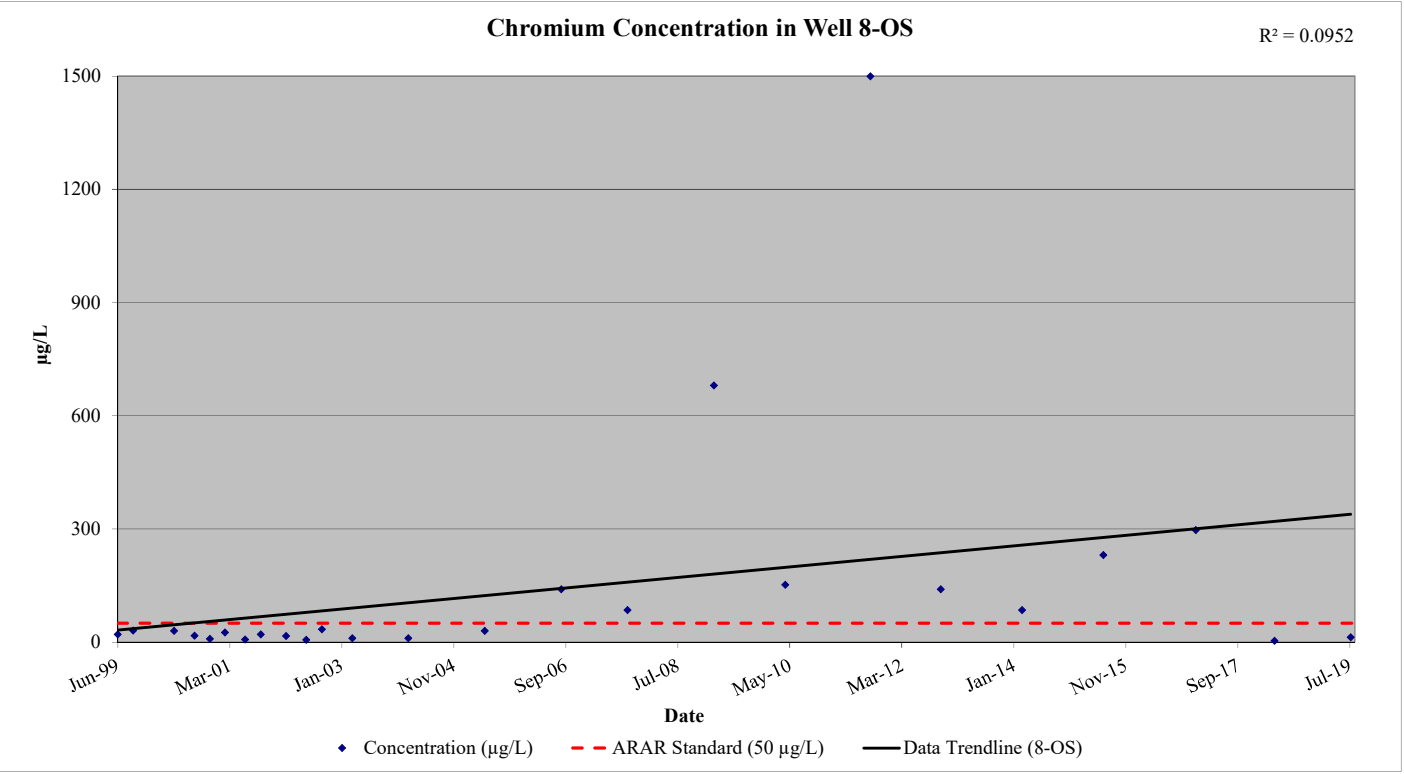


Table 13

Summary of Historical Groundwater Quality Results - Iron (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	473	19,100	1,140	515	949	4,360	NA	NA	NA	NA	NA	NA	163	114	169	83	90	68
Sep-99	76,200	1,420	6,910	2,640	1,990	8,770	50,200	7,500	NA	700	40	11,300	ND	747	4,270	5,260	198	ND	3,110	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
May-00	40,500	867	32,900	1,790	3,310	1,610	16,300	5,900	41,500	NA	5,000	4,300	128	1,200	9,870	1,180	1,880	2,820	1,340	NA	NA	NA	NA	NA	NA	18 B	59 B	9 B	4 B	23 B	5 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	< 2.8	37 B	4 B	< 2.8	< 2.8	< 2.8
Dec-00	43,800 E	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	310 E	4,450 E	26,400 E	2,580 E	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62 B,E	37 B,E	21 B,E	14 B,E	53 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	5 B	NA	NA	NA	NA	NA
Mar-01	54,100	15,700	37,700	337	5,810	4,400	7,690	4,220	22,800	NA	826	4,170 N	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	15 B	11 B	62 B	22 B	25 B	28 B
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,460	27,600	1,680	< 2.8	2,350	8,320	NA	NA	NA	NA	NA	NA	561	26 B	29 B	7 B	103	19 B
Oct-01	16,400 E	6,260 E	24,500 E	299	4,090 E	1,140 E	1,760 E	3,850 E	NA	186 E	96 E	10,400 E	22 B,E	4,600 E	6,560 E	1,770 E	3,780 E	145 E	8,150 E	NA	NA	NA	NA	NA	NA	16 B	59 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	73	3,060	16,700	2,110	896	2,000	5,980	NA	NA	NA	NA	NA	NA	8 B	36 B	< 4.5	11 B	13 B	< 4.5
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,540 *	16,700 *	1,580 *	789 *	3,290 *	7,110 *	NA	NA	NA	NA	NA	NA	8 *B	17 *B	19 B	< 6.6	9 B	< 6.6
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	61 E	1,230 E	21,200 E	NA	6,600 E	17,600 E	1,490 E	500 E	40 B,E	6,140 E	NA	NA	NA	NA	NA	NA	24 B,E	33 B,E	939 E	53 B,E	91 E	11 B,E
Apr-03	NA	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	969	1,600	3,710	5,720	NA	NA	NA	NA	NA	NA	9 B	25 B	24 B	20 B	56 B	7 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	506	1,630	4,890	NA	NA	NA	NA	NA	NA	20 B	28 B	203	30 B	157	< 16.8
Jun-05	54,200 N	NA	144 N	NA	60,500 N	NA	1,230	NA	NA	124 N	NA	1,310	NA	3,150	13,900	751	453	318	6,430	NA	NA	NA	NA	NA	NA	19 B	115	14 B	8	17 B	< 7.7
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	15 J	34 J	21 J	< 50	260	< 50
Oct-07	160,000	NA	31,000	NA	25,000	NA	24,000	NA	850	NA	NA	13,000	NA	780	39,000	1,300	6,300	41,000	8,500	NA	NA	NA	NA	NA	NA	17 J	130	46 J	12 J	76	< 50
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	12 J	140	29 J	NA	33 J	16 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	563 B	4,640 B	30,300 B	12,500 B	NA	NA	NA	NA	NA	NA	23 B,J	71 B	< 50	NA	30 B,J	598 B
Sep-11	82,000	8,600 B	16,000	260	158,000	18,000	3,500	NA	66,500	1,300	28,100 B	19,300	NA	6,500	12,600 B	350 B	7,500 B	40,100 B	7,300 B	NA	NA	NA	NA	NA	NA	28 B,J	80 B	140 B	90 B	NA	NA
Nov-12	45,200	NA	6,600	NA	34,800	NA	18,500	NA	68,500	NA	NA	14,300	NA	950	15,800	300	1,300	75	5,400	NA	NA	NA	NA	NA	NA	55	250	< 50	< 50	< 50	NA
Mar-14	66,000	NA	17,900	NA	16,600	NA	8,900	NA	53,500	NA	NA	24,500	NA	540	14,400	210	3,700	100	6,800	NA	NA	NA	NA	NA	NA	34 J	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	114	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	311	1,760	23 J	9,270	273	331	85	NA	NA	NA	30 J	90	<20	<20	480	<20
Jan-17	10,400	NA	3,670	NA	8,560	NA	1,160	NA	NA	NA	NA	806	NA	2,140	9,520	373	42 J	241	968	186	22 J	111	219	165	463	48 J	66	34 J	47 J	104	76
May-18	533	NA	324	NA	25,200	NA	1,140	NA	NA	NA	NA	265	NA	56.4	10,200	294	66.9	347	22,800	275	133	765	435	3,230	55.3	193	148	36.2 J	50 U	21.7 J	19.7 J
Jul-19	7,150	NA	3,710	NA	37,600	NA	633	NA	NA	NA	NA	348	NA	240	8,930	195	270	113	1,650	19.4 J	95.4	77.8	1,150	106	200	21.4 J	31.9 J	19.1 U	54	54	19.1 U

Notes:
ARAR Standard = 300 µg/L; USEPA Secondary MCL = Not Available; and, Part 5 MCL = 300 µg/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
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

Laboratory Qualifier Definitions
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.
ND or U = Not Detected

Table 13

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

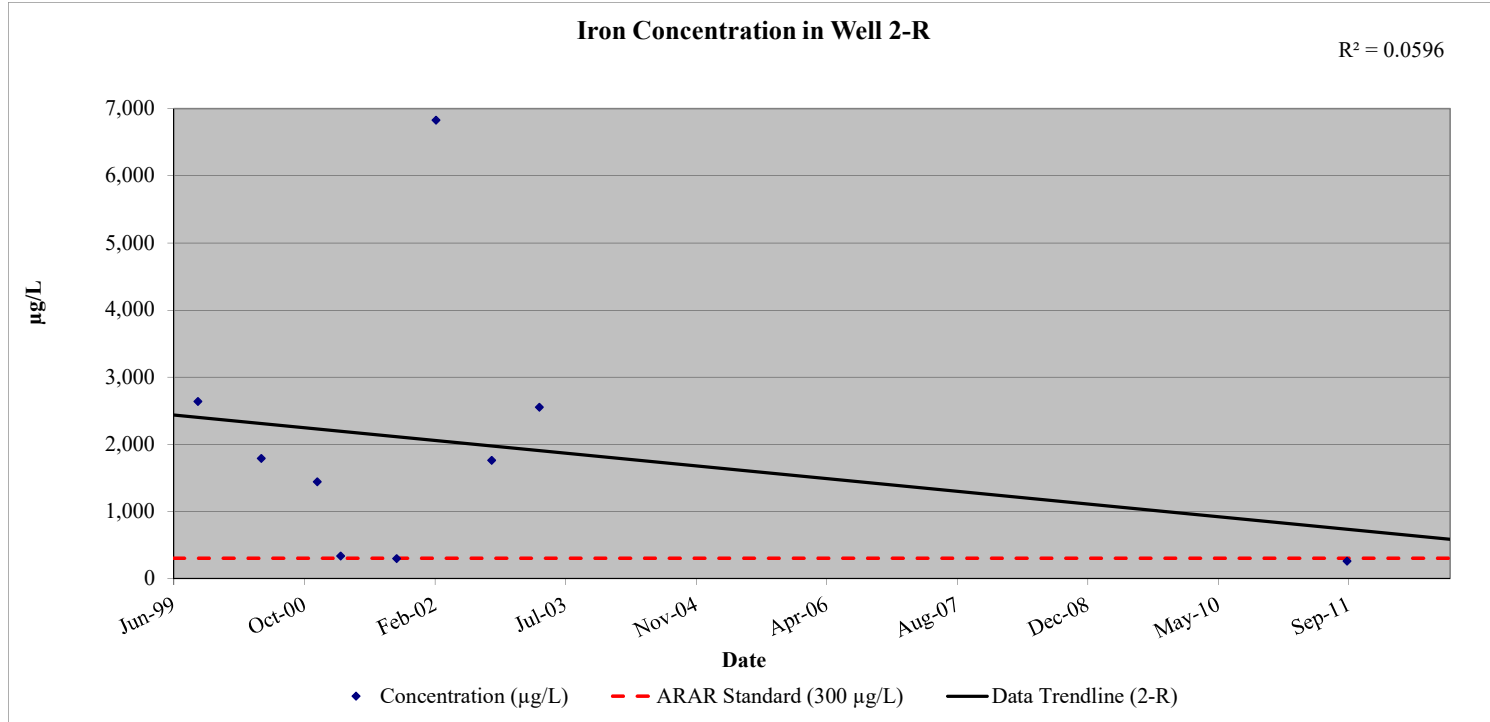
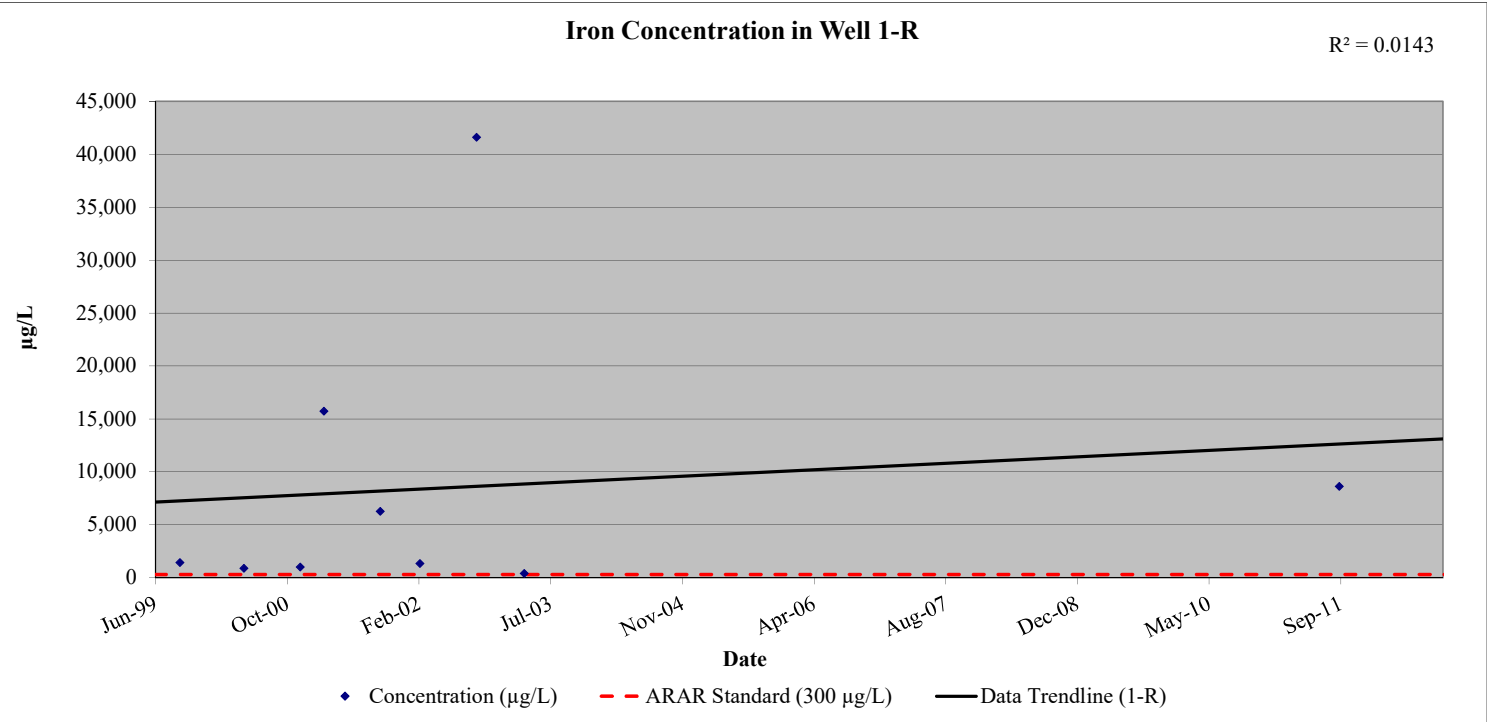
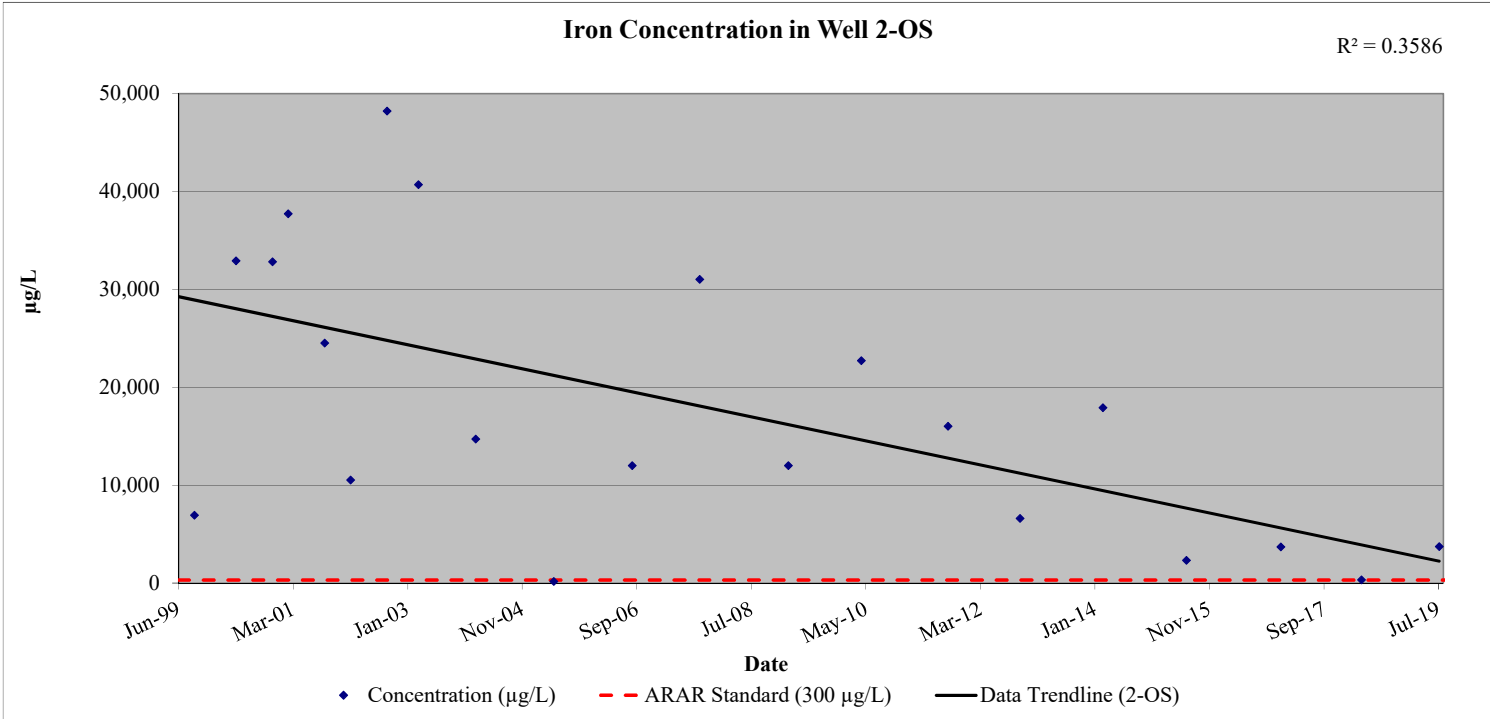
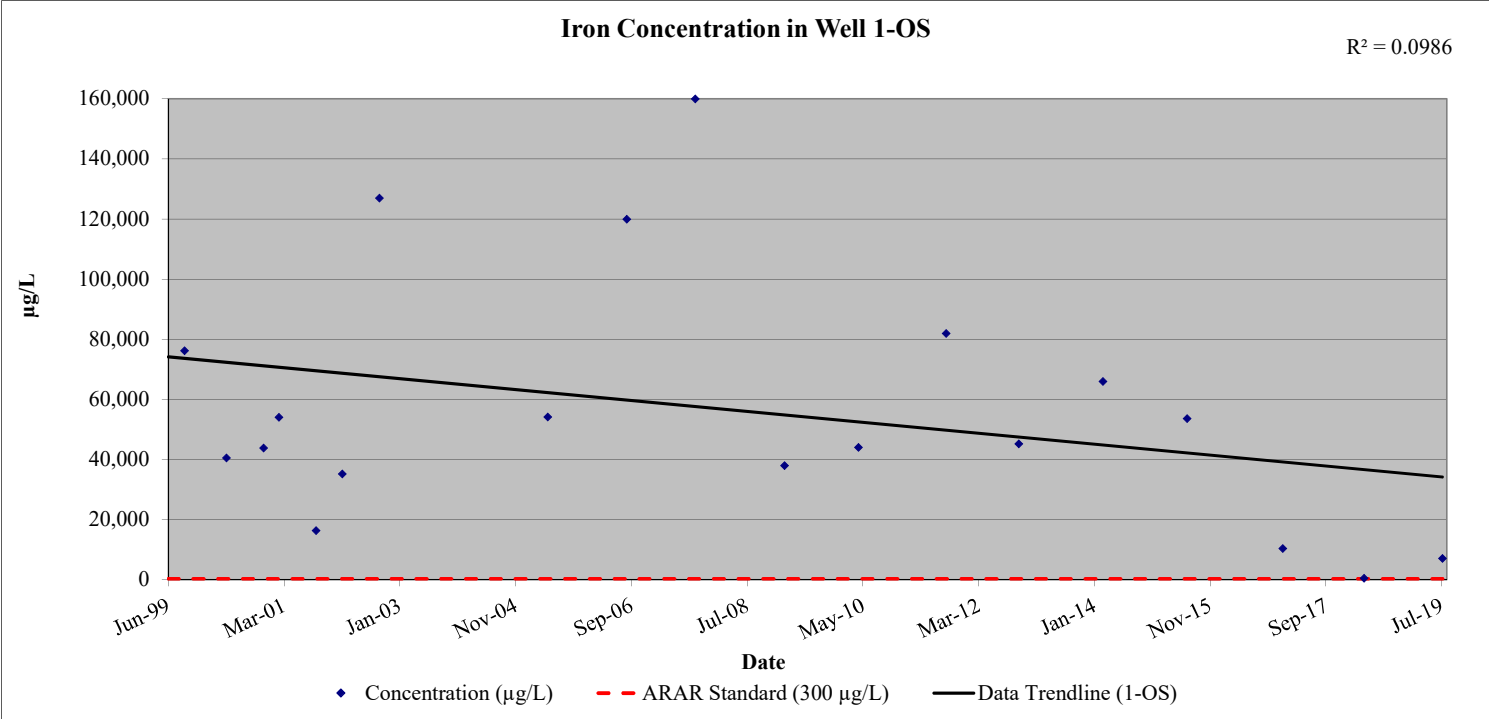


Table 13

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

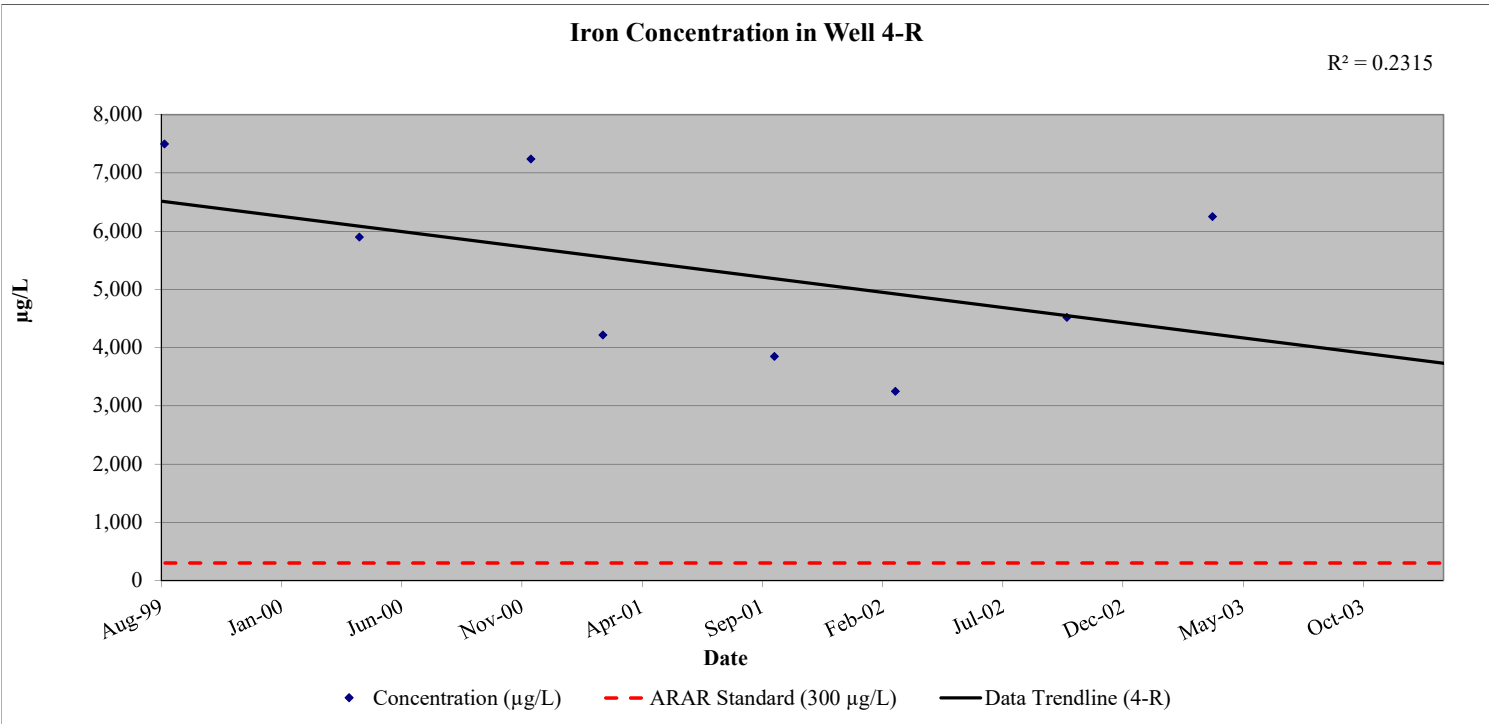
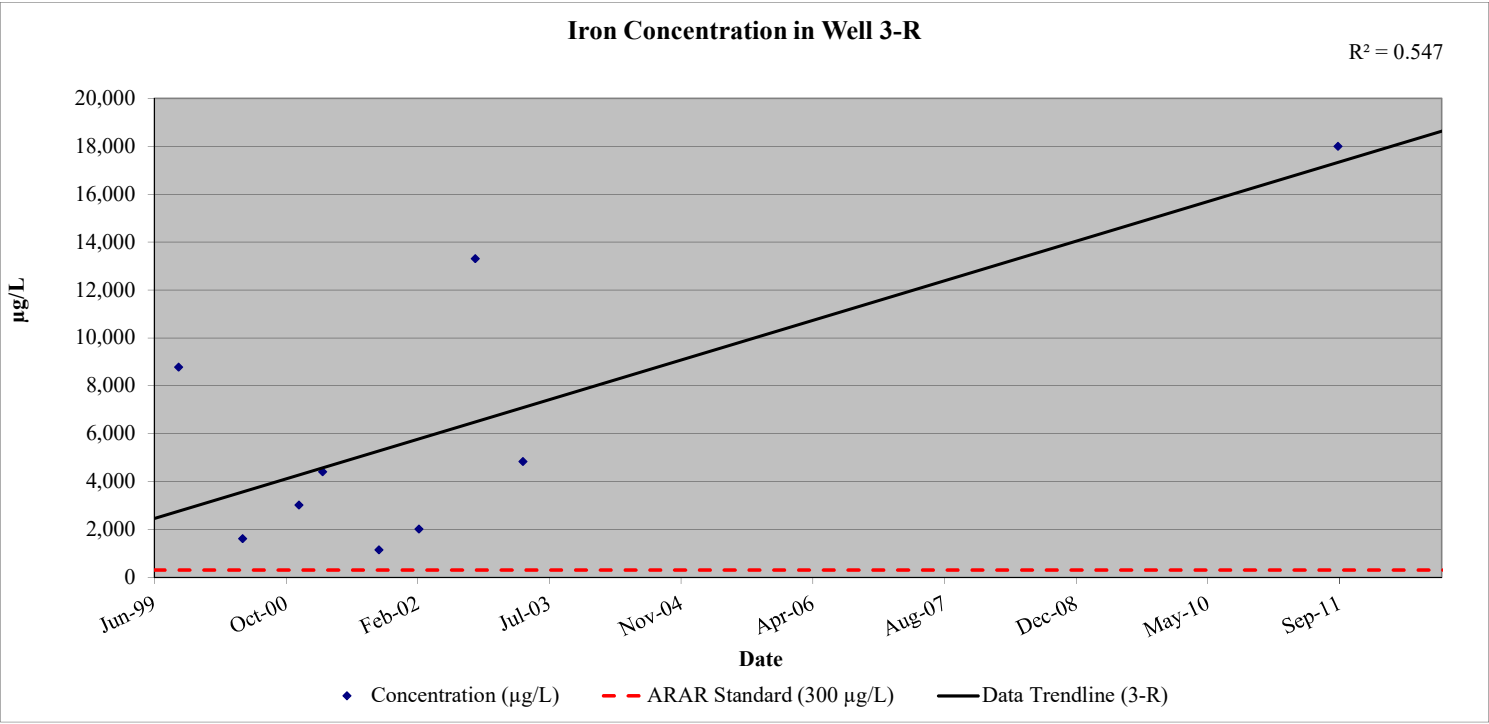
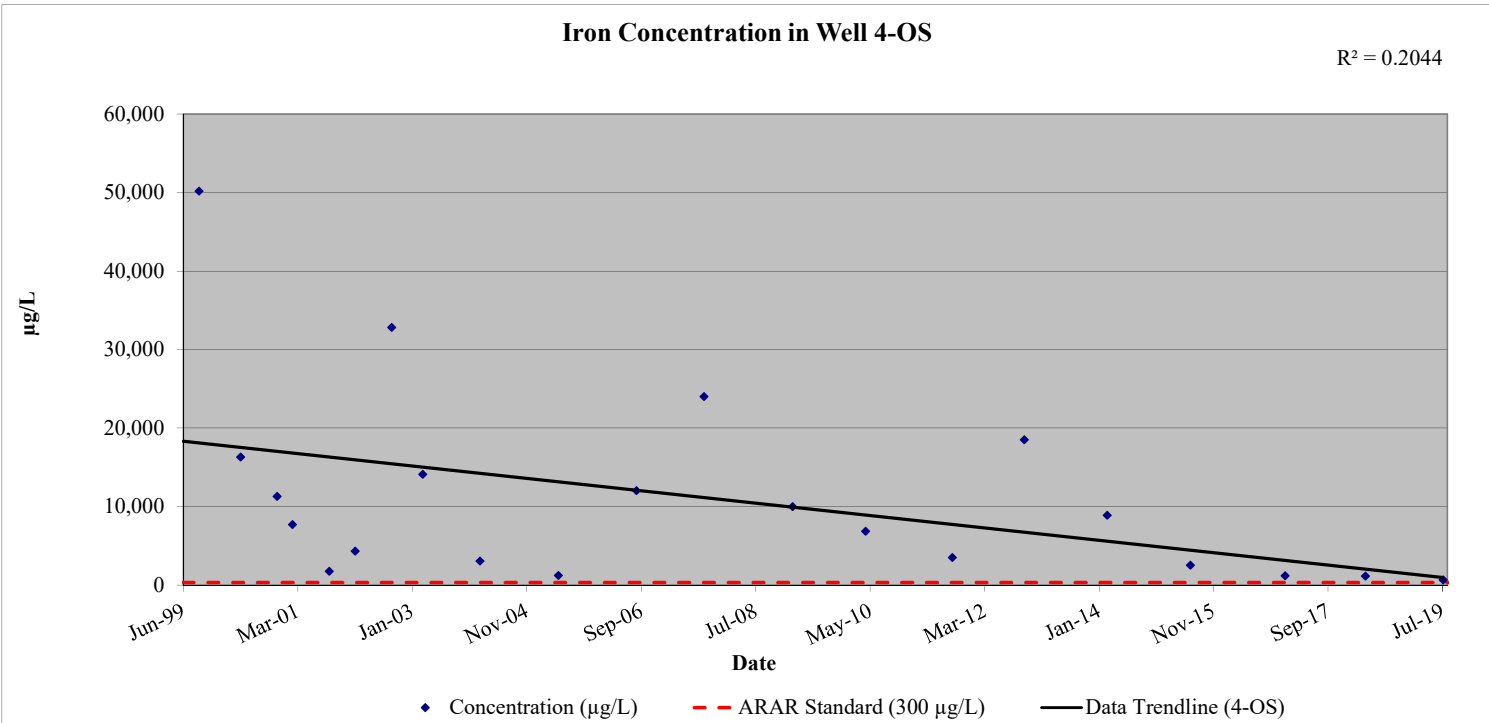
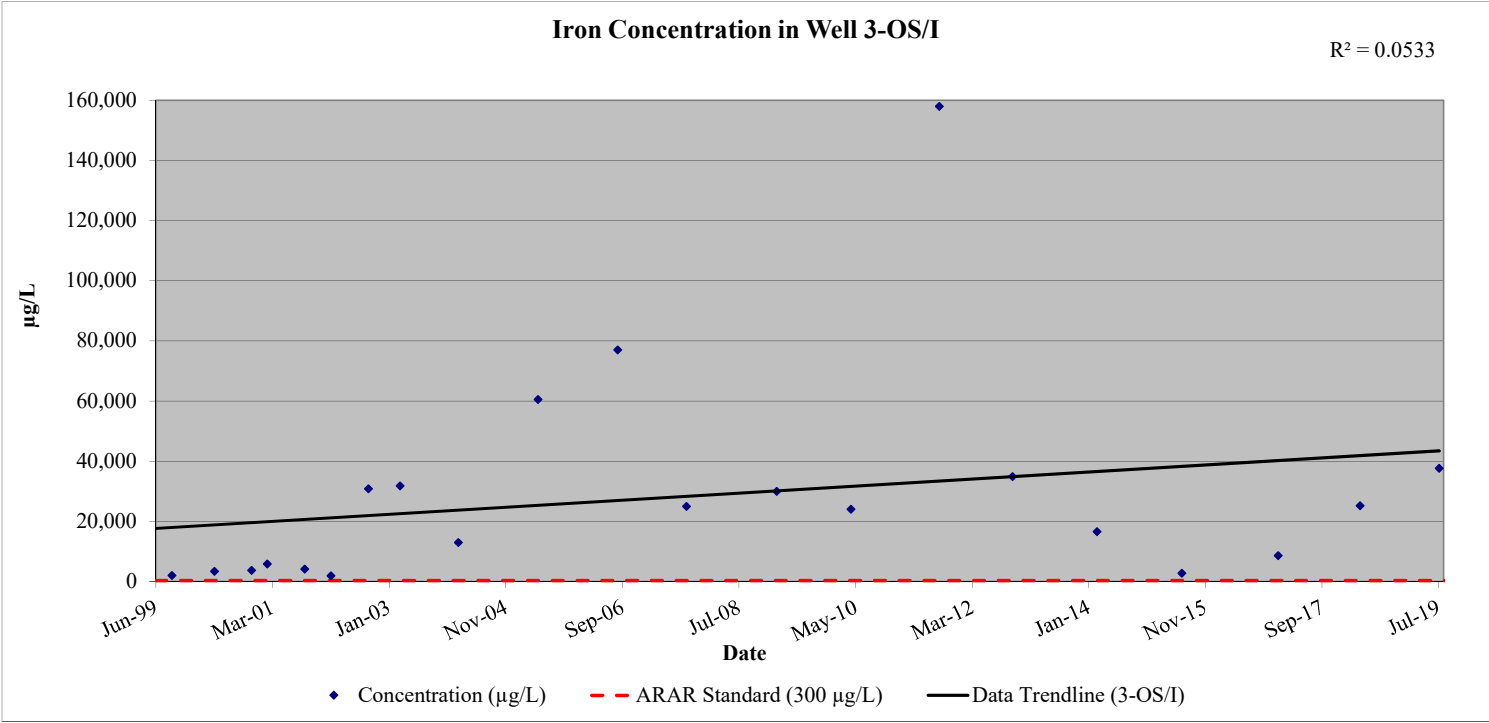


Table 13

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

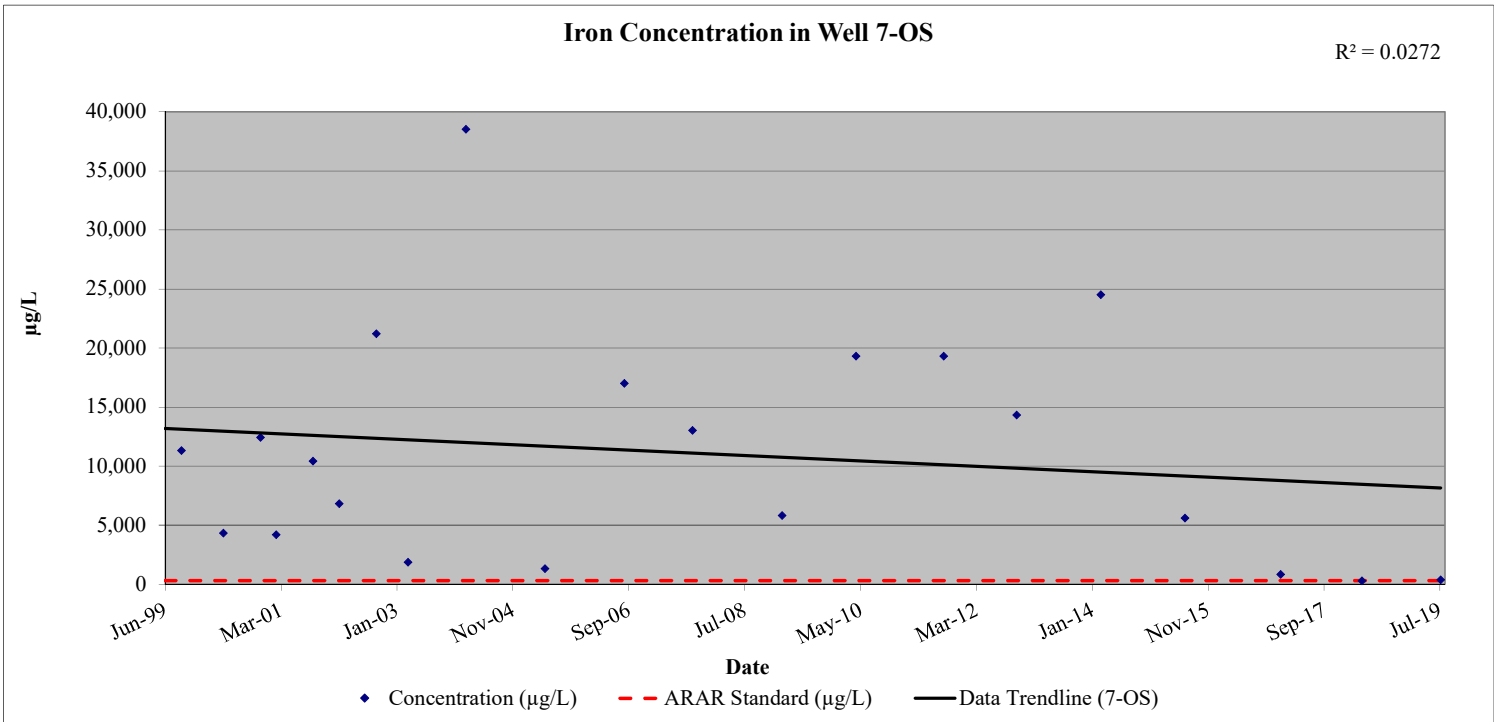
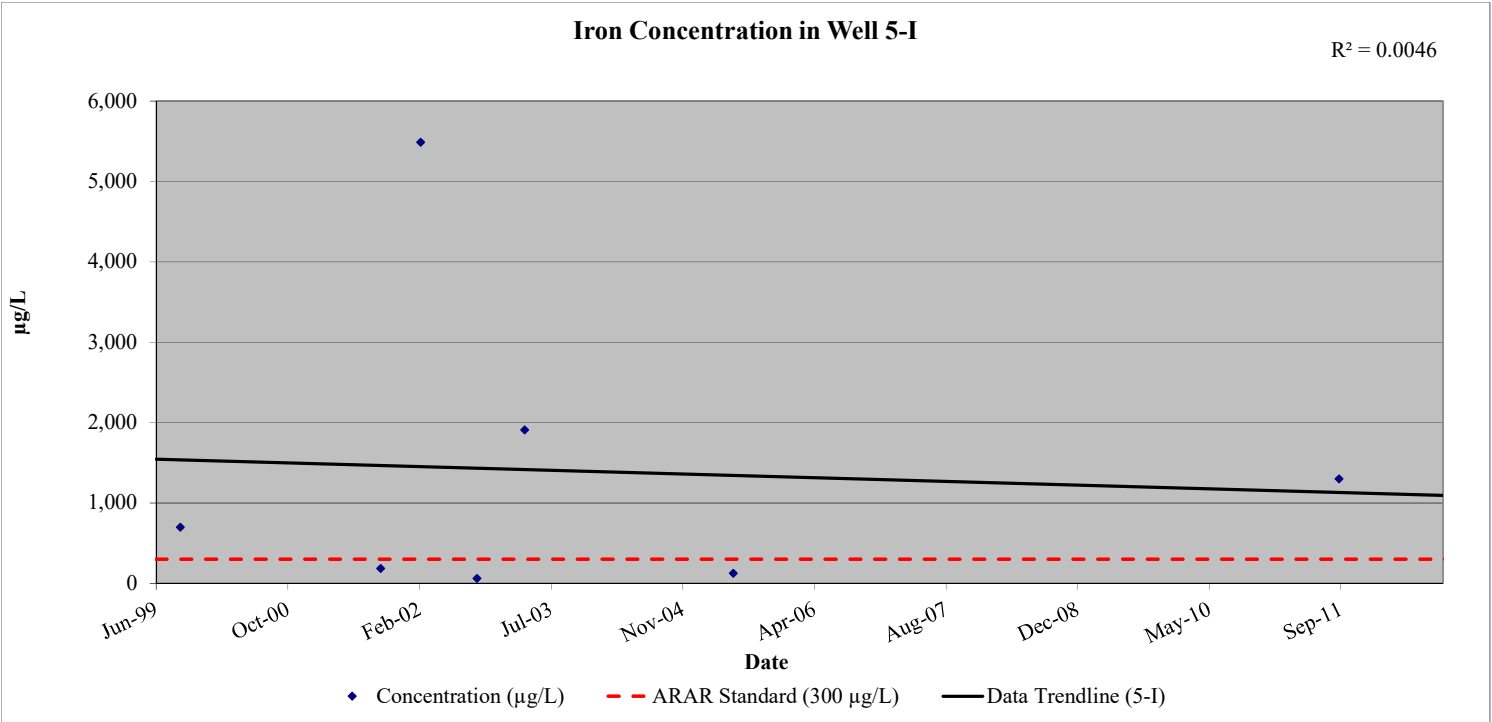
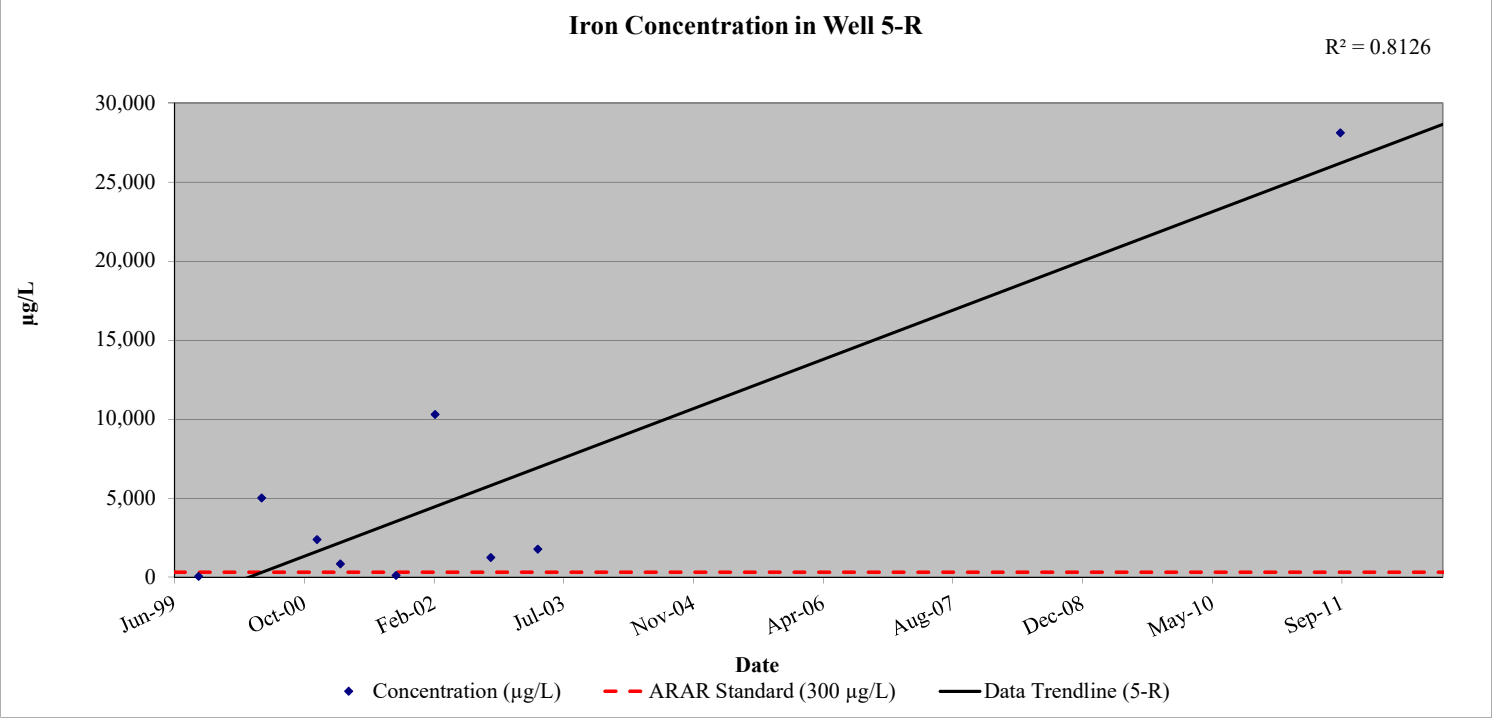
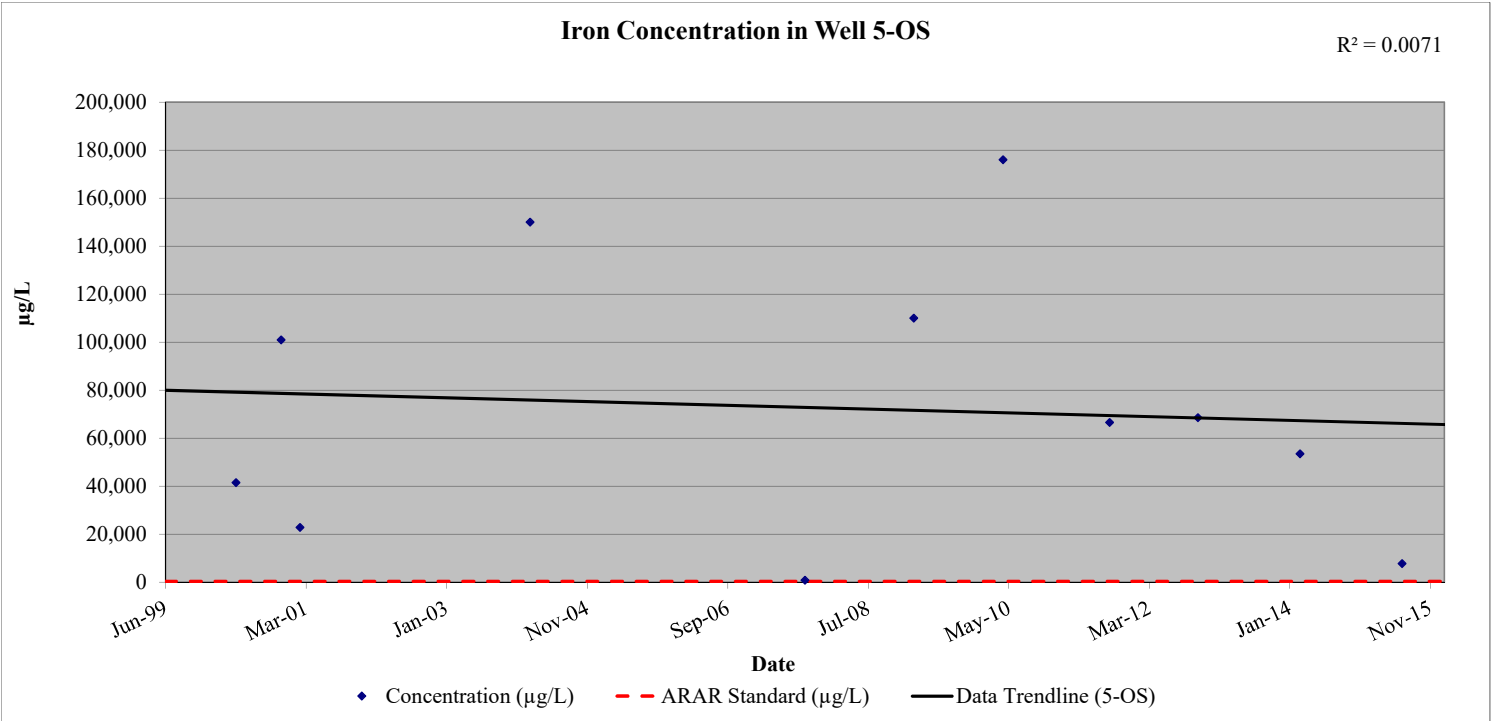


Table 13

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

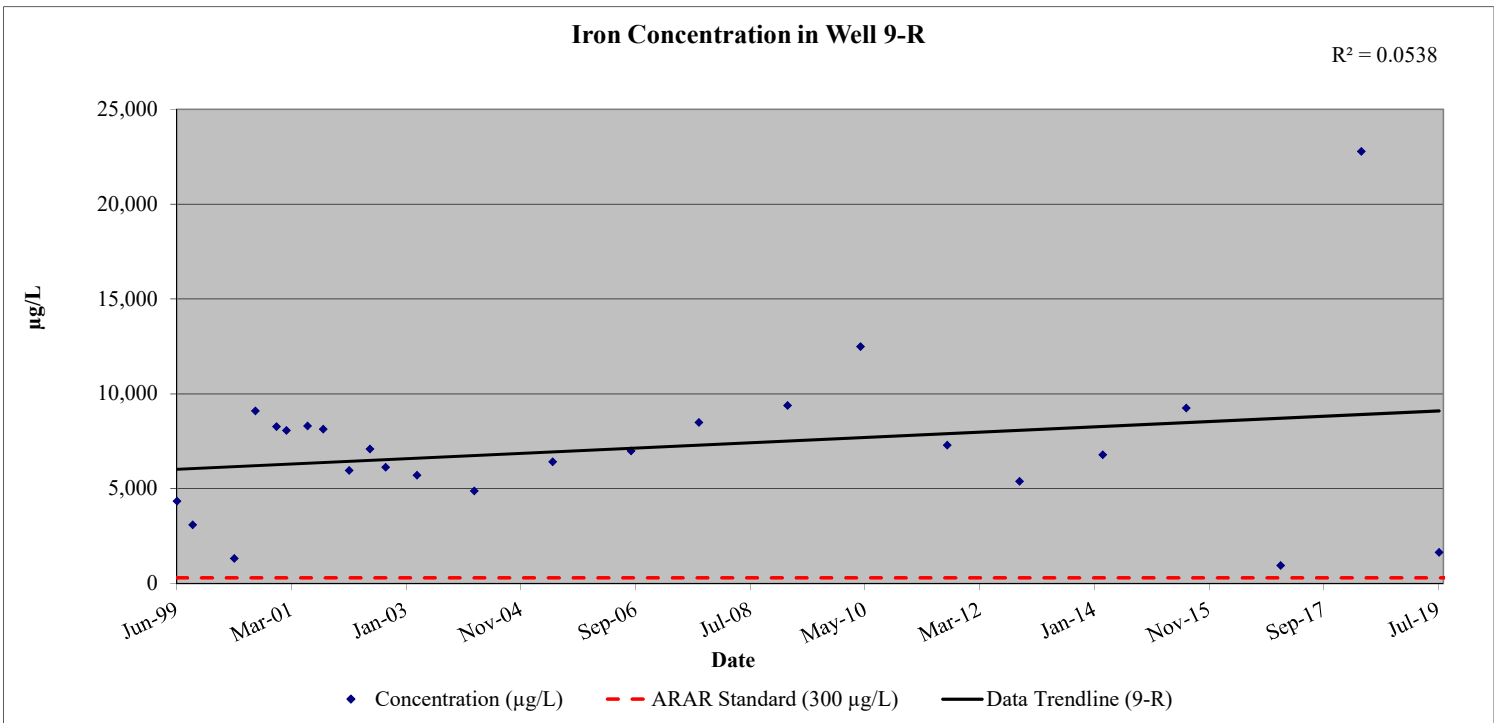
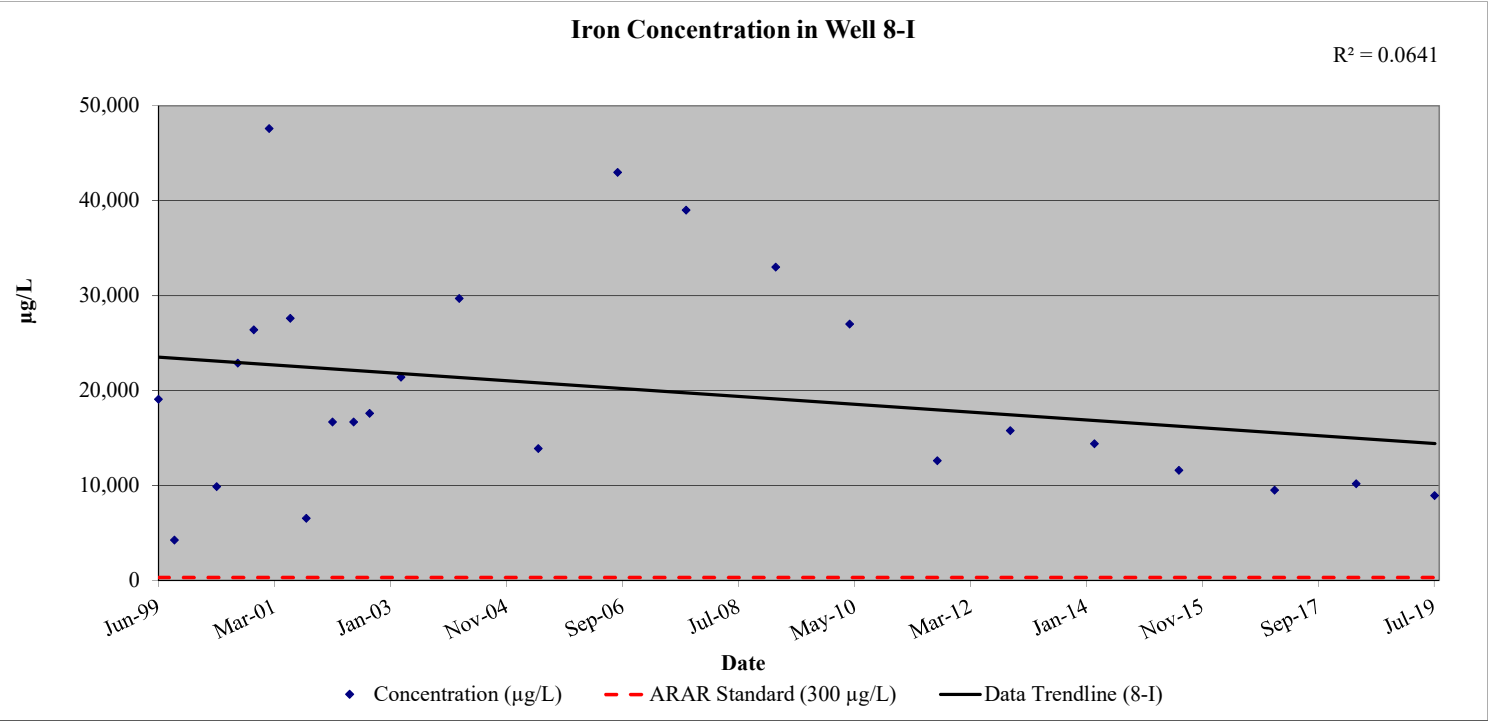
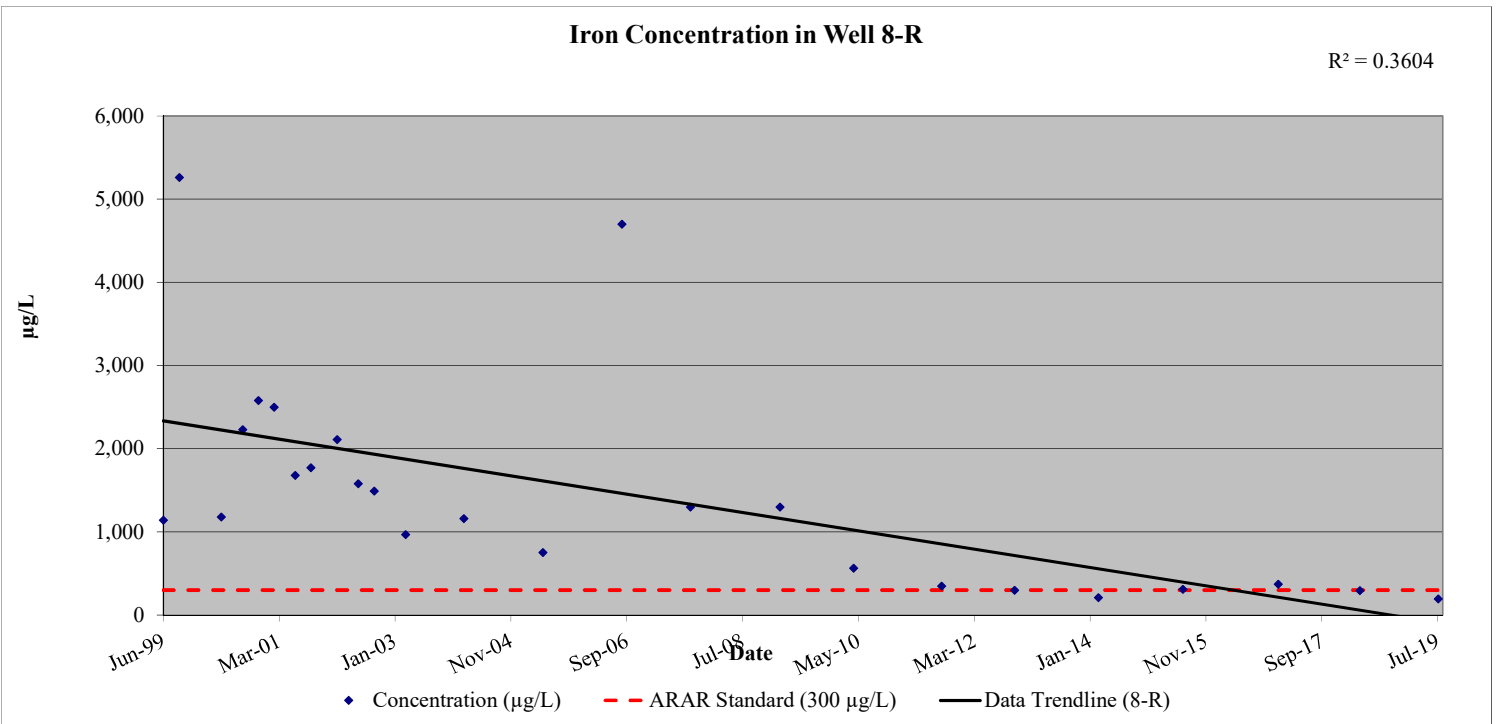
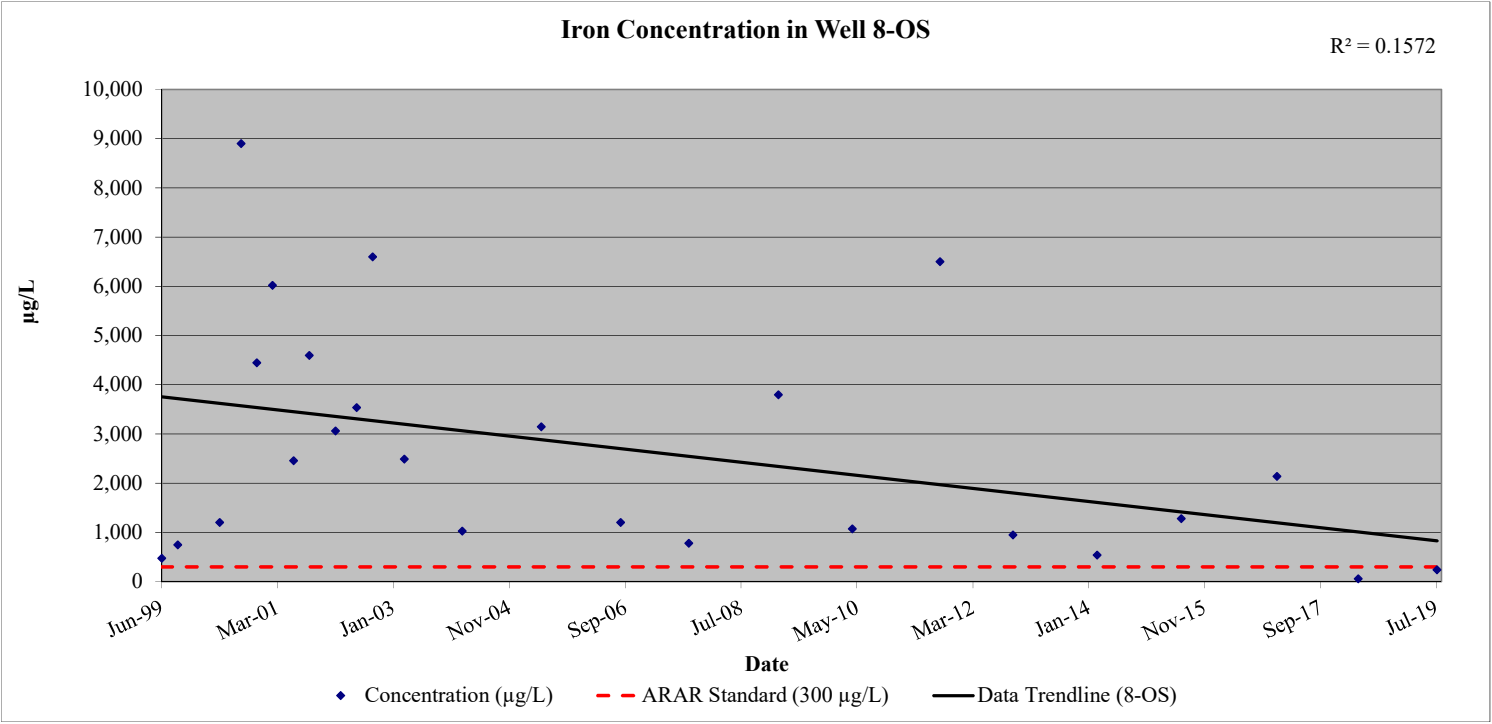


Table 13

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

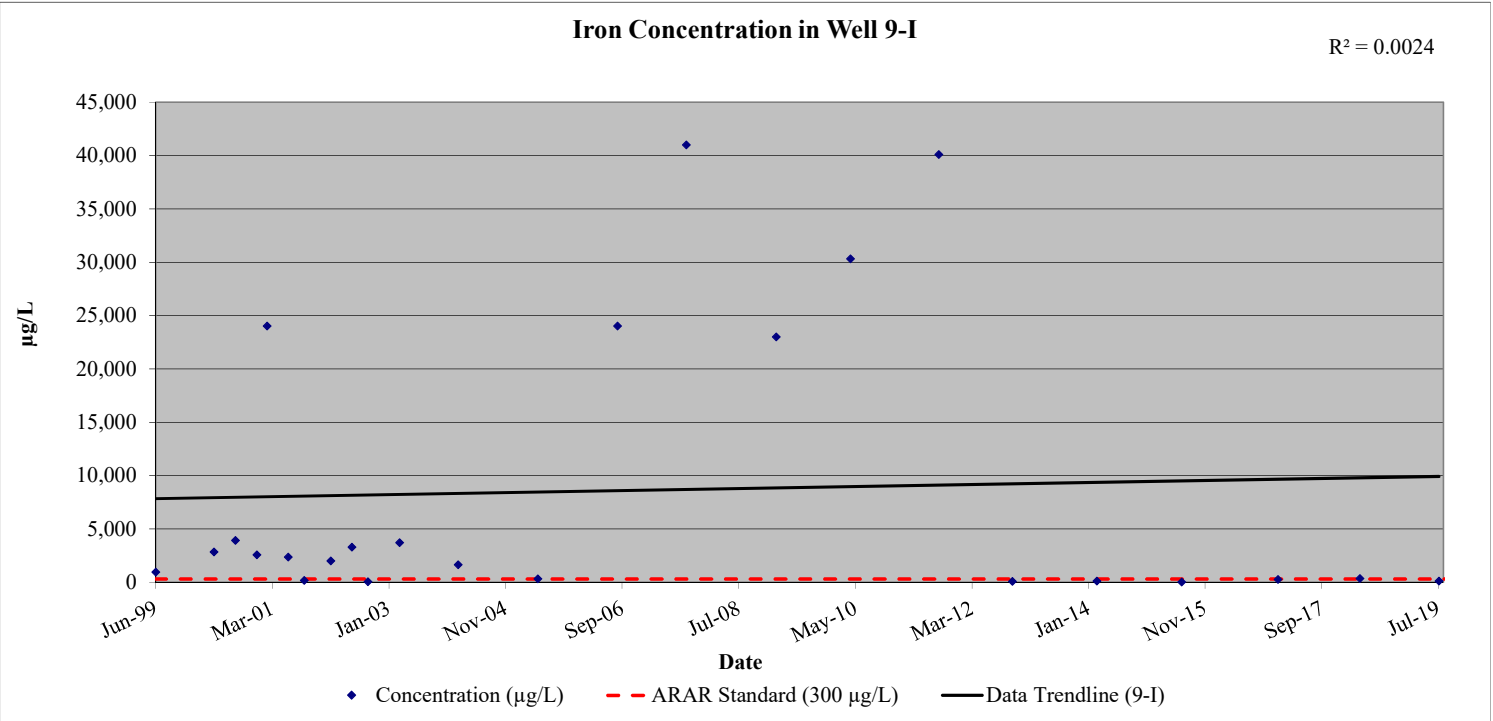
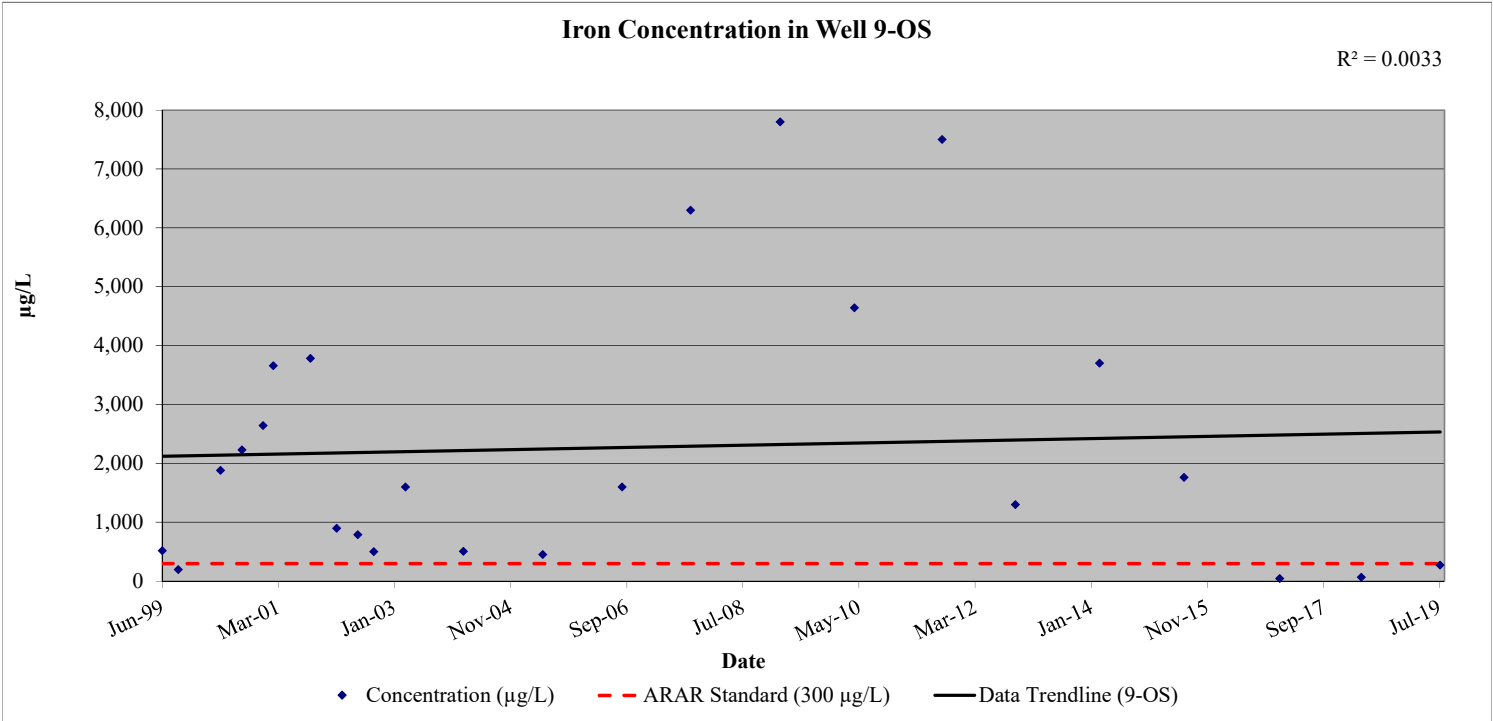


Table 14

Summary of Historical Groundwater Quality Results - Lead (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	5.5	2.5	ND	ND	ND	NA	NA	NA	NA	NA	NA	2.5	ND	2.7	ND	ND	ND
Sep-99	10.1	ND	4	ND	ND	ND	12.3	ND	NA	ND	ND	4.9	ND	ND	ND	10.8	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
May-00	5.8	< 1.5	38	< 1.5	< 1.5	1.8 B	2.3 B	< 1.5	5.4	NA	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	1.8 B	2.3 B	NA	NA	NA	NA	NA	NA	6.8	2.3 B	2.3 B	< 1.5	< 1.5	< 1.5
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 3.4	4.8	4.4	2.6 B	1.9 B	< 1.7	NA	NA	NA	NA	NA	NA	8.9	5.1	2.8 B	2.5 B	< 1.7	2 B
Dec-00	6.6	< 1.7	32.2	< 1.7	< 1.7	2 B	< 1.7	2.4 B	17.6	NA	< 1.7	5.7	< 1.7	< 1.7	3.6	< 1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3	< 2	< 2	NA	NA	NA	NA	NA	NA	4.1	NA	NA	NA	NA	NA
Mar-01	14.3	5.1	45.9	2.5 B	5.3	4.7	3.2	2.6 B	5.9	NA	3.9	< 2	< 2	< 2	6.8	< 2	< 2	4.6	2.2 B	NA	NA	NA	NA	NA	NA	2.3 B	< 2	< 2	< 2	< 2	< 2
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2	3..3	< 2	6	< 2	< 2	NA	NA	NA	NA	NA	NA	< 2	< 2	< 2	< 2	< 2	< 2
Oct-01	5 B	2.2 B	25.2	< 2	< 2	< 2	< 2	< 2	NA	< 2	< 2	7.1	< 2	< 2	< 2	2.2	< 2	< 2	< 2	NA	NA	NA	NA	NA	NA	2.9 B	4 B	NA	NA	NA	NA
Mar-02	8.6	3.3 B	10	4.8 B	< 2.9	< 2.9	< 2.9	< 2.9 N	NA	< 2.9	3 B	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	NA	NA	NA	NA	NA	NA	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	NA	NA	NA	NA	NA	NA	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9	< 2.9
Oct-02	10.3 N	4.8 B,N	31.3 N	< 2.9 N	3.9 B,N	4.2 B,N	7.1 N	< 2.9	NA	< 2.9 N	< 2.9 N	7.2 N	NA	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N	NA	NA	NA	NA	NA	NA	3.5 B,N	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N
Apr-03	NA	< 2.2	41.1	< 2.2	6.7	< 2.2	2.6 B	2.3 B	NA	< 2.2	< 2.2	< 2.2	NA	< 2.2	3.5 B	3 B	< 2.2	< 2.2	< 2.2	NA	NA	NA	NA	NA	NA	5.2	2.3 B	< 2.2	< 2.2	< 2.2	< 2.2
Mar-04	NA	NA	18.3 N	NA	2.2 B	NA	7.7 N	NA	34 N	NA	NA	12.8	NA	< 1.1	3	< 1.1	< 1.1	< 1.1	< 1.1	NA	NA	NA	NA	NA	NA	4.9	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1
Jun-05	5.8	NA	7.6	NA	3.1	NA	< 1.9	NA	NA	< 1.9	NA	2.5 B	NA	< 1.9	< 1.9	3.5	< 1.9	< 1.9	< 1.9	NA	NA	NA	NA	NA	NA	< 1.9	< 1.9	2 B	< 1.9	< 1.9	< 1.9
Sep-06	94	NA	9.1	NA	1.1 J	NA	1.2 J	NA	67	NA	NA	6.3	NA	< 5	3.5 J	4 J	1 J	3.5 J	< 5	NA	NA	NA	NA	NA	NA	< 5	2.1 J	< 5	< 5	< 5	< 5
Oct-07	44	NA	22	NA	< 5	NA	4.2 J	NA	< 5	NA	NA	< 5	NA	< 5	< 5	< 5	6.1	4.6 J	< 5	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	< 5	< 5	< 5
Mar-09	6.3 J	NA	5.7 J	NA	< 10	NA	< 10	NA	12	NA	NA	< 10	NA	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	< 10	< 10
May-10	18.3	NA	4.9 J	NA	< 5	NA	< 5	NA	23.3	NA	NA	6	NA	< 5	< 5	< 5	< 5	3.6 J	< 5	NA	NA	NA	NA	NA	NA	< 5	< 5	< 5	NA	< 5	< 5
Sep-11	43	3.2 J	4.6 J	< 5	< 5	5.3	< 5	NA	16	< 5	19	6.9	NA	< 5	< 5	< 5	5	14	< 5	NA	NA	NA	NA	NA	NA	5.6	< 5	< 5	< 5	NA	NA
Nov-12	20	NA	< 5	NA	< 5	NA	< 5	NA	11	NA	NA	3.3 J	NA	< 5	< 5	< 5	< 5	< 5	< 5	NA	NA	NA	NA	NA	NA	17	< 5	< 5	< 5	< 5	NA
Mar-14	25	NA	4.9 J	NA	ND	NA	ND	NA	7.8	NA	NA	9.4	NA	ND	ND	ND	3.5 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	<3.4	<3.4	<3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	10.55	NA	1.1	NA	0.1 U	NA	0.7 J	NA	4	NA	NA	1.3	NA	0.1 U	0.1 U	0.1 U	1.6	0.1 U	0.2 J	0.2 J	0.7 J	0.1 U	NA	NA	NA	7.83	0.41 J	0.2 U	0.78 J	0.26 J	0.49 J
Jan-17	2.6	NA	0.6 J	NA	0.3 U	NA	0.3 U	NA	NA	NA	NA	0.3 U	NA	0.3 U	0.3 U	0.5 J	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.5 J	0.3 U	0.3 U	0.3 U	4.2	0.9 J	0.3 U	0.3 U	0.3 U	0.4 J
May-18	1.0 U	NA	0.51 J	NA	1.0 U	NA	1.0 U	NA	NA	NA	NA	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.63	1.0 U	1.0 U	0.58 J	1.0 U	0.84 J	1.0 U	5.09	3.94	1.0 U	1.0 U	0.38 J	1.0 U
Jul-19	2.26	NA	2.69	NA	1.11	NA	1.0 U	NA	NA	NA	NA	0.59 J	NA	0.34 U	0.34 U	0.34 J	14.74 U	0.34 U	0.34 U	0.34 U	0.34 U	3.95	0.96 J	0.34 U	0.34 U	0.53 J	5.13	0.34 U	0.34 U	0.34 U	0.34 U

Notes:
ARAR Standard = 25 µg/L; USEPA MCL = 15 µg/L; and, PART 5 MCL = Not Available
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
< = The compound was analyzed for but not detected at the laboratory detection limit listed.
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.

Laboratory Qualifier Definitions
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.
ND or U = Not Detected

Table 14

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

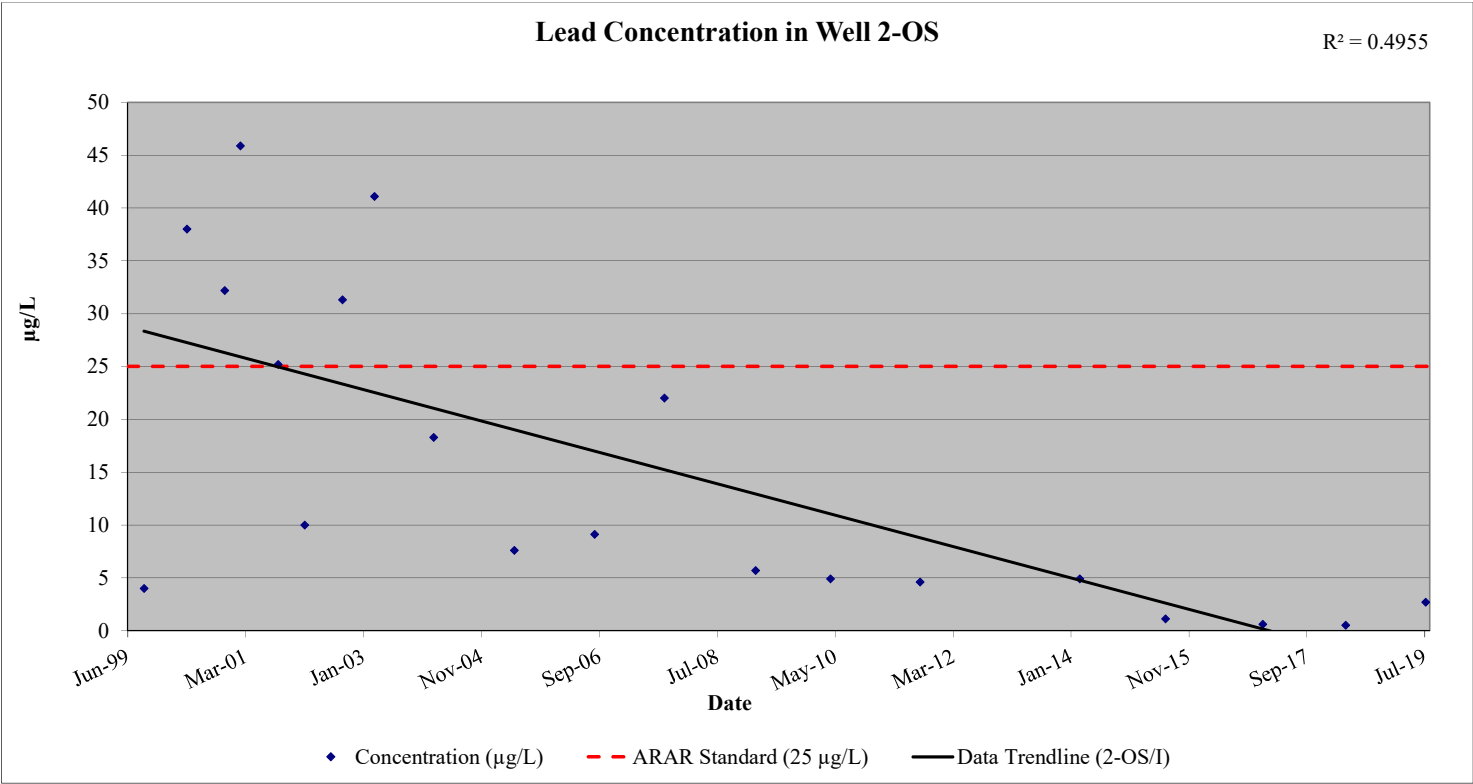
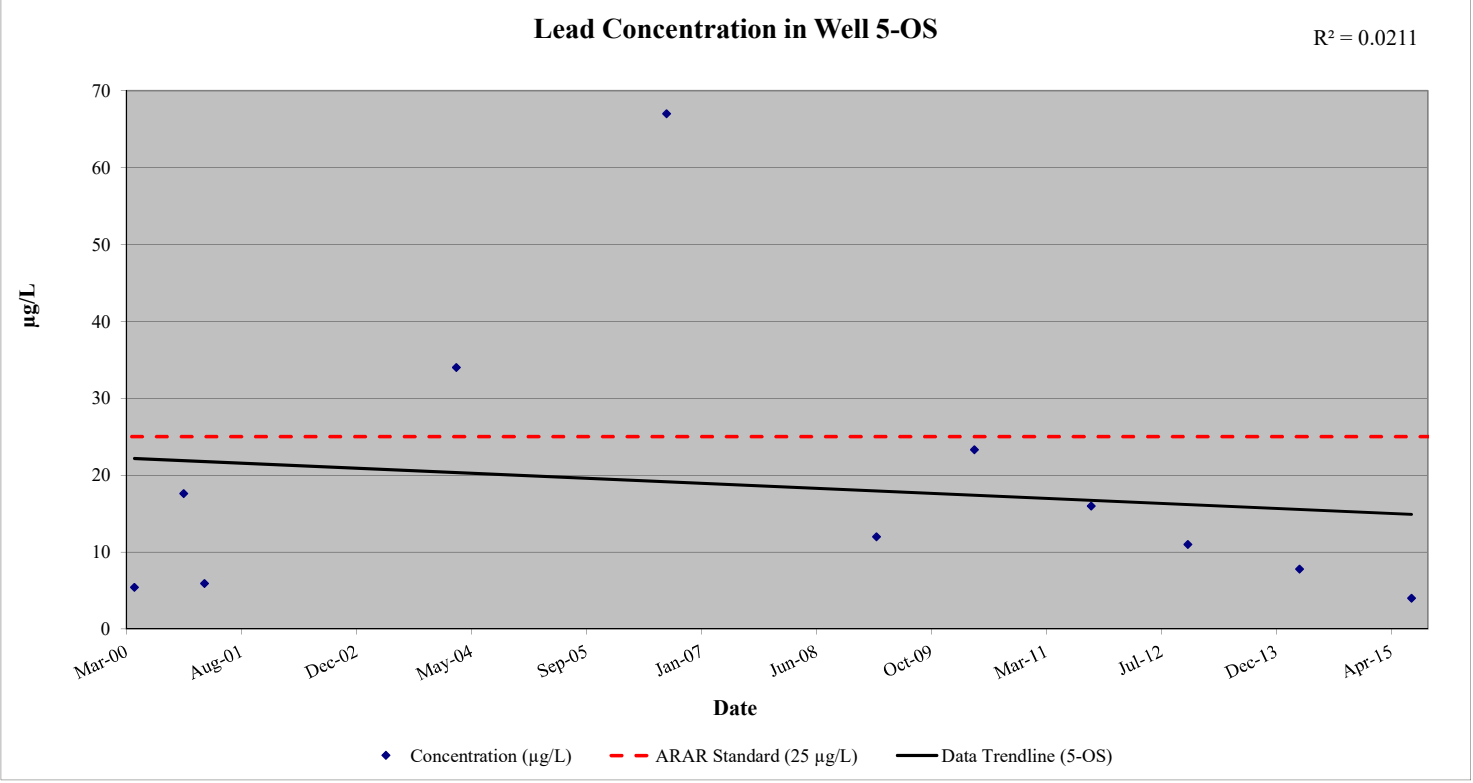
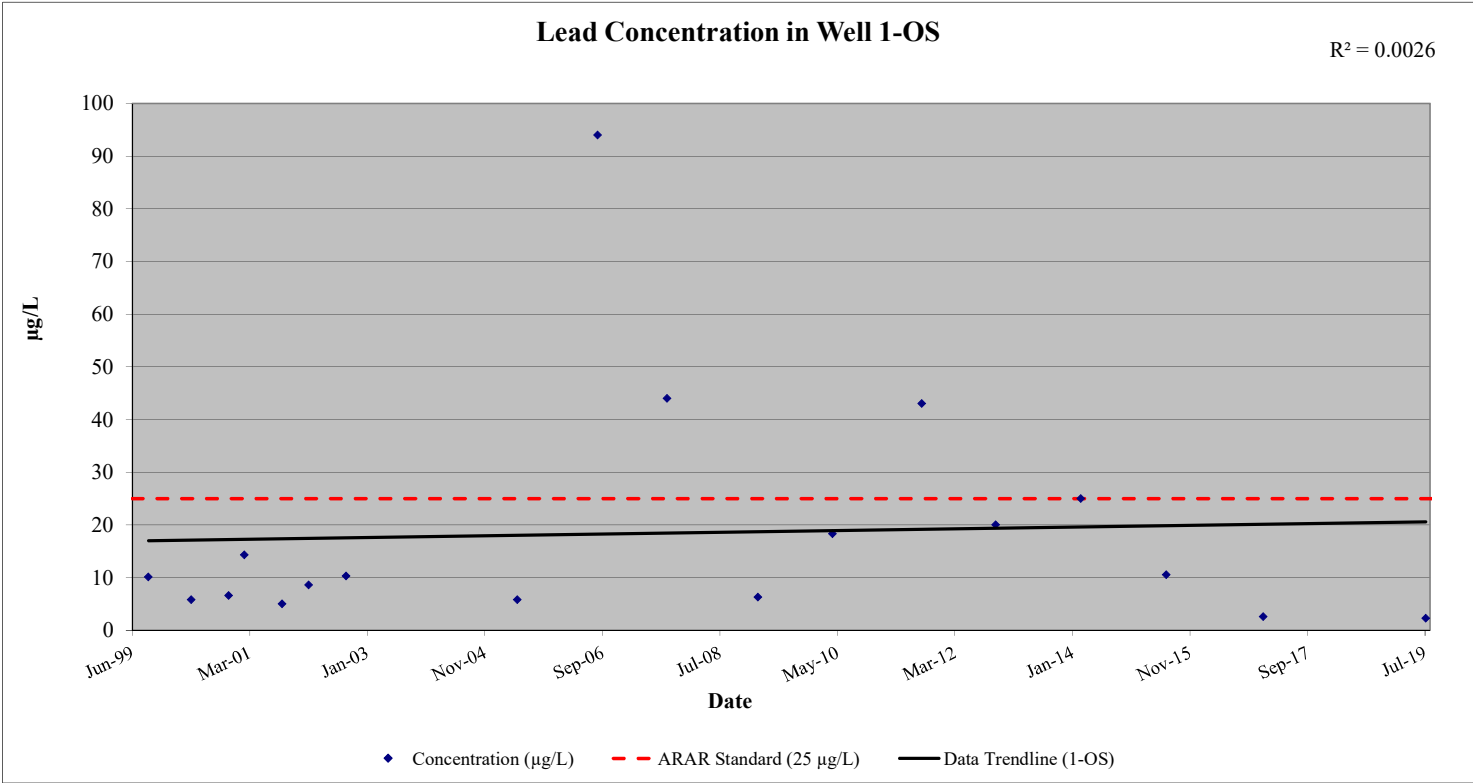


Table 15
Summary of Historical Groundwater Quality Results - Magnesium (µg/L)
Town of Ramapo Landfill

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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	3,470	4,870	32,900	3,110	3,040	3,720	NA	NA	NA	NA	NA	NA	2,290	5,310	4,190	4,940	5,010	5,350
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	ND	7	NA	NA	NA	NA
May-00	21,700	20,300	27,700	15,500	14,100	24,500	8,310	18,800	10,100	NA	5,850	12,100	17,600	1,490 B	6,100	32,900	1,760 B	2,050 B	6,160	NA	NA	NA	NA	NA	NA	2,780 B	4,260 B	3,780 B	4,400 B	4,990 B	5,330
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	24,100	16,200	29,500	12,100	14,800	18,200	6,240	15,800	6,570	NA	4,500 B	13,600	17,800	5,250	30,300	39,300	2,090 B	5,640	9,850	NA	NA	NA	NA	NA	NA	2,780 B	4,190 B	6,120	6,360	6,830	5,550
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	23,100	6,730	23,500	12,900	16,600	18,000	6,500	14,800	NA	6,670	7,060	12,500	13,900	3,100	17,300	38,900	2,160	4,170	8,460	NA	NA	NA	NA	NA	NA	4,340	4,510	8,880	9,230	6,480	7,840
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	19,600	25,100	12,900	15,400	18,000	9,080	16,400	NA	5,570	4,740 B	8,230	NA	4,390 B	18,900	39,500	1,990 B	2,940 B	7,460	NA	NA	NA	NA	NA	NA	3,960 B	4,000 B	5,060	5,890	5,300	5,480
Mar-04	NA	NA	21,000	NA	13,200	NA	18,500	NA	32,100	NA	NA	11,600	NA	8,750	34,100	41,000	1,420 B	1,530 B	5,850	NA	NA	NA	NA	NA	NA	2,680 B	4,230 B	5,900	6,760	5,790	5,230
Jun-05	14,000	NA	15,600	NA	10,700	NA	17,100	NA	NA	4,510 B	NA	11,500	NA	2,950 B	31,000	43,000	1,950 B	2,230 B	8,520	NA	NA	NA	NA	NA	NA	5,070	2,320 B	6,170	6,520	6,030	6,250
Sep-06	28,000	NA	18,000	NA	13,000	NA	18,000	NA	80,000	NA	NA	9,800	NA	4,200	21,000	44,000	2,000	5,100	8,300	NA	NA	NA	NA	NA	NA	2,700	3,200	5,200	5,300	5,100	4,900
Oct-07	30,000	NA	22,000	NA	14,000	NA	20,000	NA	4,600	NA	NA	10,000	NA	5,100	18,000	39,000	2,500	7,900	9,300	NA	NA	NA	NA	NA	NA	2,300	2,400	6,100	5,900	6,500	5,800
Mar-09	20,000	NA	18,000	NA	12,000	NA	11,000	NA	21,000	NA	NA	12,000	NA	9,100	16,000	40,000	3,300	5,900	11,000	NA	NA	NA	NA	NA	NA	2,800	2,900	5,900	NA	6,700	6,300
May-10	22,600	NA	14,800	NA	11,200	NA	15,000	NA	36,500	NA	NA	13,500	NA	5,770	23,600	40,700	2,490	6,300	13,700	NA	NA	NA	NA	NA	NA	4,160	3,430	4,560	NA	5,530	5,240
Sep-11	16,200	20,300	14,600	14,700	9,700	16,000	14,600	NA	13,500	5,100	12,800	8,000	NA	4,100	16,900	41,400	2,600	7,600	10,000	NA	NA	NA	NA	NA	NA	10,100	2,900	3,800	3,600	NA	NA
Nov-12	14,500	NA	16,100	NA	10,500	NA	12,200	NA	14,700	NA		13,100	NA	4,100	23,300	42,900	1,400	1,900	9,000	NA	NA	NA	NA	NA	NA	2,500	3,200	3,900	4,100	6,700	NA
Mar-14	17,600	NA	18,100	NA	12,500	NA	12,400	NA	12,700	NA	NA	14,000	NA	4,600	29,300	43,300	2,200	1,600	10,400	NA	NA	NA	NA	NA	NA	2,300	2,500	7,500	8,000	8,200	7,300
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,640	4,380	922	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	13,600	NA	18,800	NA	12,700	NA	17,300	NA	5,710	NA	NA	8,680	NA	4,480	28,100	41,500	3,350	2,490	13,200	568	2,860	2,270	NA	NA	NA	4,600	3,400	5,500	5,400	5,200	6,900
Jan-17	11,100	NA	17,600	NA	12,400	NA	18,600	NA	NA	NA	NA	9,980	NA	4,980	5,120	47,400	2,070	1,530	13,200	618	2,500	1,870	6,770	4,430	3,390	2,390	2,580	7,240	6,380	6,620	7,210
May-18	16,700	NA	16,700	NA	11,300	NA	12,300	NA	NA	NA	NA	10,700	NA	1,300	29,000	43,000	1,600	3,460	9,520	711	2,130	2,320	1,260	4,860	3,780	4,740	2,200	4,620	5,360	5,830	6,290
Jul-19	17,400	NA	18,200	NA	10,600	NA	35,900	NA	NA	NA	NA	10,700	NA	11,200	27,800	45,400	1,480	1,600	7,500	428	2,720	2,020	8,130	4,580	3,550	3,180	3,260	5,840	6,190	5,520	5,460

Notes:

ARAR Guidance Value = 35,000 µg/L; USEPA MCL = Not Available; and, Part 5 MCL = Not Available

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

< = The compound was analyzed for but not detected at the laboratory detection limit listed.

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.

Laboratory Qualifier Definitions

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

ND or U = Not Detected

Table 15

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

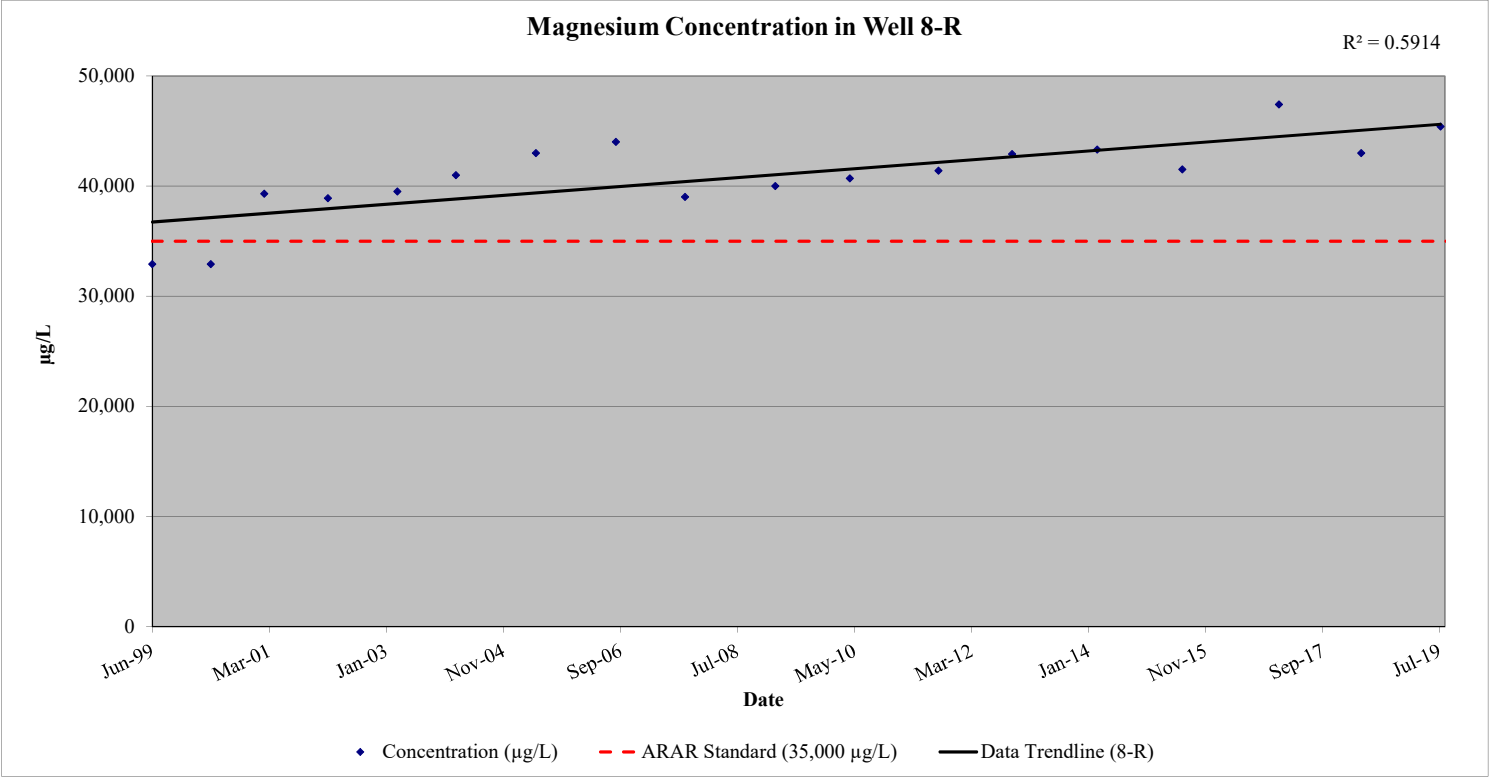
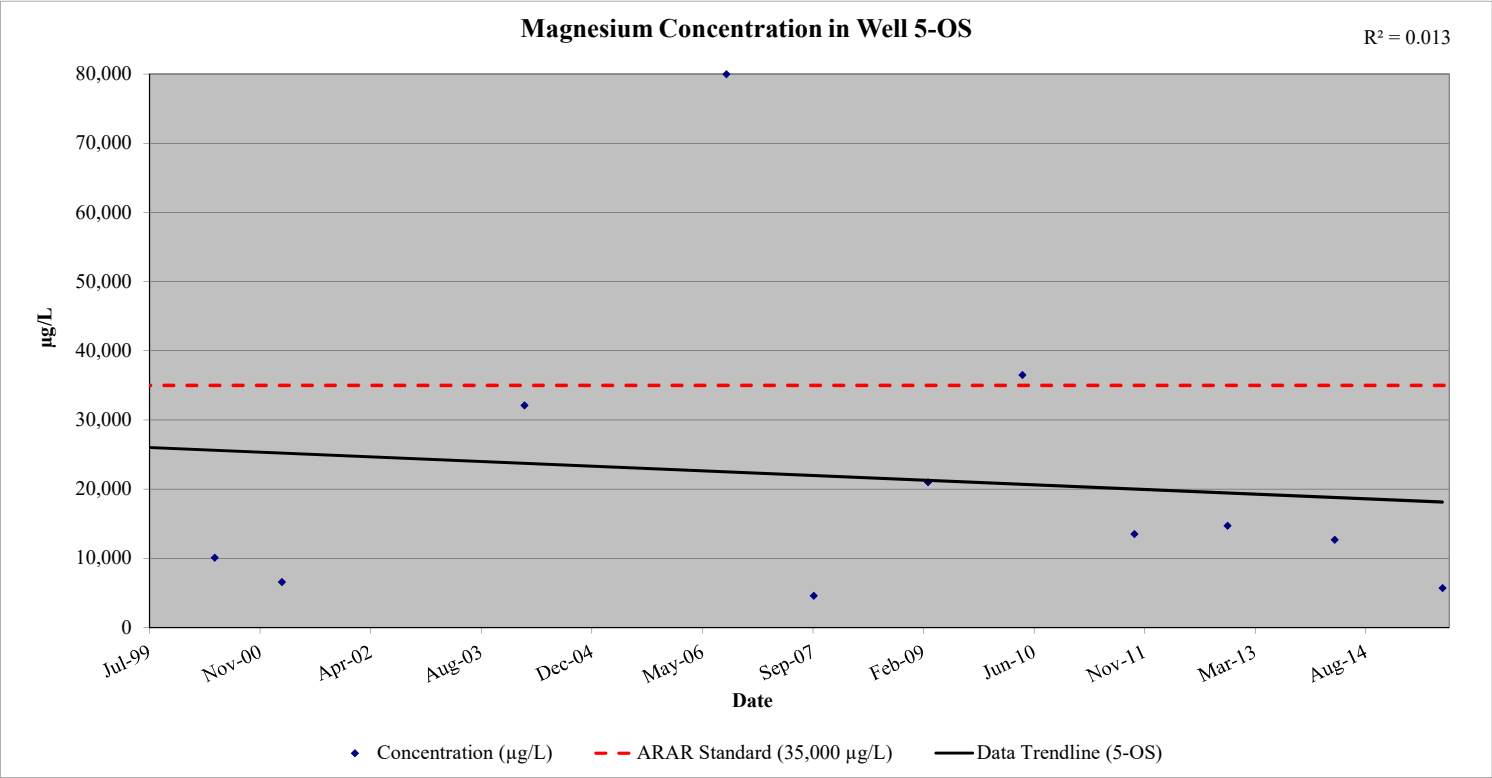


Table 16

Summary of Historical Groundwater Quality Results - Manganese (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	1,400	1,050	1,900	15	18	1,620	NA	NA	NA	NA	NA	NA	2	7	3	4	41	2
Sep-99	9,830	599	936	744	577	15,100	1,720	1,180	NA	27	1	755	99	860	1,570	2,780	12	5	1,320	NA	NA	NA	NA	NA	NA	ND	ND	NA	NA	NA	NA
May-00	5,740	236	4,110	497	5,720	14,200	1,340	1,320	533	NA	69	305	257	525	789	2,640	40	109	1,500	NA	NA	NA	NA	NA	NA	1 B	2 B	0 B	4 B	40	< 0.2
Sep-00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,820	2,810	2,390	55	67	3,020	NA	NA	NA	NA	NA	NA	1 B	3 B	2 B	7 B	50	< 0.7
Dec-00	5,810	158	3,370	247	5,070	13,100	1,930	1,240	1,080	NA	33	1,270	360	2,410	2,560	2,120	NA	NA	NA	NA	NA	NA	NA	NA	NA	4 B	< 0.7	10 B	48	< 0.7	
Jan-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	59	49	3,100	NA	NA	NA	NA	NA	NA	1 B	NA	NA	NA	NA	NA
Mar-01	4,940	2,070	3,450	142	3,750	10,400	440	1,040	323	NA	13 B	638 N	379 N	6,760 N	3,430	2,250 N	93 N	561 N	2,860 N	NA	NA	NA	NA	NA	NA	14 B	6 B	2 B	5 B	50	< 0.6
Jul-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,800	2,990 N	2,640	< 0.6	38	2,960	NA	NA	NA	NA	NA	NA	4 B	2 B	< 0.6	3 B	143	< 0.6
Oct-01	5,310	909	3,830	106	2,040	12,700	839	1,070	NA	3 B	< 2.2	668	375	6,340	1,760	2,060	78	5 B	3,080	NA	NA	NA	NA	NA	NA	< 2.2	5 B	NA	NA	NA	NA
Mar-02	6,240	104	2,300	616	2,800	9,950	759	1,110	NA	132	154	592	292	1,620	3,670	1,930	25	45	2,490	NA	NA	NA	NA	NA	NA	< 1.4	6 B	< 1.4	7 B	68	< 1.4
Jul-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,390	2,390	2,160	19	76	2,740	NA	NA	NA	NA	NA	NA	< 1.9	7 B	< 1.9	5 B	77	< 1.9
Oct-02	8,160 E	1,650 E	6,940 E	404 E	13,400 E	19,400 E	3,790 E	953 E	NA	4 B,E	22 E	1,730 E	NA	6,950 E	2,980 E	1,980 E	11 E	4 B,E	2,880 E	NA	NA	NA	NA	NA	NA	2 B,E	3 B,E	7 B	< 1.9	62	3 B
Apr-03	NA	177	3,100	157	24,800	12,100	620	1,180	NA	64	30	124	NA	894	3,140	2,050	36	52	2,630	NA	NA	NA	NA	NA	NA	< 0.8	4 B	< 0.8	6 B	80	< 0.8
Mar-04	NA	NA	2,300	NA	7,200	NA	338	NA	2,040	NA	NA	2,140	NA	1,590	4,650	2,150	4 B	19	1,980	NA	NA	NA	NA	NA	NA	< 0.9	< 0.9	< 0.9	3 B	88	< 0.9
Jun-05	4,720	NA	778	NA	6,450	NA	700	NA	NA	14	NA	222	NA	691	3,090	2,190	28	12	2,730	NA	NA	NA	NA	NA	NA	< 2.1	< 2.1	< 2.1	7 B	86	< 2.1
Sep-06	2,800	NA	1,900	NA	9,200	NA	860	NA	5,100	NA	NA	1,300	NA	110	1,900	2,200	51	290	2,800	NA	NA	NA	NA	NA	NA	1 J	1 J	1 J	3 J	25 J	< 50
Oct-07	5,100	NA	3,500	NA	4,400	NA	2,700	NA	14 J	NA	NA	920	NA	2,000	2,200	1,900	140	560	2,900	NA	NA	NA	NA	NA	NA	< 50	6 J	< 50	4 J	96	< 50
Mar-09	9,000	NA	2,200	NA	14,000	NA	400	NA	1,000	NA	NA	450	NA	610	3,100	1,900	150	290	3,700	NA	NA	NA	NA	NA	NA	< 50	2 J	< 50	NA	140	< 50
May-10	14,800 B	NA	1,680	NA	2,460 B	NA	223	NA	2,230	NA	NA	1,710 B	NA	399 B	4,590 B	1,960 B	90 B	392 B	4,030 B	NA	NA	NA	NA	NA	NA	1 J,B	3 B	0 J,B	NA	110 B	22 B
Sep-11	8,300 B	1,500 B	780 B	530 B	4,500 B	41,400 B	160 B	NA	830 B	26 B	640 B	1,200 B	NA	700 B	3,500 B	2,100 B	110 B	590 B	2,700 B	NA	NA	NA	NA	NA	NA	2 J,B	2 J,B	2 J,B	2 J,B	NA	NA
Nov-12	11,600 B	NA	980 B	NA	2,800 B	NA	560 B	NA	660 B	NA	NA	1,400 B	NA	280 B	3,500 B	2,000 B	19 B	4 B	2,300 B	NA	NA	NA	NA	NA	NA	1 J,B	3 J,B	1 J,B	1 J,B	200 B	NA
Mar-14	16,900 B	NA	1,900 B	NA	2,900 B	NA	740 B	NA	620 B	NA	NA	1,500	NA	100 B	3,300 B	1,900 B	51	4	3,100	NA	NA	NA	NA	NA	NA	2 J	41	ND	ND	130	ND
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	12,550	NA	363	NA	271	NA	276	NA	65	NA	NA	173	NA	178	2,560	2,162	47	32	4,458	33	8	16	NA	NA	NA	<2	<2	<2	<2	1,810	<2
Jan-17	2,479	NA	87	NA	520	NA	24	NA	NA	NA	NA	19	NA	66	1,558	263	2	2	1,659	22	1	16	15	11	5	1	1 J	1	1 J	68	<0.4
May-18	198.8	NA	9.1	NA	1,121	NA	34.13	NA	NA	NA	NA	42.18	NA	1.43	3,720	2,422	1.35	26.18	2,948	28.64	3.02	36.08	80.5	159.7	0.98 J	2.38	2.34	0.75 J	1.0 U	42.09	1.0 U
Jul-19	772.3	NA	453.6	NA	3,728	NA	211.9	NA	NA	NA	NA	74.51	NA	2,318	3,198	127	9.03	33.12	1,450	24.76	1.06	18.07	39.22	3.39	7.03	1.01	1.71	0.63 J	1.23	43.06	0.53 J

Notes:

ARAR Standard = 300 µg/L; USEPA Secondary MCL = Not Available; and, Part 5 MCL = 300 µg/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

<= The compound was analyzed for but not detected at the laboratory detection limit listed.

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.

Laboratory Qualifier Definitions

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.

ND or U = Not Detected

Table 16

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

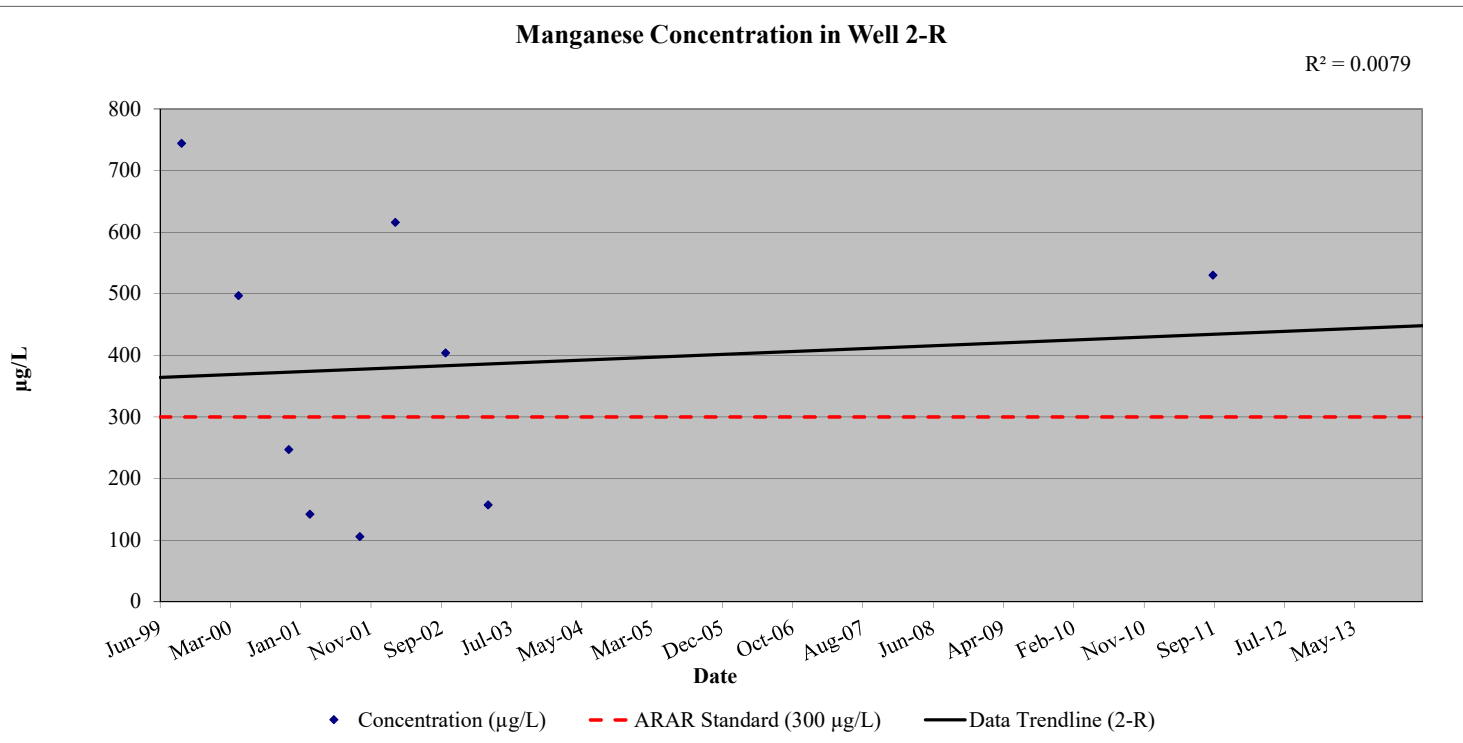
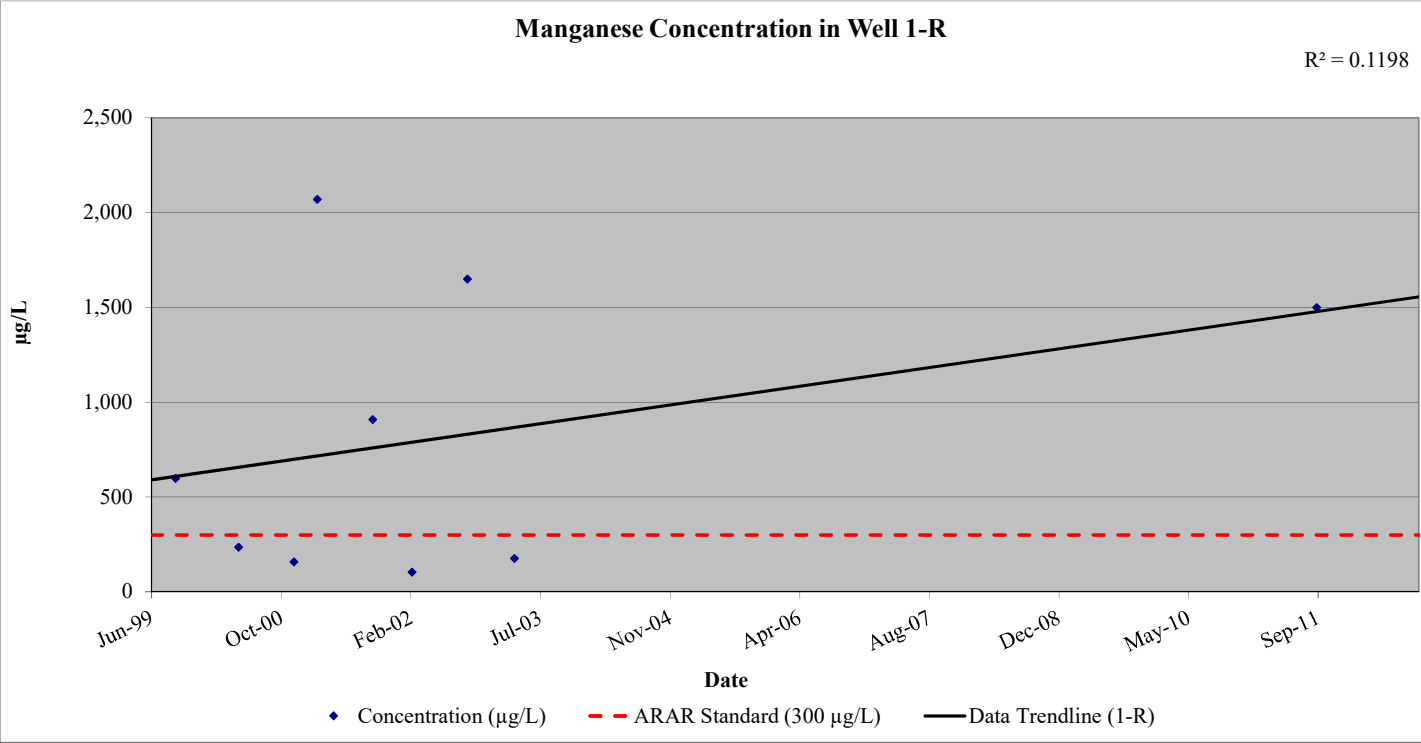
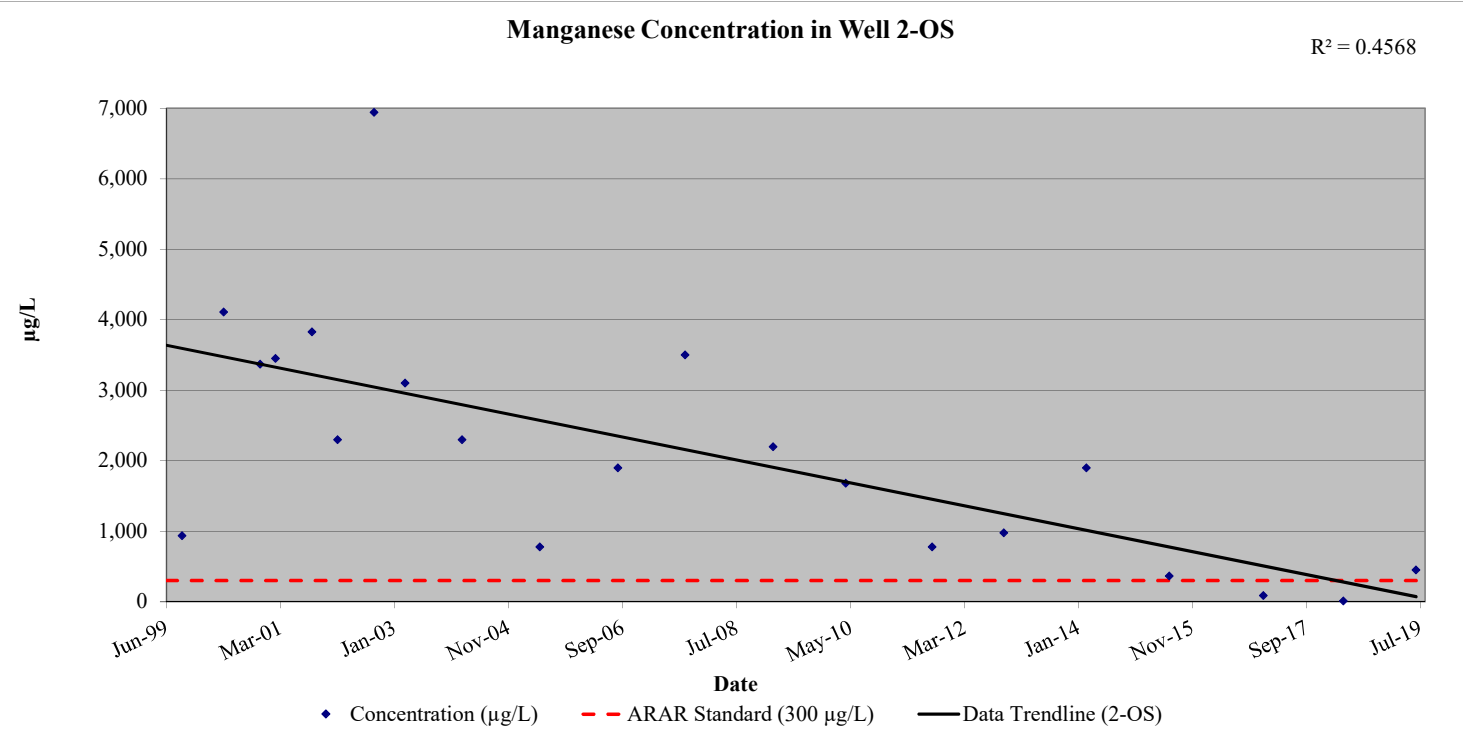
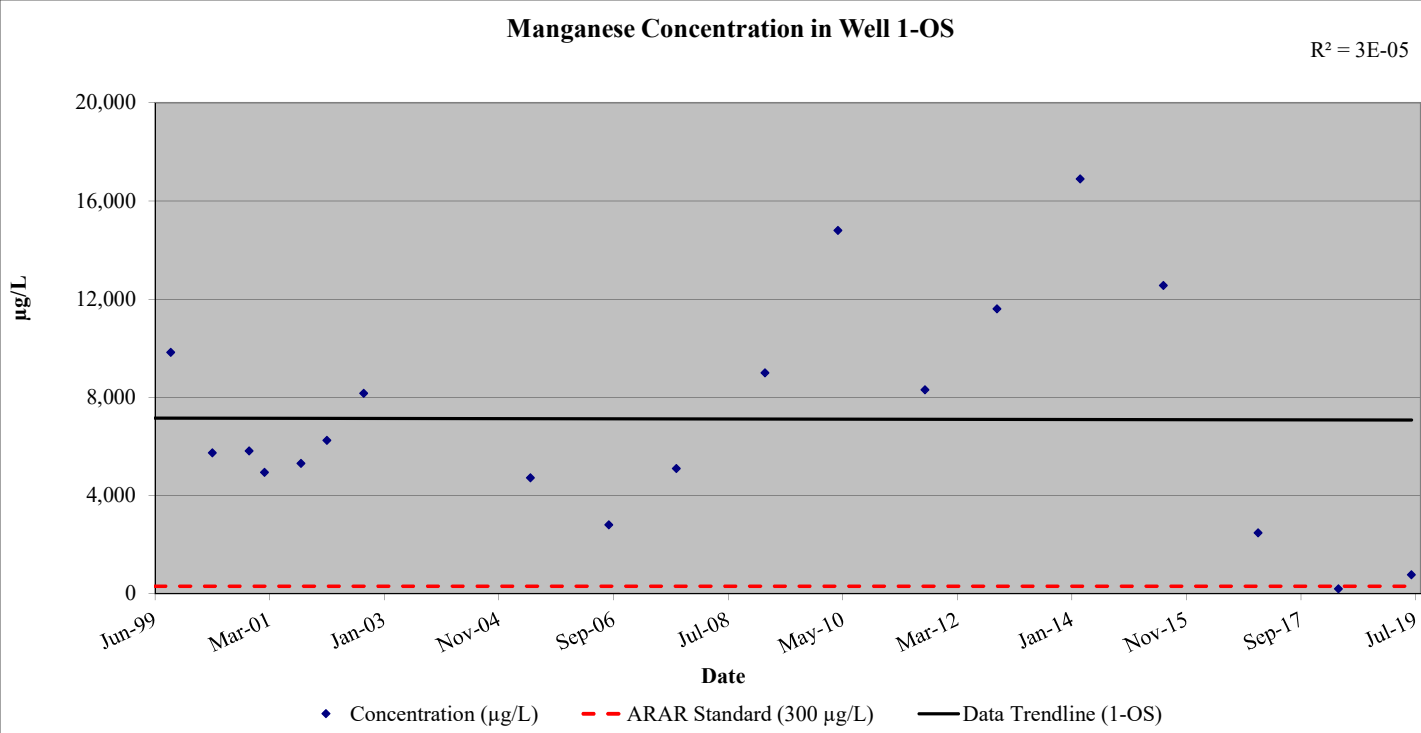


Table 16

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

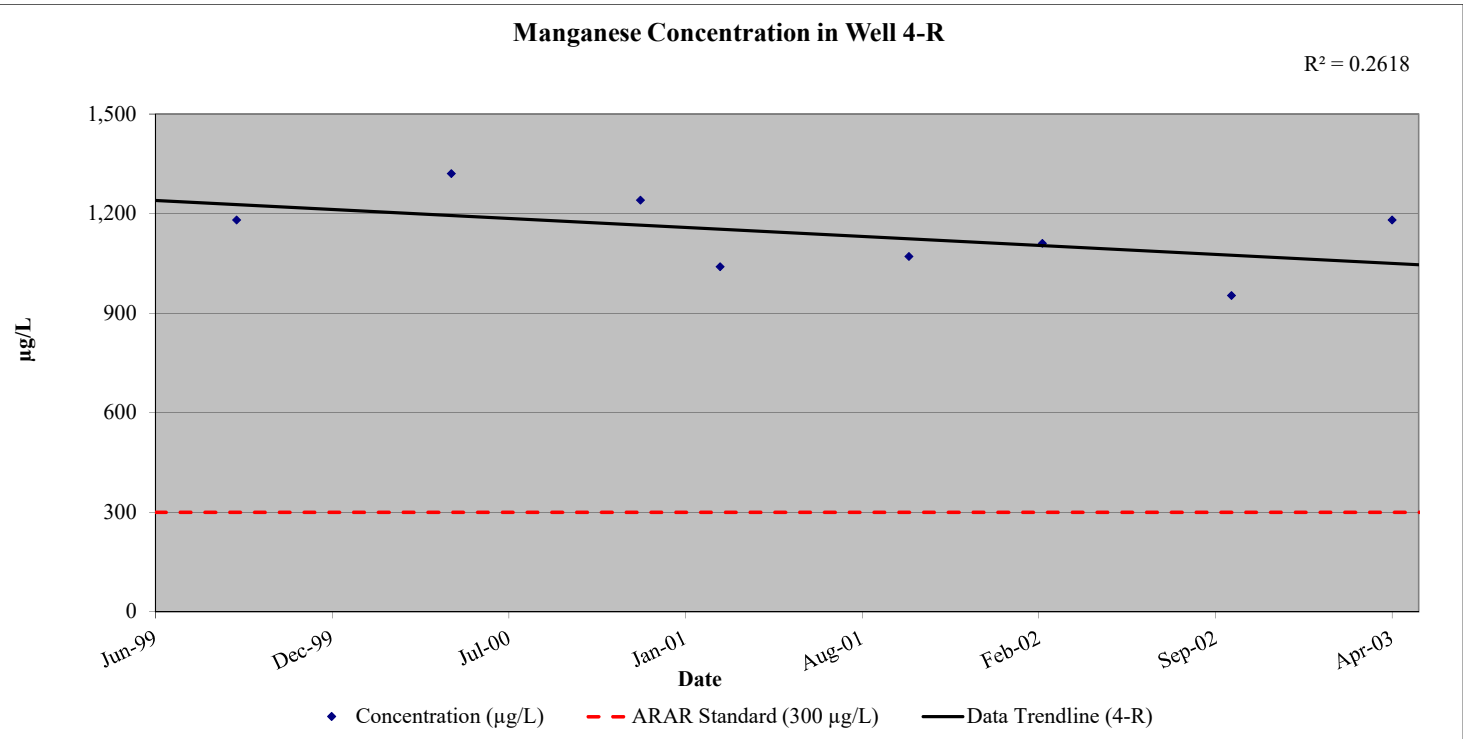
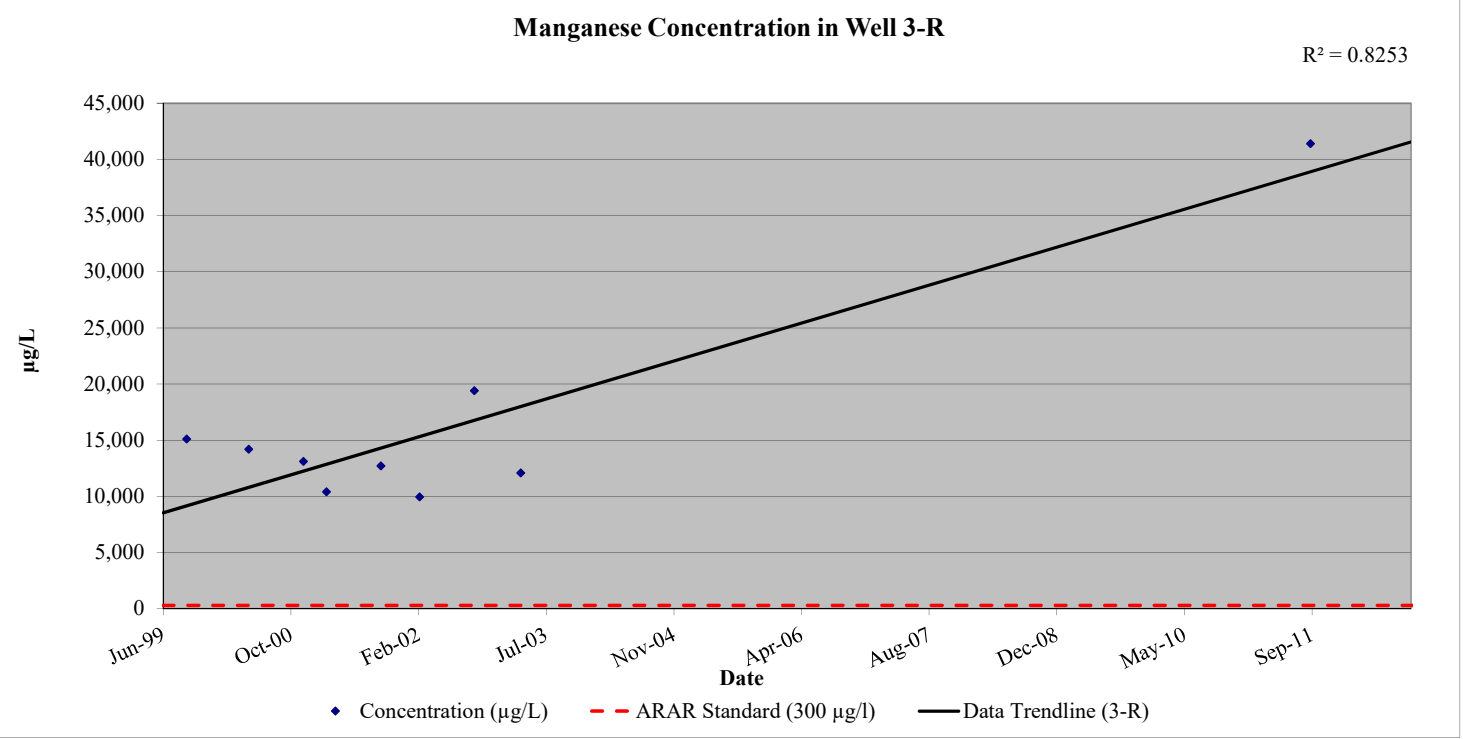
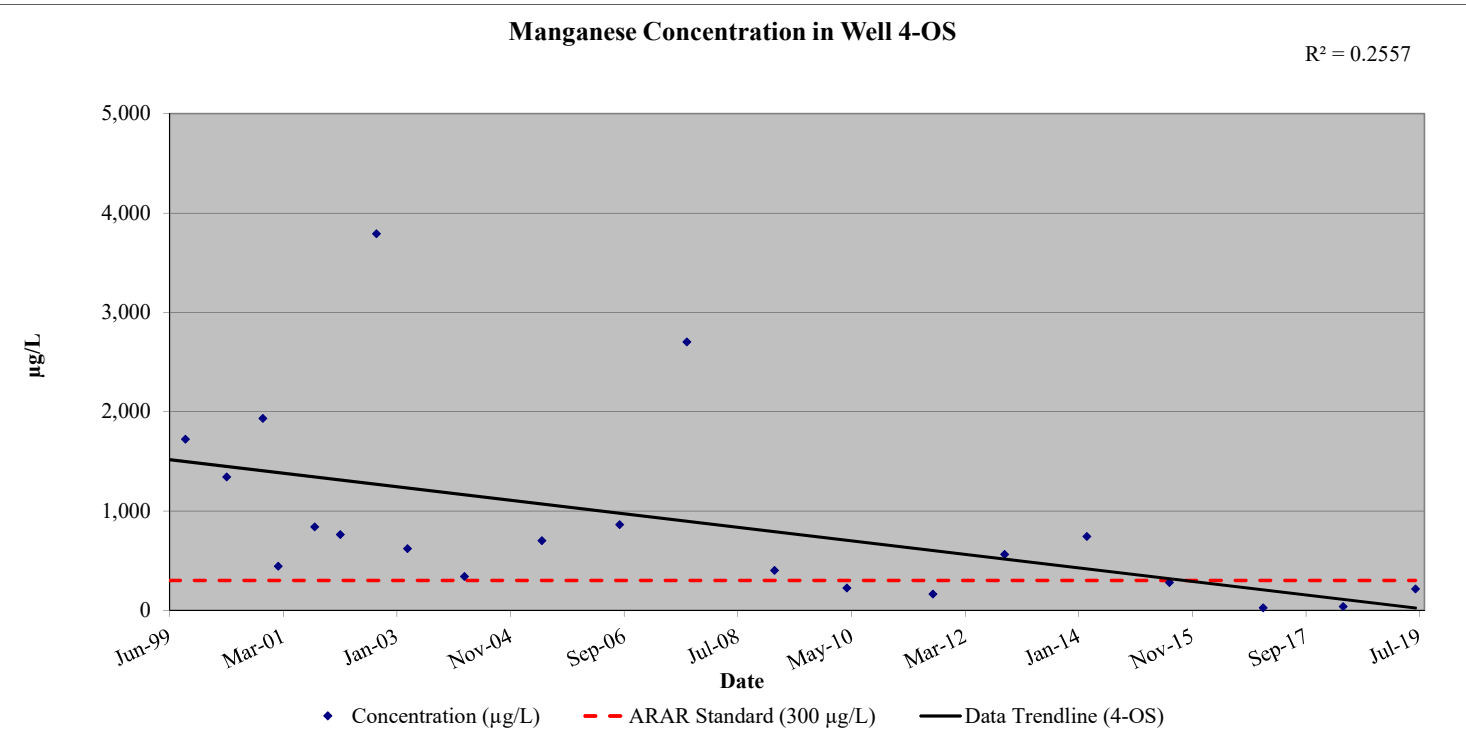
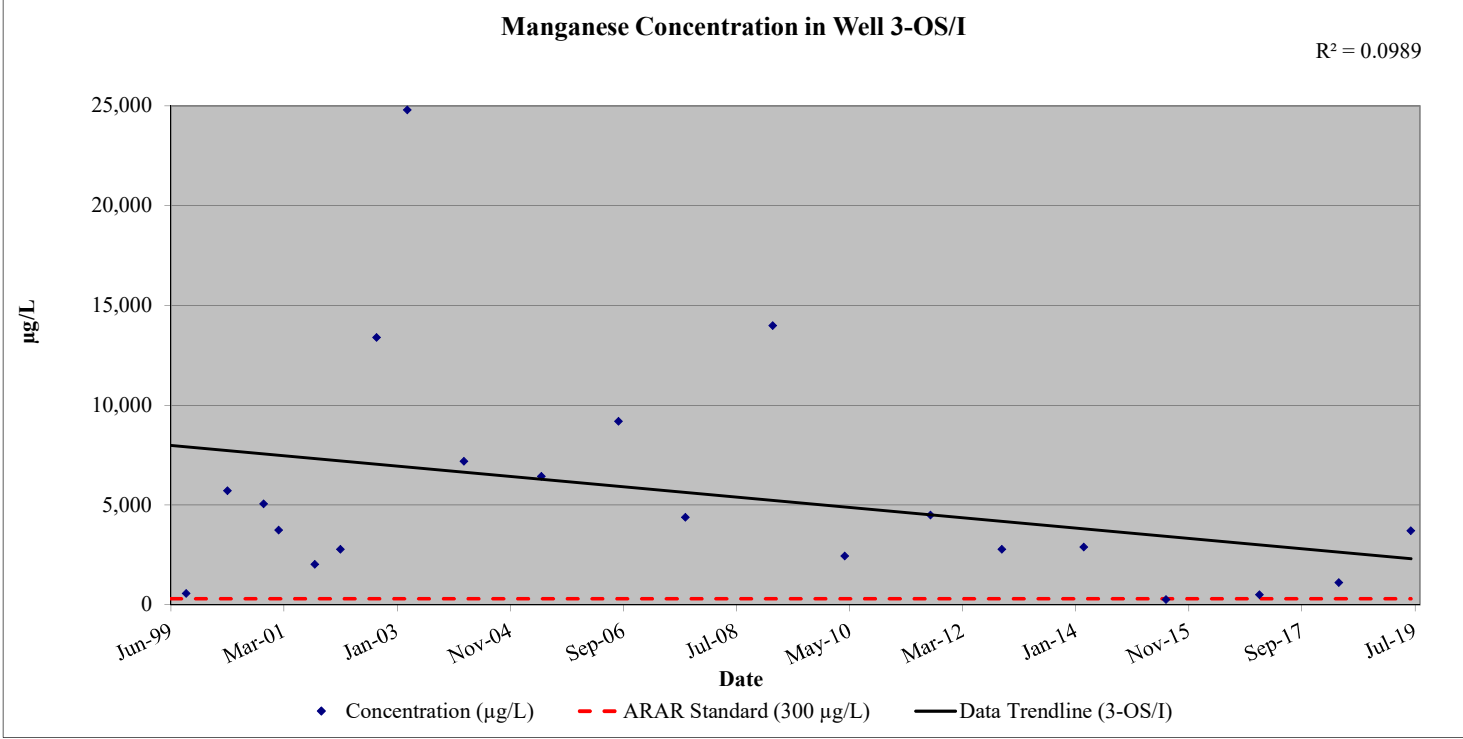


Table 16

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

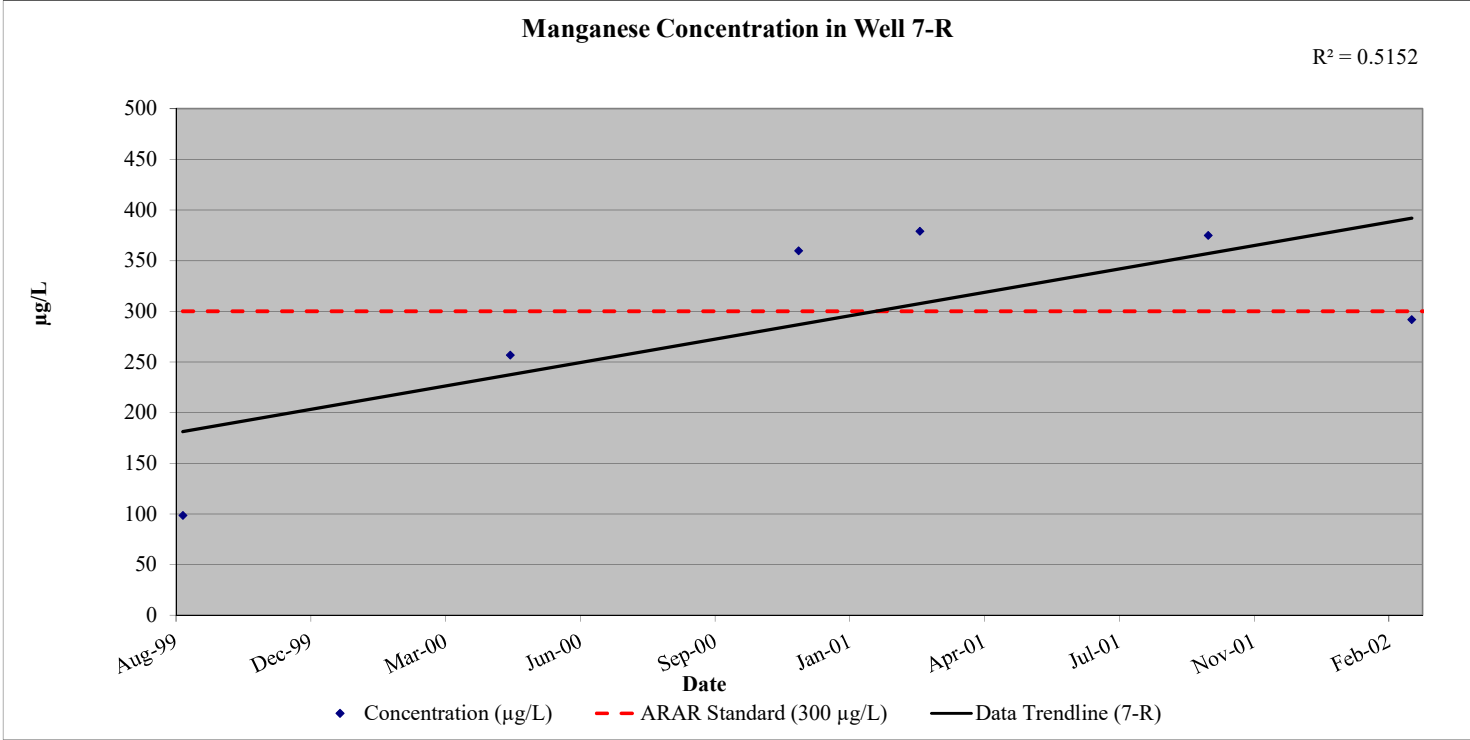
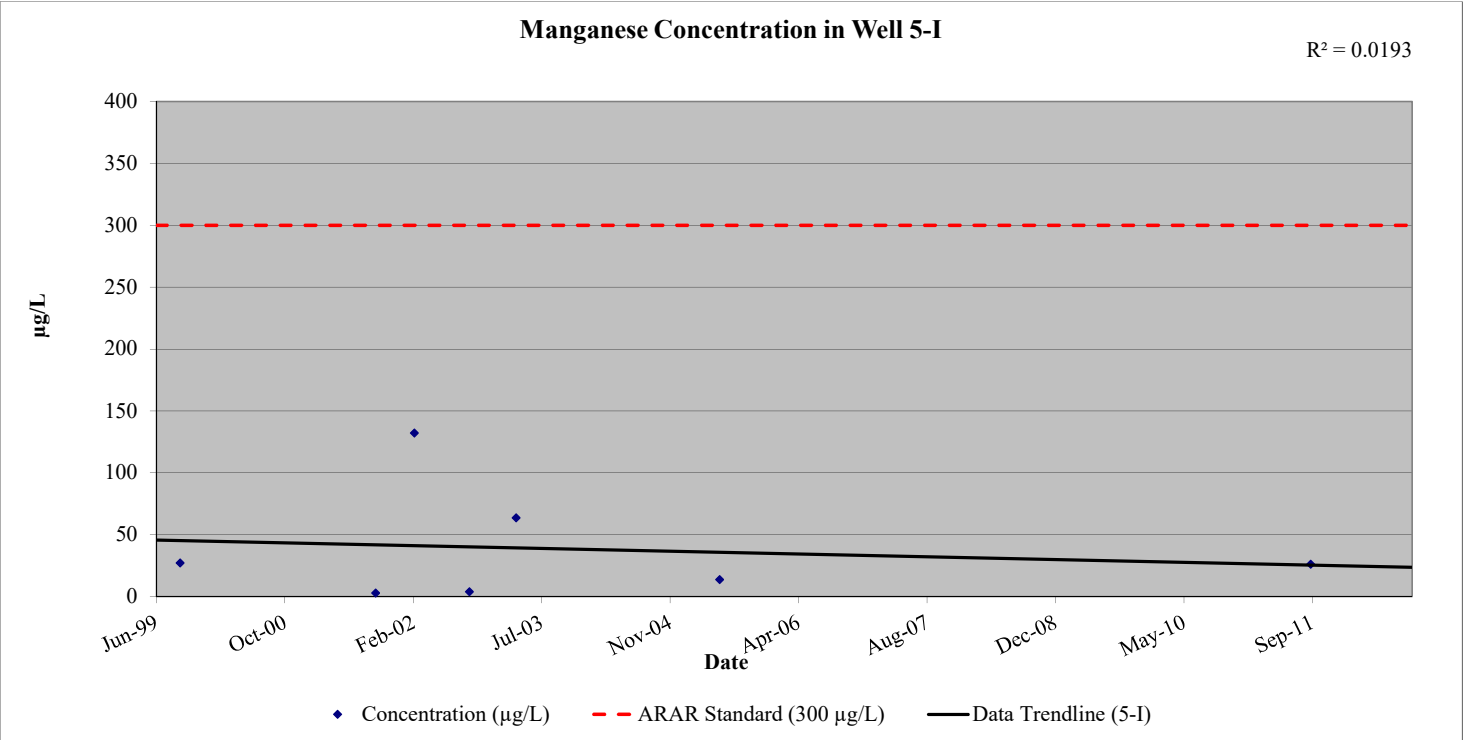
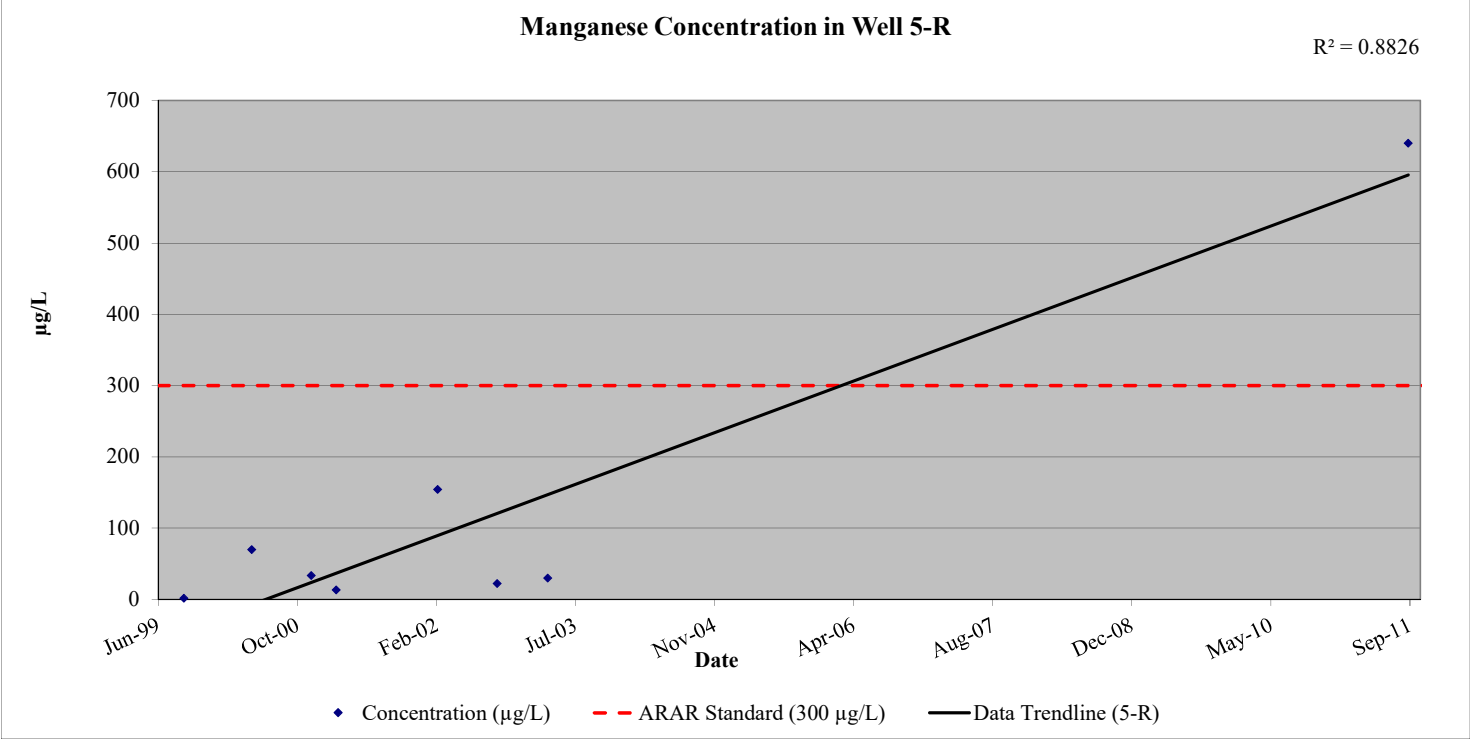
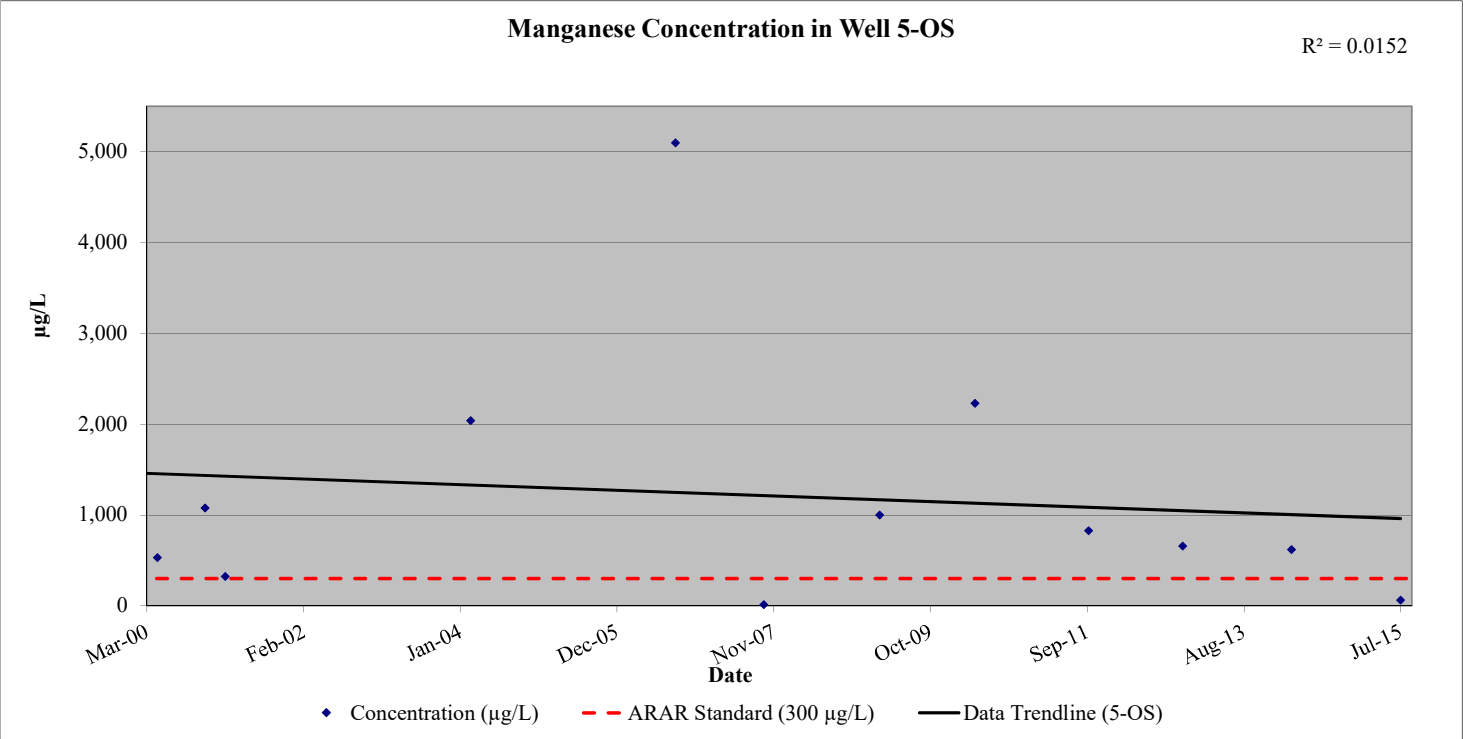


Table 16

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

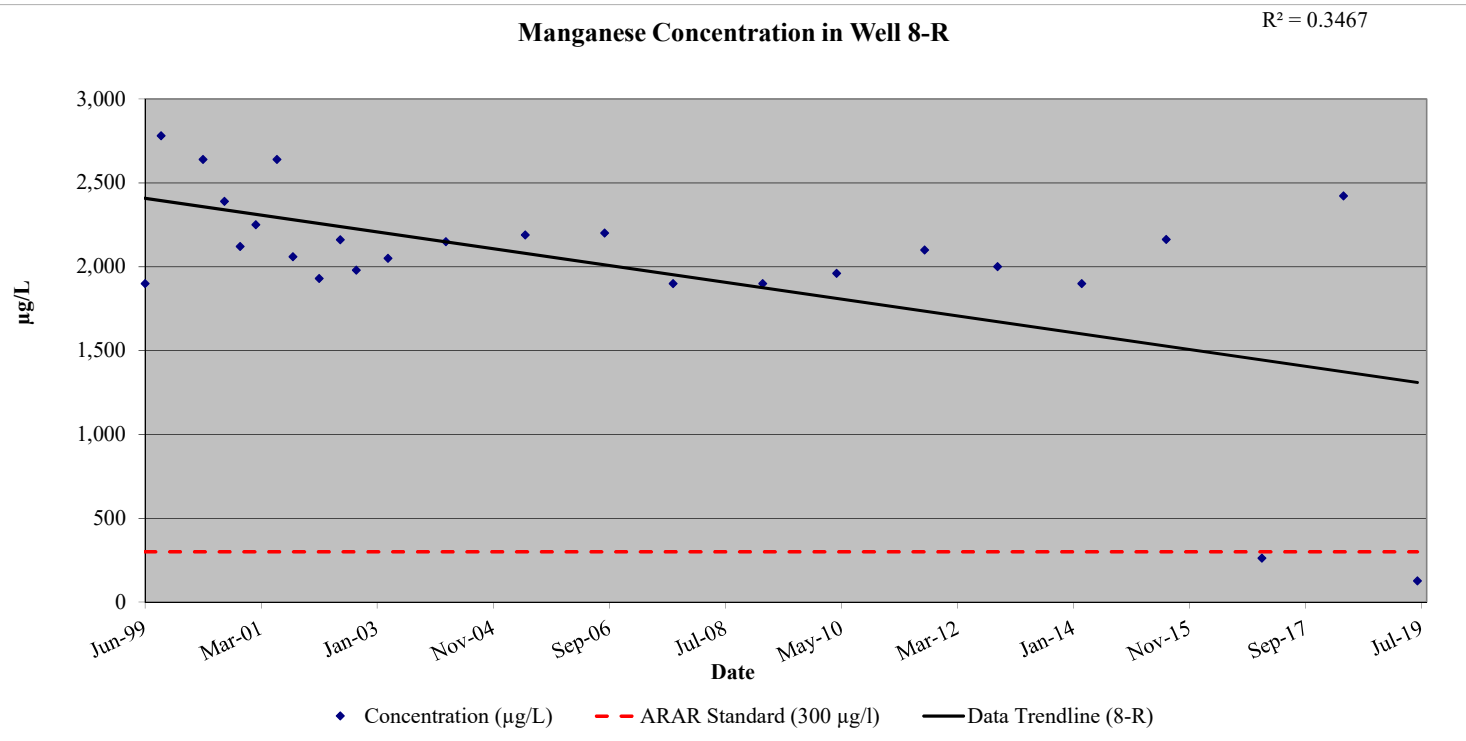
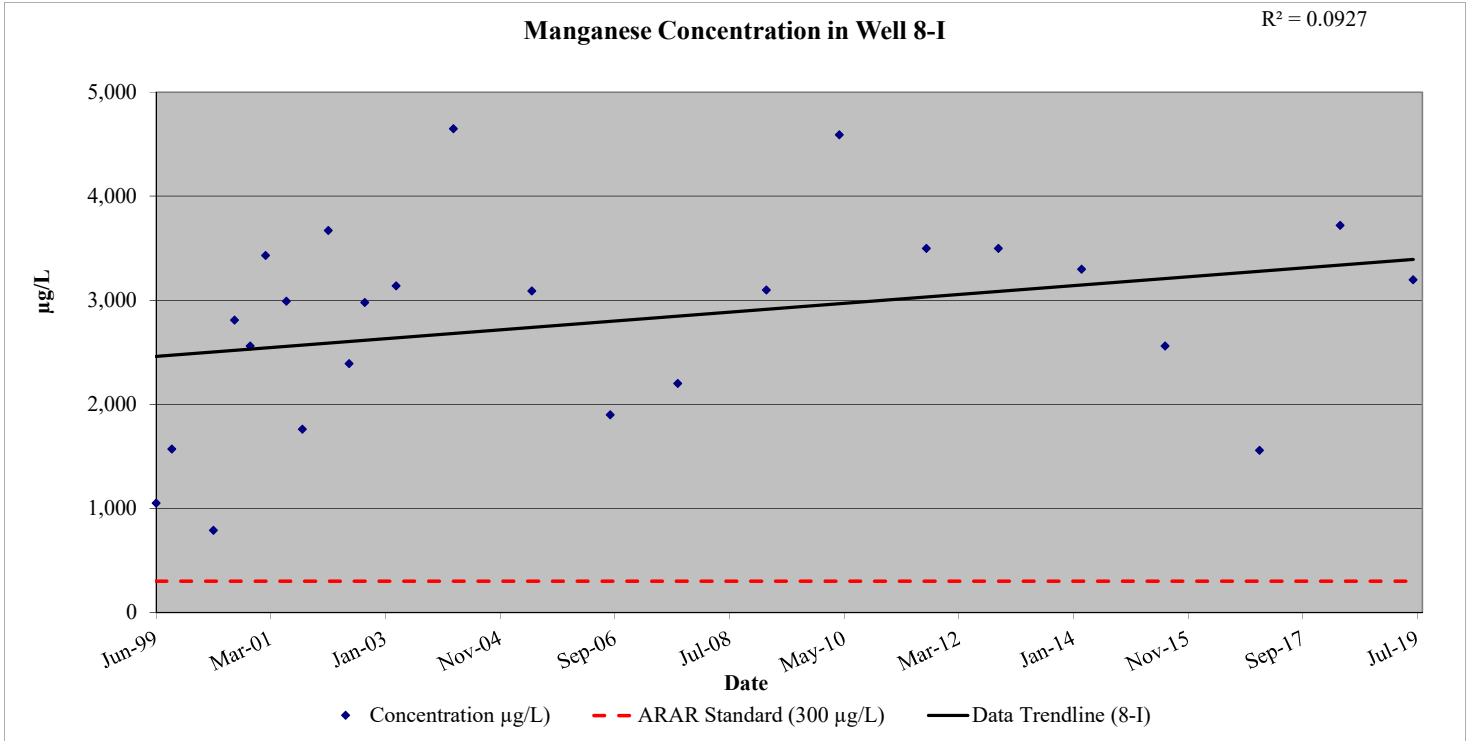
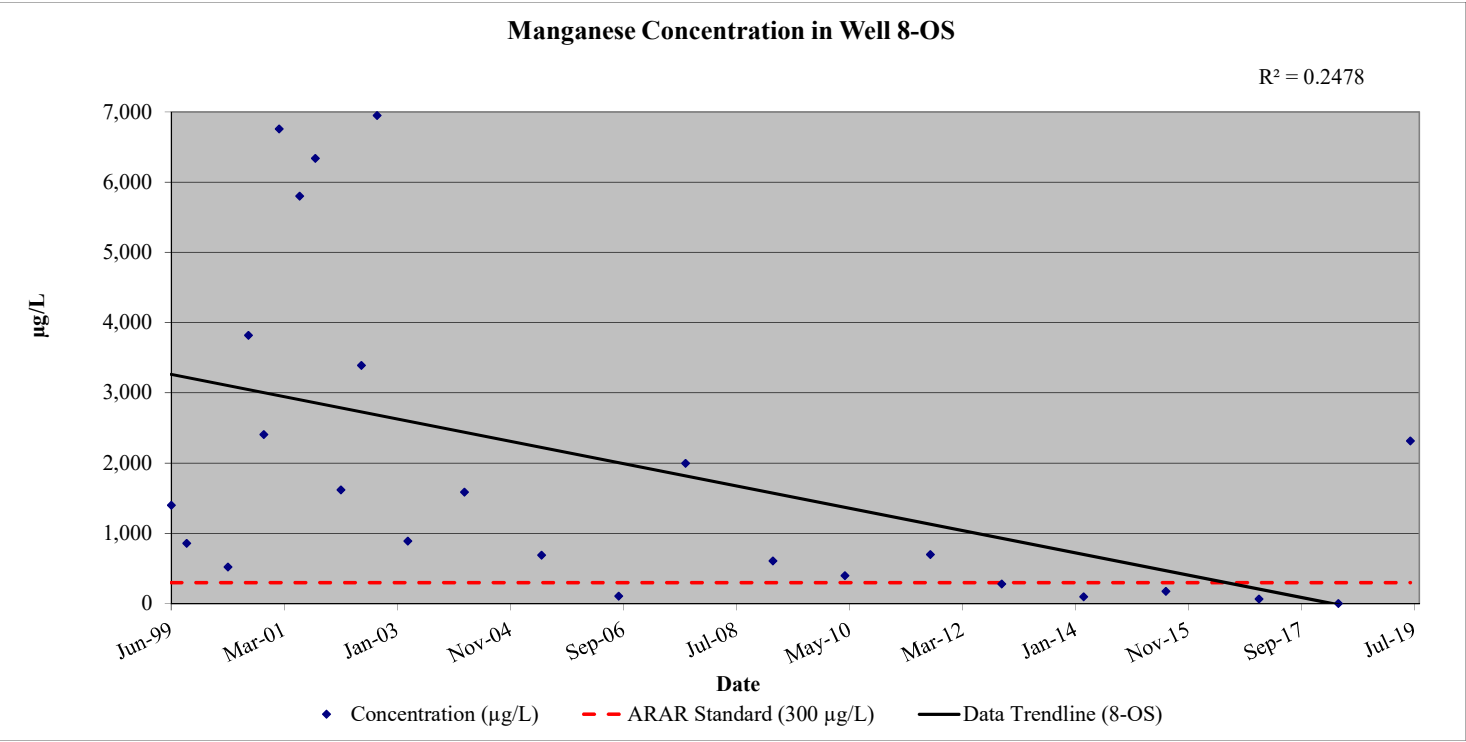
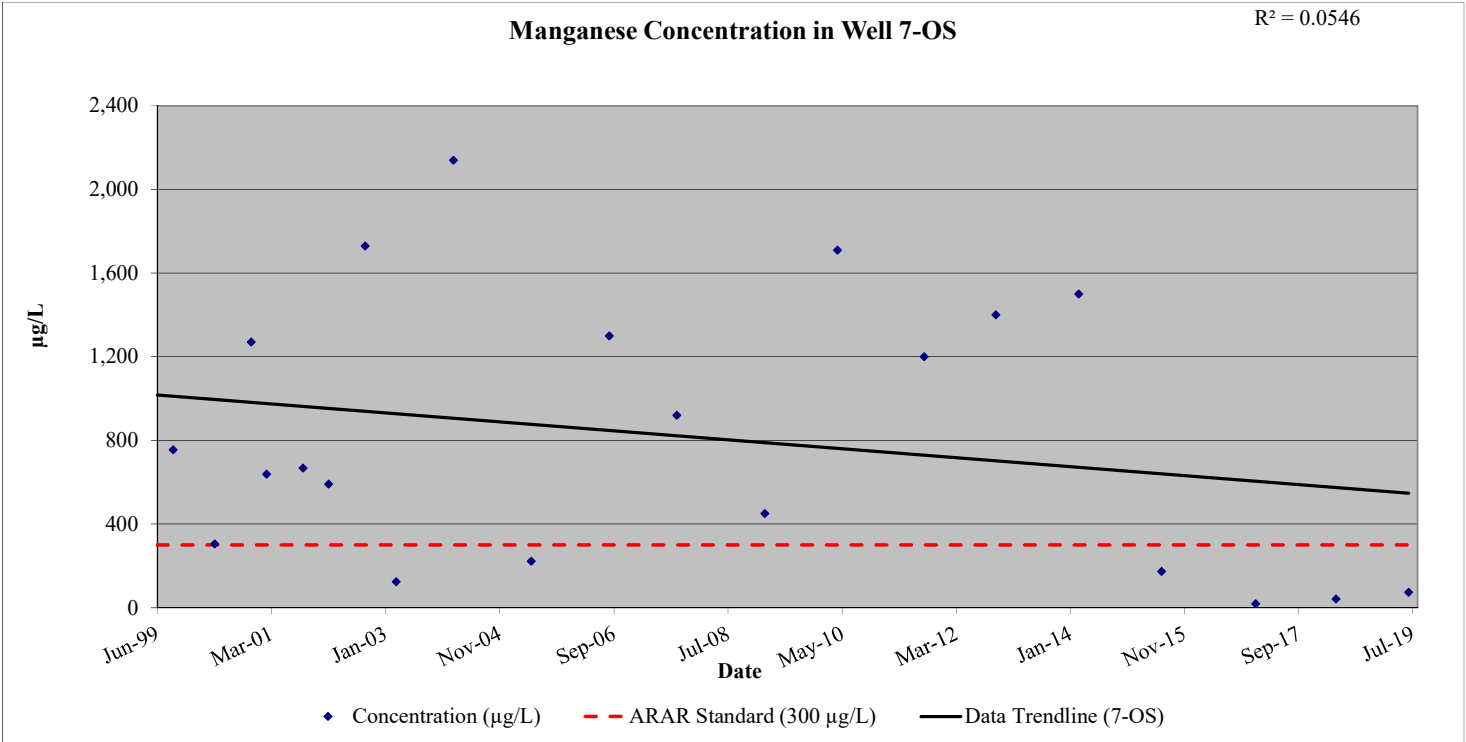


Table 16

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

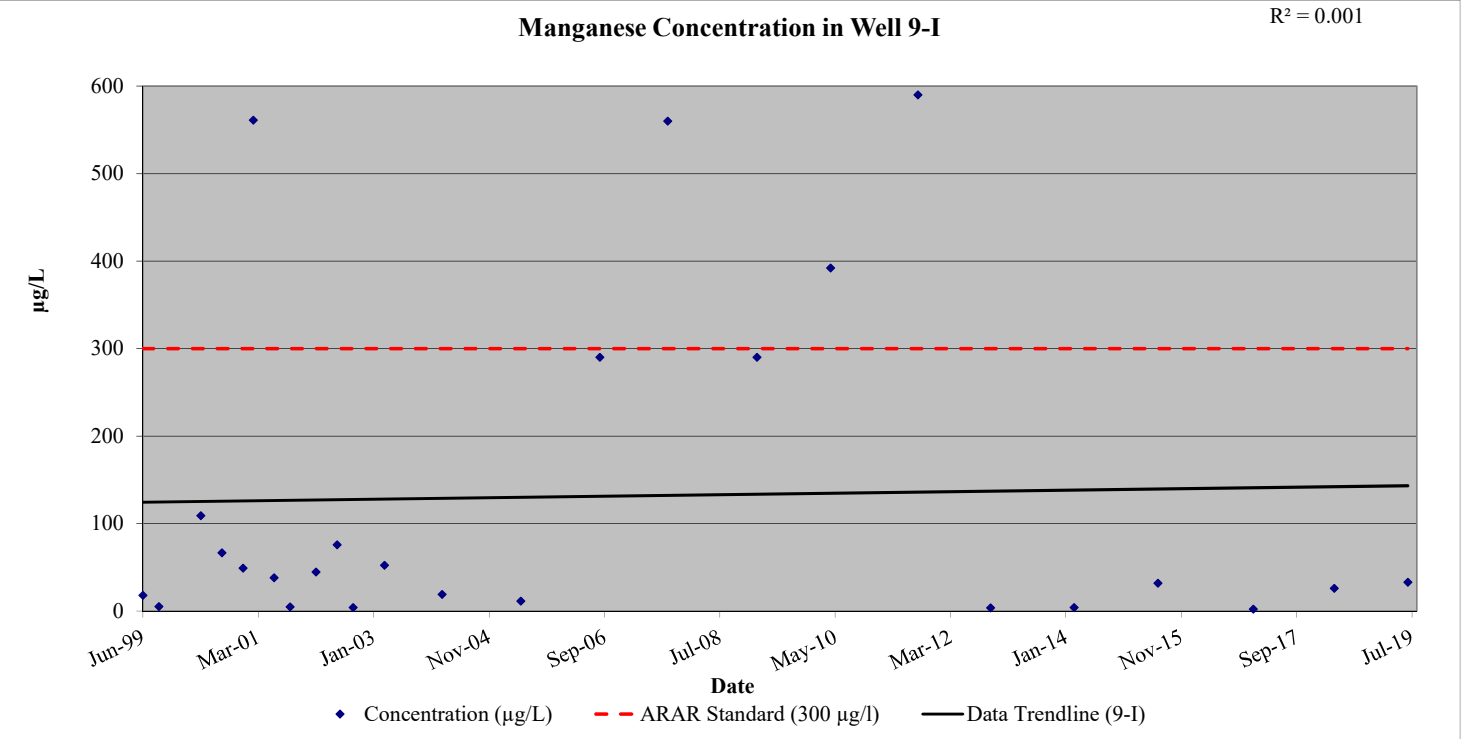
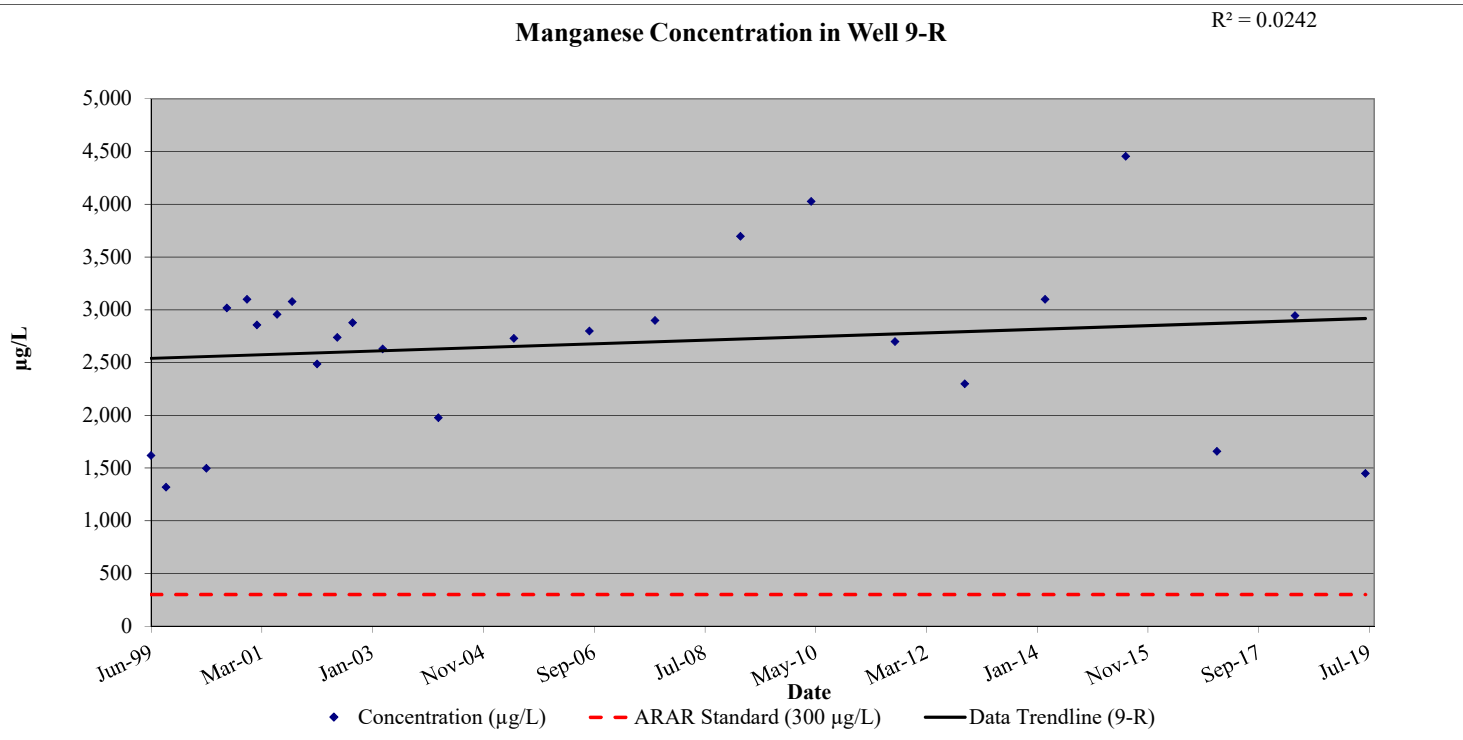
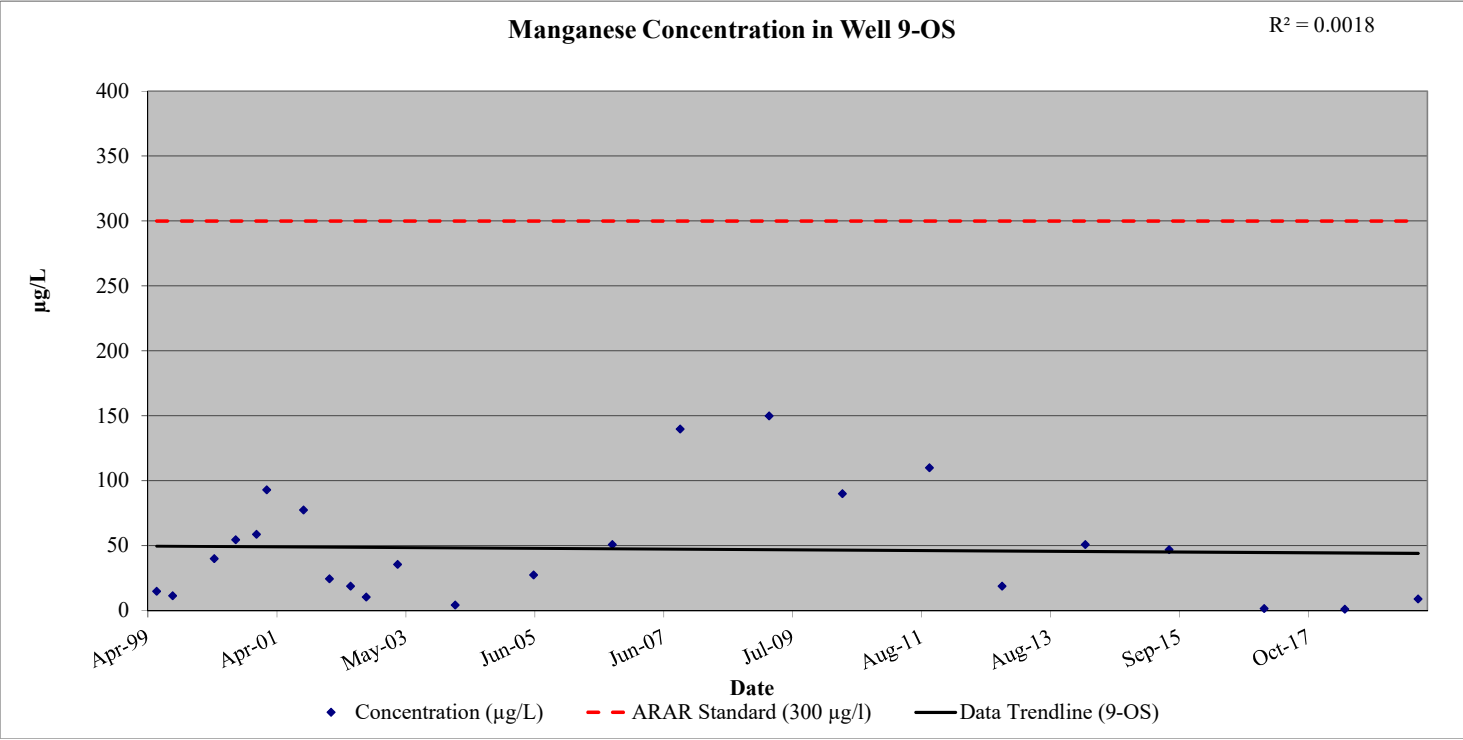


Table 17

Summary of Historical Groundwater Quality Results - Nickel (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	1.1	34	15.7	ND	2.2	6.6	NA	NA	NA	NA	NA	NA	1.1	1.2	2.7	4.1	3.3	3.8	
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	140	16.2 B	215	4.1 B	156	73.7	22.4 B	1.5 B	35 B	NA	8.2 B	9.4 B	1.9 B	2.2 B	5.9 B	16.2 B	2.4 B	4.6 B	3.7 B	NA	NA	NA	NA	NA	NA	< 1.1	< 1.1	2.6 B	< 1.1	< 1.1	1.3 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	82.4	27.7 B	116	< 1.7	68.7	28.2 B	8.8 B	1.9 B	19.5 B	NA	2.3 B	10.3 B	2.2 B	19.4 B	40.4	22.6 B	4.7 B	18.2 B	5.7 B	NA	NA	NA	NA	NA	NA	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	
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	28.8 B	38.2 B	34.9 B	9.5 B	128	8.6 B	5.4 B	< 2.8	NA	5 B	11.7 B	8.6 B	< 2.8	11.1 B	7 B	20.9 B	< 2.8	< 2.8	< 2.8	NA	NA	NA	NA	NA	NA	NA	< 2.8	< 2.8	< 2.8	< 2.8	< 2.8	< 2.8
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	2.2 B	108	3.9 B	932	5.1 B	14.8 B	< 1.9	NA	2.7 B	2.1 B	3.5 B	NA	6.8 B	14.3 B	15 B	< 1.9	< 2.7 B	< 1.9	NA	NA	NA	NA	NA	NA	< 1.9	< 1.9	< 1.9	< 1.9	2.9 B	< 1.9	
Mar-04	NA	NA	56.8	NA	434	NA	7.3 B	NA	132 E	NA	NA	41.8	NA	7.9 B	29.4 B	15 B	< 1.7	< 1.7	< 1.7	NA	NA	NA	NA	NA	NA	< 1.7	< 1.7	42.7	< 1.7	1.9 B	< 1.7	
Jun-05	9.2 B	NA	52.1	NA	1,460	NA	87.8	NA	NA	< 2.3	NA	< 2.3	NA	61.9	15.6 B	11.5 B	< 2.3	< 2.3	< 2.3	NA	NA	NA	NA	NA	NA	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	
Sep-06	270	NA	80	NA	1,300	NA	40 J	NA	370	NA	NA	26 J	NA	5.8 J	20 J	36 J	6.7 J	18 J	1.8 J	NA	NA	NA	NA	NA	NA	50	< 50	< 50	< 50	1.4 J	< 50	
Oct-07	750	NA	150	NA	730	NA	68	NA	14 J	NA	NA	26 J	NA	14 J	24 J	15 J	34 J	31 J	3.2 J	NA	NA	NA	NA	NA	NA	< 50	7 J	5.5 J	< 50	1.2 J	< 50	
Mar-09	640	NA	490	NA	810	NA	44 J	NA	89	NA	NA	11 J	NA	17 J	18 J	15 J	28 J	19 J	2.5 J	NA	NA	NA	NA	NA	NA	< 50	< 50	< 50	NA	< 50	< 50	
May-10	527	NA	236	NA	492	NA	61.5	NA	147	NA	NA	28.5	NA	10.3	13.7	10.6	13.4	23.4	3.4 J	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	NA	< 10	7.5 J	
Sep-11	880	130	410	4.3 J	1,600	260	34	NA	56	4.4 J	61	37	NA	28	6 J	10	20	32	2.9 J	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	<10	NA	NA	
Nov-12	180	NA	170	NA	650	NA	37	NA	67	NA	NA	29	NA	11	12	10	7.2 J	< 10	2.9 J	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	NA	
Mar-14	440	NA	240	NA	400	NA	42	NA	47	NA	NA	36	NA	5.9 J	13	11	15	ND	2 J	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	6.7 J	
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	< 4	4.1 J	89.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jul-15	405.7	NA	152.6	NA	82.5	NA	37.5	NA	12	NA	NA	7.6	NA	12.9	13.8	14.4	3.4	3.6	3.9	3.6	2.2	14.8	NA	NA	NA	0.5 J	0.6 J	0.54 J	0.9 J	4.99	0.158	
Jan-17	622.5	NA	249.7	NA	302.9	NA	59.8	NA	NA	NA	NA	2.8	NA	49	1.6 J	9.8	0.6 U	1.9 J	7.6	0.8 J	1.8 J	69.1	1.4 J	1.5 J	2.5	0.6 U	0.7 J	2	1.3 J	1.8 J	0.7 J	
May-18	166.5	NA	6.48	NA	390.8	NA	23.04	NA	NA	NA	NA	0.98 J	NA	0.88 J	8.57	11.75	2.0 U	2.49	15.83	0.88 J	1.0 J	101.4	1.36 J	154.3	2.0 U	2.0 U	1.59 J	2.0 U	2.0 U	0.62 J	2.0 U	
Jul-19	42.78	NA	3.26	NA	1,044	NA	51.96	NA	NA	NA	NA	0.8 J	NA	68.92	8.98	9.17	1.86 J	1.01 J	4.72	0.61 J	0.55 U	13.6	1.95 J	8.31	5.56	0.55 U	1.24 J	0.55 U	0.57 J	0.55 U	0.55 U	

Notes:

ARAR Standard = 100 µg/L; USEPA MCL = Not Available; and, Part 5 MCL = Not Available

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

< = The compound was analyzed for but not detected at the laboratory detection limit listed.

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.

Laboratory Qualifier Definitions

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.

ND or U = Not Detected

Table 17

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

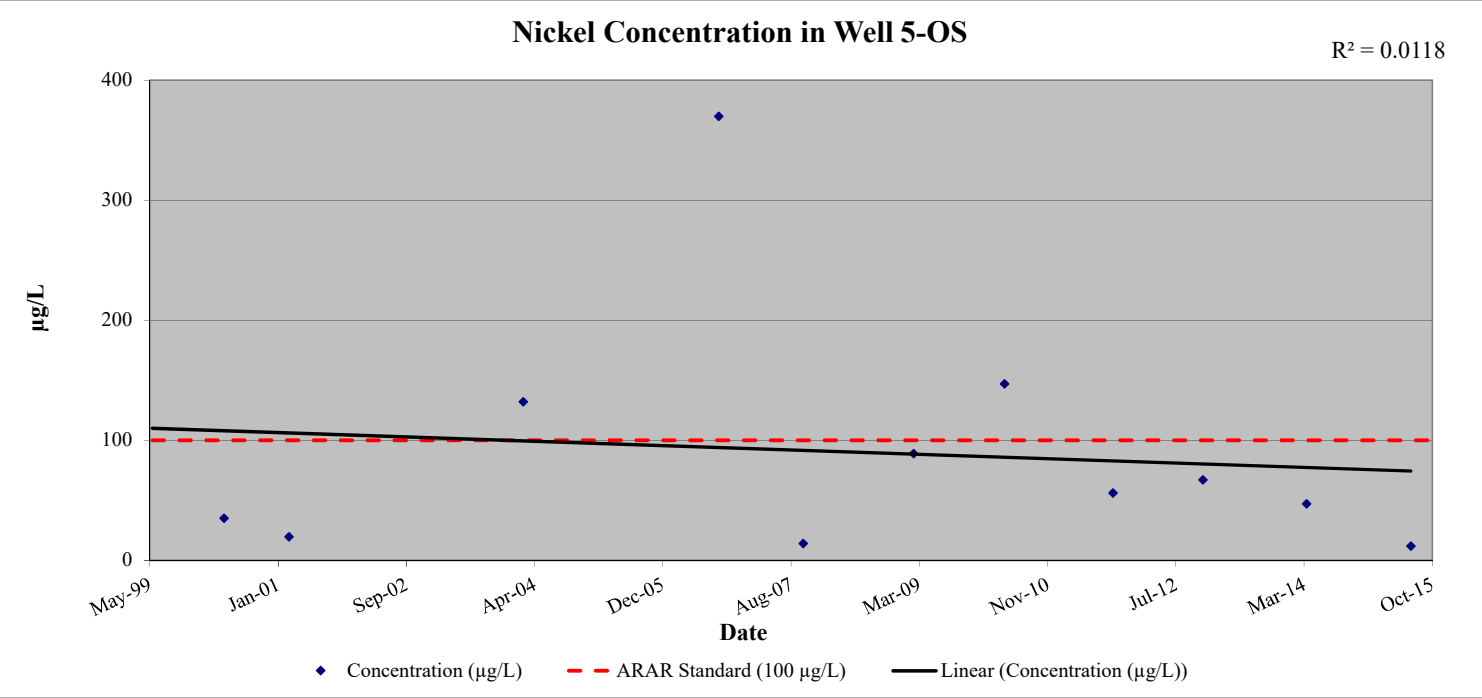
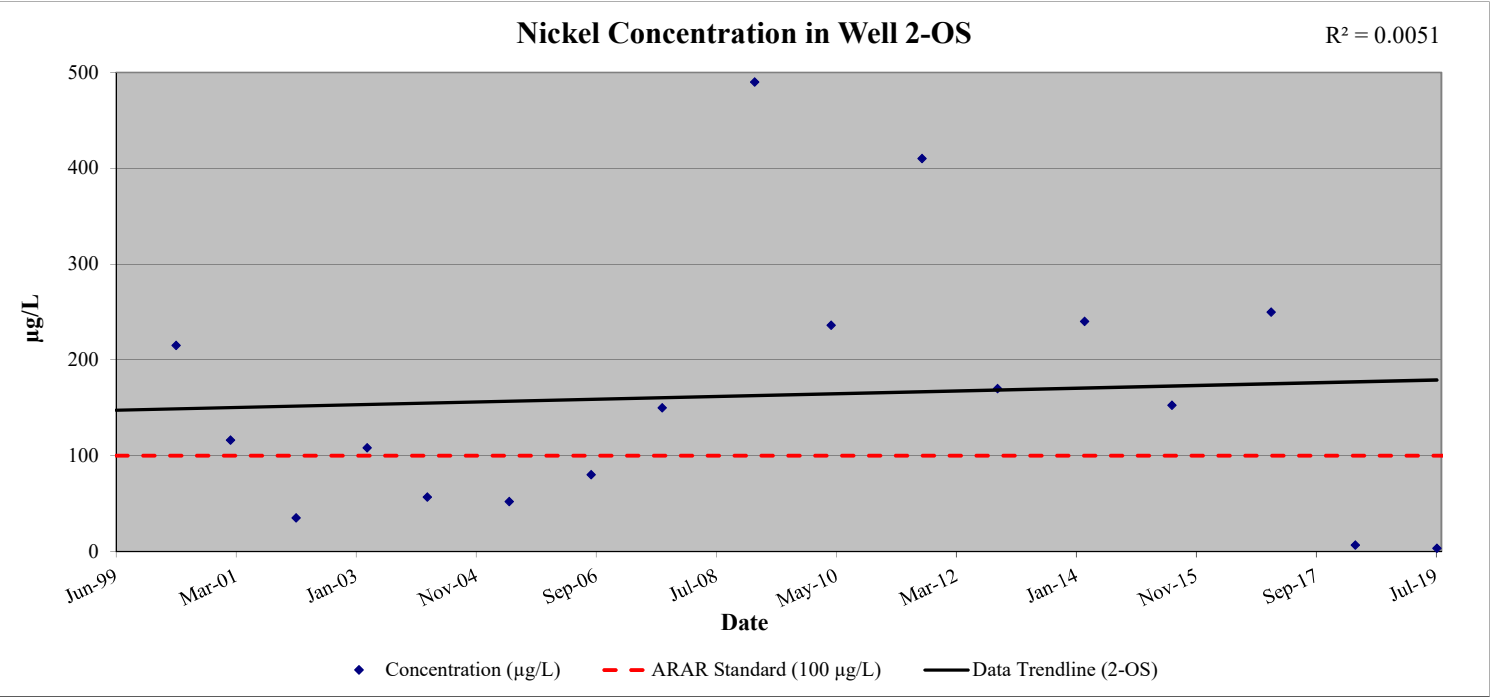
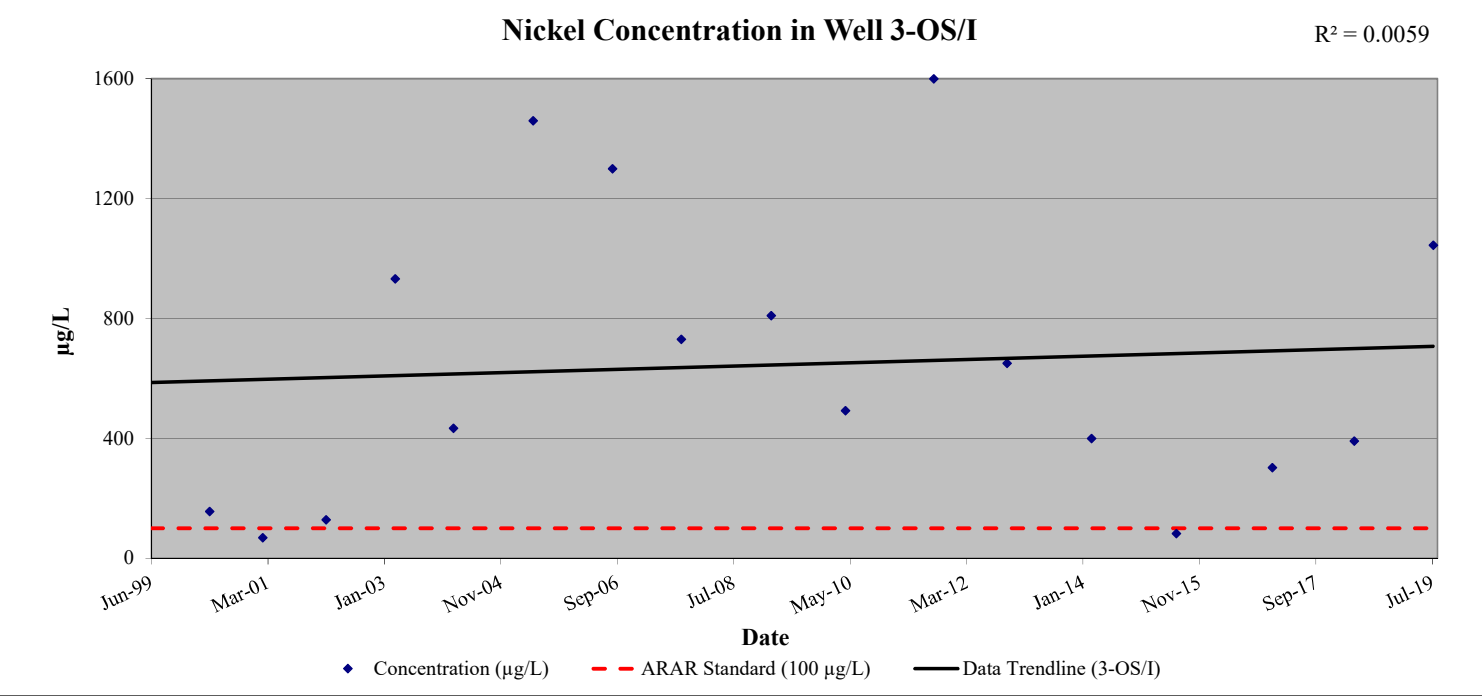
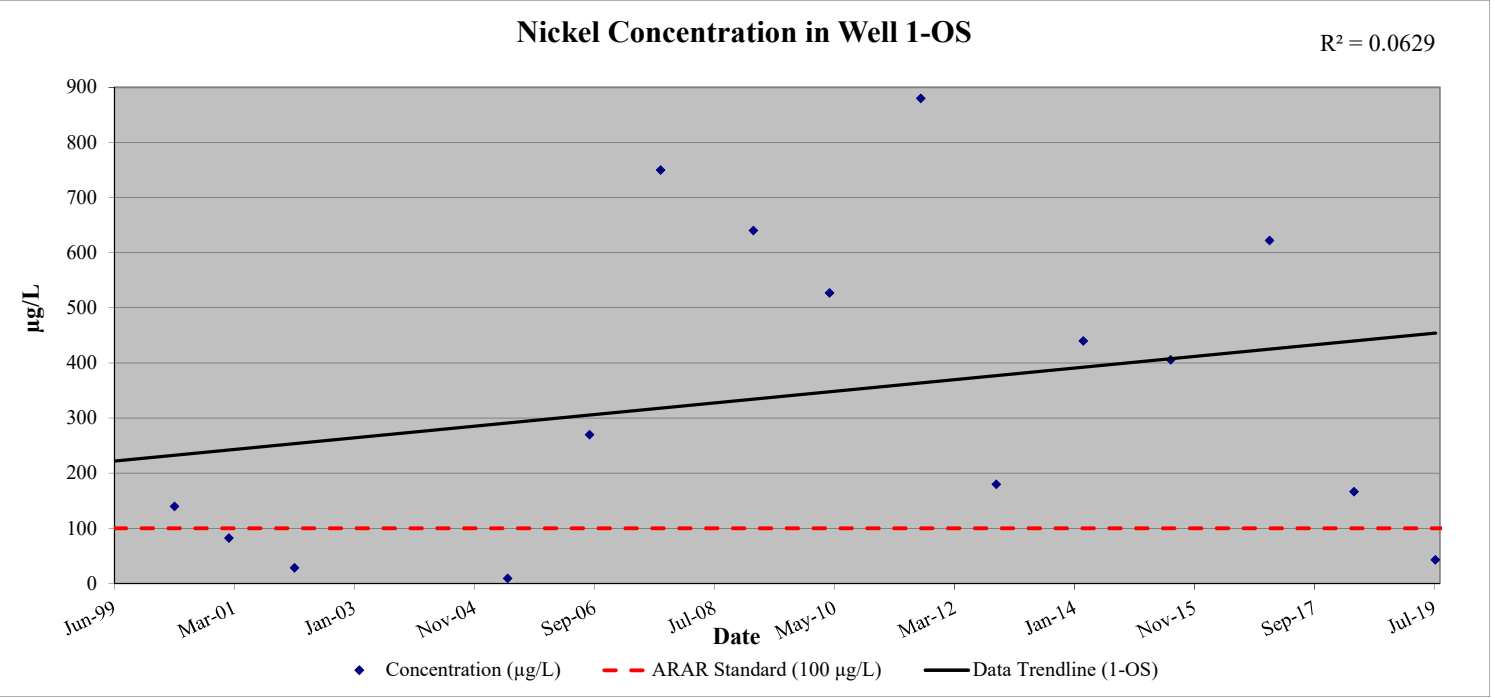


Table 18

Summary of Historical Groundwater Quality Results - Sodium (µg/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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	4,980	16,100	43,400	5,500	5,610	13,100	NA	NA	NA	NA	NA	NA	4,300	13,200	31,600	33,400	32,900	30,400
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	36,400	29,000	9,960	10,100	41,600	43,300	30,500	13,800	5,530	NA	4,480	19,800	13,900	3,480 B	15,000	71,100	5,080	4,400 B	14,300	NA	NA	NA	NA	NA	NA	5,430	9,110	31,400	32,500	28,800	35,900
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	42,100	19,100	9,460	7,760	38,700	34,900	24,100	13,700	4,770 B	NA	3,740 B	16,900	11,300	14,200	90,500	52,400	3,670 B	4,950 B	27,500	NA	NA	NA	NA	NA	NA	6,130	9,330	36,000	38,700	38,500	35,200
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	47,800	69,500	9,450	7,240	29,800	32,300	23,500	9,780	NA	4,480	4,860	12,500	10,500	5,150	56,200	74,400	5,120	6,060	22,200	NA	NA	NA	NA	NA	NA	7,160	8,720	56,000 E	48,900 E	41,900 E	43,500 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	24,200	7,130	7,670	31,500	38,000	26,200	12,900	NA	4,540 B	4,190 B	13,100	NA	10,900	46,500	52,200	4,530 B	5,830	20,600	NA	NA	NA	NA	NA	NA	8,690	9,000	39,800	43,000	34,700	4,040
Mar-04	NA	NA	11,000	NA	22,600 E	NA	54,600	NA	8,870	NA	NA	5,000 E	NA	17,100 E	110,000 E	47,300 E	3,220 B,E	3,690 B	14,600 E	NA	NA	NA	NA	NA	NA	5,410 E	7,730 E	33,800 E	35,600 E	27,700 E	30,100 E
Jun-05	37,100 E	NA	8,680 E	NA	29,100 E	NA	20,300	NA	NA	2,880 B,E	NA	9,190	NA	8,400	124,000	42,200	4,160 B	5,530	22,500	NA	NA	NA	NA	NA	NA	11,500	5,400	44,100	42,300	41,700	47,400
Sep-06	62,000	NA	11,000	NA	29,000	NA	33,000	NA	14,000	NA	NA	7,000	NA	28,000	73,000	46,000	5	9,400	28,000	NA	NA	NA	NA	NA	NA	14,000	7,400	52,000	47,000	36,000	47,000
Oct-07	76,000	NA	12,000	NA	23,000	NA	24,000	NA	4,100	NA	NA	7,700	NA	15,000	55,000	48,000	7,200	9,800	35,000	NA	NA	NA	NA	NA	NA	12,000	6,100	60,000	52,000	53,000	56,000
Mar-09	97,000	NA	11,000	NA	36,000	NA	48,000	NA	8,100	NA	NA	9,700	NA	41,000	50,000	42,000	8,300	15,000	44,000	NA	NA	NA	NA	NA	NA	12,000	7,400	52,000	NA	49,000	54,000
May-10	111,000	NA	9,300	NA	36,900	NA	47,900	NA	8,000	NA	NA	11,700	NA	30,700	75,600	41,400	8,200	14,200	59,300	NA	NA	NA	NA	NA	NA	18,600	8,600	41,600	NA	47,200	48,600
Sep-11	101,000	23,900 B	10,900	9,700	57,200	59,000	60,200	NA	7,300	4,600	6,200 B	12,500	NA	19,800	56,800 B	34,600 B	11,200 B	17,100 B	48,900 B	NA	NA	NA	NA	NA	NA	68,500 B	6,900 B	45,600 B	40,400 B	NA	NA
Nov-12	102,000	NA	13,100	NA	36,300	NA	64,500	NA	7,300	NA	NA	15,900	NA	10,800	97,900	37,800	9,800	11,400	45,500	NA	NA	NA	NA	NA	NA	32,500	6,800	45,100	45,900	42,500	NA
Mar-14	117,000 B	NA	10,500 B	NA	35,300	NA	71,900	NA	7,000	NA	NA	14,900	NA	24,500 B	91,800 B	37,800	5,500	13,000	37,600	NA	NA	NA	NA	NA	NA	25,600 B	7,200	54,100 B	50,100 B	48,600 B	56,100 B
Nov-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,740	17,800	3,220	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	118,000	NA	15,100	NA	20,500	NA	35,600	NA	4,090	NA	NA	15,800	NA	31,000	122,000	42,800	9,770	9,960	47,200	2,150	4,210	6,950	NA	NA	NA	35,000	7,900	58,000	66,000	61,000	64,000
Jan-17	103,000	NA	14,000	NA	25,900	NA	84,700	NA	NA	NA	NA	14,600	NA	18,000	29,200	39,700	5,810	19,300	50,400	2,230	3,780	5,520	3,580	3,820	4,030	19,800	6,410	63,000	56,400	56,100	59,700
May-18	73,300	NA	34,700	NA	29,900	NA	67,100	NA	NA	NA	NA	11,100	NA	6,840	59,400	35,900	4,660	31,500	43,200	2,560	3,340	5,270	24,800	4,060	4,720	40,700	6,370	44,800	49,400	46,000	57,300
Jul-19	115,000	NA	133,000	NA	52,100	NA	93,500	NA	NA	NA	NA	14,900	NA	52,400	96,800	42,000	6,700	9,680	39,600	2,090	3,910	4,410	3,870	3,590	4,380	37,900	7,080	58,200	61,300	55,600	62,900

Notes:

ARAR Standard = 20,000 µg/L; USEPA MCL = Not Available; and, Part 5 MCL = (1)

⁽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

<= The compound was analyzed for but not detected at the laboratory detection limit listed.

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.

Laboratory Qualifier Definitions

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.

ND or U = Not Detected

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

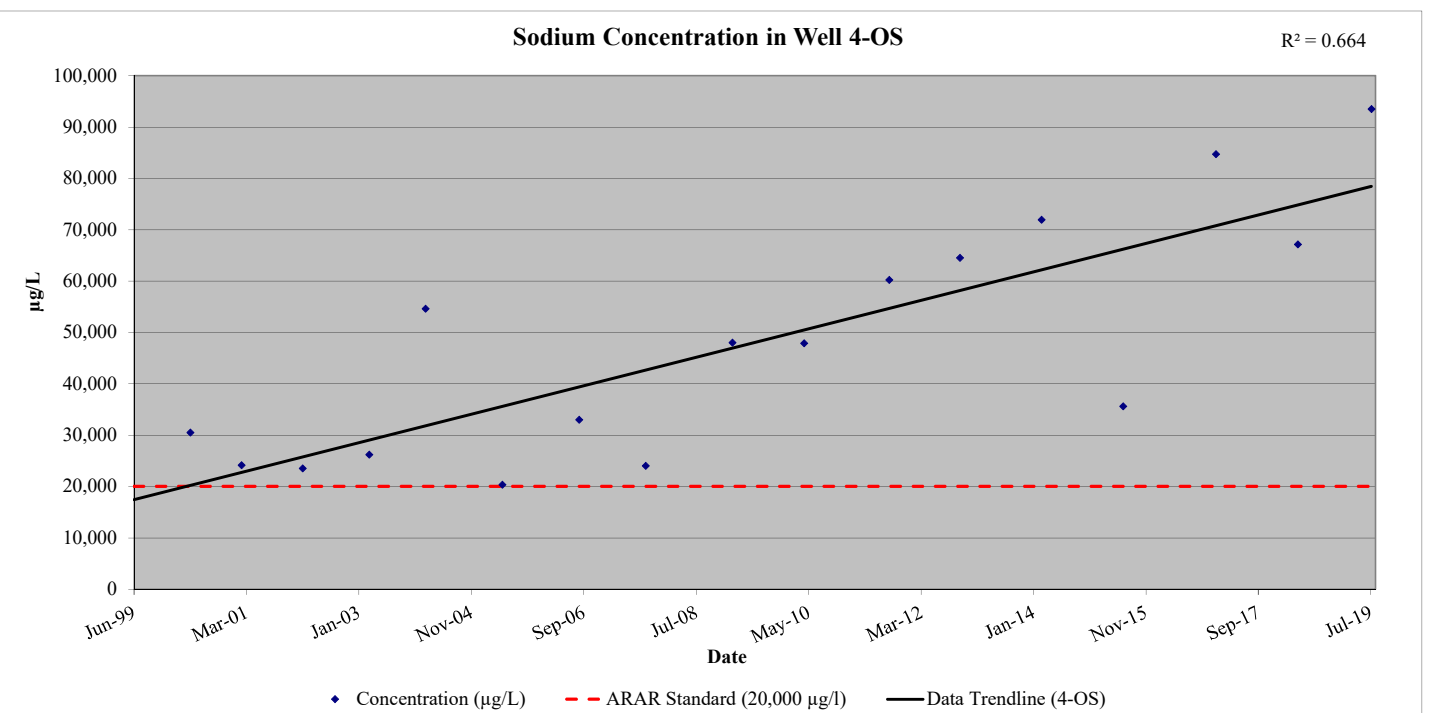
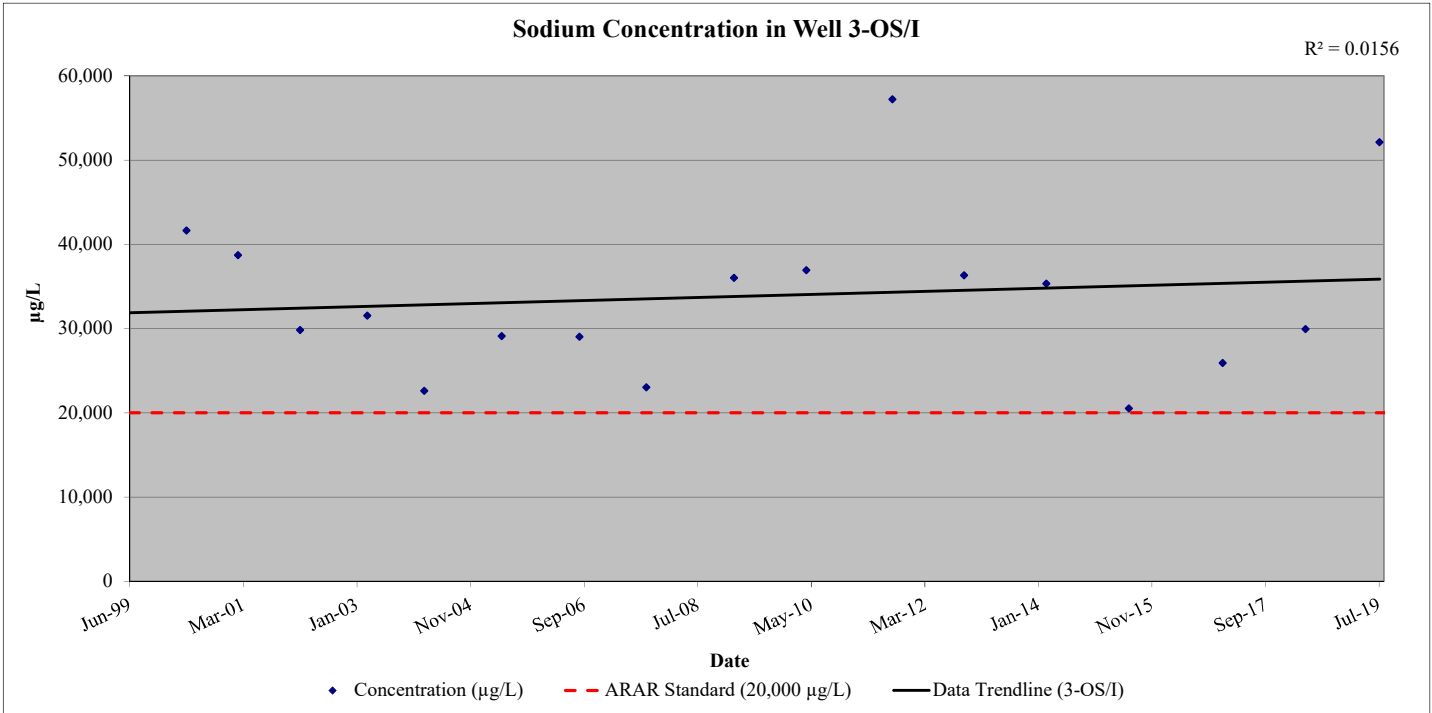
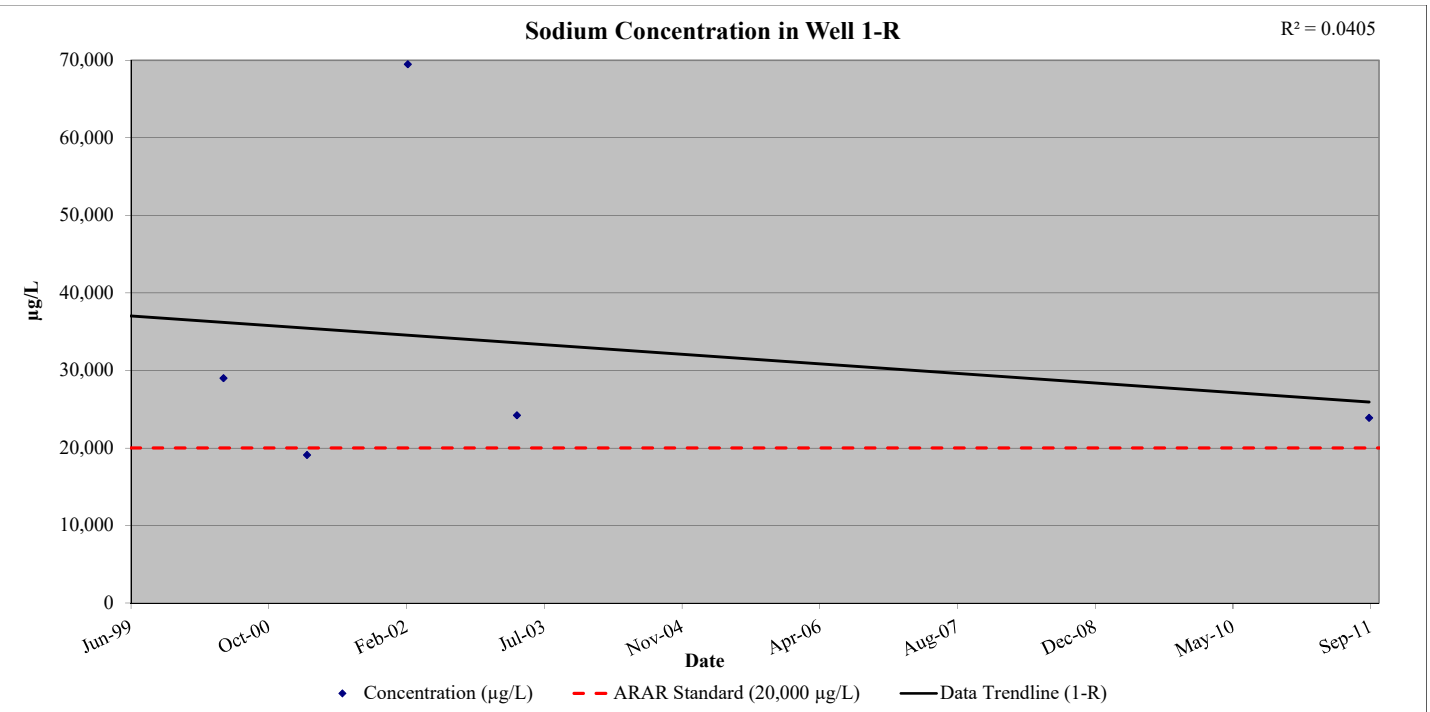
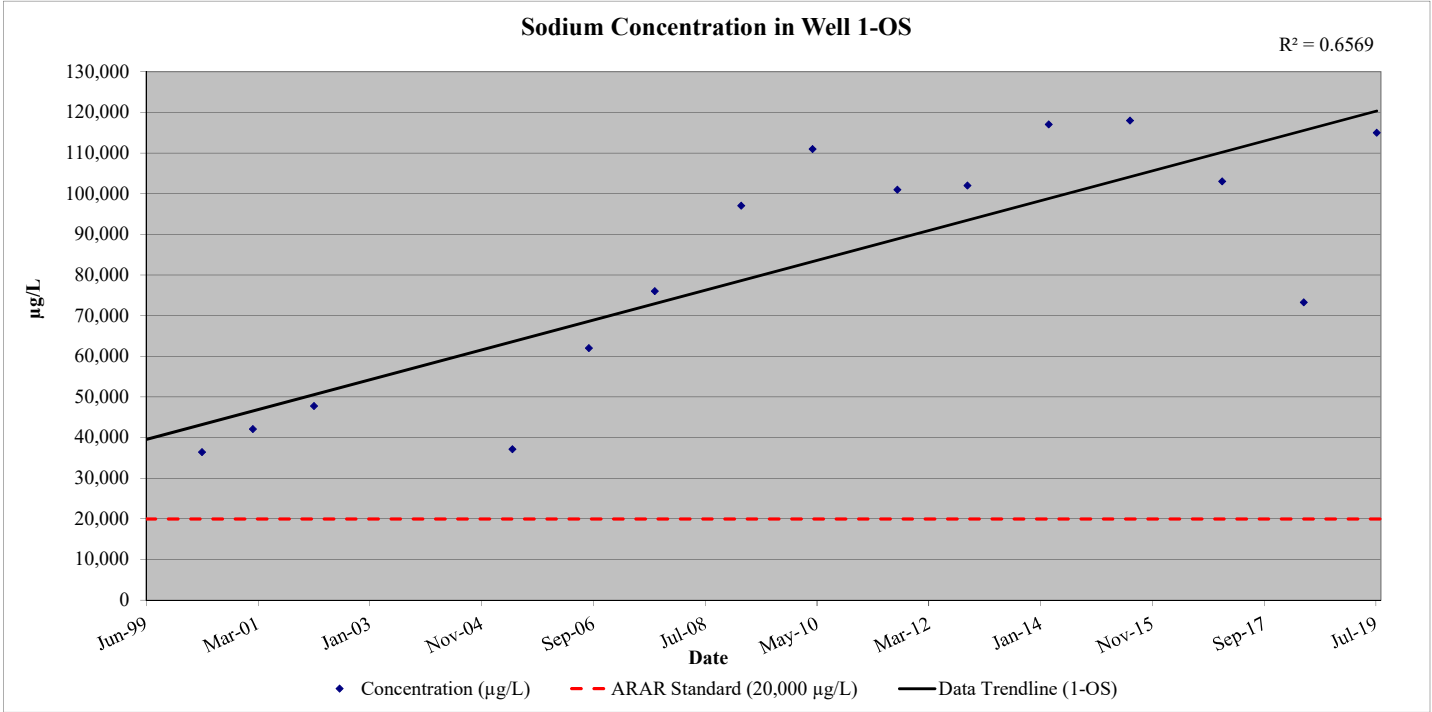


Table 18
Summary of Historical Groundwater Quality Results - Sodium (µg/L)
Town of Ramapo Landfill

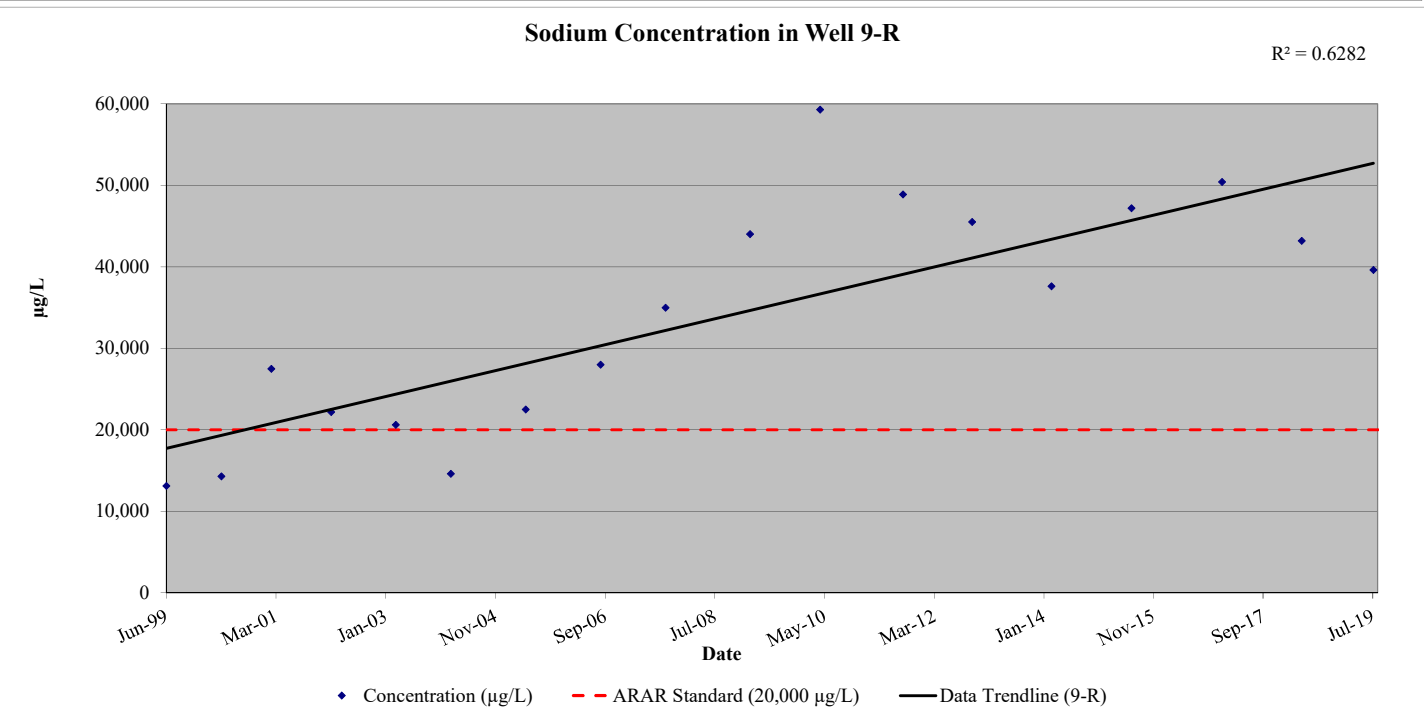
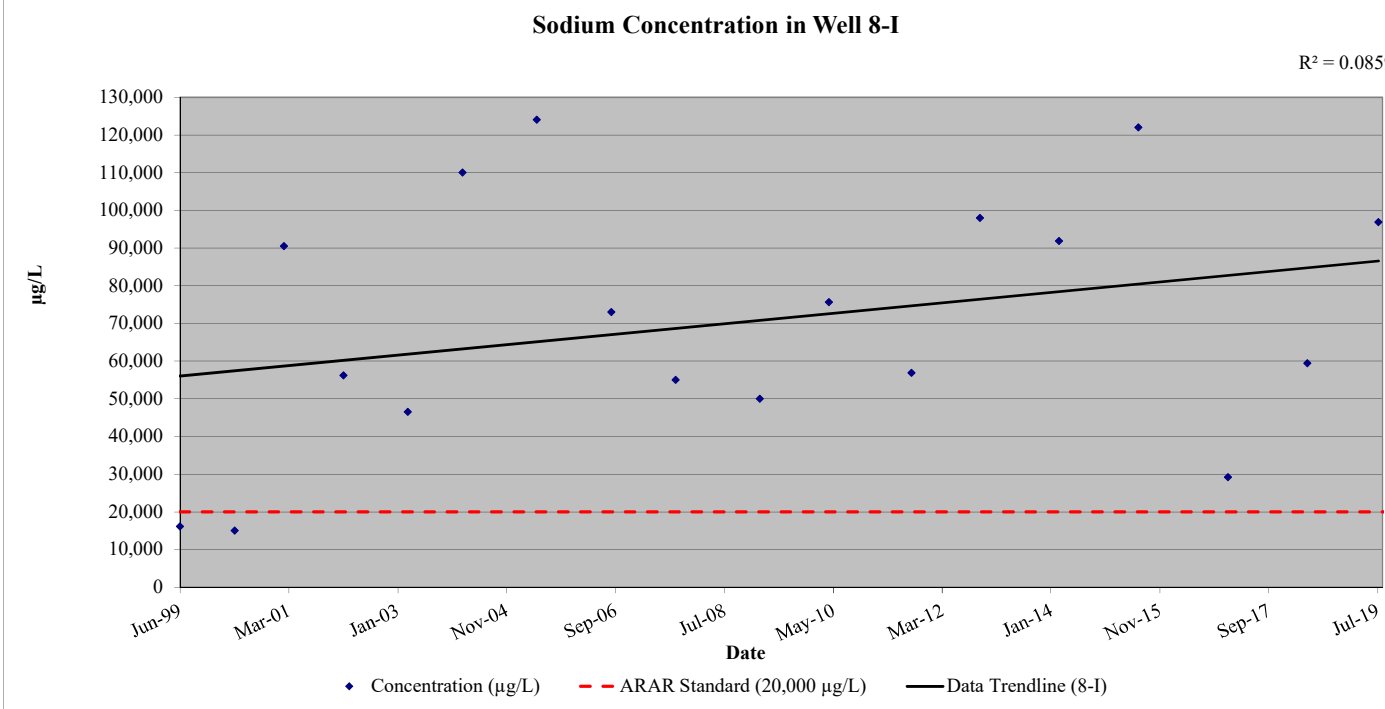
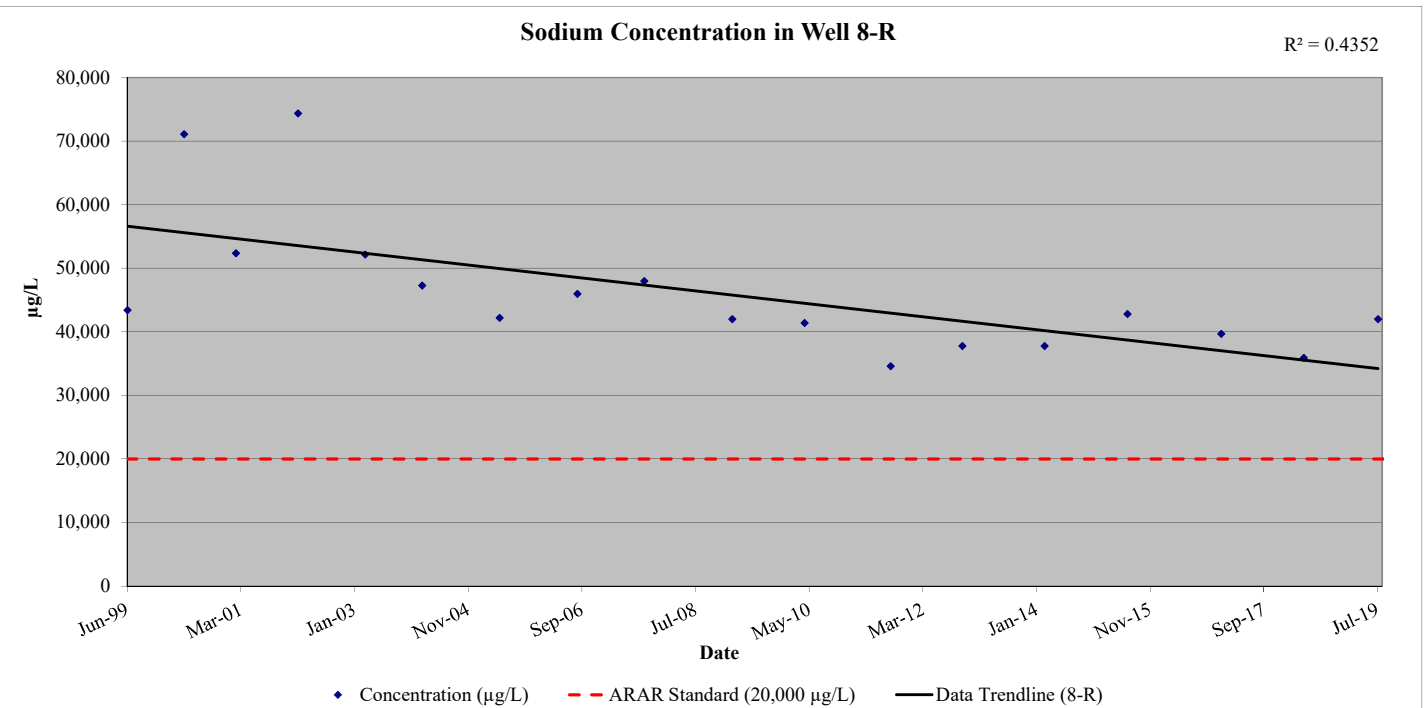
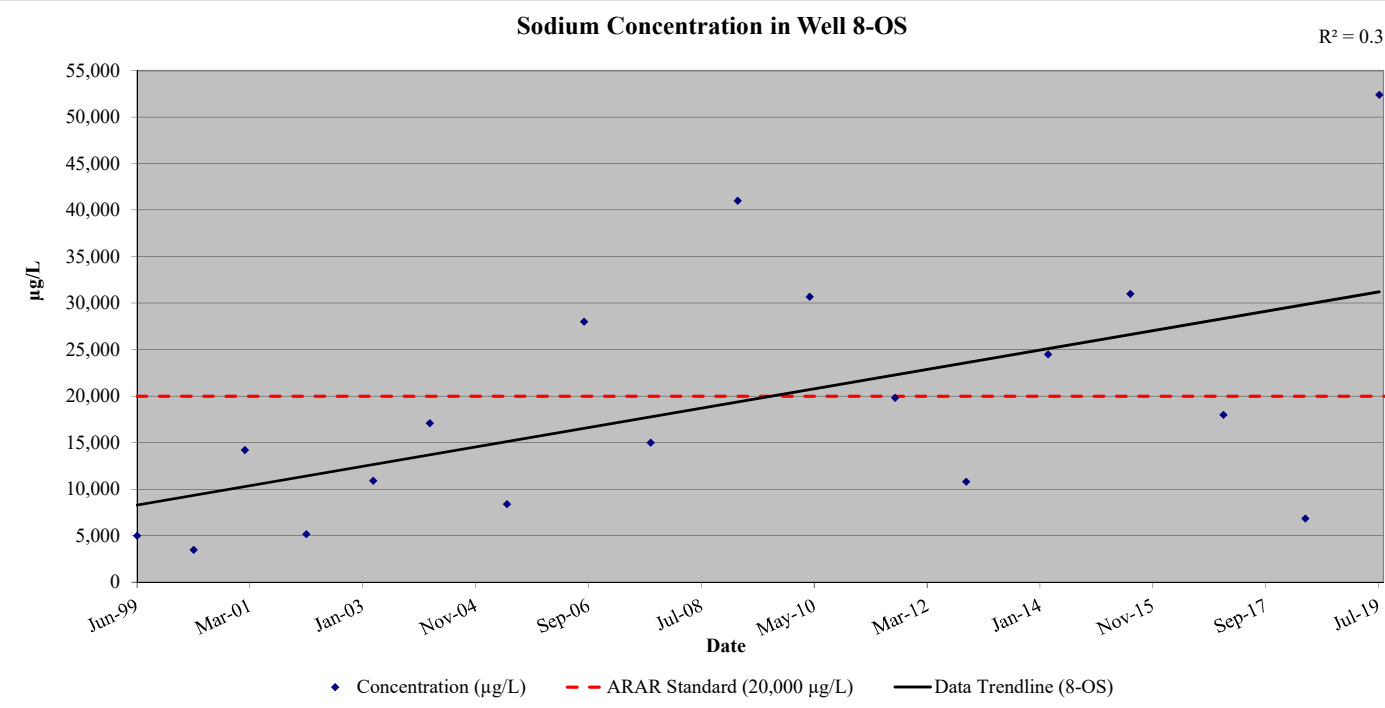


Table 18
Summary of Historical Groundwater Quality Results - Sodium (µg/L)
Town of Ramapo Landfill

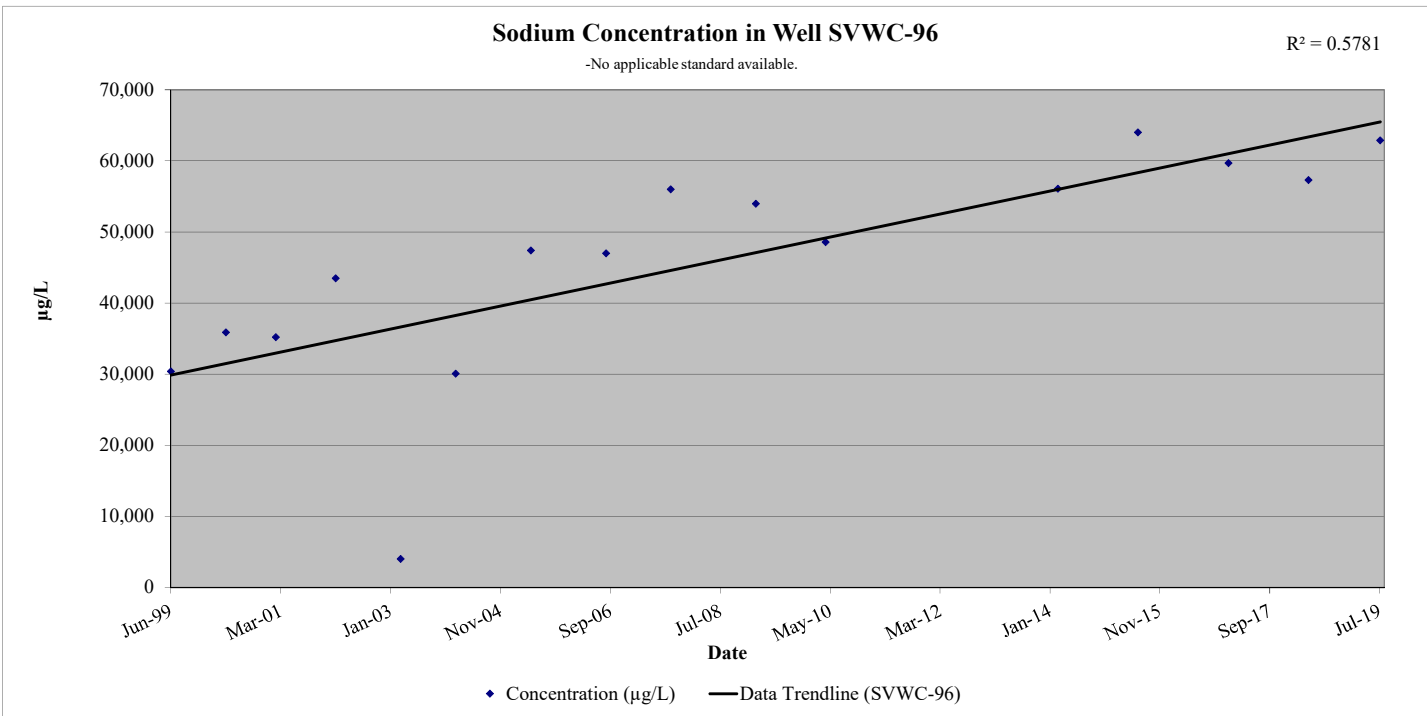
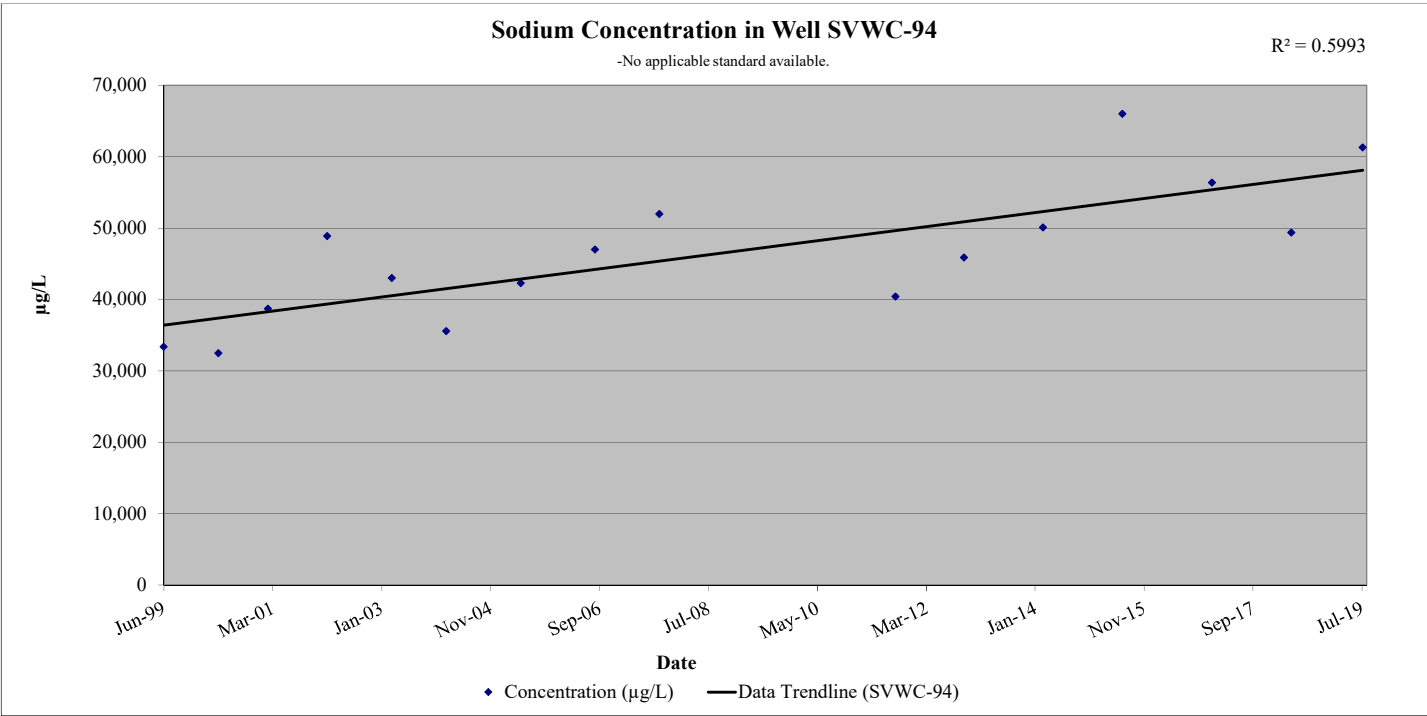
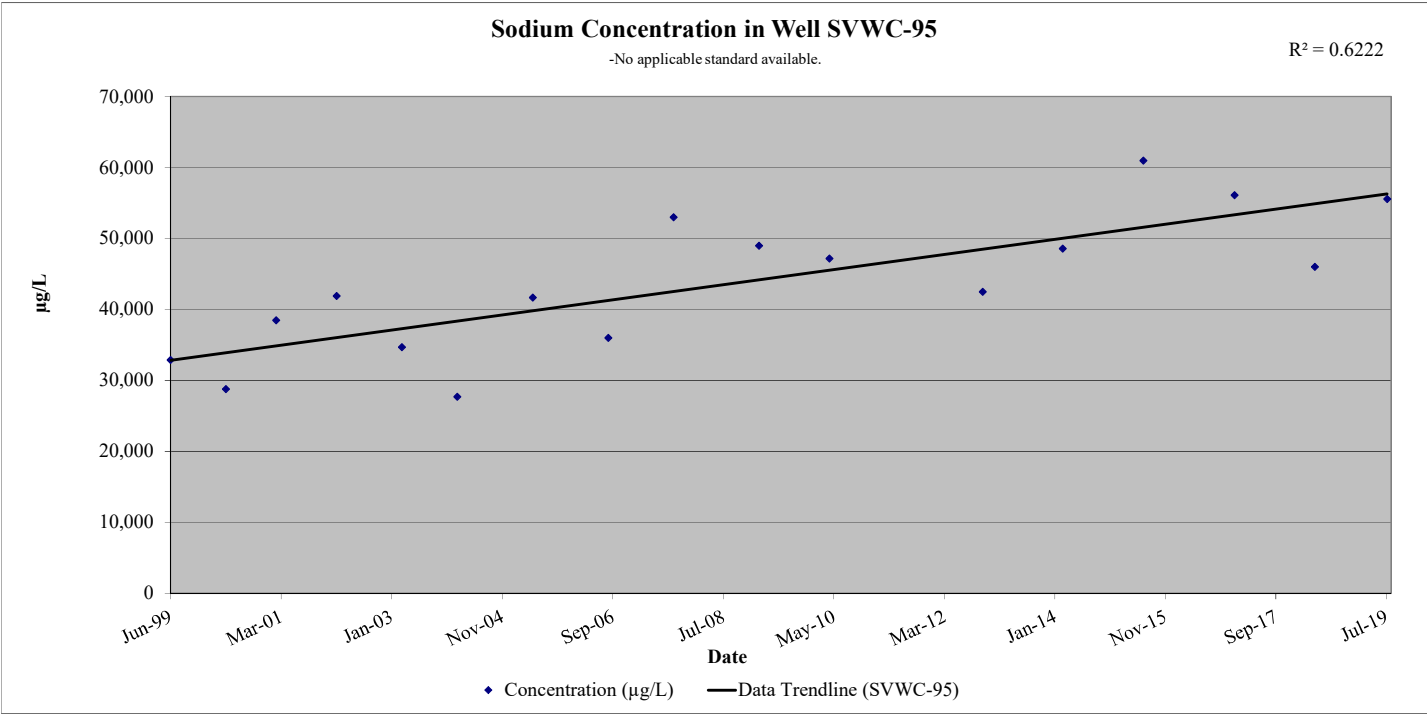
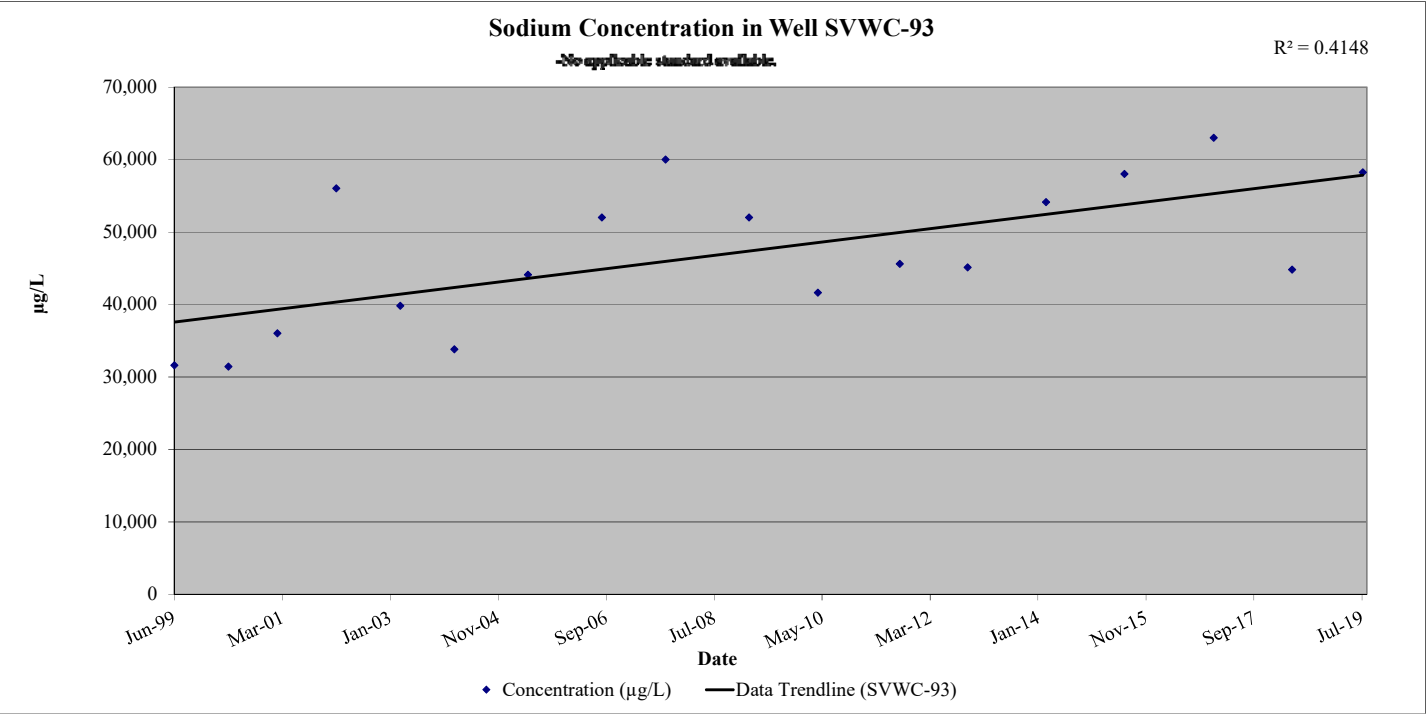


Table 19

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

Well ID	Well 1-OS	Well 1-R	Well 2-OS	Well 2-R	Well 3-OS/1	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	UP-OS	UP-I	UP-R	Well PW-1	Well 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	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	7.2
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	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	NA	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	NA	NA	NA	NA	NA	NA	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3	< 2.3
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	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	4.8 B	NA	22.8	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	NA	NA	NA	NA	NA	NA	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7	< 2.7
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	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	NA	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	< 3.6	4.4 B	< 3.6	NA	NA	NA	NA	NA	< 3.6	< 3.6	4.4 B	< 3.6	< 3.6	< 3.6
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	< 3.5	4.8 B	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	NA	4.1 B	< 3.5	< 3.5	NA	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5	NA	NA	NA	NA	NA	NA	4.1 B	< 3.5	< 3.5	< 3.5	< 3.5	< 3.5
Jun-04	NA	NA	< 2.8	NA	< 3.3	NA	5.4 B	NA	< 2.8	NA	NA	< 3.3	NA	< 3.3	< 3.3	< 3.3	< 3.3	< 3.3	< 3.3	NA	NA	NA	NA	NA	NA	NA	< 3.3	< 3.3	< 3.3	< 3.3	< 3.3
Jun-05	10.4	NA	5.3 B	NA	12.7	NA	< 2.9 N	NA	NA	5.1 B	NA	< 2.9 N	NA	< 2.9 N	4.6 B,N	4.6 B,N	< 2.9 N	< 2.9 N	< 2.9 N	NA	NA	NA	NA	NA	NA	NA	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N	< 2.9 N
Sep-06	20	NA	16	NA	16	NA	24	NA	7.8 J	NA	NA	7.6 J	NA	9.8 J	12	9.4 J	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 10	8.8 J	7.6 J	< 10	< 10	< 10
Oct-07	9.9 J	NA	< 10	NA	< 10	NA	< 10	NA	< 10	NA	NA	< 10	NA	< 10	< 10	< 10	< 10	< 10	< 10	NA	NA	NA	NA	NA	NA	< 10	< 10	< 10	< 10	< 10	< 10
Mar-09	< 20	NA	< 20	NA	< 40	NA	< 20	NA	< 20	NA	NA	< 20	NA	< 20	< 20	< 20	< 20	< 20	< 20	NA	NA	NA	NA	NA	NA	< 20	< 20	< 20	NA	< 10	< 20
May-10	< 0.5	NA	< 0.5	NA	0.5 J	NA	< 0.5 J	NA	< 2.5 D14	NA	NA	< 0.5	NA	< 0.5	< 0.5 J	< 0.5 J	< 0.5	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5
Sep-11	0.2 J	0.18 J	0.029 J	0.11 J	0.011 J	0.47 J	0.14 J	NA	0.32 J	0.02 J	0.18 J	0.2 J	NA	< 0.5	0.28 J	0.3 J	0.19 J	0.6 J	0.28 J	NA	NA	NA	NA	NA	NA	0.31 J	0.22 J	0.29 J	0.26 J	NA	NA
Nov-12	0.13 J	NA	0.035 J	NA	< 0.5	NA	0.051 J	NA	0.44 J	NA	NA	0.21 J	NA	< 0.5	< 0.5	< 0.5	0.014 J	< 0.5	< 0.5	NA	NA	NA	NA	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	NA
Mar-14	0.098 J	NA	0.043 J	NA	0.024 J	NA	0.04	NA	0.39 J	NA	NA	0.25 J	NA	ND	ND	ND	0.022 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	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jul-15	0.06 J	NA	<0.1	NA	<0.1	NA	<0.1	NA	<0.1	NA	NA	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	NA	NA	NA	<0.03	<0.03	<0.03	<0.03	0.06 J	<0.03
Jan-17	<0.1	NA	<0.1	NA	<0.1	NA	<0.1	NA	NA	NA	NA	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
May-18	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U	NA	NA	NA	NA	<0.5	NA	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Jul-19	0.14 U	NA	0.14 U	NA	0.14 U	NA	0.14 U	NA	NA	NA	NA	0.14 U	NA	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U	0.14 U

Notes:

ARAR Standard = 0.5 µg/L; USEPA MCL = 2 µg/L; and, Part 5 MCL = 2 µg/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

< = The compound was analyzed for but not detected at the laboratory detection limit listed.

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.

Laboratory Qualifier Definitions

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.

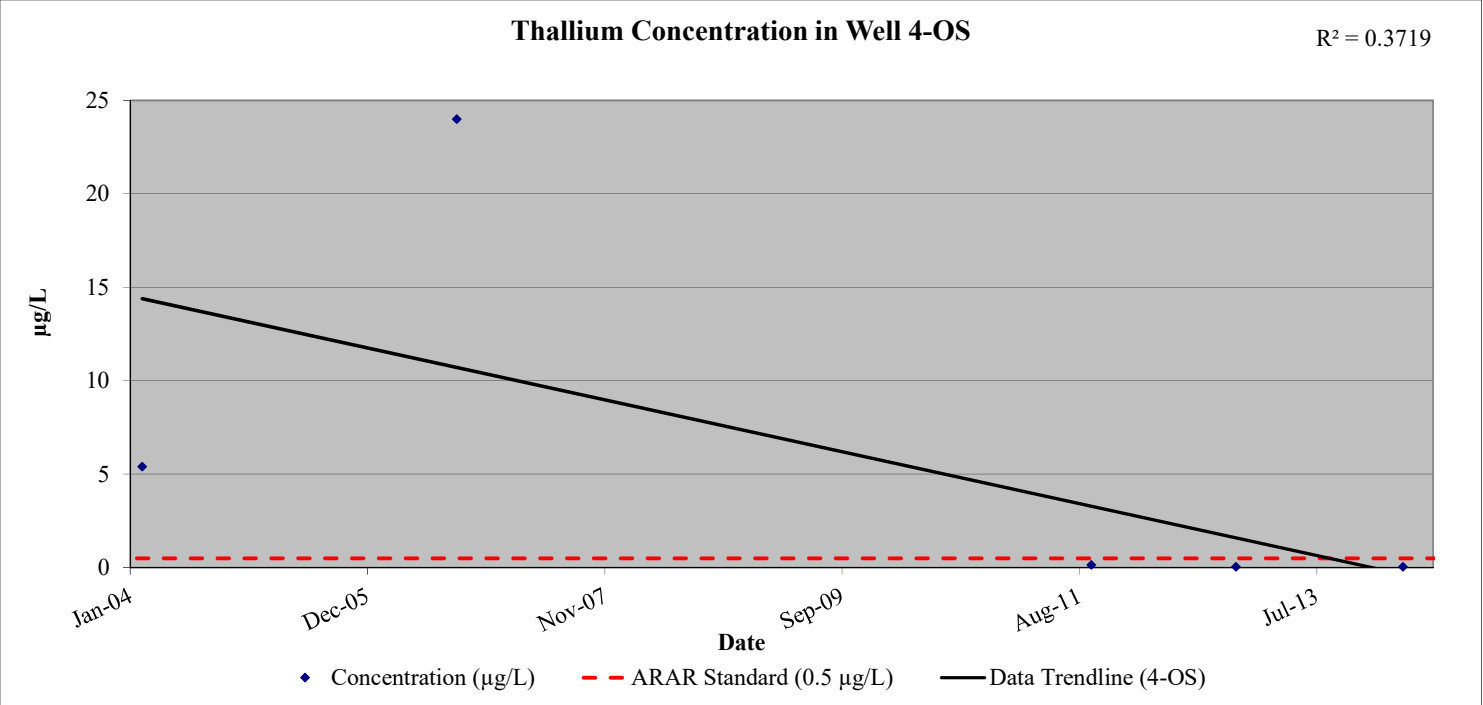
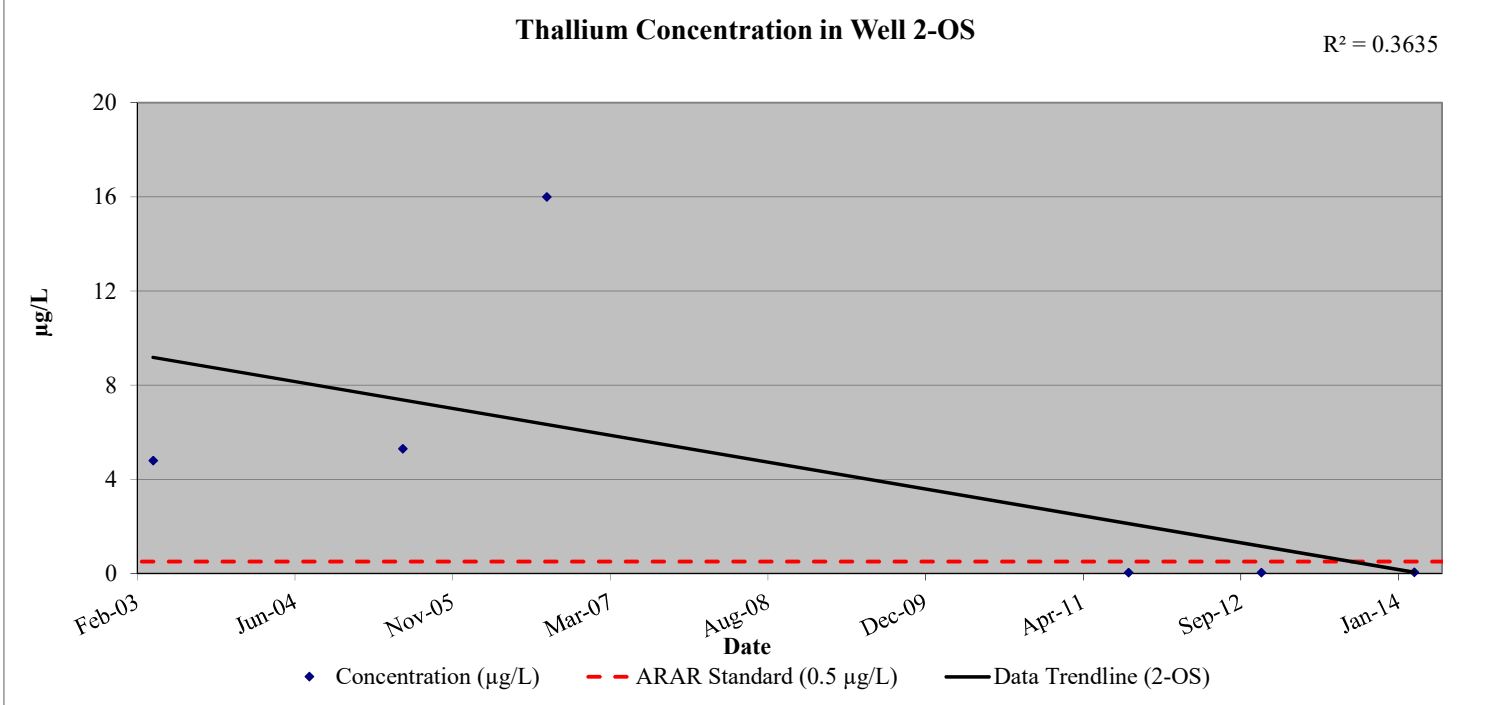
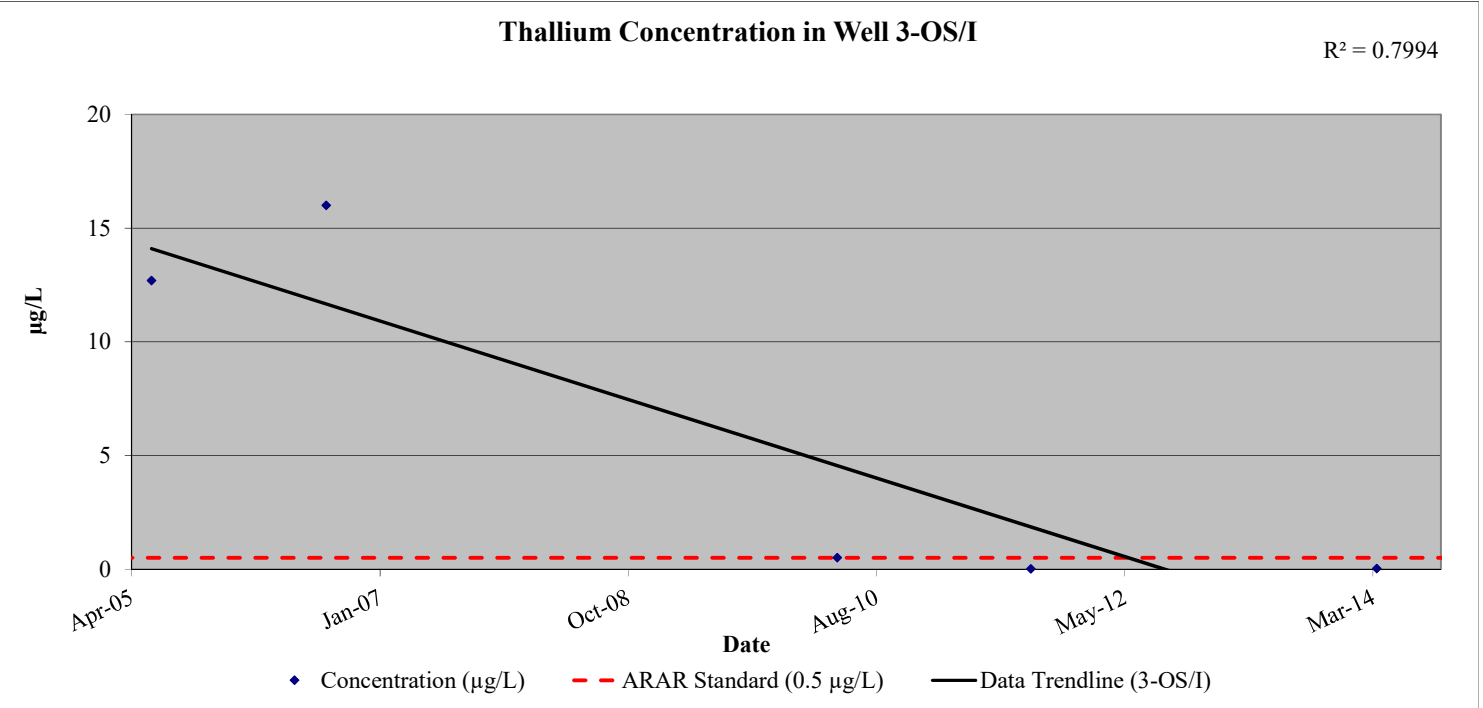
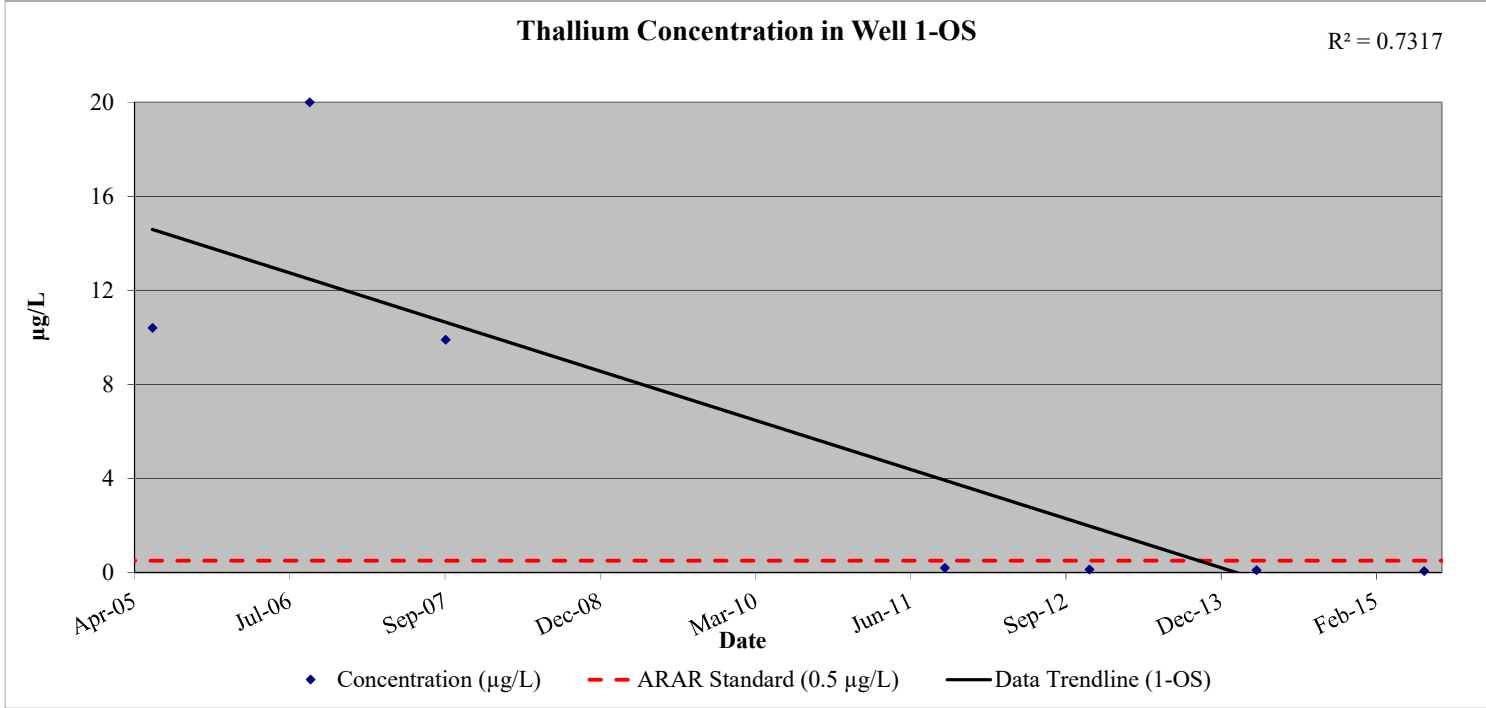
J = Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

N = Spiked sample recovery not within control limits.

ND or U = Not Detected

Table 19

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



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

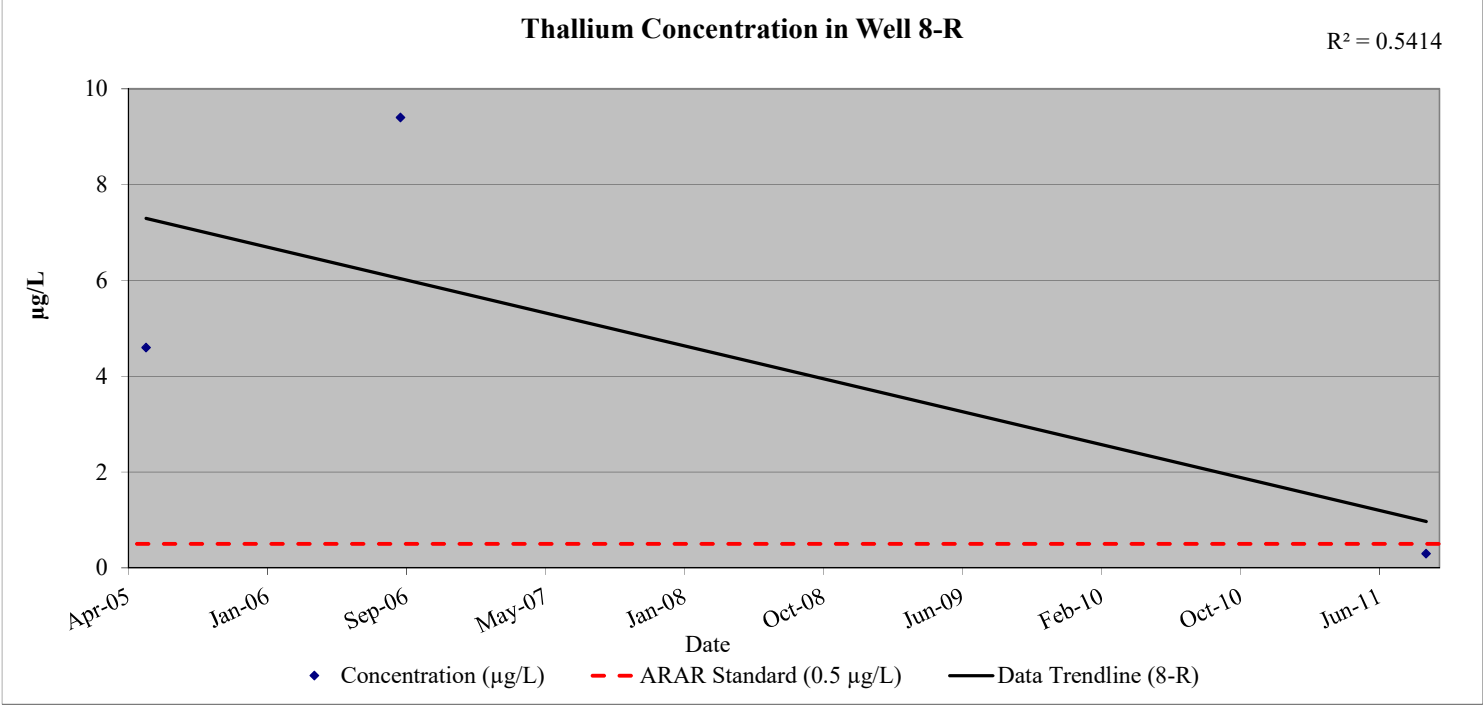
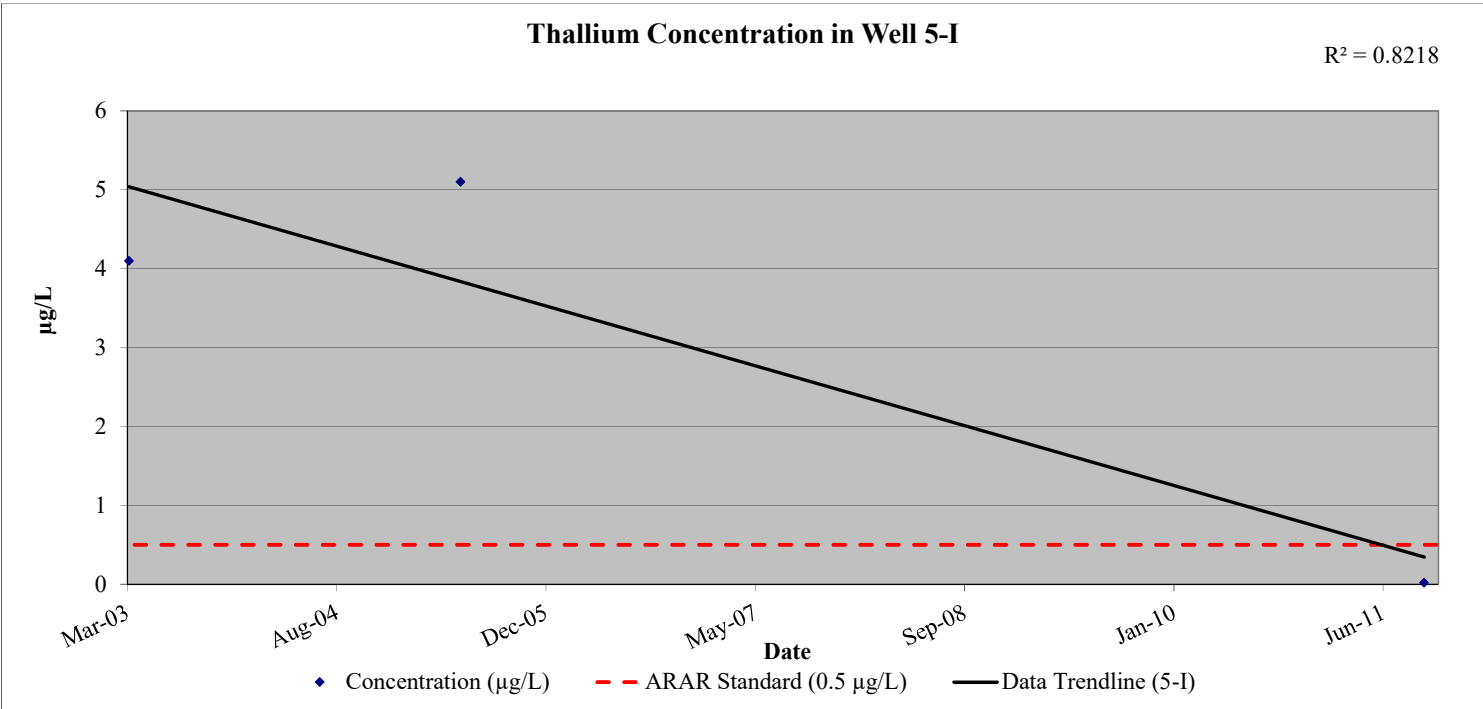
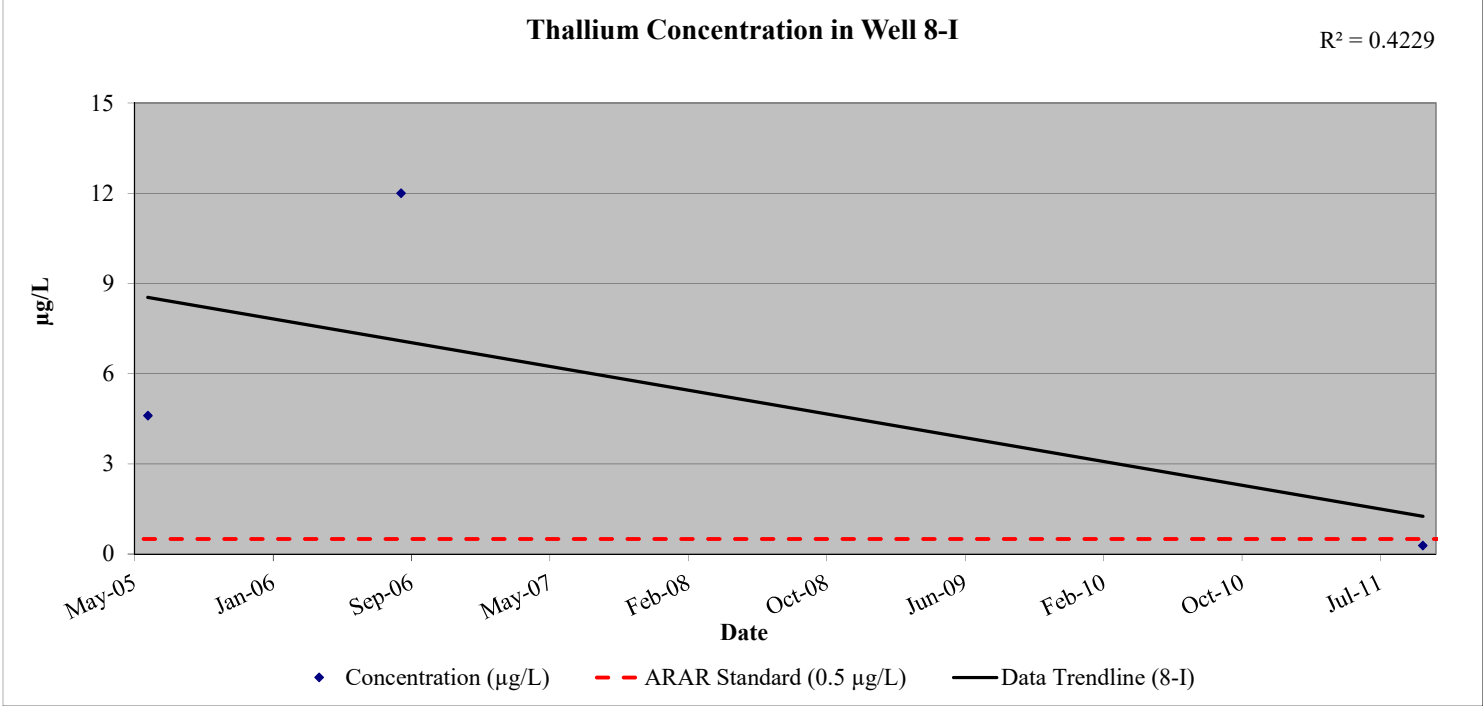
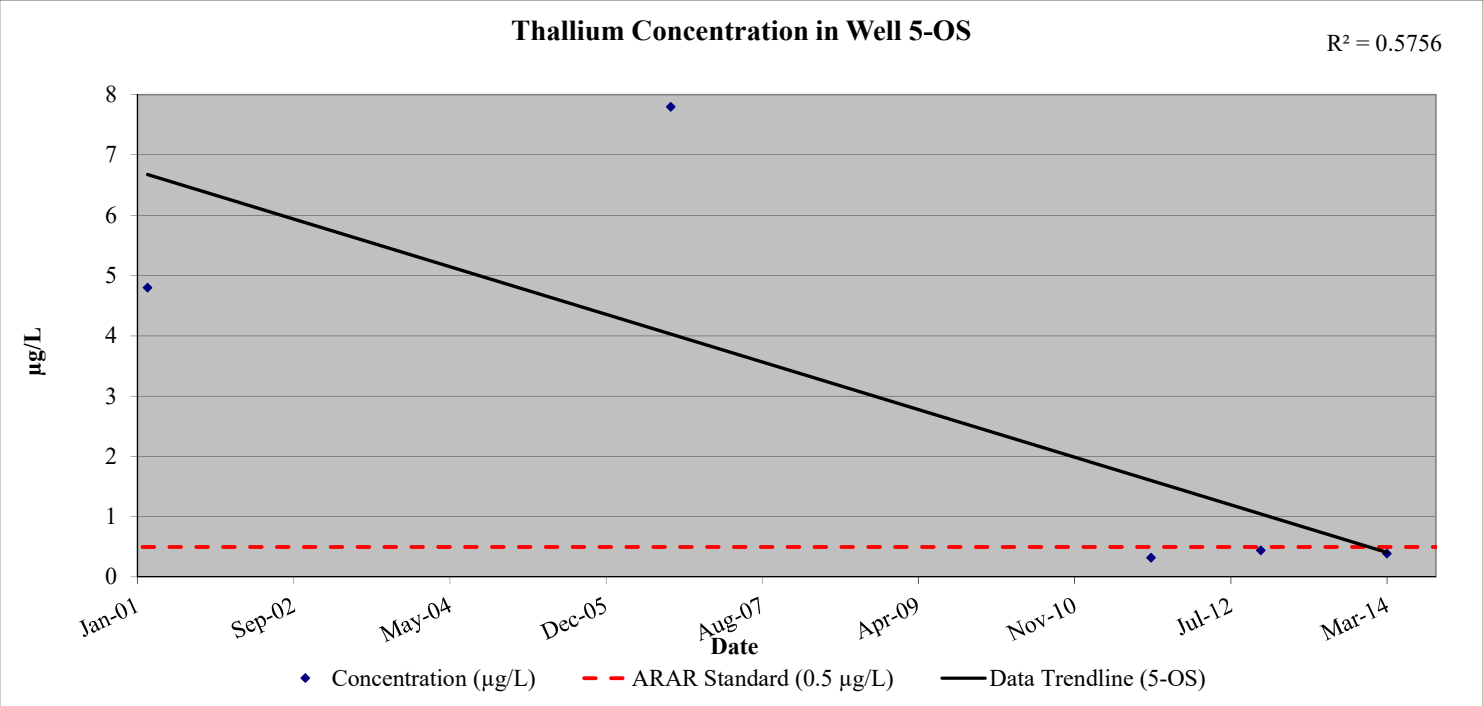


Table 19

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

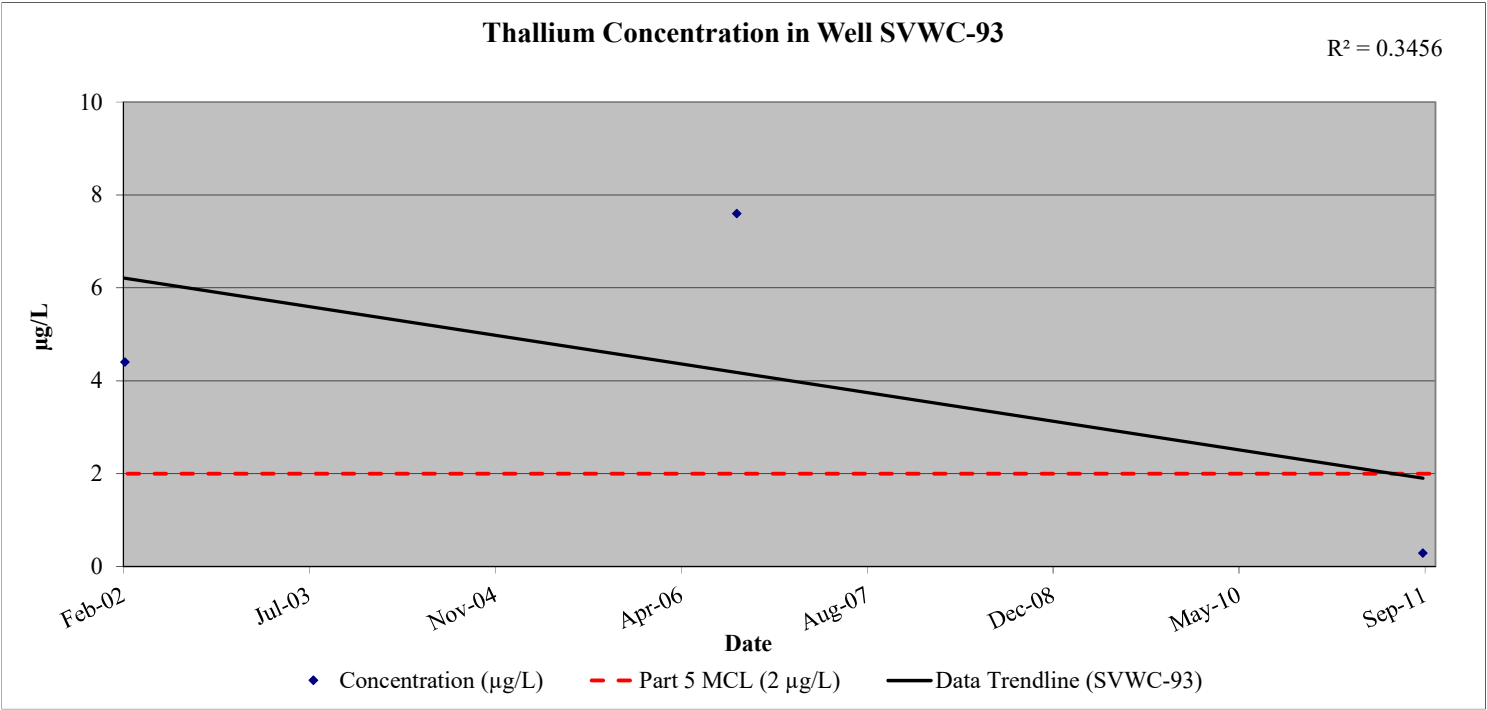


TABLE 20

**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	9,312,788*

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

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

*Readings through July 31, 2019

TABLE 21

Summary of 2018/2019 and Historical Leachate / Groundwater Analytical Results
Rockland County Sewer District #1 - Western Ramapo Treatment Plant
Sample Location : Manhole Immediately Upstream of Wet Well

Parameter	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	8/22/12	7/25/13	1/23/14	05/15/14	07/10/14	01/14/15	04/16/15	07/08/15	02/24/16	06/08/16	09/21/16	05/17/17	09/20/17	11/29/17	04/25/18	07/25/18	10/17/18	05/15/19	
Phosphorous (Total)	-	ppm	0.41	1.32	0.02 U	0.13	6.8	6.8	6.8	6.5	8.2	7.7	7.1	7.3	7.6	7.5	7.3	7.2	8.2	7.2	7.3	6.8	6.4	6.5	6.8	7.2	6.4	
Chloride	-	ppm	160	180	130	200	257	123	92.6	90.8	148	4010	136	218	97.4	263	201	267	165	294	194	177	201	180	70.1	163	123	
Ammonia	-	ppm	520	340	1.8	1 U	2.3	0.645	0.821	2.03	0.1 U	1260	0.1 U	0.1 U	0.7	0.1 U	0.128	0.422	0.1 U	1.72	0.1 U	5.24	2.07	0.21	0.22	2.27	0.28	
BOD	⁽¹⁾	ppm	30	100	2	4	6	4	2	2	1	39	2	9	12	3	4	3	2	12	13	3	3	7	24	15	2	
COD	-	ppm	161	576	35	43	55	52	20	9	---	2600	30	56	47	27	110	62	30	42	76	41	88	86	300	39	35	
Suspended Solids	⁽²⁾	ppm	24	74	5	2	20	7	3	6	6	72	6	6	4	5	7	16	4	4	18	12	4	13	14	19	2	
TKN	-	ppm	530	380	2.2	1 U	3.4	1.47	1.59	4.06	1.02	1500	0.64	1.03	2.25	0.35	0.35	1.61	0.41	3.23	2.82	79.5	2.49	0.61	1.02	2.84	0.48	
Total Dissolved Solids	-	ppm	2,300	950	480	720	1,500	504	312	366	480	958	511	628	322	694	740	756	624	976	594	567	660	631	360	590	470	
O&G Non-Polar	25	ppm	1.4 U	1.4 U	1.4 U	5 U	0.6 U	6.30	---	---	---	---	---	---	---	---	---	---	5 U	5 U	5 U	5 U	1.7 U	5 U	1.5 U	1.7 U	1.9 U	
Antimony	-	ppm	0.1	0.11	0.09	0.098	0.111	0.0792 B	0.0966 B	0.0725 B	0.106	0.1	0.068	0.096	0.05 U	0.08	0.08	0.05	0.08	0.11	0.001 U	0.001 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	
Arsenic	0.25	ppm	0.727	0.783	0.744	0.87	0.428	1.35	0.823	1.160	0.508	0.025 U	0.703	0.64	0.572	0.261	0.575	4.73	0.395	0.211	0.002 U	0.003	0.002	0.002 U	0.002 U	0.002 U	0.002 U	
Beryllium	-	ppm	0.005 U	0.005 U	0.005 U	0.015 U	0.0036 J	0.002 U	0.002 U	0.002 U	0.001	0.001 U	0.001	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	
Boron	1.0	ppm	0.004 U	0.007	0.004 U	0.01 U	0.0035 U	0.002	0.002	0.002	0.001 U	0.002	0.001	0.004	0.001 U	0.001 U	0.003	0.009	0.001 U	0.001 U	0.10	0.11	0.09	0.1	0.03 U	0.09		
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	0.000106 B	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.003	0.01	0.005	0.003 B	0.001 U	0.001 U	0.001 U	0.009	
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	0.008	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.009	0.003 B	0.009	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 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	0.011 U	0.025 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.023	0.019	0.01 U	0.013	0.032	0.01 U	0.01 U	
Lead	1.0	ppm	0.018	0.085	0.002 U	0.025 U	0.158	0.015	0.024	0.01 U	0.010 U	0.067	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.023	0.01 U	0.074	0.067	0.068	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	
Manganese	-	ppm	0.002 U	0.002 U	0.002 U	0.01 U	0.0028 U	0.044	0.015 U	0.032 B	0.016 U	0.016 U	0.038 B	0.027 B	0.058	0.059	0.028 B	0.063	0.03 B	0.094	0.542	0.943	0.656	0.411	0.226	1.31	0.383	
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	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	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	0.003	0.01	0.002	0.005 U	0.0082	0.016 B	0.038	0.01 U	0.025 U	0.025 U	0.074	0.025 U	0.031	0.047	0.025 U	0.059	0.061	0.07	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	
Nickel	1.0	ppm	0.001 U	0.001	0.001 U	0.01 U	0.0012 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.055	0.051	0.01 U	0.01 U	0.01 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	0.033 U	0.033 U	0.039 B	0.075	0.05 U	0.05 U	0.053	0.061	0.042 B	0.05 U	0.05 U	0.001 U	0.001 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	
Silver	2.3	ppm	0.027	0.117	0.003	0.025 U	0.471	0.044	0.109	0.023	0.015	0.093	0.01 U	0.043	0.044	0.011	0.01 U	0.051	0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
Thallium	-	ppm	0.01 U	0.01 U	0.01 U	0.01 U	0.0037 U	0.004	0.004	0.001 U	0.002	0.001	0.002	0.003	0.001 U	0.004	0.001	0.002	0.001 U	0.003 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	0.033 U	
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	0.0027 B	0.00240 B	0.05 U	0.05	0.05 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.059	0.052	0.036 U	0.01 U	0.16	0.04	0.019	
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	0.01 U	0.01 U	0.057	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.005 U	0.005 U	0.01 U	0.002 U	
Cyanide, Free	0.1	ppm	0.01	(3)	0.01 U	0.005	0.00468 U	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01 U	0.01 U	0.01 U	0.05 U	---	---	---
Cyanide, Amenable	-	ppm	---	---	---	---	---	0.01 U	0.01 U	0.010 U	0.01 U	0.010 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	---	0.01 U	0.010 U	0.010 U	0.005 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	0.05 U	0.01 U	0.067	0.05 U	0.01 U	0.01 U	0.016 B	0.016 B	0.019 B	0.01 U	0.029 B	0.01 U	0.01 U	0.015 U	0.015 U	0.063	0.015 U	0.015 U	
USEPA Priority Pollutants (4)	-	ppm	0.06 U	0.06 U	0.06 U	0.0206 U	0.028 U	0.085 ⁽³⁾	0.087 ⁽³⁾	0.089 ⁽³⁾	0.57 J	0.0197 J	0.00948 J	0.03611 J	0.00701 J	0.00887 J	0.01294 J	0.00835 J	0.01653 J	0.00781	1.76 J	19.02 J	7.39 J	2.66 J	ND	ND	3.57 J	

Notes:

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.

APPENDIX A

INSPECTION CHECKLIST AND INSTITUTIONAL AND ENGINEERING CONTROLS EVALUATION FORM

**TOWN OF RAMAPO LANDFILL
POST-CLOSURE ANNUAL SITE INSPECTION CHECKLIST**

Date: 7/29/2019

Inspected By: Amanda Castignetti and Christopher Ogden - 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		Overgrown vegetation is present in a few of the drainage channels along the perimeter of the Landfill. Landfill downchutes are in acceptable condition.
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			Good condition - No problems noted.
3. Access Road	X			
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				Two (2) angled gas vents were observed across the Landfill. Overgrown vegetation was observed surrounding several gas vents.
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:

APPENDIX B

**NYSDEC INSTITUTIONAL AND ENGINEERING CONTROLS
CERTIFICATION FORM**



Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form



Site Details		Box 1	
Site No.	344004		
Site Name	Ramapo Town Landfill		
Site Address:	Torne Valley Road	Zip Code:	10901
City/Town:	Ramapo		
County:	Rockland		
Site Acreage:	80.0		
Reporting Period: July 1, 2018 to August 2, 2019			
		YES	NO
1.	Is the information above correct?	X	
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?		X
3.	Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		X
4.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		X
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?		X

		Box2	
		YES	NO
6.	Is the current site use consistent with the use(s) listed below? Commercial and Industrial	X	
7.	Are all ICs/ECs in place and functioning as designed?	X	
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.* *As described in Section 4.2.2 of the Periodic Review Report, seeps have been investigated through work plans approved by NYSDEC pursuant to the Order on Consent			
_____ Signature of Owner, Remedial Party or Designated Representative		_____ Date	

Description of Institutional Controls

Parcel	<u>Owner</u>	<u>Institutional Control</u>
39.19-1-3	Town of Ramapo	Monitoring Plan, O&M Plan, Groundwater Use Restriction, Land Use Restriction, Soil Management Plan, Site Management Plan (SMP), and IC/EC Plan
Land Use is restricted to commercial/industrial. Groundwater use is restricted.		
39.19-1-3.1	Rockland County Sewer District #1	Groundwater Use Restriction, SMP
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 Management	Groundwater Use Restriction, SMP
Groundwater wells for drinking water shall not be used or installed on any portion of the Ramapo Landfill Site.		
39.19-1-5	Rockland County Solid Waste Management Authority	Groundwater Use Restriction, SMP
Groundwater wells for drinking water shall not be used or installed on any portion of the Ramapo Landfill Site.		

Box 4

Description of Engineering Controls

Parcel	<u>Engineering Control</u>
39.19-1-3	Landfill Cover System with Gas Venting Leachate Collection System Groundwater Containment System, including extraction wells Monitoring Well Network Perimeter Fencing/Access Control

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 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

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

(a) the Institutional Control and/or 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.~~
[Not Applicable]

✓ YES

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.

Edward P. Dzurinko (Town of Ramapo, Director of Public Works)

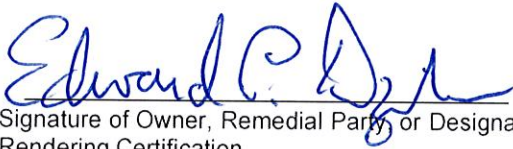
at

16 Pioneer Avenue, Tallman, NY 10982

print name

print business address

I am certifying as Designated Representative (Owner) for the Site named in the Site Details Section of this form.



Signature of Owner, Remedial Party, or Designated Representative
Rendering Certification

10/18/19
Date

IC/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.

Andrew M. Millspaugh, P.E. at 24 Wade Road, Latham, NY 12110

print name

print business address

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



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



(Required for PE)

10/23/19
Date

APPENDIX C
PHOTOGRAPH LOG



Photograph 1: View of Drainage Channel 2 along northeastern border of the Landfill facing southeast.



Photograph 2: View of northeastern face of the Landfill looking north-northwest.



Photograph 3: View of northeast perimeter drainage system, looking northeast.



Photograph 4: View of northeastern portion of the Landfill with compost area and baler building, looking north-northeast.



Photograph 5: View angled gas vent with overgrown vegetation along southeastern face of the Landfill, looking northwest.



Photograph 6: View of southern border of the Landfill, looking west.



Photograph 7: View of central portion of Landfill cover and drainage system, looking west.



Photograph 8: View of southwestern portion of the Landfill cover and drainage system, looking northwest.



Photograph 7: View of southeastern Landfill drainage channel with vegetation growth, looking north.



Photograph 8: View of southern portion of the Landfill, looking north.



Photograph 9: View of southern portion of the Landfill, looking northwest.



Photograph 10: View of southwestern portion of the Landfill, looking north.



Photograph 11: View of southwestern portion of the Landfill, looking north.



Photograph 14: View of central portion of the Landfill, looking northeast.



Photograph 1512: View of central portion of the Landfill, looking east-southeast.



Photograph 1613: View of northwestern perimeter of the Landfill, looking east-northeast.



Photograph 1714: View of northwestern perimeter of the Landfill, looking north.



Photograph 1815: View of northernmost portion of the Landfill with vegetation grown in the drainage channel, looking northeast.



Photograph 1916: View of northern portion of Landfill, looking south-southeast.



Photograph 2017: View of northern portion of Landfill, looking west-southwest



Photograph 2118: View of northern portion of Landfill with bent gas vent and baler building, looking northeast.

APPENDIX D

LABORATORY ANALYTICAL RESULTS - GROUNDWATER

(PROVIDED ON CD)



www.alphalab.com



Alpha Analytical

Laboratory Code: 11148

SDG Number: L1933616

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.

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Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933616
Report Date: 08/14/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1933616-01	UP-R	WATER	RAMAPO, NY	07/29/19 10:10	07/29/19
L1933616-02	PW-1	WATER	RAMAPO, NY	07/29/19 14:40	07/29/19
L1933616-03	PW-2	WATER	RAMAPO, NY	07/29/19 14:00	07/29/19

Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933616
Report Date: 08/14/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933616
Report Date: 08/14/19

Case Narrative (continued)

Report Submission

August 14, 2019: This final report includes the results of all requested analyses.

August 08, 2019: 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 Isotope Dilution

WG1270482-3: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

WG1271424-1: The continuing calibration standard had the response for Perfluorooctanesulfonic Acid-Branched (br-PFOS) outside of acceptance criteria. The response for Perfluorooctanesulfonic Acid (PFOS) was within acceptance criteria; therefore, no further action was taken.

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

Report Date: 08/14/19

Title: Technical Director/Representative



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

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933616
Report Date: 08/14/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- 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.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers





Volatile Organics Instruments

Volatile Organics:

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)
 Purge time: 11 min

Columns (length x ID x df):
 RTX-VMS 20m x 0.18mm x 1um
 RTX-VMS 30m x 0.25mm x 1.4um
 RTX-502.2 40m x 0.18mm x 1um

Volatile Organics: VPH

Instrument: Agilent 6890 (or equivalent)
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)

Column Type: Restek RTX 502.2
 Column Length: 105 Meters
 df: 3.00 um
 ID: 0.53mm

Volatile Organics: PIANO

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: Tekmar Velocity / EST Encon
 Autosampler: Varian Archon / EST Centurion
 Purge time: 11 min

Column Type: DB-VRX
 Column Length: 60 Meters
 df: 1.40 um
 ID: 0.25 mm
 Desorb: 1 min

Volatile Organics: Dissolved Gas

Instrument: Agilent 7890 (or equivalent) with FID/TCD

Column Type: Haysep S Column
 Column Length: 2 Meters packed
 (100/200 mesh)

Autosampler: LEAP Headspace

Purge time: 0.6 min

Volatile Organics in Air Instruments

Volatile Organics in Air:

Instruments: Agilent 6890 GC / 5975 MSD Shimadzu QP2010-SE / QP2020

Concentrator: Entech 7100A or 7200
 Autosampler: Entech 7016CA or 7016D

Column Type: Restek RTX-1
 Column Length: 60 Meters
 df: 1.00 um
 ID: 0.25 mm or 0.32 mm

Trap 1: Glass Bead: manufacturer-Entech: 20 cm packing material

Trap 2: Tenax: manufacturer-Entech: 20 cm packing material



Semivolatile Organics Instruments - Westborough

Semivolatile Organics (Acid/Base/Neutral Extractables):

Instrument: Agilent 5973N MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.32 μ m
Column Length: 30 Meters	ID: 0.25 mm

Polynuclear Aromatic Hydrocarbons by 8270 SIM:

Instrument: Agilent 5973 MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.25 μ m
Column Length: 30 Meters	ID: 0.25 mm

Pesticides/PCB/Herbicides:

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1 μ L
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLP Pesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Petroleum/EPH:

Instrument: Agilent 6890 w/FID / HP 5890 w/ FID	Injection Volume: 1 μ L
Column: Restek RTX 5	df: 0.25
Column Length: 30 Meters	
ID: 0.32 mm	



Semivolatile Organic Instruments - Mansfield

Semivolatile Organics (ALK-PAH Extractables):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 1 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8270):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 2 ul
Column Type: ZB-Semivolatiles	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (8270 SIM):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (1,4-Dioxane):

Instrument: Agilent 5973N / 5975 / 5977 MSD	Injection volume: 3 ul
Column Type: RTX-5	df: 0.25um, 0.18 um
Column Length: 30 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (209 Congener):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: RTX-5, RTX-PCB	df: 0.25um, 0.18 um
Column Length: 60 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (8081):

Instrument: Agilent 6890 / 7890	Injection volume: 1 ul
Column Type: RTX-5 / RTX-CLP II	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8082):

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1uL
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLPPesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Semivolatile Organics (SHC Extractables):

Instrument: Agilent 6890	Injection volume: 1 ul
Column Type: RTX-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm



Sample Delivery Group Summary

Alpha Job Number : L1933616

Received : 29-JUL-2019

Reviewer : John Knoud

Account Name : Sterling Environmental Eng

Project Number : 20010.TASK 200

Project Name : TOWN OF RAMAPO LF

Delivery Information

Samples Delivered By : Alpha Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	Ice	3.1	

Condition Information

1) All samples on COC received?	YES
2) Extra samples received?	NO
3) Are there any sample container discrepancies?	NO
4) Are there any discrepancies between sample labels & COC?	NO
5) Are samples in appropriate containers for requested analysis?	YES
6) Are samples properly preserved for requested analysis? Following containers were received with headspace: -01B, -01C	NO
7) Are samples within holding time for requested analysis?	YES
8) All sampling equipment returned?	NA

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	NO

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 14 2019, 10:00 pm

Login Number: L1933616

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK 200

Received: 29JUL19 Due Date: 12AUG19

Sample # Client ID Mat PR Collected

L1933616-01 UP-R 1 S0 29JUL19 10:10

8260: reporting list only (4 compounds) ASP-A Package Due Date: 08/12/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,ASP-A,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933616-02 PW-1 1 S0 29JUL19 14:40

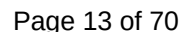
8260: reporting list only (4 compounds) Package Due Date: 08/12/19

ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933616-03 PW-2 1 S0 29JUL19 14:00

8260: reporting list only (4 compounds) Package Due Date: 08/12/19

ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500



Organics

Volatiles Data

Volatiles Sample Data

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807A08
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 09:31
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-02
 Client ID : PW-1
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807A09
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:40
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 09:56
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-03
 Client ID : PW-2
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807A10
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:00
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 10:22
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng	Lab Number : L1933616
Project Name : TOWN OF RAMAPO LF	Project Number : 20010.TASK 200
Lab ID : WG1269564-5	Date Collected : NA
Client ID : WG1269564-5BLANK	Date Received : NA
Sample Location :	Date Analyzed : 08/07/19 08:15
Sample Matrix : WATER	Dilution Factor : 1
Analytical Method : 1,8260C	Analyst : PD
Lab File ID : VG190807A05	Instrument ID : GONZO
Sample Amount : 10 ml	GC Column : RTX-502.2
Level : LOW	%Solids : N/A
Extract Volume (MeOH) : N/A	Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

GCMS Extractables 1,4-Dioxane By SIM

Semivolatile Sample Data

Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608021918
 Sample Amount : 270 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/02/19 18:40
 Date Extracted : 08/01/19
 Dilution Factor : 1
 Analyst : MA
 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	139	31.4	U

Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267459-1
 Client ID : WG1267459-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608021907
 Sample Amount : 250 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/02/19 11:38
 Date Extracted : 08/01/19
 Dilution Factor : 1
 Analyst : MA
 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	150	33.9	U



PFAAs

Semivolatile Sample Data

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17659
 Sample Amount : 269 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/13/19 02:35
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.86	0.379	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.86	0.368	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.86	0.221	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.405	1.86	0.305	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.550	1.86	0.209	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.86	0.349	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.546	1.86	0.219	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.86	1.24	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.86	0.639	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.86	0.290	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	0.885	1.86	0.468	J
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.86	0.282	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.86	1.13	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	1.25	1.86	0.602	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.86	0.242	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.86	0.911	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.86	0.539	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.86	0.747	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17659
 Sample Amount : 269 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/13/19 02:35
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.86	0.346	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.86	0.304	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.86	0.230	U
NONE	PFOA/PFOS, Total	1.43	1.86	0.219	J

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270482-1
 Client ID : WG1270482-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17645
 Sample Amount : 250 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/12/19 22:37
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : AJ
 Instrument ID : LCMS01
 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	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.620	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.316	2.00	0.225	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.276	2.00	0.236	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	2.00	1.33	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270482-1
 Client ID : WG1270482-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17645
 Sample Amount : 250 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/12/19 22:37
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : AJ
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	0.276	2.00	0.236	J

Metals

Inorganic Data (ICP Analysis)

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1268991.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/06/19 12:20
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	44.5	0.660	NA	

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-02
 Client ID : PW-1
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1268991.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:40
 Date Received : 07/29/19
 Date Analyzed : 08/06/19 12:25
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	41.6	0.660	NA	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933616-03
Client ID : PW-2
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6010D
Lab File ID : WG1268991.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 07/29/19 14:00
Date Received : 07/29/19
Date Analyzed : 08/06/19 12:30
Dilution Factor : 1
Analyst : LC
Instrument ID : TRACE5
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	81.4	0.660	NA	

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268015-1
Client ID : WG1268015-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6010D
Lab File ID : WG1268991.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/06/19 10:53
Dilution Factor : 1
Analyst : LC
Instrument ID : TRACE5
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	ND	0.660	NA	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268015-4
Client ID : WG1268015-4 DUP
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6010D
Lab File ID : WG1268991.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 08/01/19 08:50
Date Received : 08/01/19
Date Analyzed : 08/06/19 11:11
Dilution Factor : 1
Analyst : LC
Instrument ID : TRACE5
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	55.8	0.660	NA	



Inorganic Data (ICPMS Analysis)

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933616-01
Client ID : UP-R
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268567.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 07/29/19 10:10
Date Received : 07/29/19
Date Analyzed : 08/05/19 22:42
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0225	0.0100	0.00327	
7440-36-0	Antimony, Total	0.00172	0.00400	0.00042	J
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00268	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	12.1	0.100	0.0394	
7440-47-3	Chromium, Total	0.00732	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00026	0.00050	0.00016	J
7440-50-8	Copper, Total	0.00075	0.00100	0.00038	J
7439-89-6	Iron, Total	0.200	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	3.55	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00703	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00556	0.00200	0.00055	
7440-09-7	Potassium, Total	0.676	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	4.38	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	0.00170	0.00500	0.00157	J
7440-66-6	Zinc, Total	0.00579	0.01000	0.00341	J



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933616-02
Client ID : PW-1
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268567.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 07/29/19 14:40
Date Received : 07/29/19
Date Analyzed : 08/05/19 22:47
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.01096	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	12.3	0.100	0.0394	
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.06062	0.00100	0.00038	
7439-89-6	Iron, Total	0.0214	0.0500	0.0191	J
7439-92-1	Lead, Total	0.00053	0.00100	0.00034	J
7439-95-4	Magnesium, Total	3.18	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00101	0.00100	0.00044	
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	1.51	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	37.9	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.04216	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933616-03
Client ID : PW-2
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268567.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 07/29/19 14:00
Date Received : 07/29/19
Date Analyzed : 08/05/19 22:51
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.00391	0.0100	0.00327	J
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00140	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	29.3	0.100	0.0394	
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.02332	0.00100	0.00038	
7439-89-6	Iron, Total	0.0319	0.0500	0.0191	J
7439-92-1	Lead, Total	0.00513	0.00100	0.00034	
7439-95-4	Magnesium, Total	3.26	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00174	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00124	0.00200	0.00055	J
7440-09-7	Potassium, Total	1.02	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	7.08	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.1144	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268020-1
Client ID : WG1268020-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268567.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/05/19 22:15
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	ND	0.00050	0.00017	U
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	ND	0.100	0.0394	U
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	ND	0.00100	0.00038	U
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	ND	0.0700	0.0242	U
7439-96-5	Manganese, Total	0.00052	0.00100	0.00044	J
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	ND	0.100	0.0309	U
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	ND	0.100	0.0293	U
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268020-4
Client ID : WG1268020-4 DUP
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268567.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 08/01/19 08:50
Date Received : 08/01/19
Date Analyzed : 08/05/19 22:33
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0165	0.0100	0.003	
7440-36-0	Antimony, Total	0.00161	0.00400	0.0004	J
7440-38-2	Arsenic, Total	ND	0.00050	0.0002	U
7440-39-3	Barium, Total	0.07282	0.00050	0.0002	
7440-41-7	Beryllium, Total	ND	0.00050	0.0001	U
7440-43-9	Cadmium, Total	ND	0.00020	0.0001	U
7440-47-3	Chromium, Total	ND	0.00100	0.0002	U
7440-48-4	Cobalt, Total	ND	0.00050	0.0002	U
7440-50-8	Copper, Total	0.00057	0.00100	0.0004	J
7439-89-6	Iron, Total	0.0374	0.0500	0.019	J
7439-92-1	Lead, Total	ND	0.00100	0.0003	U
7439-96-5	Manganese, Total	0.00475	0.00100	0.0004	
7440-02-0	Nickel, Total	ND	0.00200	0.0006	U
7440-09-7	Potassium, Total	0.937	0.100	0.031	
7782-49-2	Selenium, Total	ND	0.00500	0.002	U
7440-22-4	Silver, Total	ND	0.00040	0.0002	U
7440-23-5	Sodium, Total	53.0	0.100	0.029	
7440-28-0	Thallium, Total	0.00025	0.00050	0.0001	J
7440-62-2	Vanadium, Total	ND	0.00500	0.0016	U
7440-66-6	Zinc, Total	0.02784	0.01000	0.0034	



Inorganic Data (Mercury Analysis)

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1269761_080719A.csv
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 21:27
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-02
 Client ID : PW-1
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1269761_080719A.csv
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:40
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 21:28
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-03
 Client ID : PW-2
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1269761_080719A.csv
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:00
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 21:29
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269740-1
 Client ID : WG1269740-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1269761_080719A.csv
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 21:19
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Wet Chemistry

Total Kjeldahl Nitrogen Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-1-2019_08-24-49PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 08/01/19 21:11
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.694	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-02
 Client ID : PW-1
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-1-2019_08-24-49PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:40
 Date Received : 07/29/19
 Date Analyzed : 08/01/19 20:45
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.542	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-03
 Client ID : PW-2
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-1-2019_08-24-49PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:00
 Date Received : 07/29/19
 Date Analyzed : 08/01/19 20:46
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.394	0.300	0.066	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267162-1
 Client ID : WG1267162-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-1-2019_08-24-49PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/01/19 20:41
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	ND	0.300	0.022	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267162-3
 Client ID : WG1267162-3 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-1-2019_08-24-49PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/31/19 11:35
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 20:52
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	6.42	0.300	0.066	

Chemical Oxygen Demand Analysis

Results

Form 1
WETCHEM

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933616-01
Client ID : UP-R
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 44,410.4
Lab File ID : WG1269760.csv
Sample Amount :
Digestion Method :

Lab Number : L1933616
Project Number : 20010.TASK 200
Date Collected : 07/29/19 10:10
Date Received : 07/29/19
Date Analyzed : 08/07/19 21:14
Dilution Factor : 1
Analyst : TLH
Instrument ID : GENSYS10VI
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	8.5	10	2.7	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-02
 Client ID : PW-1
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269760.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:40
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 21:14
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	8.5	10	2.7	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-03
 Client ID : PW-2
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269760.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:00
 Date Received : 07/29/19
 Date Analyzed : 08/07/19 21:14
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269760-1
 Client ID : WG1269760-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269760.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 21:13
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269760-4
 Client ID : WG1269760-4 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269760.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 08/01/19 08:50
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 21:17
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Alkalinity Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-01
 Client ID : UP-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1266204.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 10:10
 Date Received : 07/29/19
 Date Analyzed : 07/30/19 08:27
 Dilution Factor : 1
 Analyst : BR
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	40.8	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-02
 Client ID : PW-1
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1266204.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:40
 Date Received : 07/29/19
 Date Analyzed : 07/30/19 08:27
 Dilution Factor : 1
 Analyst : BR
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	26.0	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933616-03
 Client ID : PW-2
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1266204.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/29/19 14:00
 Date Received : 07/29/19
 Date Analyzed : 07/30/19 08:27
 Dilution Factor : 1
 Analyst : BR
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	68.8	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1266204-1
 Client ID : WG1266204-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1266204.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 07/30/19 08:27
 Dilution Factor : 1
 Analyst : BR
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	ND	2.00	NA	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1266204-3
 Client ID : WG1266204-3 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1266204.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933616
 Project Number : 20010.TASK 200
 Date Collected : 07/26/19 09:00
 Date Received : 07/26/19
 Date Analyzed : 07/30/19 08:27
 Dilution Factor : 1
 Analyst : BR
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	47.5	2.00	NA	



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Alpha Analytical

Laboratory Code: 11148

SDG Number: L1933924

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Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933924
Report Date: 08/14/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1933924-01	9-R	WATER	RAMAPO, NY	07/30/19 13:25	07/30/19
L1933924-02	9-OS	WATER	RAMAPO, NY	07/30/19 17:00	07/30/19
L1933924-03	9-I	WATER	RAMAPO, NY	07/30/19 14:15	07/30/19
L1933924-04	UP-OS	WATER	RAMAPO, NY	07/30/19 12:15	07/30/19
L1933924-05	UP-I	WATER	RAMAPO, NY	07/30/19 11:25	07/30/19
L1933924-06	SVWC-93	WATER	RAMAPO, NY	07/30/19 10:30	07/30/19
L1933924-07	SVWC-94	WATER	RAMAPO, NY	07/30/19 10:20	07/30/19
L1933924-08	SVWC-95	WATER	RAMAPO, NY	07/30/19 10:00	07/30/19
L1933924-09	SVWC-96	WATER	RAMAPO, NY	07/30/19 10:05	07/30/19
L1933924-10	FB-073019	WATER	RAMAPO, NY	07/30/19 13:45	07/30/19
L1933924-11	TRIP BLANK	WATER	RAMAPO, NY	07/30/19 00:00	07/30/19
L1933924-12	TRIP BLANK-PFAS	WATER	RAMAPO, NY	07/30/19 00:00	07/30/19

Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933924
Report Date: 08/14/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK 200

Lab Number: L1933924
Report Date: 08/14/19

Case Narrative (continued)

Report Submission

August 14, 2019: This final report includes the results of all requested analyses.

August 09, 2019: 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.

Sample Receipt

L1933924-11: Headspace was noted in the sample containers submitted for TCL Volatiles - EPA 8260C.

Volatile Organics

L1933924-11: Headspace was noted in the sample container utilized for analysis.

Perfluorinated Alkyl Acids by Isotope Dilution

L1933924-02, -10, -12, WG1270482-3, WG1270482-4, and WG1270482-5: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

WG1271424-1: The continuing calibration standard had the response for Perfluorooctanesulfonic Acid-Branched (br-PFOS) outside of acceptance criteria. The response for Perfluorooctanesulfonic Acid (PFOS) was within acceptance criteria; therefore, no further action was taken.

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:



Report Date: 08/14/19

Title: Technical Director/Representative



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

Footnotes

Report Format: DU Report with 'J' Qualifiers



- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- 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.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers





Volatile Organics Instruments

Volatile Organics:

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)
 Purge time: 11 min

Columns (length x ID x df):
 RTX-VMS 20m x 0.18mm x 1um
 RTX-VMS 30m x 0.25mm x 1.4um
 RTX-502.2 40m x 0.18mm x 1um

Volatile Organics: VPH

Instrument: Agilent 6890 (or equivalent)
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)

Column Type: Restek RTX 502.2
 Column Length: 105 Meters
 df: 3.00 um
 ID: 0.53mm

Volatile Organics: PIANO

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: Tekmar Velocity / EST Encon
 Autosampler: Varian Archon / EST Centurion
 Purge time: 11 min

Column Type: DB-VRX
 Column Length: 60 Meters
 df: 1.40 um
 ID: 0.25 mm
 Desorb: 1 min

Volatile Organics: Dissolved Gas

Instrument: Agilent 7890 (or equivalent) with FID/TCD

Column Type: Haysep S Column
 Column Length: 2 Meters packed
 (100/200 mesh)

Autosampler: LEAP Headspace

Purge time: 0.6 min

Volatile Organics in Air Instruments

Volatile Organics in Air:

Instruments: Agilent 6890 GC / 5975 MSD Shimadzu QP2010-SE / QP2020

Concentrator: Entech 7100A or 7200
 Autosampler: Entech 7016CA or 7016D

Column Type: Restek RTX-1
 Column Length: 60 Meters
 df: 1.00 um
 ID: 0.25 mm or 0.32 mm

Trap 1: Glass Bead: manufacturer-Entech: 20 cm packing material

Trap 2: Tenax: manufacturer-Entech: 20 cm packing material



Semivolatile Organics Instruments - Westborough

Semivolatile Organics (Acid/Base/Neutral Extractables):

Instrument: Agilent 5973N MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.32 μ m
Column Length: 30 Meters	ID: 0.25 mm

Polynuclear Aromatic Hydrocarbons by 8270 SIM:

Instrument: Agilent 5973 MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.25 μ m
Column Length: 30 Meters	ID: 0.25 mm

Pesticides/PCB/Herbicides:

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1 μ L
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLP Pesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Petroleum/EPH:

Instrument: Agilent 6890 w/FID / HP 5890 w/ FID	Injection Volume: 1 μ L
Column: Restek RTX 5	df: 0.25
Column Length: 30 Meters	
ID: 0.32 mm	



Semivolatile Organic Instruments - Mansfield

Semivolatile Organics (ALK-PAH Extractables):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 1 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8270):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 2 ul
Column Type: ZB-Semivolatiles	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (8270 SIM):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (1,4-Dioxane):

Instrument: Agilent 5973N / 5975 / 5977 MSD	Injection volume: 3 ul
Column Type: RTX-5	df: 0.25um, 0.18 um
Column Length: 30 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (209 Congener):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: RTX-5, RTX-PCB	df: 0.25um, 0.18 um
Column Length: 60 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (8081):

Instrument: Agilent 6890 / 7890	Injection volume: 1 ul
Column Type: RTX-5 / RTX-CLP II	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8082):

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1uL
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLPPesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Semivolatile Organics (SHC Extractables):

Instrument: Agilent 6890	Injection volume: 1 ul
Column Type: RTX-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm



Sample Delivery Group Summary

Alpha Job Number : L1933924

Received : 30-JUL-2019

Reviewer : Shaniya Langford

Account Name : Sterling Environmental Eng

Project Number : 20010.TASK 200

Project Name : TOWN OF RAMAPO LF

Delivery Information

Samples Delivered By : Alpha Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	Ice	5.3	
B	Absent/	Ice	3.1	
C	Absent/	Ice	3.4	

Condition Information

1) All samples on COC received?	YES
2) Extra samples received?	NO
3) Are there any sample container discrepancies?	NO
4) Are there any discrepancies between sample labels & COC?	NO
5) Are samples in appropriate containers for requested analysis?	YES
6) Are samples properly preserved for requested analysis? Following containers were received with headspace: -04B, -04C, -11A, -11B	NO
7) Are samples within holding time for requested analysis?	YES
8) All sampling equipment returned?	NA

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	NO

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 14 2019, 04:01 pm

Login Number: L1933924

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK 200

Received: 30JUL19 Due Date: 13AUG19

Sample # Client ID Mat PR Collected

L1933924-01 9-R 1 S0 30JUL19 13:25

8260: reporting list only (4 compounds) ASP-A Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,ASP-A,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-02 9-OS 1 S0 30JUL19 17:00

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-03 9-I 1 S0 30JUL19 14:15

L1933924-03 MSD L1933924-03 MS 8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,MS/MSD,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-04 UP-OS 1 S0 30JUL19 12:15

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 14 2019, 04:01 pm

Login Number: L1933924

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK 200

Received: 30JUL19 Due Date: 13AUG19

Sample # Client ID Mat PR Collected

L1933924-05 UP-I 1 S0 30JUL19 11:25

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-06 SVWC-93 1 S0 30JUL19 10:30

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-07 SVWC-94 1 S0 30JUL19 10:20

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-08 SVWC-95 1 S0 30JUL19 10:00

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1933924-09 SVWC-96 1 S0 30JUL19 10:05

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 14 2019, 04:01 pm

Login Number: L1933924

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK 200

Received: 30JUL19 Due Date: 13AUG19

Sample # Client ID Mat PR Collected

ALK-T-2320, COD-410-LOW, HARDT, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1933924-10 FB-073019 1 S0 30JUL19 13:45

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-NY-537-ISOTOPE

L1933924-11 TRIP BLANK 1 S0 30JUL19 00:00

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

NYTCL-8260-R2

L1933924-12 TRIP BLANK-PFAS 1 S0 30JUL19 00:00

8260: reporting list only (4 compounds) Package Due Date: 08/13/19

A2-NY-537-ISOTOPE



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

NEW YORK CHAIN OF CUSTODY

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

Service Centers

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

Page 1
of 2

Date Rec'd
in Lab

7/31/19

AL. JOB #

L1933924

Project Information

Project Name: Town of Ramapo LF

Project Location: Ramapo, NY

Project # 20010, Task 200

(Use Project name as Project #) ☐

Project Manager: C. Fox / M. Williams

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

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:

NA

Client Information

Client: Sterling Environmental Engineerin

Address: 24 Wade Rd

Latham, NY 12110

Phone: 518-456-4900

Fax: 518-456-3532

Email:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

mark.williams@sterlingenvironmental.com / Site Specific VOCs ONLY = 1,1-Dichloroethane, Chlorobenzene, Benzene, Vinyl Chloride

Please specify Metals or TAL.

ANALYSIS

NYTCL-VOCs 8260
TKN-4500
351.3

1,4 Dioxane-8270-SIM

PFAAs-537

T-Alkalinity-SM 2320

COD-410.4

TAL Metals
Hardness

Sample Filtration

☐ Done

☐ Lab to do

Preservation

☐ Lab to do

(Please Specify below)

Sample Specific Comments

Site VOCs ONLY

1,1-Dichlorobenzene,

Benzene, Chlorobenzene

Vinyl Chloride *

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	NYTCL-VOCs 8260 TKN-4500 351.3	1,4 Dioxane-8270-SIM	PFAAs-537	T-Alkalinity-SM 2320	COD-410.4	TAL Metals Hardness	Sample Specific Comments	Total Bottles
		Date	Time										
33924 -01	9-R	7/30/19	1325	Water	AMC	X	X	X	X	X	X	*Site VOCs ONLY*	10
-02	9-OS		1700									1,1-Dichlorobenzene,	
-03	9-I		1415									Benzene, Chlorobenzene	
-04	9-IMS		1420									Vinyl Chloride *	
-05	UP-OS		1215										
-06	UP-I		1125										
-07	UP-R 9-IMSD		1425										
-08	SVWC-93		1030										
-09	SVWC-94		1020										
-10	SVWC-95		1000				X	X					10

Preservative Code:

A = None
B = HCl
C = HNO₃
D = H₂SO₄
E = NaOH
F = MeOH
G = NaHSO₄
H = Na₂S₂O₃
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

V P A P P P P

Preservative

B D A A D C

Relinquished By:

Date/Time

Received By:

Date/Time

7/30/19 1900

7/30/19 1920

Sean Frost (AA)

7/30/19 1900

7/31/19 0105

7/31/19 0105

7/31/19 0105

7/31/19 0105

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](#).



NEW YORK CHAIN OF CUSTODY

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

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

Service Centers

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

Page 1
of 2

Date Rec'd
in Lab 7/31/19

ALPHA Job # L1933924

Project Information

Project Name: Town of Ramapo LF

Project Location: Ramapo, NY

Project # 20010, Task 200

(Use Project name as Project #) ☐

Project Manager: C. Fox / M. Williams

ALPHAQuote #:

Turn-Around Time

Standard ☒

Due Date:

Rush (only if pre approved) ☐

of Days:

Client Information

Client: Sterling Environmental Engineering

Address: 24 Wade Rd

Latham, NY 12110

Phone: 518-456-4900

Fax: 518-456-3532

Email:

These samples have been previously analyzed by Alpha ☐

Other project specific requirements/comments:

mark.williams@sterlingenvironmental.com site specific = 1,1-Dichlorobenzene, Chlorobenzene, benzene, VOCs only! Vinyl chloride

Please specify Metals or TAL.

Deliverables

☒ ASP-A

☐ ASP-B

☐ EQUIS (1 File)

☐ EQUIS (4 File)

☐ Other

Regulatory Requirement

☒ NY TOGS

☐ NY Part 375

☐ AWQ Standards

☐ NY CP-51

☐ NY Restricted Use

☐ Other

☐ NY Unrestricted Use

☐ NYC Sewer Discharge

Billing Information

☒ Same as Client Info

PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:

☐ NJ

☐ NY

☐ Other:

NA

ANALYSIS

*NYTCL-VOCs 8260
*Site Specific

TKN-4500
357.3

1,4 Dioxane-8270-SIM

PFAAs-537

T-Alkalinity-SM 2320

COD-410.4

TAL Metals/
Hardness

Sample Filtration

☐ Done

☐ Lab to do

Preservation

☐ Lab to do

(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	TKN-4500 357.3	1,4 Dioxane-8270-SIM	PFAAs-537	T-Alkalinity-SM 2320	COD-410.4	TAL Metals/ Hardness
		Date	Time								
33924 -09	SVWC-96	7/30/19	1005	Water	AMC	X	X		X	X	X
-10	PW-1 FB-073019	7/30/19	1345	↓	↓			X			
-11	PW-MS Trip Blank	7/30/19	—	↓	↓	X					
-12	PW-1 MSD	7/30/19	—	↓	↓			X			
	PW-2										
	dup										

*Site Specific
VOCs
1,1-Dichloroethane,
Benzene, Chlorobenzene,
Vinyl Chloride
ONLY *

Preservative Code:

A = None
B = HCl
C = HNO₃
D = H₂SO₄
E = NaOH
F = MeOH
G = NaHSO₄
H = Na₂S₂O₃
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

V P A P P P P

Preservative

B D A A D C

Relinquished By:

Date/Time

Received By:

Date/Time

ALP
Scout

7/30/19 1900
7/31/19 1920
7/31/19 0105

Sean Fox (ALP)
[Signature]

7/31/19 1900
7/31/19 0105

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.

Organics

Volatiles Data

Volatiles Sample Data

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N08
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 22:07
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N09
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 22:29
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N10
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 22:51
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N11
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 23:13
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N12
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 23:35
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-06
 Client ID : SVWC-93
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N13
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:30
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 23:57
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807N21
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 04:18
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807N22
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 04:44
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-09
 Client ID : SVWC-96
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807N23
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:05
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 05:09
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-11
 Client ID : TRIP BLANK
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807N24
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 00:00
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 05:35
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270155-5
 Client ID : WG1270155-5BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : VG190807N05
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 21:29
 Dilution Factor : 1
 Analyst : PK
 Instrument ID : GONZO
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270660-5
 Client ID : WG1270660-5BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190808N05
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/08/19 21:01
 Dilution Factor : 1
 Analyst : PK
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

GCMS Extractables 1,4-Dioxane By SIM

Semivolatile Sample Data

Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031906
 Sample Amount : 250 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 11:56
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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	3160	150	33.9	



Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031907
 Sample Amount : 260 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 12:25
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031908
 Sample Amount : 260 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 12:53
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031911
 Sample Amount : 260 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 14:18
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031912
 Sample Amount : 260 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 14:47
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031913
 Sample Amount : 270 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 15:15
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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	57.6	139	31.4	J

Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031914
 Sample Amount : 270 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/03/19 15:44
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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	360.	139	31.4	



Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267797-1
 Client ID : WG1267797-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608031903
 Sample Amount : 250 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/03/19 10:34
 Date Extracted : 08/02/19
 Dilution Factor : 1
 Analyst : PS
 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	150	33.9	U



PFAAs

Semivolatile Sample Data

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17660
 Sample Amount : 279 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 02:52
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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)	47.9	1.79	0.366	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	9.69	1.79	0.355	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	4.02	1.79	0.213	
307-24-4	Perfluorohexanoic Acid (PFHxA)	11.3	1.79	0.294	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	6.74	1.79	0.202	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	2.62	1.79	0.337	
335-67-1	Perfluorooctanoic Acid (PFOA)	12.6	1.79	0.211	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.79	1.19	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.79	0.616	U
375-95-1	Perfluorononanoic Acid (PFNA)	46.3	1.79	0.280	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	7.05	1.79	0.452	
335-76-2	Perfluorodecanoic Acid (PFDA)	0.322	1.79	0.272	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.79	1.09	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.79	0.581	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	0.280	1.79	0.233	J
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.79	0.878	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.79	0.520	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.02	1.79	0.720	J



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17660
 Sample Amount : 279 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 02:52
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.79	0.333	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.79	0.293	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.79	0.222	U
NONE	PFOA/PFOS, Total	19.7	1.79	0.211	

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17661
 Sample Amount : 276 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 03:09
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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)	4.10	1.81	0.370	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	0.518	1.81	0.359	J
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	1.49	1.81	0.216	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	2.75	1.81	0.297	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	2.67	1.81	0.204	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	1.75	1.81	0.340	J
335-67-1	Perfluorooctanoic Acid (PFOA)	18.9	1.81	0.214	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.81	1.21	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.81	0.623	U
375-95-1	Perfluorononanoic Acid (PFNA)	1.94	1.81	0.283	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	15.1	1.81	0.456	
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.81	0.275	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.81	1.10	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.801	1.81	0.587	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.81	0.236	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.81	0.888	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.81	0.525	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	3.36	1.81	0.728	



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17661
 Sample Amount : 276 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 03:09
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.81	0.337	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.81	0.296	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.81	0.225	U
NONE	PFOA/PFOS, Total	34.0	1.81	0.214	

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17662
 Sample Amount : 281 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 03:26
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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)	5.35	1.78	0.363	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	5.31	1.78	0.352	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	0.769	1.78	0.212	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	4.42	1.78	0.292	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	3.62	1.78	0.200	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.78	0.334	U
335-67-1	Perfluorooctanoic Acid (PFOA)	5.02	1.78	0.210	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.78	1.18	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.78	0.612	U
375-95-1	Perfluorononanoic Acid (PFNA)	0.445	1.78	0.278	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1.88	1.78	0.448	
335-76-2	Perfluorodecanoic Acid (PFDA)	0.388	1.78	0.270	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.78	1.08	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.644	1.78	0.576	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.78	0.231	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.78	0.872	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.78	0.516	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.78	0.715	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17662
 Sample Amount : 281 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 03:26
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.78	0.331	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.78	0.291	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.78	0.221	U
NONE	PFOA/PFOS, Total	6.90	1.78	0.210	

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17665
 Sample Amount : 286 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 04:17
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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)	0.468	1.75	0.357	J
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.75	0.346	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	0.343	1.75	0.208	J
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.605	1.75	0.287	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.388	1.75	0.197	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.75	0.329	U
335-67-1	Perfluorooctanoic Acid (PFOA)	1.53	1.75	0.206	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.75	1.16	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.75	0.601	U
375-95-1	Perfluorononanoic Acid (PFNA)	0.318	1.75	0.273	J
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	0.769	1.75	0.440	J
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.75	0.266	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.75	1.06	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.727	1.75	0.566	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.75	0.227	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.75	0.857	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.75	0.507	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.75	0.703	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17665
 Sample Amount : 286 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 04:17
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.75	0.325	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.75	0.286	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.75	0.217	U
NONE	PFOA/PFOS, Total	2.30	1.75	0.206	J

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17666
 Sample Amount : 292 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 04:34
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.71	0.349	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.71	0.339	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.71	0.204	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.390	1.71	0.281	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.71	0.193	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.71	0.322	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.71	0.202	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	1.99	1.71	1.14	
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.71	0.589	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.71	0.267	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.71	0.432	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.71	0.260	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.71	1.04	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.71	0.555	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.71	0.223	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.71	0.839	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.71	0.496	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.71	0.688	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17666
 Sample Amount : 292 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 04:34
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.71	0.318	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.71	0.280	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.71	0.212	U
NONE	PFOA/PFOS, Total	ND	1.71	0.202	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17667
 Sample Amount : 286 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 04:51
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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)	8.85	1.75	0.357	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	10.2	1.75	0.346	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	4.60	1.75	0.208	
307-24-4	Perfluorohexanoic Acid (PFHxA)	13.5	1.75	0.287	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	4.44	1.75	0.197	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	2.96	1.75	0.329	
335-67-1	Perfluorooctanoic Acid (PFOA)	8.64	1.75	0.206	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.75	1.16	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.75	0.601	U
375-95-1	Perfluorononanoic Acid (PFNA)	2.06	1.75	0.273	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	6.38	1.75	0.440	
335-76-2	Perfluorodecanoic Acid (PFDA)	0.748	1.75	0.266	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.75	1.06	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.706	1.75	0.566	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	0.448	1.75	0.227	J
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.75	0.857	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.75	0.507	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.75	0.703	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17667
 Sample Amount : 286 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 04:51
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.75	0.325	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.75	0.286	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.75	0.217	U
NONE	PFOA/PFOS, Total	15.0	1.75	0.206	

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17668
 Sample Amount : 293 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 05:08
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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)	9.19	1.71	0.348	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	9.91	1.71	0.338	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	4.31	1.71	0.203	
307-24-4	Perfluorohexanoic Acid (PFHxA)	9.84	1.71	0.280	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	3.86	1.71	0.192	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	2.98	1.71	0.321	
335-67-1	Perfluorooctanoic Acid (PFOA)	8.49	1.71	0.201	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.71	1.14	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.71	0.587	U
375-95-1	Perfluorononanoic Acid (PFNA)	7.75	1.71	0.266	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	5.29	1.71	0.430	
335-76-2	Perfluorodecanoic Acid (PFDA)	0.369	1.71	0.259	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.71	1.03	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.71	0.553	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	0.655	1.71	0.222	J
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.71	0.836	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.71	0.495	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.71	0.686	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17668
 Sample Amount : 293 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 05:08
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.71	0.317	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.71	0.279	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.71	0.212	U
NONE	PFOA/PFOS, Total	13.8	1.71	0.201	

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-10
 Client ID : FB-073019
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17650
 Sample Amount : 265 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:45
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 00:02
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.89	0.385	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.89	0.374	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.89	0.224	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.415	1.89	0.309	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.89	0.212	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.89	0.355	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.411	1.89	0.223	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.89	1.26	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.89	0.649	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.89	0.294	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.89	0.475	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.89	0.287	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.89	1.14	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.89	0.611	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.89	0.245	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.89	0.924	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.89	0.547	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.89	0.758	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-10
 Client ID : FB-073019
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17650
 Sample Amount : 265 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:45
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 00:02
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.89	0.351	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.89	0.309	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.89	0.234	U
NONE	PFOA/PFOS, Total	0.411	1.89	0.223	J

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-12
 Client ID : TRIP BLANK-PFAS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17651
 Sample Amount : 274 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 00:00
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 00:19
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.82	0.372	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.82	0.361	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.82	0.217	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.467	1.82	0.299	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.241	1.82	0.205	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.82	0.343	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.427	1.82	0.215	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.82	1.22	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.82	0.628	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.82	0.285	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.82	0.460	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.82	0.277	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.82	1.10	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.774	1.82	0.591	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.82	0.237	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.82	0.894	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.82	0.529	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.82	0.734	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-12
 Client ID : TRIP BLANK-PFAS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17651
 Sample Amount : 274 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 00:00
 Date Received : 07/30/19
 Date Analyzed : 08/13/19 00:19
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.82	0.339	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.82	0.298	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.82	0.226	U
NONE	PFOA/PFOS, Total	0.427	1.82	0.215	J

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270482-1
 Client ID : WG1270482-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17645
 Sample Amount : 250 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/12/19 22:37
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : AJ
 Instrument ID : LCMS01
 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	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.620	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.316	2.00	0.225	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	0.276	2.00	0.236	J
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	2.00	1.33	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270482-1
 Client ID : WG1270482-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17645
 Sample Amount : 250 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/12/19 22:37
 Date Extracted : 08/09/19
 Dilution Factor : 1
 Analyst : AJ
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	0.276	2.00	0.236	J



Metals

Inorganic Data (ICP Analysis)

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 00:41
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	110	0.660	NA	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-02
Client ID : 9-OS
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6010D
Lab File ID : WG1269003.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 17:00
Date Received : 07/30/19
Date Analyzed : 08/07/19 00:45
Dilution Factor : 1
Analyst : MC
Instrument ID : TRACE4
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	21.1	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 00:08
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	22.1	0.660	NA	

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 00:49
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	108	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 00:54
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	70.4	0.660	NA	

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-06
 Client ID : SVWC-93
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:30
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 00:58
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	76.9	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 01:02
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	81.5	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 01:06
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	74.6	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-09
 Client ID : SVWC-96
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:05
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 01:23
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	73.5	0.660	NA	



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1268575-1
 Client ID : WG1268575-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269003.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/06/19 22:55
 Dilution Factor : 1
 Analyst : MC
 Instrument ID : TRACE4
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	ND	0.660	NA	U



Inorganic Data (ICPMS Analysis)

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-01
Client ID : 9-R
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 13:25
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:03
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0254	0.0100	0.00327	
7440-36-0	Antimony, Total	0.00080	0.00400	0.00042	J
7440-38-2	Arsenic, Total	0.00142	0.00050	0.00016	
7440-39-3	Barium, Total	0.01845	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	0.00071	0.00020	0.00005	
7440-70-2	Calcium, Total	32.9	0.100	0.0394	
7440-47-3	Chromium, Total	0.00546	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00195	0.00050	0.00016	
7440-50-8	Copper, Total	0.00242	0.00100	0.00038	
7439-89-6	Iron, Total	1.65	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	7.50	0.0700	0.0242	
7439-96-5	Manganese, Total	1.450	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00472	0.00200	0.00055	
7440-09-7	Potassium, Total	9.38	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	39.6	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.00524	0.01000	0.00341	J

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-02
Client ID : 9-OS
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 17:00
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:08
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0408	0.0100	0.00327	
7440-36-0	Antimony, Total	0.00248	0.00400	0.00042	J
7440-38-2	Arsenic, Total	0.00039	0.00050	0.00016	J
7440-39-3	Barium, Total	0.00544	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	0.00032	0.00020	0.00005	
7440-70-2	Calcium, Total	6.21	0.100	0.0394	
7440-47-3	Chromium, Total	0.01202	0.00100	0.00017	
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00754	0.00100	0.00038	
7439-89-6	Iron, Total	0.270	0.0500	0.0191	
7439-92-1	Lead, Total	0.01474	0.00100	0.00034	
7439-95-4	Magnesium, Total	1.48	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00903	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00186	0.00200	0.00055	J
7440-09-7	Potassium, Total	1.01	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	6.70	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.02252	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-03
Client ID : 9-I
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 14:15
Date Received : 07/30/19
Date Analyzed : 08/06/19 18:59
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.00698	0.0100	0.00327	J
7440-36-0	Antimony, Total	0.00103	0.00400	0.00042	J
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00397	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	6.25	0.100	0.0394	
7440-47-3	Chromium, Total	0.01542	0.00100	0.00017	
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00084	0.00100	0.00038	J
7439-89-6	Iron, Total	0.113	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	1.60	0.0700	0.0242	
7439-96-5	Manganese, Total	0.03312	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00101	0.00200	0.00055	J
7440-09-7	Potassium, Total	0.577	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	9.68	0.100	0.0293	
7440-28-0	Thallium, Total	0.00037	0.00050	0.00014	J
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-04
Client ID : UP-OS
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 12:15
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:12
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.699	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00050	0.00050	0.00016	
7440-39-3	Barium, Total	0.01152	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	31.1	0.100	0.0394	
7440-47-3	Chromium, Total	0.00253	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00095	0.00050	0.00016	
7440-50-8	Copper, Total	0.00766	0.00100	0.00038	
7439-89-6	Iron, Total	1.15	0.0500	0.0191	
7439-92-1	Lead, Total	0.00096	0.00100	0.00034	J
7439-95-4	Magnesium, Total	8.13	0.0700	0.0242	
7439-96-5	Manganese, Total	0.03922	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00195	0.00200	0.00055	J
7440-09-7	Potassium, Total	0.912	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	3.87	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	0.00235	0.00500	0.00157	J
7440-66-6	Zinc, Total	0.00464	0.01000	0.00341	J

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-05
Client ID : UP-I
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 11:25
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:31
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0420	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00045	0.00050	0.00016	J
7440-39-3	Barium, Total	0.00480	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	21.7	0.100	0.0394	
7440-47-3	Chromium, Total	0.00194	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00018	0.00050	0.00016	J
7440-50-8	Copper, Total	0.00097	0.00100	0.00038	J
7439-89-6	Iron, Total	0.106	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	4.58	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00339	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00831	0.00200	0.00055	
7440-09-7	Potassium, Total	0.501	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	3.59	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	0.00237	0.00500	0.00157	J
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-06
Client ID : SVWC-93
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 10:30
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:35
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00980	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	23.2	0.100	0.0394	
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00339	0.00100	0.00038	
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	5.84	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00063	0.00100	0.00044	J
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	1.97	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	58.2	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.01374	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6020B
 Lab File ID : WG1268981.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/06/19 19:40
 Dilution Factor : 1
 Analyst : AM
 Instrument ID : ICPMSQ
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.01667	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	24.2	0.100	0.0394	
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00313	0.00100	0.00038	
7439-89-6	Iron, Total	0.0540	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	6.19	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00123	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00057	0.00200	0.00055	J
7440-09-7	Potassium, Total	2.11	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	61.3	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.01085	0.01000	0.00341	

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-08
Client ID : SVWC-95
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 10:00
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:45
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.01418	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	21.6	0.100	0.0394	
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00430	0.00100	0.00038	
7439-89-6	Iron, Total	0.0540	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	5.52	0.0700	0.0242	
7439-96-5	Manganese, Total	0.04306	0.00100	0.00044	
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	1.84	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	55.6	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.01794	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-09
Client ID : SVWC-96
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 10:05
Date Received : 07/30/19
Date Analyzed : 08/06/19 19:49
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00985	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	21.0	0.100	0.0394	
7440-47-3	Chromium, Total	0.00018	0.00100	0.00017	J
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00262	0.00100	0.00038	
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	5.46	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00053	0.00100	0.00044	J
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	1.51	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	62.9	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268824-1
Client ID : WG1268824-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1268981.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/06/19 18:36
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	ND	0.00050	0.00017	U
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	ND	0.100	0.0394	U
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	ND	0.00100	0.00038	U
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	ND	0.0700	0.0242	U
7439-96-5	Manganese, Total	ND	0.00100	0.00044	U
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	ND	0.100	0.0309	U
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	ND	0.100	0.0293	U
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Inorganic Data (Mercury Analysis)

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1933924-01
Client ID : 9-R
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,7470A
Lab File ID : HG080819C
Sample Amount : 25ml
Digestion Method : EPA 7470A

Lab Number : L1933924
Project Number : 20010.TASK 200
Date Collected : 07/30/19 13:25
Date Received : 07/30/19
Date Analyzed : 08/08/19 21:43
Dilution Factor : 1
Analyst : EA
Instrument ID : FIMS4
%Solids : N/A
Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:45
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:21
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:51
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:53
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-06
 Client ID : SVWC-93
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:30
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:55
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:57
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 21:58
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-09
 Client ID : SVWC-96
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:05
 Date Received : 07/30/19
 Date Analyzed : 08/08/19 22:00
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270093-1
 Client ID : WG1270093-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : HG080819C
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/08/19 21:17
 Dilution Factor : 1
 Analyst : EA
 Instrument ID : FIMS4
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Wet Chemistry

Total Kjeldahl Nitrogen Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:05
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.784	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:06
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.448	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:07
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.170	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:13
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.168	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:14
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.092	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-06
 Client ID : SVWC-93
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:30
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:15
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.143	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:16
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.162	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:17
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.227	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-09
 Client ID : SVWC-96
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:05
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:18
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.356	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267516-1
 Client ID : WG1267516-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/02/19 23:00
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	ND	0.300	0.022	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267516-3
 Client ID : 9-IDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_10-56-27PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/02/19 23:08
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/01/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.153	0.300	0.066	J



Chemical Oxygen Demand Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:08
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:08
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	3.6	10	2.7	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:08
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:09
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	13.	10	2.7	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:09
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-06
 Client ID : SVWC-93
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:30
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:09
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:09
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:09
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-09
 Client ID : SVWC-96
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:05
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:10
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269762-1
 Client ID : WG1269762-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 21:07
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269762-4
 Client ID : 9-IDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269762.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/07/19 21:11
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Alkalinity Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-01
 Client ID : 9-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 13:25
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	119.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-02
 Client ID : 9-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 17:00
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	16.1	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-03
 Client ID : 9-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	23.1	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-04
 Client ID : UP-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 12:15
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	114.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-05
 Client ID : UP-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 11:25
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	70.2	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-06
 Client ID : SVWC-93
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:30
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	51.1	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-07
 Client ID : SVWC-94
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:20
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	53.8	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-08
 Client ID : SVWC-95
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:00
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	52.3	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1933924-09
 Client ID : SVWC-96
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 10:05
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	51.9	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267630-1
 Client ID : WG1267630-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	ND	2.00	NA	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267630-3
 Client ID : 9-IDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267630.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1933924
 Project Number : 20010.TASK 200
 Date Collected : 07/30/19 14:15
 Date Received : 07/30/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	22.9	2.00	NA	





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Alpha Analytical

Laboratory Code: 11148

SDG Number: L1934160

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Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK200

Lab Number: L1934160
Report Date: 08/16/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1934160-01	10-R	WATER	RAMAPO, NY	07/31/19 08:35	07/31/19
L1934160-02	10-I	WATER	RAMAPO, NY	07/31/19 09:25	07/31/19
L1934160-03	10-OS	WATER	RAMAPO, NY	07/31/19 10:20	07/31/19
L1934160-04	8-R	WATER	RAMAPO, NY	07/31/19 11:30	07/31/19
L1934160-05	8-I	WATER	RAMAPO, NY	07/31/19 12:40	07/31/19
L1934160-06	8-OS	WATER	RAMAPO, NY	07/31/19 13:25	07/31/19
L1934160-07	4-OS	WATER	RAMAPO, NY	07/31/19 14:45	07/31/19
L1934160-08	7-OS	WATER	RAMAPO, NY	07/31/19 15:50	07/31/19
L1934160-09	TB-073119	WATER	RAMAPO, NY	07/31/19 00:00	07/31/19
L1934160-10	DUP	WATER	RAMAPO, NY	07/31/19 00:00	07/31/19

Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK200

Lab Number: L1934160
Report Date: 08/16/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK200

Lab Number: L1934160
Report Date: 08/16/19

Case Narrative (continued)

Report Submission

August 16, 2019: This final report includes the results of all requested analyses.

August 12, 2019: 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 Isotope Dilution

WG1271799-2: The continuing calibration standard had the response for Perfluorooctanesulfonic Acid-Branched (br-PFOS) outside of acceptance criteria. The response for Perfluorooctanesulfonic Acid (PFOS) was within acceptance criteria; therefore, no further action was taken.

WG1271799-3: The continuing calibration standard had the response for Perfluorooctanesulfonic Acid-Branched (br-PFOS) outside of acceptance criteria. The response for Perfluorooctanesulfonic Acid (PFOS) was within acceptance criteria; therefore, no further action was taken

Total Metals

WG1268821-1: The CCB, associated with L1934160-01 through -08 and -10, has a concentration above the reporting limit for thallium. Since the samples were non-detect to the RL for this target analyte, no further actions were taken. The results of the original analysis 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:

Melissa Sturgis

Report Date: 08/16/19

Title: Technical Director/Representative



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

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: TOWN OF RAMAPO LF
Project Number: 20010.TASK200

Lab Number: L1934160
Report Date: 08/16/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- 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.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers





Volatile Organics Instruments

Volatile Organics:

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)
 Purge time: 11 min

Columns (length x ID x df):
 RTX-VMS 20m x 0.18mm x 1um
 RTX-VMS 30m x 0.25mm x 1.4um
 RTX-502.2 40m x 0.18mm x 1um

Volatile Organics: VPH

Instrument: Agilent 6890 (or equivalent)
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)

Column Type: Restek RTX 502.2
 Column Length: 105 Meters
 df: 3.00 um
 ID: 0.53mm

Volatile Organics: PIANO

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: Tekmar Velocity / EST Encon
 Autosampler: Varian Archon / EST Centurion
 Purge time: 11 min

Column Type: DB-VRX
 Column Length: 60 Meters
 df: 1.40 um
 ID: 0.25 mm
 Desorb: 1 min

Volatile Organics: Dissolved Gas

Instrument: Agilent 7890 (or equivalent) with FID/TCD

Column Type: Haysep S Column
 Column Length: 2 Meters packed
 (100/200 mesh)

Autosampler: LEAP Headspace

Purge time: 0.6 min

Volatile Organics in Air Instruments

Volatile Organics in Air:

Instruments: Agilent 6890 GC / 5975 MSD Shimadzu QP2010-SE / QP2020

Concentrator: Entech 7100A or 7200
 Autosampler: Entech 7016CA or 7016D

Column Type: Restek RTX-1
 Column Length: 60 Meters
 df: 1.00 um
 ID: 0.25 mm or 0.32 mm

Trap 1: Glass Bead: manufacturer-Entech: 20 cm packing material

Trap 2: Tenax: manufacturer-Entech: 20 cm packing material



Semivolatile Organics Instruments - Westborough

Semivolatile Organics (Acid/Base/Neutral Extractables):

Instrument: Agilent 5973N MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.32 μ m
Column Length: 30 Meters	ID: 0.25 mm

Polynuclear Aromatic Hydrocarbons by 8270 SIM:

Instrument: Agilent 5973 MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.25 μ m
Column Length: 30 Meters	ID: 0.25 mm

Pesticides/PCB/Herbicides:

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1 μ L
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLP Pesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Petroleum/EPH:

Instrument: Agilent 6890 w/FID / HP 5890 w/ FID	Injection Volume: 1 μ L
Column: Restek RTX 5	df: 0.25
Column Length: 30 Meters	
ID: 0.32 mm	



Semivolatile Organic Instruments - Mansfield

Semivolatile Organics (ALK-PAH Extractables):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 1 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8270):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 2 ul
Column Type: ZB-Semivolatiles	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (8270 SIM):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (1,4-Dioxane):

Instrument: Agilent 5973N / 5975 / 5977 MSD	Injection volume: 3 ul
Column Type: RTX-5	df: 0.25um, 0.18 um
Column Length: 30 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (209 Congener):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: RTX-5, RTX-PCB	df: 0.25um, 0.18 um
Column Length: 60 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (8081):

Instrument: Agilent 6890 / 7890	Injection volume: 1 ul
Column Type: RTX-5 / RTX-CLP II	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8082):

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1uL
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLPPesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Semivolatile Organics (SHC Extractables):

Instrument: Agilent 6890	Injection volume: 1 ul
Column Type: RTX-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm



Sample Delivery Group Summary

Alpha Job Number : L1934160

Received : 31-JUL-2019

Reviewer : John Knoud

Account Name : Sterling Environmental Eng

Project Number : 20010.TASK200

Project Name : TOWN OF RAMAPO LF

Delivery Information

Samples Delivered By : Alpha Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	Ice	5.3	
B	Absent/	Ice	4.0	
C	Absent/	Ice	4.8	

Condition Information

1) All samples on COC received?	YES
2) Extra samples received?	NO
3) Are there any sample container discrepancies?	NO
4) Are there any discrepancies between sample labels & COC?	NO
5) Are samples in appropriate containers for requested analysis?	YES
6) Are samples properly preserved for requested analysis?	YES
7) Are samples within holding time for requested analysis?	YES
8) All sampling equipment returned?	NA

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	NO

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 16 2019, 12:13 pm

Login Number: L1934160

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK200

Received: 31JUL19 Due Date: 14AUG19

Sample # Client ID Mat PR Collected

L1934160-01 10-R 1 S0 31JUL19 08:35

8260: reporting list only (4 compounds) ASP-A Package Due Date: 08/14/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,ASP-A,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1934160-02 10-I 1 S0 31JUL19 09:25

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1934160-03 10-OS 1 S0 31JUL19 10:20

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

A2-1,4-DIOXANE-SIM,A2-NY-537-ISOTOPE,ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1934160-04 8-R 1 S0 31JUL19 11:30

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

ALK-T-2320,COD-410-LOW,HARDT,NYTCL-8260-R2,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T,TKN-4500

L1934160-05 8-I 1 S0 31JUL19 12:40

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 16 2019, 12:13 pm

Login Number: L1934160

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK200

Received: 31JUL19 Due Date: 14AUG19

Sample # Client ID Mat PR Collected

ALK-T-2320, COD-410-LOW, HARDT, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934160-06 8-OS 1 S0 31JUL19 13:25

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

ALK-T-2320, COD-410-LOW, HARDT, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934160-07 4-OS 1 S0 31JUL19 14:45

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

ALK-T-2320, COD-410-LOW, HARDT, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934160-08 7-OS 1 S0 31JUL19 15:50

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

ALK-T-2320, COD-410-LOW, HARDT, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934160-09 TB-073119 1 S0 31JUL19 00:00

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

NYTCL-8260-R2

L1934160-10 DUP 1 S0 31JUL19 00:00

8260: reporting list only (4 compounds) Package Due Date: 08/14/19

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 16 2019, 12:13 pm

Login Number: L1934160

Account: STERLINGENV Sterling Environmental EngProject: 20010.TASK200

Received: 31JUL19 Due Date: 14AUG19

Sample #	Client ID	Mat PR Collected

ALK-T-2320, COD-410-LOW, HARDT, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

Page 3

Logged By: Candace Fox

 ALPHA ANALYTICAL	NEW YORK CHAIN OF CUSTODY	Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105	Page <u>1</u> of		Date Rec'd in Lab <u>8/1/19</u>	ALPHA Job # <u>L1934160</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>Town of Ramapo LE</u> Project Location: <u>Ramapo, NY</u> Project # <u>20010, Task 200</u> (Use Project name as Project #) ☐		Deliverables ☒ ASP-A ☐ ASP-B ☐ EQUIS (1 File) ☐ EQUIS (4 File) ☐ Other		Billing Information ☒ Same as Client Info PO #
Client Information Client: <u>Sterling Env. Eng</u> Address: <u>24 Wade Rd</u> <u>Latham, NY 12110</u> Phone: <u>(518) 456-4900</u> Fax: Email:		Project Manager: <u>C. Fox / M. Williams</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 ☐ Other project specific requirements/comments: <u>mark.williams@sterlingenvironmental.com / *Site VOCs ONLY * 1,1-Dichlorobenzene, Chlorobenzene, Benzene, Vinyl Chloride</u>		ANALYSIS NY TOGS (320) ☒ *Site Specific VOCs ☒ TKM-4500 ☒ 351.1 ☒ 1,4 Dioxane-8270 ☒ 61m ☒ PFAS-537 ☒ T-Alkalinity-SM ☒ 2320 ☒ COD 410.4 ☒ TAL-Metals/Hardness ☒		Sample Filtration ☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)		Total Bottles
Please specify Metals or TAL.						
ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date Time	Sample Matrix	Sampler's Initials		
✓ 34160 - 01	10-R	7/31/19 0835	Water	AC/OLPS	X	X
✓ 02	10-I	0925			X	X
✓ 03	10-OS	1020			X	X
✓ 04	8-R	1130				
✓ 05	8-I	1240				
✓ 06	8-OS	1325				
✓ 07	4-OS	1445				
✓ 08	7-OS	1556				
✓ 09	TB-073119					
✓ 10	DUP	7/31/19	Water		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 V P A P P P P
				Preservative B D A A D C		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)
Form No: 01-25 HC (rev. 30-Sept-2013)		Relinquished By: <u>[Signature]</u> Date/Time: <u>7/31/19 1654</u> <u>7/31/19 1654</u> <u>8/1/19 0020</u>		Received By: <u>[Signature]</u> Date/Time: <u>7/31/19 1654</u> <u>7/31/19 1654</u> <u>8/1/19 0020</u>		

Organics

Volatiles Data

Volatiles Sample Data

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V01190809A19
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/09/19 15:24
 Dilution Factor : 1
 Analyst : PK
 Instrument ID : VOA101
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V01190809A20
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/09/19 15:53
 Dilution Factor : 1
 Analyst : PK
 Instrument ID : VOA101
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V01190809A21
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/09/19 16:21
 Dilution Factor : 1
 Analyst : PK
 Instrument ID : VOA101
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-04
 Client ID : 8-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N14
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:30
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 01:29
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-05
 Client ID : 8-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N15
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 12:40
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 01:51
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-06
 Client ID : 8-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N16
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 13:25
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 02:13
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-07
 Client ID : 4-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N17
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 14:45
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 02:35
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-08
 Client ID : 7-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N18
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 15:50
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 02:57
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-09
 Client ID : TB-073119
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N19
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 03:19
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-10
 Client ID : DUP
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N20
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/10/19 03:41
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng Project Name : TOWN OF RAMAPO LF Lab ID : WG1270730-5 Client ID : WG1270730-5BLANK Sample Location : Sample Matrix : WATER Analytical Method : 1,8260C Lab File ID : V01190809A08 Sample Amount : 10 ml Level : LOW Extract Volume (MeOH) : N/A	Lab Number : L1934160 Project Number : 20010.TASK200 Date Collected : NA Date Received : NA Date Analyzed : 08/09/19 10:13 Dilution Factor : 1 Analyst : PD Instrument ID : VOA101 GC Column : RTX-502.2 %Solids : N/A Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1271370-5
 Client ID : WG1271370-5BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V08190809N05
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/09/19 22:11
 Dilution Factor : 1
 Analyst : PK
 Instrument ID : VOA108
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



GCMS Extractables 1,4-Dioxane By SIM

Semivolatile Sample Data

Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608061928
 Sample Amount : 270 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/06/19 20:25
 Date Extracted : 08/05/19
 Dilution Factor : 1
 Analyst : PS
 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	139	31.4	U



Results Summary

Form 1

1,4 Dioxane by 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608061929
 Sample Amount : 260 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/06/19 20:53
 Date Extracted : 08/05/19
 Dilution Factor : 1
 Analyst : PS
 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 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608061930
 Sample Amount : 260 ml
 Extraction Method : EPA 3510C
 Extract Volume : 2500 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/06/19 21:20
 Date Extracted : 08/05/19
 Dilution Factor : 1
 Analyst : PS
 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 8270D-SIM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1268717-1
 Client ID : WG1268717-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8270D-SIM
 Lab File ID : F608061918
 Sample Amount : 500 ml
 Extraction Method : EPA 3510C
 Extract Volume : 5000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/06/19 15:28
 Date Extracted : 08/05/19
 Dilution Factor : 1
 Analyst : PS
 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	150	33.9	U



PFAs

Semivolatile Sample Data

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17742
 Sample Amount : 293 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/15/19 01:54
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.71	0.348	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.71	0.338	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.71	0.203	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.406	1.71	0.280	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.71	0.192	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.71	0.321	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.71	0.201	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.71	1.14	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.71	0.587	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.71	0.266	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1.11	1.71	0.430	J
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.71	0.259	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.71	1.03	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.71	0.553	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.71	0.222	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.71	0.836	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.71	0.495	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.71	0.686	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17742
 Sample Amount : 293 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/15/19 01:54
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.71	0.317	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.71	0.279	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.71	0.212	U
NONE	PFOA/PFOS, Total	1.11	1.71	0.201	J

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17744
 Sample Amount : 267 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/15/19 02:28
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.87	0.382	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.87	0.371	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.87	0.223	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.607	1.87	0.307	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	0.225	1.87	0.211	J
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.87	0.352	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.87	0.221	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	2.02	1.87	1.25	
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.87	0.644	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.87	0.292	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	0.483	1.87	0.472	J
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.87	0.285	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.87	1.13	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	1.87	0.607	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.87	0.243	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.87	0.918	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.87	0.543	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.87	0.753	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17744
 Sample Amount : 267 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/15/19 02:28
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.87	0.348	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.87	0.306	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.87	0.232	U
NONE	PFOA/PFOS, Total	0.483	1.87	0.221	J

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17746
 Sample Amount : 274 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/15/19 03:02
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 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	1.82	0.372	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.82	0.361	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.82	0.217	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.438	1.82	0.299	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.82	0.205	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.82	0.343	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.82	0.215	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.82	1.22	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.82	0.628	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.82	0.285	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.82	0.460	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.82	0.277	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.82	1.10	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.898	1.82	0.591	J
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.82	0.237	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.82	0.894	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.82	0.529	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.82	0.734	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17746
 Sample Amount : 274 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/15/19 03:02
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : RS
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.82	0.339	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.82	0.298	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.82	0.226	U
NONE	PFOA/PFOS, Total	ND	1.82	0.215	U

Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1271287-1
 Client ID : WG1271287-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17730
 Sample Amount : 250 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/14/19 22:30
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : AJ
 Instrument ID : LCMS01
 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	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.472	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	2.00	0.225	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	2.00	0.236	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	2.00	1.33	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U



Results Summary

Form 1

Perfluorinated Alkyl Acids by Isotope Dilution

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1271287-1
 Client ID : WG1271287-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 122,537(M)
 Lab File ID : I17730
 Sample Amount : 250 g
 Extraction Method : EPA 537
 Extract Volume : 1000 uL
 GPC Cleanup : N

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/14/19 22:30
 Date Extracted : 08/12/19
 Dilution Factor : 1
 Analyst : AJ
 Instrument ID : LCMS01
 GC Column : Acquity UPLC BEH C18
 %Solids : N/A
 Injection Volume : 3 uL

CAS NO.	Parameter	ng/l			Qualifier
		Results	RL	MDL	
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	ND	2.00	0.236	U

Metals

Inorganic Data (ICP Analysis)

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 00:19
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	31.8	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:05
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	32.9	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:09
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	7.48	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-04
 Client ID : 8-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:30
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:14
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	519	0.660	NA	



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-05
 Client ID : 8-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 12:40
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:19
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	346	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-06
 Client ID : 8-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 13:25
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:23
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	148	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-07
 Client ID : 4-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 14:45
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:28
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	355	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-08
 Client ID : 7-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 15:50
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 01:33
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	149	0.660	NA	

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268823-1
Client ID : WG1268823-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6010D
Lab File ID : 080719.txt_icap.txt
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/08/19 00:05
Dilution Factor : 1
Analyst : LC
Instrument ID : TRACE5
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	ND	0.660	NA	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1268823-4
 Client ID : 10-RDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : 080719.txt_icap.txt
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 00:28
 Dilution Factor : 1
 Analyst : LC
 Instrument ID : TRACE5
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	31.4	0.660	NA	



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-10
 Client ID : DUP
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6010D
 Lab File ID : WG1269942.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/08/19 22:15
 Dilution Factor : 1
 Analyst : AB
 Instrument ID : TRACE7
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	540	0.660	NA	



Inorganic Data (ICPMS Analysis)

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-01
Client ID : 10-R
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 08:35
Date Received : 07/31/19
Date Analyzed : 08/07/19 13:22
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0348	0.0100	0.00327	
7440-36-0	Antimony, Total	0.00140	0.00400	0.00042	J
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00376	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	0.00017	0.00020	0.00005	J
7440-70-2	Calcium, Total	10.2	0.100	0.0394	
7440-47-3	Chromium, Total	0.01136	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00060	0.00050	0.00016	
7440-50-8	Copper, Total	0.00267	0.00100	0.00038	
7439-89-6	Iron, Total	0.0778	0.0500	0.0191	
7439-92-1	Lead, Total	0.00395	0.00100	0.00034	
7439-95-4	Magnesium, Total	2.02	0.0700	0.0242	
7439-96-5	Manganese, Total	0.01807	0.00100	0.00044	
7440-02-0	Nickel, Total	0.01356	0.00200	0.00055	
7440-09-7	Potassium, Total	0.818	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	4.41	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.01498	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-02
Client ID : 10-I
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 09:25
Date Received : 07/31/19
Date Analyzed : 08/07/19 14:43
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0384	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.00125	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	9.41	0.100	0.0394	
7440-47-3	Chromium, Total	0.00026	0.00100	0.00017	J
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00102	0.00100	0.00038	
7439-89-6	Iron, Total	0.0954	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	2.72	0.0700	0.0242	
7439-96-5	Manganese, Total	0.00106	0.00100	0.00044	
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	0.838	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	3.91	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,6020B
 Lab File ID : WG1269464.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 15:20
 Dilution Factor : 1
 Analyst : AM
 Instrument ID : ICPMSQ2
 %Solids : N/A
 Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.262	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00036	0.00050	0.00016	J
7440-39-3	Barium, Total	0.00736	0.00050	0.00017	
7440-41-7	Beryllium, Total	0.00012	0.00050	0.00010	J
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	2.57	0.100	0.0394	
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	0.00026	0.00050	0.00016	J
7440-50-8	Copper, Total	0.00106	0.00100	0.00038	
7439-89-6	Iron, Total	0.0194	0.0500	0.0191	J
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	0.428	0.0700	0.0242	
7439-96-5	Manganese, Total	0.02476	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00061	0.00200	0.00055	J
7440-09-7	Potassium, Total	0.298	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	2.09	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-04
Client ID : 8-R
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 11:30
Date Received : 07/31/19
Date Analyzed : 08/07/19 15:25
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00034	0.00050	0.00016	J
7440-39-3	Barium, Total	0.00706	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	160.	0.100	0.0394	
7440-47-3	Chromium, Total	0.04565	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00185	0.00050	0.00016	
7440-50-8	Copper, Total	0.00166	0.00100	0.00038	
7439-89-6	Iron, Total	0.195	0.0500	0.0191	
7439-92-1	Lead, Total	0.00034	0.00100	0.00034	J
7439-95-4	Magnesium, Total	45.4	0.0700	0.0242	
7439-96-5	Manganese, Total	0.1270	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00917	0.00200	0.00055	
7440-09-7	Potassium, Total	3.27	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	42.0	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.00797	0.01000	0.00341	J



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-05
Client ID : 8-I
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 12:40
Date Received : 07/31/19
Date Analyzed : 08/07/19 15:29
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00454	0.00050	0.00016	
7440-39-3	Barium, Total	0.03721	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	110.	0.100	0.0394	
7440-47-3	Chromium, Total	0.00064	0.00100	0.00017	J
7440-48-4	Cobalt, Total	0.00719	0.00050	0.00016	
7440-50-8	Copper, Total	ND	0.00100	0.00038	U
7439-89-6	Iron, Total	8.93	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	27.8	0.0700	0.0242	
7439-96-5	Manganese, Total	3.198	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00898	0.00200	0.00055	
7440-09-7	Potassium, Total	11.7	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	96.8	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-06
Client ID : 8-OS
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 13:25
Date Received : 07/31/19
Date Analyzed : 08/07/19 15:33
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.00489	0.0100	0.00327	J
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00017	0.00050	0.00016	J
7440-39-3	Barium, Total	0.01092	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	0.00008	0.00020	0.00005	J
7440-70-2	Calcium, Total	49.2	0.100	0.0394	
7440-47-3	Chromium, Total	0.01270	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00051	0.00050	0.00016	
7440-50-8	Copper, Total	0.00134	0.00100	0.00038	
7439-89-6	Iron, Total	0.240	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	11.2	0.0700	0.0242	
7439-96-5	Manganese, Total	2.318	0.00100	0.00044	
7440-02-0	Nickel, Total	0.06892	0.00200	0.00055	
7440-09-7	Potassium, Total	2.58	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	52.4	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-07
Client ID : 4-OS
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 14:45
Date Received : 07/31/19
Date Analyzed : 08/07/19 15:38
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0184	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	0.04009	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	106.	0.100	0.0394	
7440-47-3	Chromium, Total	0.07353	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00067	0.00050	0.00016	
7440-50-8	Copper, Total	0.00085	0.00100	0.00038	J
7439-89-6	Iron, Total	0.633	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	35.9	0.0700	0.0242	
7439-96-5	Manganese, Total	0.2119	0.00100	0.00044	
7440-02-0	Nickel, Total	0.05196	0.00200	0.00055	
7440-09-7	Potassium, Total	2.04	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	93.5	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.00557	0.01000	0.00341	J



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-08
Client ID : 7-OS
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 15:50
Date Received : 07/31/19
Date Analyzed : 08/07/19 15:42
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.111	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00035	0.00050	0.00016	J
7440-39-3	Barium, Total	0.02292	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	50.4	0.100	0.0394	
7440-47-3	Chromium, Total	0.01642	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00369	0.00050	0.00016	
7440-50-8	Copper, Total	0.00143	0.00100	0.00038	
7439-89-6	Iron, Total	0.348	0.0500	0.0191	
7439-92-1	Lead, Total	0.00059	0.00100	0.00034	J
7439-95-4	Magnesium, Total	10.7	0.0700	0.0242	
7439-96-5	Manganese, Total	0.07451	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00080	0.00200	0.00055	J
7440-09-7	Potassium, Total	4.24	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	14.9	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934160-10
Client ID : DUP
Sample Location : RAMAPO, NY
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 00:00
Date Received : 07/31/19
Date Analyzed : 08/07/19 15:46
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.00426	0.0100	0.00327	J
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00035	0.00050	0.00016	J
7440-39-3	Barium, Total	0.00736	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	162.	0.100	0.0394	
7440-47-3	Chromium, Total	0.04731	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00203	0.00050	0.00016	
7440-50-8	Copper, Total	0.01657	0.00100	0.00038	
7439-89-6	Iron, Total	0.186	0.0500	0.0191	
7439-92-1	Lead, Total	0.00121	0.00100	0.00034	
7439-95-4	Magnesium, Total	47.6	0.0700	0.0242	
7439-96-5	Manganese, Total	0.1443	0.00100	0.00044	
7440-02-0	Nickel, Total	0.01035	0.00200	0.00055	
7440-09-7	Potassium, Total	3.32	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	44.1	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.00390	0.01000	0.00341	J



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268821-1
Client ID : WG1268821-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/07/19 11:22
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	ND	0.00050	0.00017	U
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	0.0638	0.100	0.0394	J
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	ND	0.00100	0.00038	U
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	ND	0.0700	0.0242	U
7439-96-5	Manganese, Total	ND	0.00100	0.00044	U
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	ND	0.100	0.0309	U
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	ND	0.100	0.0293	U
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1268821-4
Client ID : 10-RDUP
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269464.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : 07/31/19 08:35
Date Received : 07/31/19
Date Analyzed : 08/07/19 13:18
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ2
%Solids : N/A
Date Digested : 08/06/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.0369	0.0100	0.003	
7440-36-0	Antimony, Total	0.00296	0.00400	0.0004	J
7440-38-2	Arsenic, Total	ND	0.00050	0.0002	U
7440-39-3	Barium, Total	0.00318	0.00050	0.0002	
7440-41-7	Beryllium, Total	ND	0.00050	0.0001	U
7440-43-9	Cadmium, Total	0.00014	0.00020	0.0001	J
7440-70-2	Calcium, Total	10.2	0.100	0.039	
7440-47-3	Chromium, Total	0.01183	0.00100	0.0002	
7440-48-4	Cobalt, Total	0.00068	0.00050	0.0002	
7440-50-8	Copper, Total	0.00242	0.00100	0.0004	
7439-89-6	Iron, Total	0.0834	0.0500	0.019	
7439-92-1	Lead, Total	0.00382	0.00100	0.0003	
7439-95-4	Magnesium, Total	2.01	0.0700	0.024	
7439-96-5	Manganese, Total	0.01604	0.00100	0.0004	
7440-02-0	Nickel, Total	0.01299	0.00200	0.0006	
7440-09-7	Potassium, Total	0.808	0.100	0.031	
7782-49-2	Selenium, Total	ND	0.00500	0.002	U
7440-22-4	Silver, Total	ND	0.00040	0.0002	U
7440-23-5	Sodium, Total	4.36	0.100	0.029	
7440-28-0	Thallium, Total	0.00014	0.00050	0.0001	J
7440-62-2	Vanadium, Total	ND	0.00500	0.0016	U
7440-66-6	Zinc, Total	0.01410	0.01000	0.0034	



Inorganic Data (Mercury Analysis)

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:24
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:29
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:31
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-04
 Client ID : 8-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:30
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:33
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-05
 Client ID : 8-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 12:40
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:34
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-06
 Client ID : 8-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 13:25
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:36
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-07
 Client ID : 4-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 14:45
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:38
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-08
 Client ID : 7-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 15:50
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:39
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-10
 Client ID : DUP
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/12/19 15:42
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1270220-1
Client ID : WG1270220-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,7470A
Lab File ID : WG1271345.pdf
Sample Amount : 25ml
Digestion Method : EPA 7470A

Lab Number : L1934160
Project Number : 20010.TASK200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/12/19 15:08
Dilution Factor : 1
Analyst : GD
Instrument ID : CETAC
%Solids : N/A
Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270220-4
 Client ID : WG1270220-4 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271345.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/29/19 13:00
 Date Received : 07/29/19
 Date Analyzed : 08/12/19 15:15
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/08/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.0001	U



Wet Chemistry

Total Kjeldahl Nitrogen Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:31
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.102	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:33
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.085	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:34
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.097	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-04
 Client ID : 8-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:30
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:35
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.360	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-05
 Client ID : 8-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 12:40
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:36
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	5.21	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-06
 Client ID : 8-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 13:25
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:37
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.463	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-07
 Client ID : 4-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 14:45
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:38
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.615	0.300	0.066	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-08
 Client ID : 7-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 15:50
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:39
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.110	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-10
 Client ID : DUP
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:43
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.178	0.300	0.066	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267669-1
 Client ID : WG1267669-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/02/19 20:18
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.220	0.300	0.022	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267669-3
 Client ID : 10-RDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-2-2019_08-14-54PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/02/19 20:32
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/02/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.170	0.300	0.066	J



Chemical Oxygen Demand Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:41
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:41
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:41
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	6.0	10	2.7	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-04
 Client ID : 8-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:30
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:42
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	11.	10	2.7	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-05
 Client ID : 8-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 12:40
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:42
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	11.	10	2.7	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-06
 Client ID : 8-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 13:25
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:42
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	6.0	10	2.7	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-07
 Client ID : 4-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 14:45
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:42
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-08
 Client ID : 7-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 15:50
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:42
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-10
 Client ID : DUP
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:43
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	8.5	10	2.7	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269764-1
 Client ID : WG1269764-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 23:40
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269764-4
 Client ID : WG1269764-4 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:00
 Date Received : 07/31/19
 Date Analyzed : 08/07/19 23:44
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	3.6	10	2.7	J



Alkalinity Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-01
 Client ID : 10-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	24.4	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-02
 Client ID : 10-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 09:25
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	24.3	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-03
 Client ID : 10-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 10:20
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	ND	2.00	NA	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-04
 Client ID : 8-R
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 11:30
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	464.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-05
 Client ID : 8-I
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 12:40
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	373.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-06
 Client ID : 8-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 13:25
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	125.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-07
 Client ID : 4-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 14:45
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	118.	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-08
 Client ID : 7-OS
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 15:50
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	134.	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934160-10
 Client ID : DUP
 Sample Location : RAMAPO, NY
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 00:00
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	465.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267633-1
 Client ID : WG1267633-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	ND	2.00	NA	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1267633-3
 Client ID : 10-RDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1267633.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934160
 Project Number : 20010.TASK200
 Date Collected : 07/31/19 08:35
 Date Received : 07/31/19
 Date Analyzed : 08/01/19 18:06
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	24.9	2.00	NA	





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Alpha Analytical

Laboratory Code: 11148

SDG Number: L1934402

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Project Name: TOWN OF RAMAPO LF
Project Number: 20010, TASK 200

Lab Number: L1934402
Report Date: 08/13/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1934402-01	1-OS	WATER	RAMAPO	08/01/19 10:20	08/01/19
L1934402-02	2-OS	WATER	RAMAPO	08/01/19 09:25	08/01/19
L1934402-03	3-OS/I	WATER	RAMAPO	08/01/19 08:15	08/01/19
L1934402-04	TB-080119	WATER	RAMAPO	08/01/19 00:00	08/01/19

Project Name: TOWN OF RAMAPO LF
Project Number: 20010, TASK 200

Lab Number: L1934402
Report Date: 08/13/19

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated 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.

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 table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

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 Client Service Representative 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 Client Services at 800-624-9220 with any questions.

Project Name: TOWN OF RAMAPO LF
Project Number: 20010, TASK 200

Lab Number: L1934402
Report Date: 08/13/19

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.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L1934402-01, -02 and -03: Headspace was noted in the sample container utilized for analysis.

Nitrogen, Total Kjeldahl

L1934402-03: The sample has an elevated detection limit due to the dilution required by the sample matrix.

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:  Amita Naik

Report Date: 08/13/19

Title: Technical Director/Representative

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

Footnotes

Report Format: DU Report with 'J' Qualifiers



Project Name: TOWN OF RAMAPO LF
Project Number: 20010, TASK 200

Lab Number: L1934402
Report Date: 08/13/19

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

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

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

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

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

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

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

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- 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.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers





Volatile Organics Instruments

Volatile Organics:

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)
 Purge time: 11 min

Columns (length x ID x df):
 RTX-VMS 20m x 0.18mm x 1um
 RTX-VMS 30m x 0.25mm x 1.4um
 RTX-502.2 40m x 0.18mm x 1um

Volatile Organics: VPH

Instrument: Agilent 6890 (or equivalent)
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: EST Encon (or equivalent)
 Autosampler: EST Centurion (or equivalent)

Column Type: Restek RTX 502.2
 Column Length: 105 Meters
 df: 3.00 um
 ID: 0.53mm

Volatile Organics: PIANO

Instrument: Agilent 7890 GC/5975C MSD
 Trap: Supelco K Trap (VOACARB 3000)
 Concentrator: Tekmar Velocity / EST Encon
 Autosampler: Varian Archon / EST Centurion
 Purge time: 11 min

Column Type: DB-VRX
 Column Length: 60 Meters
 df: 1.40 um
 ID: 0.25 mm
 Desorb: 1 min

Volatile Organics: Dissolved Gas

Instrument: Agilent 7890 (or equivalent) with FID/TCD

Column Type: Haysep S Column
 Column Length: 2 Meters packed
 (100/200 mesh)

Autosampler: LEAP Headspace

Purge time: 0.6 min

Volatile Organics in Air Instruments

Volatile Organics in Air:

Instruments: Agilent 6890 GC / 5975 MSD Shimadzu QP2010-SE / QP2020

Concentrator: Entech 7100A or 7200
 Autosampler: Entech 7016CA or 7016D

Column Type: Restek RTX-1
 Column Length: 60 Meters
 df: 1.00 um
 ID: 0.25 mm or 0.32 mm

Trap 1: Glass Bead: manufacturer-Entech: 20 cm packing material

Trap 2: Tenax: manufacturer-Entech: 20 cm packing material



Semivolatile Organics Instruments - Westborough

Semivolatile Organics (Acid/Base/Neutral Extractables):

Instrument: Agilent 5973N MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.32 μ m
Column Length: 30 Meters	ID: 0.25 mm

Polynuclear Aromatic Hydrocarbons by 8270 SIM:

Instrument: Agilent 5973 MSD	Injection volume: 1 μ L; 2 μ L LVI
Column Type: Restek RXI-5SILMS	df: 0.25 μ m
Column Length: 30 Meters	ID: 0.25 mm

Pesticides/PCB/Herbicides:

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1 μ L
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLP Pesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Petroleum/EPH:

Instrument: Agilent 6890 w/FID / HP 5890 w/ FID	Injection Volume: 1 μ L
Column: Restek RTX 5	df: 0.25
Column Length: 30 Meters	
ID: 0.32 mm	



Semivolatile Organic Instruments - Mansfield

Semivolatile Organics (ALK-PAH Extractables):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 1 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8270):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 2 ul
Column Type: ZB-Semivolatiles	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (8270 SIM):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (1,4-Dioxane):

Instrument: Agilent 5973N / 5975 / 5977 MSD	Injection volume: 3 ul
Column Type: RTX-5	df: 0.25um, 0.18 um
Column Length: 30 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (209 Congener):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: RTX-5, RTX-PCB	df: 0.25um, 0.18 um
Column Length: 60 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (8081):

Instrument: Agilent 6890 / 7890	Injection volume: 1 ul
Column Type: RTX-5 / RTX-CLP II	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8082):

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1uL
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLPPesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Semivolatile Organics (SHC Extractables):

Instrument: Agilent 6890	Injection volume: 1 ul
Column Type: RTX-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm



Sample Delivery Group Summary

Alpha Job Number : L1934402

Received : 01-AUG-2019
Reviewer : Michael Chang

Account Name : Sterling Environmental Eng
Project Number : 20010, TASK 200
Project Name : TOWN OF RAMAPO LF

Delivery Information

Samples Delivered By : Alpha Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	Ice	3.5	

Condition Information

1) All samples on COC received?	YES
2) Extra samples received?	NO
3) Are there any sample container discrepancies?	NO
4) Are there any discrepancies between sample labels & COC?	NO
5) Are samples in appropriate containers for requested analysis?	YES
6) Are samples properly preserved for requested analysis?	YES
7) Are samples within holding time for requested analysis?	YES
8) All sampling equipment returned?	NA

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	NO

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Aug 13 2019, 09:25 pm

Login Number: L1934402

Account: STERLINGENV Sterling Environmental EngProject: 20010, TASK 200

Received: 01AUG19 Due Date: 13AUG19

Sample # Client ID Mat PR Collected

L1934402-01 1-OS 1 S0 01AUG19 10:20

| ASP-A Package Due Date: 08/13/19

ALK-T-2320, ASP-A, COD-410-LOW, HARDT-6020, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934402-02 2-OS 1 S0 01AUG19 09:25

| ASP-A Package Due Date: 08/13/19

ALK-T-2320, ASP-A, COD-410-LOW, HARDT-6020, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934402-03 3-OS/I 1 S0 01AUG19 08:15

| ASP-A Package Due Date: 08/13/19

ALK-T-2320, ASP-A, COD-410-LOW, HARDT-6020, NYTCL-8260-R2, TAL-6020T, AG-6020T, AL-6020T, AS-6020T, BA-6020T, BE-6020T, CA-6020T, CD-6020T, CO-6020T, CR-6020T, CU-6020T, FE-6020T, HG-T, K-6020T, MG-6020T, MN-6020T, NA-6020T, NI-6020T, PB-6020T, PREPT, SB-6020T, SE-6020T, TL-6020T, V-6020T, ZN-6020T, TKN-4500

L1934402-04 TB-080119 1 S0 01AUG19 00:00

| ASP-A Package Due Date: 08/13/19

ASP-A, NYTCL-8260-R2

NEW YORK CHAIN OF CUSTODY Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193 Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 5 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 8/1/19		ALPHA Job # L1934402			
		Project Information Project Name: Town of Ramapo LF Project Location: Ramapo Project #: 20010, Task 200		Deliverables ☒ ASP-A ☐ ASP-B ☐ EQUIS (1 File) ☐ EQUIS (4 File) ☐ Other		Billing Information ☒ Same as Client Info PO #					
		Client Information Client: Sterling Environmental Engineering Address: 24 Wade Rd Latham, NY 12110 Phone: 518-456-4900 Fax: 518-456-3532 Email:		(Use Project name as Project #) ☐ Project Manager: C. Fox / M. Williams ALPHAQuote #:		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: NA			
These samples have been previously analyzed by Alpha ☐ Other project specific requirements/comments: <i>markwilliams@sterlingenvironmental.com site specific 1,1-Dichloroethane VOCs only = chlorobenzene, Benzene, Vinyl chloride</i>		Turn-Around Time Standard ☒ Due Date: Rush (only if pre approved) ☐ # of Days:		ANALYSIS		Sample Filtration ☐ Done ☐ Lab to do ☐ Lab to do (Please Specify below)		Total Bottles			
Please specify Metals or TAL.		Sample ID		Collection Date Time		Sample Matrix Sampler's Initials			Sample Specific Comments		
ALPHA Lab ID (Lab Use Only)		Sample ID		Date Time		Sample Matrix Sampler's Initials			Sample Specific Comments		
Sample ID		Date Time		Sample Matrix Sampler's Initials		Sample Specific Comments					
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 V P A P P P P		Preservative B D A A D C		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.	
Relinquished By: <i>[Signature]</i>		Date/Time: 08/01/19 15:00		Received By: <i>[Signature]</i>		Date/Time: 8-1-19 15:00		Date/Time: 8-1-19 15:00		Date/Time: 8-1-19 15:00	
Form No: 01-25 (rev. 30-Sept-2013)											

Organics

Volatiles Data

Volatiles Sample Data

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-01
 Client ID : 1-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V22190810A18
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/10/19 14:14
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA122
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-02
 Client ID : 2-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V22190810A19
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 09:25
 Date Received : 08/01/19
 Date Analyzed : 08/10/19 14:42
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA122
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng	Lab Number : L1934402
Project Name : TOWN OF RAMAPO LF	Project Number : 20010, TASK 200
Lab ID : L1934402-03	Date Collected : 08/01/19 08:15
Client ID : 3-OS/I	Date Received : 08/01/19
Sample Location : RAMAPO	Date Analyzed : 08/10/19 15:11
Sample Matrix : WATER	Dilution Factor : 1
Analytical Method : 1,8260C	Analyst : PD
Lab File ID : V22190810A20	Instrument ID : VOA122
Sample Amount : 10 ml	GC Column : RTX-502.2
Level : LOW	%Solids : N/A
Extract Volume (MeOH) : N/A	Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-04
 Client ID : TB-080119
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V22190810A21
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 00:00
 Date Received : 08/01/19
 Date Analyzed : 08/10/19 15:39
 Dilution Factor : 1
 Analyst : PD
 Instrument ID : VOA122
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U

Results Summary

Form 1

Volatile Organics by GC/MS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1271322-5
 Client ID : WG1271322-5BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,8260C
 Lab File ID : V22190810A05
 Sample Amount : 10 ml
 Level : LOW
 Extract Volume (MeOH) : N/A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/10/19 08:04
 Dilution Factor : 1
 Analyst : NLK
 Instrument ID : VOA122
 GC Column : RTX-502.2
 %Solids : N/A
 Injection Volume : N/A

CAS NO.	Parameter	ug/L			Qualifier
		Results	RL	MDL	
75-34-3	1,1-Dichloroethane	ND	2.5	0.70	U
108-90-7	Chlorobenzene	ND	2.5	0.70	U
71-43-2	Benzene	ND	0.50	0.16	U
75-01-4	Vinyl chloride	ND	1.0	0.07	U



Metals

Inorganic Data (ICPMS Analysis)

Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934402-01
Client ID : 1-OS
Sample Location : RAMAPO
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269465.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : 08/01/19 10:20
Date Received : 08/01/19
Date Analyzed : 08/07/19 21:26
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	281.8	0.5400	NA	
7429-90-5	Aluminum, Total	0.141	0.0100	0.00327	
7440-36-0	Antimony, Total	0.00108	0.00400	0.00042	J
7440-38-2	Arsenic, Total	0.00138	0.00050	0.00016	
7440-39-3	Barium, Total	0.07528	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	0.00014	0.00020	0.00005	J
7440-70-2	Calcium, Total	84.2	0.100	0.0394	
7440-47-3	Chromium, Total	0.3083	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00891	0.00050	0.00016	
7440-50-8	Copper, Total	0.00455	0.00100	0.00038	
7439-89-6	Iron, Total	7.15	0.0500	0.0191	
7439-92-1	Lead, Total	0.00226	0.00100	0.00034	
7439-95-4	Magnesium, Total	17.4	0.0700	0.0242	
7440-02-0	Nickel, Total	0.04278	0.00200	0.00055	
7440-09-7	Potassium, Total	2.43	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	115.	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	0.00198	0.00500	0.00157	J
7440-66-6	Zinc, Total	0.00728	0.01000	0.00341	J



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-01
 Client ID : 1-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,6020B
 Lab File ID : WG1269465.pdf
 Sample Amount : 50ml
 Digestion Method : EPA 3005A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 22:42
 Dilution Factor : 50
 Analyst : AM
 Instrument ID : ICPMSQ
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-96-5	Manganese, Total	0.7723	0.05000	0.02200	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934402-02
Client ID : 2-OS
Sample Location : RAMAPO
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269465.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : 08/01/19 09:25
Date Received : 08/01/19
Date Analyzed : 08/07/19 22:47
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	157.6	0.5400	NA	
7429-90-5	Aluminum, Total	0.735	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00191	0.00050	0.00016	
7440-39-3	Barium, Total	0.04815	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	33.0	0.100	0.0394	
7440-47-3	Chromium, Total	0.00229	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.00998	0.00050	0.00016	
7440-50-8	Copper, Total	0.00315	0.00100	0.00038	
7439-89-6	Iron, Total	3.71	0.0500	0.0191	
7439-92-1	Lead, Total	0.00269	0.00100	0.00034	
7439-95-4	Magnesium, Total	18.2	0.0700	0.0242	
7439-96-5	Manganese, Total	0.4536	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00326	0.00200	0.00055	
7440-09-7	Potassium, Total	15.6	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	133.	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	0.00521	0.00500	0.00157	
7440-66-6	Zinc, Total	0.01685	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : L1934402-03
Client ID : 3-OS/I
Sample Location : RAMAPO
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269465.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : 08/01/19 08:15
Date Received : 08/01/19
Date Analyzed : 08/07/19 21:55
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	250.0	0.5400	NA	
7429-90-5	Aluminum, Total	1.12	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.00148	0.00050	0.00016	
7440-39-3	Barium, Total	0.08412	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	0.00017	0.00020	0.00005	J
7440-70-2	Calcium, Total	82.6	0.100	0.0394	
7440-47-3	Chromium, Total	8.580	0.00100	0.00017	
7440-48-4	Cobalt, Total	0.02034	0.00050	0.00016	
7440-50-8	Copper, Total	0.05900	0.00100	0.00038	
7439-89-6	Iron, Total	37.6	0.0500	0.0191	
7439-92-1	Lead, Total	0.00111	0.00100	0.00034	
7439-95-4	Magnesium, Total	10.6	0.0700	0.0242	
7439-96-5	Manganese, Total	3.728	0.00100	0.00044	
7440-02-0	Nickel, Total	1.044	0.00200	0.00055	
7440-09-7	Potassium, Total	3.71	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	52.1	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	0.02933	0.00500	0.00157	
7440-66-6	Zinc, Total	0.01908	0.01000	0.00341	



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1269662-1
Client ID : WG1269662-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269465.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/07/19 20:13
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Hardness	ND	0.5400	NA	U
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	ND	0.00050	0.00017	U
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	0.0563	0.100	0.0394	J
7440-47-3	Chromium, Total	ND	0.00100	0.00017	U
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	ND	0.00100	0.00038	U
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	ND	0.0700	0.0242	U
7439-96-5	Manganese, Total	ND	0.00100	0.00044	U
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	ND	0.100	0.0309	U
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	ND	0.100	0.0293	U
7440-28-0	Thallium, Total	ND	0.00050	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.00809	0.01000	0.00341	J



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1269662-4
Client ID : WG1269662-4 DUP
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,6020B
Lab File ID : WG1269465.pdf
Sample Amount : 50ml
Digestion Method : EPA 3005A

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : 08/06/19 11:00
Date Received : 08/06/19
Date Analyzed : 08/07/19 20:31
Dilution Factor : 1
Analyst : AM
Instrument ID : ICPMSQ
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7429-90-5	Aluminum, Total	0.118	0.0100	0.003	
7440-36-0	Antimony, Total	0.00210	0.00400	0.0004	J
7440-38-2	Arsenic, Total	0.00032	0.00050	0.0002	J
7440-39-3	Barium, Total	0.02398	0.00050	0.0002	
7440-41-7	Beryllium, Total	ND	0.00050	0.0001	U
7440-43-9	Cadmium, Total	ND	0.00020	0.0001	U
7440-47-3	Chromium, Total	ND	0.00100	0.0002	U
7440-48-4	Cobalt, Total	0.00031	0.00050	0.0002	J
7440-50-8	Copper, Total	0.00089	0.00100	0.0004	J
7439-89-6	Iron, Total	0.268	0.0500	0.019	
7439-92-1	Lead, Total	0.00042	0.00100	0.0003	J
7439-96-5	Manganese, Total	0.2350	0.00100	0.0004	
7440-02-0	Nickel, Total	0.00062	0.00200	0.0006	J
7440-09-7	Potassium, Total	2.81	0.100	0.031	
7782-49-2	Selenium, Total	ND	0.00500	0.002	U
7440-22-4	Silver, Total	ND	0.00040	0.0002	U
7440-23-5	Sodium, Total	4.00	0.100	0.029	
7440-28-0	Thallium, Total	0.00030	0.00050	0.0001	J
7440-62-2	Vanadium, Total	ND	0.00500	0.0016	U
7440-66-6	Zinc, Total	ND	0.01000	0.0034	U

Inorganic Data (Mercury Analysis)

Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-01
 Client ID : 1-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271670.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/13/19 15:44
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/09/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-02
 Client ID : 2-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271670.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 09:25
 Date Received : 08/01/19
 Date Analyzed : 08/13/19 15:46
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/09/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1

METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-03
 Client ID : 3-OS/I
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271670.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 08:15
 Date Received : 08/01/19
 Date Analyzed : 08/13/19 15:47
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/09/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1 METALS

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1270670-1
Client ID : WG1270670-1BLANK
Sample Location :
Sample Matrix : WATER
Analytical Method : 1,7470A
Lab File ID : WG1271670.pdf
Sample Amount : 25ml
Digestion Method : EPA 7470A

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : NA
Date Received : NA
Date Analyzed : 08/13/19 15:34
Dilution Factor : 1
Analyst : GD
Instrument ID : CETAC
%Solids : N/A
Date Digested : 08/09/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U



Form 1 METALS

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1270670-4
 Client ID : WG1270670-4 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 1,7470A
 Lab File ID : WG1271670.pdf
 Sample Amount : 25ml
 Digestion Method : EPA 7470A

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 07/31/19 20:50
 Date Received : 08/01/19
 Date Analyzed : 08/13/19 15:41
 Dilution Factor : 1
 Analyst : GD
 Instrument ID : CETAC
 %Solids : N/A
 Date Digested : 08/09/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
7439-97-6	Mercury, Total	ND	0.00020	0.0001	U



Wet Chemistry

Total Kjeldahl Nitrogen Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-01
 Client ID : 1-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-5-2019_07-38-28PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/05/19 20:04
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.438	0.300	0.066	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-02
 Client ID : 2-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-5-2019_07-38-28PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 09:25
 Date Received : 08/01/19
 Date Analyzed : 08/05/19 20:05
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.810	0.300	0.066	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-03
 Client ID : 3-OS/I
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-5-2019_07-38-28PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 08:15
 Date Received : 08/01/19
 Date Analyzed : 08/05/19 20:06
 Dilution Factor : 2
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.578	0.600	0.132	J



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1268514-1
 Client ID : WG1268514-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-5-2019_07-38-28PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/05/19 19:54
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	ND	0.300	0.022	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1268514-3
 Client ID : WG1268514-3 DUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,4500NH3-H
 Lab File ID : OM_8-5-2019_07-38-28PM.cs
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 07/29/19 07:41
 Date Received : 08/01/19
 Date Analyzed : 08/05/19 20:08
 Dilution Factor : 1
 Analyst : AT
 Instrument ID : LACHAT
 %Solids : N/A
 Date Digested : 08/05/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
NONE	Nitrogen, Total Kjeldahl	0.704	0.300	0.066	



Chemical Oxygen Demand Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-01
 Client ID : 1-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 23:43
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	28.	10	2.7	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-02
 Client ID : 2-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 09:25
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 23:43
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	26.	10	2.7	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-03
 Client ID : 3-OS/I
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 08:15
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 23:43
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	23.	10	2.7	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269764-1
 Client ID : WG1269764-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 44,410.4
 Lab File ID : WG1269764.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 23:40
 Dilution Factor : 1
 Analyst : TLH
 Instrument ID : GENSYS10VI
 %Solids : N/A
 Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	ND	10	2.7	U



Form 1
WETCHEM

Client : Sterling Environmental Eng
Project Name : TOWN OF RAMAPO LF
Lab ID : WG1269764-4
Client ID : WG1269764-4 DUP
Sample Location :
Sample Matrix : WATER
Analytical Method : 44,410.4
Lab File ID : WG1269764.csv
Sample Amount :
Digestion Method :

Lab Number : L1934402
Project Number : 20010, TASK 200
Date Collected : 07/31/19 11:00
Date Received : 07/31/19
Date Analyzed : 08/07/19 23:44
Dilution Factor : 1
Analyst : TLH
Instrument ID : GENSYS10VI
%Solids : N/A
Date Digested : 08/07/19

CAS NO.	Parameter	mg/l			Qualifier
		Results	RL	MDL	
COD	Chemical Oxygen Demand	3.6	10	2.7	J



Alkalinity Analysis

Results

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-01
 Client ID : 1-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1269470.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 05:12
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	334.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-02
 Client ID : 2-OS
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1269470.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 09:25
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 05:12
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO3/L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	403.	2.00	NA	



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : L1934402-03
 Client ID : 3-OS/I
 Sample Location : RAMAPO
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1269470.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 08:15
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 05:12
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	194.	2.00	NA	

Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269470-1
 Client ID : WG1269470-1BLANK
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1269470.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : NA
 Date Received : NA
 Date Analyzed : 08/07/19 05:12
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	ND	2.00	NA	U



Form 1

WETCHEM

Client : Sterling Environmental Eng
 Project Name : TOWN OF RAMAPO LF
 Lab ID : WG1269470-3
 Client ID : 1-OSDUP
 Sample Location :
 Sample Matrix : WATER
 Analytical Method : 121,2320B
 Lab File ID : WG1269470.csv
 Sample Amount :
 Digestion Method :

Lab Number : L1934402
 Project Number : 20010, TASK 200
 Date Collected : 08/01/19 10:20
 Date Received : 08/01/19
 Date Analyzed : 08/07/19 05:12
 Dilution Factor : 1
 Analyst : MRM
 Instrument ID :
 %Solids : N/A
 Date Digested :

CAS NO.	Parameter	mg CaCO ₃ /L			Qualifier
		Results	RL	MDL	
471-34-1	Alkalinity, Total	336.	2.00	NA	

APPENDIX E

LABORATORY ANALYTICAL RESULTS - LEACHATE / GROUNDWATER



Rockland County

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George Hoehmann
Chairman

Dianne T. Philipps, P.E.
Executive Director

August 29, 2018

TOWN OF RAMAPO

AUG 30 2018

**DEPARTMENT OF
PUBLIC WORKS**

Michael Sadowski, PE
Deputy Director
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

Re: Wastewater Analysis Report/s - 2018

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on July 25, 2018. 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 2019.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: D. T. Philipps, PE

M.R. Saber, PE

File: Ramapo Landfill (P) - 2018
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340

Orangeburg, N.Y. 10962

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

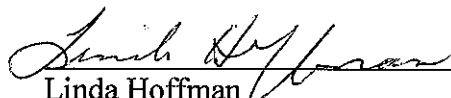
REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

MATRIX: Water DATE SAMPLED: 07/25/18 Sample ID: IS-180725-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	6.8	07/25/2018	MP	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	24	07/31/2018	MP	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	300	07/26/2018	AC	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	14	07/26/2018	AC	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.

 August 27, 2018
Linda Hoffman
Laboratory Director
NYSDOH ID No. 10447

No. of pages in this report: **13**

CHAIN OF CUSTODY DOCUMENT

FACILITY SAMPLED:

RAMAPO LANDFILL, Hillburn

(Permit No. 9 - Expired: 8/14/2020)

SEMI-ANNUAL

LOCATION SAMPLED: Manhole immediately upstream of wetwell near road

ID Format (YY - MM - DD)

SAMPLE ID NO. *IS-180425* *-RLF*

RECALIBRATION DATE: 1st

7/24/19	7/25/18

DATE: 1-7-75 7:15A

414

Buffer 4 Reading:

Buffer 7 Reading:

Buffer 10 Reading:

Slater

Buffer 7 Deadlock

*****NOTE: If the collected sample is not within the range of 5.0 - 11.0 SU, Notify the Discharger immediately.

Name of Person Notified:

Name of Person Notified: _____
If a violation, the sample collected should be brought back to the Lab for pH check.

pH: _____ Temp: 0C _____

Temp. 0C

Time: _____ Done By: _____

SAMPLE INFORMATION

COMPOSITE	DATE	TIME	SAMPLER'S SIGNATURE	pH	TEMP. (°C)	TYPE	PLASTIC OR GLASS	TOTAL # OF BOTTLES	VOLUME NEEDED mL										
START	7/24/18	10:00A	MC	7.2	23														
END	7/25/18	10:00A	MC	6.8	24														
						COMP.	PLASTIC	1	500	X									
						COMP.	PLASTIC	1	250	X									
						COMP.	PLASTIC	1	500		X								
						COMP.	PLASTIC	1	500			X							
						COMP.	PLASTIC	1	500				X						
						COMP.	PLASTIC	1	500					X					
						COMP.	PLASTIC	1	500						X				
						COMP.	PLASTIC	1	500							X			
						GRAB	PLASTIC	1	1000							X ₁			
						GRAB	AMBER	1	1000								X		
						GRAB	AMBER	1	1000									X	
						GRAB	AMBER	1	1000										
						GRAB	Glass Vial	2	40									X	
						GRAB	Glass Amber	2	1000										X
						GRAB	Glass Amber	2	1000										X

ICE IN SAMPLE COOLER? YES ☒ YES ☐ NO

SAMPLES IN PROPER CONTAINERS? YES ☒ YES ☐ NO

ICE IN SAMPLE COOLER? CIRCLE YES IF NO

SAMPLES IN PROPER CONTAINERS? YES or NO

NOTE. IF "NO" (C) 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:

23

DATE:

7125718

TIME-

11-257A

SAT

SAMPLE/S RECEIVED

DATE:

2/15/2

11

1259

COMMENTS:

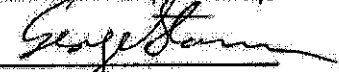
Metals (16) to be analyzed are B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, Zn

Samples Summary

Client Name: Rockland County Sewer District #1	Date of Report: 08/24/18
4 Route 340	AAT Project Number: 034816
Orangeburg, NY 10962	Client Project Name: RC180725
	Sampled by: Rockland County Sewer District #1
	Matrix: Non-Potable Water
	Date Received: 07/25/18

Parameter	Lab Sample ID	Client Sample ID	Sampling Method	Sampling Date/Time
Metals	WW-91623-1	IS-180725-RLF	Composite	07/25/18 10:00-10:00
Chloride (Cl ⁻)	WW-91623-2	IS-180725-RLF	Composite	07/25/18 10:00-10:00
Total Dissolved Solids (TDS)	WW-91623-3	IS-180725-RLF	Composite	07/25/18 10:00-10:00
Ammonia as N	WW-91623-4	IS-180725-RLF	Composite	07/25/18 10:00-10:00
Kjeldahl Nitrogen	WW-91623-5	IS-180725-RLF	Composite	07/25/18 10:00-10:00
Phosphorus Total	WW-91623-6	IS-180725-RLF	Composite	07/25/18 10:00-10:00
Cyanide, Amenable	WW-91623-7	IS-180725-RLF	Grab	07/25/18
Cyanide, Total	WW-91623-7	IS-180725-RLF	Grab	07/25/18
Formaldehyde	WW-91623-8	IS-180725-RLF	Grab	07/25/18
Pesticides/PCBs	WW-91623-9	IS-180725-RLF	Grab	07/25/18
Semivolatile Organic Compounds (SVOC)	WW-91623-10	IS-180725-RLF	Grab	07/25/18
Phenols	WW-91623-11	IS-180725-RLF	Grab	07/25/18
Oil & Grease	WW-91623-12	IS-180725-RLF	Grab	07/25/18
Total Petroleum Hydrocarbons (TPH)	WW-91623-12	IS-180725-RLF	Grab	07/25/18
Volatile Organic Compounds (VOC)	WW-91623-13	IS-180725-RLF	Grab	07/25/18

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Client Name: Rockland County Sewer District #1	Date of Report: 08/24/18
4 Route 340	AAT Project Number: 034816
Orangeburg, NY 10962	Client Project Name: RC180725
	Sampled by: Rockland County Sewer District #1
	Sampling Date: 07/25/18
	Matrix: Non-Potable Water
	Date Received: 07/25/18

Parameter	Lab Sample ID	Client Sample ID	Result	Unit	RLs	Date of Analysis	Analyst	Method
Metals	WW-91623-1	IS-180725-RLF	See Table #5	mg/L	-	-	-	-
Chloride (Cl)*	WW-91623-2	IS-180725-RLF	70.1	mg/L	3.0*	08/01/18	-	SM 19 4500CL-11
Total Dissolved Solids (TDS)*	WW-91623-3	IS-180725-RLF	360	mg/L	20*	07/31/18	-	SM 2540C-11
Ammonia as N*	WW-91623-4	IS-180725-RLF	0.22	mg/L	0.050*	08/02/18	-	EPA 350.1
Kjeldahl Nitrogen*	WW-91623-5	IS-180725-RLF	1.02	mg/L	0.100*	08/02/18	-	EPA 351.1
Phosphorus Total*	WW-91623-6	IS-180725-RLF	1.05	mg/L	0.050*	08/02/18	-	SM 4500PE-11
Total Cyanide**	WW-91623-7	IS-180725-RLF	ND	mg/L	0.0050**	08/02/18	-	SM4500 CNE 2011
Cyanide, Amenable**	WW-91623-7	IS-180725-RLF	ND	mg/L	0.010**	08/02/18	-	SM4500 CNE 2011
Formaldehyde*	WW-91623-8	IS-180725-RLF	See Attached Report	ug/L	-	-	-	-
Pesticides/PCBs	WW-91623-9	IS-180725-RLF	See Table #4	ug/L	-	-	G. Stancu	EPA 608
Semivolatile Organic Compounds (SVOC)	WW-91623-10	IS-180725-RLF	See Table #2 & 3	ug/L	-	-	G. Stancu	EPA 625
Phenols*	WW-91623-11	IS-180725-RLF	0.063	mg/L	0.015*	08/06/18	-	EPA 420.4
Oil & Grease*	WW-91623-12	IS-180725-RLF	ND	mg/L	1.5*	08/03/18	-	EPA 1664A
Total Petroleum Hydrocarbons (TPH)*	WW-91623-12	IS-180725-RLF	ND	mg/L	1.5*	08/03/18	-	EPA 1664A
Volatile Organic Compounds (VOC)	WW-91623-13	IS-180725-RLF	See Table #1	ug/L	-	-	G. Stancu	EPA 624

RLs = Laboratory Reporting/Quantitation Limit

When "****" is present immediately following the "RLs" units, the "RLs" is the Method Detection Limit (MDL).

A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs.

"B" indicates a value that is >than MDL but <than laboratory quantitation limit and the concentration is an estimated value.

Reviewed and approved by:



George Stancu
Technical Director



Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

July 30, 2018

FOR: Attn: Slava Kogan
Advanced Analytical Technologies, Inc.
37 Ramland Road
Orangeburg, NY 10962

Sample Information

Matrix: WASTE WATER
Location Code: ADV-ANA
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: LB
Analyzed by: see "By" below

Date Time

07/25/18 10:00
07/26/18 18:40

Laboratory Data

SDG ID: GCA99000
Phoenix ID: CA99000

Project ID:
Client ID: WW-91623-8

Parameter	Result	RL/ PQL	LOD/ MDL	Units	Dilution	Date/Time	By	Reference
Formaldehyde Prep by HPLC	Completed					07/27/18 00:00	Z/N	
Formaldehyde	55	50	25	ug/L	1	07/28/18 21:57	MH	E1667

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low LOD=Limit of Detection MDL=Method Detection Limit1

Comments:

If there are any questions regarding this data, please call Phoenix Client Services.
This report must not be reproduced except in full as defined by the attached chain of custody.

Phyllis Shiller, Laboratory Director

July 30, 2018

Reviewed and Released by: Bobbi Aloisa, Vice President



*Analysis was performed by Phoenix Environmental Laboratories Inc., 587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040.

NY Lab Registration #11301

*RL/PQL = Reporting/Practical Quantitation Level (Equivalent to NELAP LOQ, Limit of Quantitation)

*ND = Not Detected, BRL = Below Reporting Limit

**Analysis was performed by EnviroTest Laboratories Inc., NY Lab Id No: 10142

RL - Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g. target analyte) that can be reported with a specified degree of confidence.

Reviewed and approved by:

A handwritten signature in black ink, appearing to read "George Stafcu", is written over a horizontal line.

George Stafcu

Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 1: VOLATILE ORGANICS DATA SHEET
Method: EPA 624

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	07/25/18
Client Sample ID:	IS-180725-RLF	Date Analyzed:	08/06/18
Lab Sample ID:	WW-91623-13	Preparation Method:	EPA 624
AAT Project No:	034816	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Benzene	0.41	ND	1,1-dichloroethene	0.88	ND
Bromodichloromethane	0.25	ND	trans-1,2-dichloroethene	0.81	ND
Bromoform	0.57	ND	1,2-Dichloropropane	0.42	ND
Bromomethane	0.55	ND	cis-1,3-dichloropropene	0.59	ND
Carbon tetrachloride	0.67	ND	trans-1,3-dichloropropene	0.53	ND
Chlorobenzene	0.35	ND	Dichlorofluoromethane	0.61	ND
Chloroethane	0.39	ND	Ethylbenzene	0.28	ND
2-chloroethylvinyl ether	0.26	ND	Methylene chloride	0.46	ND
Chloroform	0.34	ND	1,1,2,2-Tetrachloroethane	0.48	ND
Chloromethane	0.68	ND	Tetrachloroethene	0.64	ND
Dibromochloromethane	0.59	ND	Toluene	0.53	ND
1,2-dichlorobenzene	0.42	ND	1,1,1-trichloroethane	0.47	ND
1,3-dichlorobenzene	0.41	ND	1,1,2-trichloroethane	0.64	ND
1,4-dichlorobenzene	0.42	ND	Trichloroethene	0.33	ND
1,1-dichloroethane	0.51	ND	Trichlorofluoromethane	0.47	ND
1,2-dichloroethane	0.32	ND	Vinyl chloride	0.50	ND

LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:



George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 2: Semivolatile Organic Compounds (Base Neutral Extractables)
Method: EPA 625

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	07/25/18
Client Sample ID:	IS-180725-RLF	Date Extracted:	07/26/18
Lab Sample ID:	WW-91623-10	Extraction Method:	EPA 625
AAT Project No.:	034816	Date Analyzed:	08/09/18
Sample Size:	1 liter	pH:	>11
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Acenaphthene	1.18	ND	Diethylphthalate	0.91	ND
Acenaphthylene	1.07	ND	Dimethylphthalate	1.20	ND
Anthracene	1.44	ND	2,4-Dinitrotoluene	0.88	ND
Benzidine	1.33	ND	2,6-Dinitrotoluene	1.13	ND
Benzo[a]anthracene	0.97	ND	Di-n-octylphthalate	0.77	ND
Benzo[b]fluoranthene	1.28	ND	Fluoranthene	0.75	ND
Benzo[a]pyrene	1.24	ND	Fluorene	1.17	ND
Benzo[g,h,i]perylene	0.98	ND	Hexachlorobenzene	1.04	ND
Benzo[k]fluoranthene	1.23	ND	Hexachlorobutadiene	1.16	ND
Bis[2-chloroethoxy]methane	1.42	ND	Hexachlorocyclopentadiene	1.94	ND
Bis[2-chloroethyl]ether	1.25	ND	Hexachloroethane	0.85	ND
Bis[2-chloroisopropyl]ether	0.97	ND	Indeno[1,2,3-cd]pyrene	0.80	ND
Bis[2-ethylhexyl]phthalate	0.29	102 J	Isophorone	1.43	ND
4-Bromophenyl-phenylether	1.05	ND	N-Nitrosodi-n-propylamine	1.23	ND
Butylbenzylphthalate	0.85	ND	N-Nitrosodimethylamine	1.31	ND
2-chloronaphthalene	1.30	ND	N-Nitrosodiphenylamine	1.21	ND
4-Chlorophenyl-phenylether	0.96	ND	Naphthalene	0.95	ND
Chrysene	1.25	ND	Nitrobenzene	1.10	ND
Di-n-Butylphthalate	1.01	ND	Phenanthrene	1.31	ND
3,3'-Dichlorobenzidine	1.14	ND	Pyrene	1.13	ND
Dibenzo[a,h]anthracene	0.84	ND	1,2,4-Trichlorobenzene	1.21	ND

LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:



George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 3: Semivolatile Organic Compounds (Acid Extractables)
Method: EPA 625

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	07/25/18
Client Sample ID:	IS-180725-RLF	Date Extracted:	07/26/18
Lab Sample ID:	WW-91623-10	Extraction Method:	EPA 625
AAT Project No.:	034816	Date Analyzed:	08/09/18
Sample Size:	1 liter	pH:	<2
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/l)	Compound Name	LOD (ug/l)	Result (ug/l)
4-Chloro-3-Methylphenol	1.52	ND	2-Nitrophenol	0.94	ND
2-Chlorophenol	1.01	ND	4-Nitrophenol	1.82	ND
2,4-Dichlorophenol	1.50	ND	Pentachlorophenol	1.87	ND
2,4-Dimethylphenol	1.31	ND	Phenol	1.39	ND
4,6-Dinitro-2-methylphenol	0.83	ND	2,4,6-Trichlorophenol	1.62	ND
2,4-Dinitrophenol	1.74	ND			

LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 4: Pesticides and PCB's
Method: EPA 608

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	07/25/18
Client Sample ID:	IS-180725-RLF	Date Extracted:	07/25/18
Lab Sample ID:	WW-91623-9	Extraction Method:	EPA 608
AAT Project No.:	034816	Date Analyzed:	08/14/18
Sample Size:	1 liter	pH:	5.0-9.0
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Aldrin	0.20	ND	Endrin	0.10	ND
Alpha-BHC	0.10	ND	Endrin aldehyde	0.20	ND
Beta-BHC	0.10	ND	Heptachlor	0.19	ND
Gamma-BHC (Lindane)	0.10	ND	Heptachlor Epoxide	0.10	ND
Delta-BHC	0.20	ND	Toxaphene	0.72	ND
Chlordane	0.72	ND	Methoxychlor	0.20	ND
4, 4'-DDD	0.20	ND	PCB-1016	0.40	ND
4, 4'-DDE	0.10	ND	PCB-1221	0.88	ND
4, 4'-DDT	0.30	ND	PCB-1232	0.88	ND
Dieldrin	0.10	ND	PCB-1242	0.81	ND
Alpha-Endosulfan	0.10	ND	PCB-1248	0.79	ND
Beta-Endosulfan	0.10	ND	PCB-1254	0.88	ND
Endosulfan sulfate	0.20	ND	PCB-1260	0.20	ND

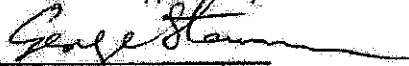
LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:



George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 5: METALS

<u>Parameter</u>	<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Result</u>	<u>Unit</u>	<u>RLs</u>	<u>Date of Analysis</u>	<u>Analyst</u>	<u>Method</u>
Antimony (Sb)*	WW-91623-1	IS-180725-RLF	ND	mg/l	0.003*	08/03/18	-	EPA 200.7
Arsenic (As)*	WW-91623-1	IS-180725-RLF	ND	mg/l	0.002*	08/03/18	-	EPA 200.7
Beryllium (Be)*	WW-91623-1	IS-180725-RLF	ND	mg/l	0.001*	08/03/18	-	EPA 200.7
Boron (B)*	WW-91623-1	IS-180725-RLF	0.100	mg/l	0.030*	08/03/18	-	EPA 200.7
Cadmium (Cd)	WW-91623-1	IS-180725-RLF	ND	mg/l**	0.001	08/13/18	G. Stancu	SM 3111 B
Chromium (Cr)	WW-91623-1	IS-180725-RLF	ND	mg/l**	0.011	08/13/18	G. Stancu	SM 3111 B
Copper (Cu)	WW-91623-1	IS-180725-RLF	0.013	mg/l	0.010	08/13/18	G. Stancu	SM 3111 B
Lead (Pb)	WW-91623-1	IS-180725-RLF	ND	mg/l**	0.016	08/13/18	G. Stancu	SM 3111 B
Manganese (Mn)	WW-91623-1	IS-180725-RLF	0.226	mg/l	0.025	08/22/18	G. Stancu	SM 3111 B
Mercury (Hg)	WW-91623-1	IS-180725-RLF	ND	mg/l	0.001	08/14/18	G. Stancu	EPA 245.1
Molybdenum (Mo)*	WW-91623-1	IS-180725-RLF	ND	mg/l	0.003*	08/03/18	-	EPA 200.7
Nickel (Ni)	WW-91623-1	IS-180725-RLF	ND	mg/l**	0.010	08/13/18	G. Stancu	SM 3111 B
Selenium (Se)*	WW-91623-1	IS-180725-RLF	ND	mg/l	0.005*	08/03/18	-	EPA 200.7
Silver (Ag)	WW-91623-1	IS-180725-RLF	ND	mg/l	0.010	08/13/18	G. Stancu	SM 3111 B
Thallium (Tl)	WW-91623-1	IS-180725-RLF	ND	mg/l**	0.033	08/13/18	G. Stancu	SM 3111 B
Zinc (Zn)	WW-91623-1	IS-180725-RLF	0.160	mg/l	0.010	08/13/18	G. Stancu	SM 3111 B
Total Metals Digestion	WW-91623-1	IS-180725-RLF	Completed	-	-	08/03/18	G. Stancu	EPA 200.2

RLs = Laboratory Reporting/Quantitation Limit

When "*" is present immediately following the "RLs" units, the "RLs" is the Method Detection Limit (MDL).

A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs

"B" indicates a value that is >than MDL but <than laboratory quantitation limit

*Analysis was performed by Phoenix Environmental Laboratories Inc., 587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040, NY Lab Registration #11301

*RL/PQL= Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation)

*ND = Not Detected, BRL = Below Reporting Limit

*Total Metals Digestion was completed on 08/02/18

Reviewed and approved by:

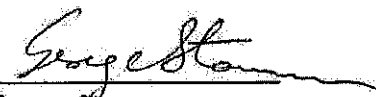


George Stancu
Technical Director

CERTIFICATION

Client Name: Rockland County Sewer District #1	Date of Report: 08/24/18
4 Route 340	AAT Project Number: 034816
Orangeburg, NY 10962	Client Project Name: RC180725
	Sampled by: Rockland County Sewer District #1
	Matrix: Non-Potable Water
	Date Received: 07/25/18

I certify under penalty of law that this document 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 systems, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



George Stancu
Technical Director



AAT
Advanced Analytical
Technologies Inc.

Company Name: ROCKLAND COUNTY SEWER DISTRICT #1						Client Project Name: RC180725						FOR LABORATORY USE ONLY PH CHECK Unpreserved 6.46, 6.79 Ascorbic HCl Vials _____ HCl Vials _____ HCl _____ HNO ₃ _____ H ₂ SO ₄ _____ NaOH 712 NaOH/Zn Acetate _____ Na ₂ S ₂ O ₃ _____ gcu					
Address: 4 ROUTE 340 ORANGEBURG, NY 10962						Client Project Number: RC180725											
Contact Name: LINDA HOFFMAN						Client Purchase Order No.: 030816											
Tel/Fax: 845-365-6626						Project Mgr. Name: LINDA HOFFMAN											
Sampler's Name/Affiliation: (Print) Linda Hoffman						Send Invoice to: LINDA HOFFMAN											
Sampler's Signature:						AAT Project No:											
SAMPLE LOCATION / FIELD ID		LAB SAMPLE ID		DATE		COLLECTION TIME		NUMBER OF PRESERVED CONTAINERS				ANALYSIS REQUESTED					
				Start	End	Sample Type	Matrix	Total	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	Other			
IS-180725-RLF		WW-91623 (1-13)		7/25/18	10:00A	X	WW	16	1					metals (16) B, Sb, As, Ba, Cd, Cr, Cu, Pb, Mn, Ni, Mo, N, Se Ag, Ti, Zn Chlorides, TDS Ammonia, TKN, total phosphorus Total + Free cyanide Formaldehyde, PCB's, pesticides Semivolatiles Toxic phenols Oils/Grease TPH, VOC's			
MATRIX CODES: DW: DRINKING WATER, GW: GROUND WATER, WW: NON POTABLE WATER, SW: SOIL, SL: SLUDGE, SOL: NON SOIL SOLID, O: OTHER																	
TURNAROUND TIME: ☒ STANDARD 2 WEEKS ☐ RUSH. LABORATORY APPROVAL REQUIRED																	
REPORT FORMAT: ☐ RESULTS ONLY ☐ NJ REDUCED ☐ ELECTRONIC DATA DELIVERABLES																	
RELINQUISHED BY (Print): Linda Hoffman				RECEIVED BY (Print): [Signature]				DATE: 7/25/18				FIELD ANALYSIS					
Signature: [Signature]				Signature: [Signature]				TIME: AM PM				SAMPLE TEMP:					
RELINQUISHED BY (Print): [Signature]				RECEIVED BY (Print): S. Logan				DATE: 7/25/18				SAMPLE pH:					
Signature: [Signature]				Signature: [Signature]				TIME: AM PM				RES CI: Yes No					
RELINQUISHED BY (Print): [Signature]				RECEIVED BY (Print): [Signature]				DATE: 7/25/18				Cooler Temp. upon receipt at lab					
Signature: [Signature]				Signature: [Signature]				TIME: AM PM				Rec'd on lot? No					

White - Original

Yellow - Laboratory Copy

Pink - Client Copy



Rockland County

Ed Day, Rockland County Executive

ROCKLAND COUNTY SEWER DISTRICT #1

4 Route 340
Orangeburg, New York 10962
Phone: (845) 365-6111 Fax: (845) 365-6686
RCSD@co.rockland.ny.us

George Hoehmann
Chairman

Dianne T. Philipps, P.E.
Executive Director

November 26, 2018

Michael Sadowski, PE
Deputy Director
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

TOWN OF RAMAPO

DEC 7 - 2018

DEPARTMENT OF
PUBLIC WORKS

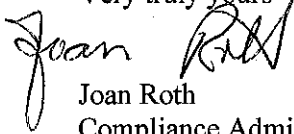
Re: Wastewater Analysis Report/s - 2018

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on October 17, 2018. 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 2019.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: D. T. Philipps, PE

M.R. Saber, PE

File: Ramapo Landfill (P) - 2018
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1

4 Route 340

Orangeburg, N.Y. 10962

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

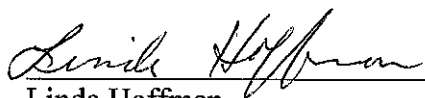
REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

MATRIX: Water DATE SAMPLED: 10/17/18 Sample ID: IS-181017-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	7.2	10/17/2018	MP	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	15	10/23/2018	MP	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	39	10/18/2018	AC	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	19	10/18/2018	AC	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 23, 2018

Linda Hoffman

Laboratory Director

NYSDOH ID No. 10447

No. of pages in this report: 12

ROCKLAND COUNTY SEWER DISTRICT #1
4 RTE 340 ORANGEBURG, NY 10962
CHAIN OF CUSTODY DOCUMENT

RAMAPO LANDFILL, Hilburn

(Permit No. 9 - Expired: 8/14/2020)

SEMI-ANNUAL

FACILITY SAMPLED:

LOCATION SAMPLED: Manhole immediately upstream of wetland near road

ID Format (YY - MM - DD)

SAMPLE ID NO. 15-181012 - RLF

PH CALIBRATION DATE: 10-16-18 10/17/18 TIME: 7:00 AM 7:15

Buffer 4 Reading: 4.01

Buffer 7 Reading: 3.50

Buffer 10 Reading: 10.00

ANALYST: 1st 2nd

Buffer 7 Reading: 10.00

*****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: 7.4 7.2

Temp: 0C

Time: Done By:

SAMPLE INFORMATION

COMPOSITE	DATE	TIME	SAMPLER'S SIGNATURE	PH	TEMP. (°C)	TYPE	PLASTIC OR GLASS	TOTAL # OF BOTTLES	VOLUME OF NEEDED mL	BOB. COB. TSS (unpreserved)	METALS (MNO ₂)	CHLORIDES (unpreserved)	TDS (unpreserved)	AMMONIA (NH ₃)	TICN (H ₂ SO ₄)	T-Phosphorous (H ₂ SO ₄)	CYANIDE (KOH)	Formaldehyde (none)	PHENOL (H ₂ SO ₄)	Oil and Grease, TPH (H ₂ SO ₄)	VOCs, EPA 604, (HCl)	SEMI-VOLATILES, EPA 605 (unpreserved)	PCBs & Pesticides (unpreserved)
START	10/16/18	9:00 A	ML	7.4	20	COMP.	PLASTIC	1	500	X													
END	10/17/18	9:00 A	ML	7.2	18	COMP.	PLASTIC	1	500														
						COMP.	PLASTIC	1	250		X												
						COMP.	PLASTIC	1	500			X											
						COMP.	PLASTIC	1	500				X										
						COMP.	PLASTIC	1	500					X									
						COMP.	PLASTIC	1	500						X								
						COMP.	PLASTIC	1	500							X							
						COMP.	PLASTIC	1	500								X						
						GRAB	PLASTIC	1	1000									X					
						GRAB	AMBER	1	1000										X				
						GRAB	AMBER	1	1000											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:

SAMPLES RECEIVED BY:

DATE: 10/17/18

DATE: 10/17/18

TIME:

TIME:

COMMENTS:

Metals (16) to be analyzed are B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Ti, Zn

Samples Summary

Client Name: Rockland County Sewer District #1	Date of Report: 11/21/18
4 Route 340	AAT Project Number: 035308
Orangeburg, NY 10962	Client Project Name: RC181017
	Sampled by: Rockland County Sewer District #1
	Matrix: Non-Potable Water
	Date Received: 10/17/18

Parameter	Lab Sample ID	Client Sample ID	Sampling Method	Sampling Date/Time
Metals	WW-92776-1	IS-181017-RLF	Composite	10/17/18 09:00-09:00
Chloride (Cl)	WW-92776-2	IS-181017-RLF	Composite	10/17/18 09:00-09:00
Total Dissolved Solids (TDS)	WW-92776-3	IS-181017-RLF	Composite	10/17/18 09:00-09:00
Ammonia as N	WW-92776-4	IS-181017-RLF	Composite	10/17/18 09:00-09:00
Kjeldahl Nitrogen	WW-92776-5	IS-181017-RLF	Composite	10/17/18 09:00-09:00
Phosphorus Total	WW-92776-6	IS-181017-RLF	Composite	10/17/18 09:00-09:00
Cyanide, Amenable	WW-92776-7	IS-181017-RLF	Grab	10/17/18
Cyanide, Total	WW-92776-7	IS-181017-RLF	Grab	10/17/18
Formaldehyde	WW-92776-8	IS-181017-RLF	Grab	10/17/18
Semivolatile Organic Compounds (SVOC)	WW-92776-9	IS-181017-RLF	Grab	10/17/18
Pesticides/PCBs	WW-92776-10	IS-181017-RLF	Grab	10/17/18
Phenols	WW-92776-11	IS-181017-RLF	Grab	10/17/18
Oil & Grease	WW-92776-12	IS-181017-RLF	Grab	10/17/18
Total Petroleum Hydrocarbons (TPH)	WW-92776-12	IS-181017-RLF	Grab	10/17/18
Volatile Organic Compounds (VOC)	WW-92776-13	IS-181017-RLF	Grab	10/17/18

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Client Name: Rockland County Sewer District #1	Date of Report: 11/21/18
4 Route 340	AAT Project Number: 035308
Orangeburg, NY 10962	Client Project Name: RC181017
	Sampled by: Rockland County Sewer District #1
	Sampling Date: 10/17/18
	Matrix: Non-Potable Water
	Date Received: 10/17/18

Parameter	Lab Sample ID	Client Sample ID	Result	Unit	RLs	Date of Analysis	Analyst	Method
Metals	WW-92776-1	IS-181017-RLF	See Table #5	mg/L	-	-	-	-
Chloride (Cl)*	WW-92776-2	IS-181017-RLF	163	mg/L	3.0*	10/29/18	-	SM 19 4500CLE-11
Total Dissolved Solids (TDS)*	WW-92776-3	IS-181017-RLF	590	mg/L	10*	10/22/18	-	SM 2540C-11
Ammonia as N*	WW-92776-4	IS-181017-RLF	2.27	mg/L	0.050*	10/30/18	-	EPA 350.1
Kjeldahl Nitrogen*	WW-92776-5	IS-181017-RLF	2.84	mg/L	0.200*	10/31/18	-	EPA 351.1
Phosphorus Total*	WW-92776-6	IS-181017-RLF	0.546	mg/L	0.010*	10/29/18	-	SM 4500PE-11
Total Cyanide**	WW-92776-7	IS-181017-RLF	ND	mg/L	0.010**	10/26/18	-	EPA 335.4 Rev1.0
Cyanide, Amenable**	WW-92776-7	IS-181017-RLF	ND	mg/L	0.010**	10/26/18	-	SM4500 CNG 2011
Formaldehyde*	WW-92776-8	IS-181017-RLF	See Attached Report	ug/L	-	-	-	-
Semivolatile Organic Compounds (SVOC)	WW-92776-9	IS-181017-RLF	See Table #2 & 3	ug/L	-	-	G. Stancu	EPA 625
Pesticides/PCBs	WW-92776-10	IS-181017-RLF	See Table #4	ug/L	-	-	G. Stancu	EPA 608
Phenols*	WW-92776-11	IS-181017-RLF	ND	mg/L	0.015*	10/27/18	-	EPA 420.4
Oil & Grease*	WW-92776-12	IS-181017-RLF	ND	mg/L	1.7*	10/29/18	-	EPA 1664A
Total Petroleum Hydrocarbons (TPH)*	WW-92776-12	IS-181017-RLF	ND	mg/L	1.7*	10/29/18	-	EPA 1664A
Volatile Organic Compounds (VOC)	WW-92776-13	IS-181017-RLF	See Table #1	ug/L	-	-	G. Stancu	EPA 624

RLs = Laboratory Reporting/Quantitation Limit

When "****" is present immediately following the "RLs" units, the "RLs" is the Method Detection Limit (MDL).

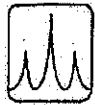
A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs.

B indicates a value that is >than MDL but < than laboratory quantitation limit and the concentration is an estimated value.

Reviewed and approved by:



George Stancu
Technical Director



AAT
Advanced Analytical
Technologies Inc.



*Analysis was performed by Phoenix Environmental Laboratories Inc., 587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040.

NY Lab Registration #11301

*RL/PQL = Reporting/Practical Quantitation Level (Equivalent to NELAP LOQ, Limit of Quantitation)

*ND = Not Detected, BRL = Below Reporting Limit

**Analysis was performed by EnviroTest Laboratories Inc., NY Lab Id No: 10142

RL - Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g. target analyte) that can be reported with a specified degree of confidence.

Reviewed and approved by:

George Sfancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 1: VOLATILE ORGANICS DATA SHEET
Method: EPA 624

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	10/17/18
Client Sample ID:	IS-181017-RLF	Date Analyzed:	10/23/18
Lab Sample ID:	WW-92776-13	Preparation Method:	EPA 624
AAT Project No.:	035308	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Benzene	0.41	ND	1,1-dichloroethene	0.88	ND
Bromodichloromethane	0.25	ND	trans-1,2-dichloroethene	0.81	ND
Bromoform	0.57	ND	1,2-Dichloropropane	0.42	ND
Bromomethane	0.55	ND	cis-1,3-dichloropropene	0.59	ND
Carbon tetrachloride	0.67	ND	trans-1,3-dichloropropene	0.53	ND
Chlorobenzene	0.35	ND	Dichlorofluoromethane	0.61	ND
Chloroethane	0.39	ND	Ethylbenzene	0.28	ND
2-chloroethylvinyl ether	0.26	ND	Methylene chloride	0.46	ND
Chloroform	0.34	ND	1,1,2,2-Tetrachloroethane	0.48	ND
Chloromethane	0.68	ND	Tetrachloroethene	0.64	ND
Dibromochloromethane	0.59	ND	Toluene	0.53	ND
1,2-dichlorobenzene	0.42	ND	1,1,1-trichloroethane	0.47	ND
1,3-dichlorobenzene	0.41	ND	1,1,2-trichloroethane	0.64	ND
1,4-dichlorobenzene	0.42	ND	Trichloroethene	0.33	ND
1,1-dichloroethane	0.51	ND	Trichlorofluoromethane	0.47	ND
1,2-dichloroethane	0.32	ND	Vinyl chloride	0.50	ND

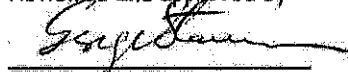
LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection.

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value.

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:



George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 2: Semivolatile Organic Compounds (Base Neutral Extractables)
Method: EPA 625

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	10/17/18
Client Sample ID:	IS-181017-RLF	Date Extracted:	10/22/18
Lab Sample ID:	WW-92776-9	Extraction Method:	EPA 625
AAT Project No.:	035308	Date Analyzed:	11/20/18
Sample Size:	1 liter	pH:	>11
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Acenaphthene	1.18	ND	Diethylphthalate	0.91	1.26 J
Acenaphthylene	1.07	ND	Dimethylphthalate	1.20	ND
Anthracene	1.44	ND	2,4-Dinitrotoluene	0.88	ND
Benzidine	1.33	ND	2,6-Dinitrotoluene	1.13	ND
Benzo[a]anthracene	0.97	ND	Di-n-octylphthalate	0.77	ND
Benzo[b]fluoranthene	1.28	ND	Fluoranthene	0.75	ND
Benzo[a]pyrene	1.24	ND	Fluorene	1.17	ND
Benzo[g,h,i]perylene	0.98	ND	Hexachlorobenzene	1.04	ND
Benzo[k]fluoranthene	1.23	ND	Hexachlorobutadiene	1.16	ND
Bis[2-chloroethoxy]methane	1.42	ND	Hexachlorocyclopentadiene	1.94	ND
Bis[2-chloroethyl]ether	1.25	ND	Hexachloroethane	0.85	ND
Bis[2-chloroisopropyl]ether	0.97	ND	Indeno[1,2,3-cd]pyrene	0.80	ND
Bis[2-ethylhexyl]phthalate	0.29	ND	Isophorone	1.43	ND
4-Bromophenyl-phenylether	1.05	ND	N-Nitrosodi-n-propylamine	1.23	ND
Butylbenzylphthalate	0.85	ND	N-Nitrosodimethylamine	1.31	ND
2-chloronaphthalene	1.30	ND	N-Nitrosodiphenylamine	1.21	ND
4-Chlorophenyl-phenylether	0.96	ND	Naphthalene	0.95	ND
Chrysene	1.25	ND	Nitrobenzene	1.10	ND
Di-n-Butylphthalate	1.01	ND	Phenanthrene	1.31	ND
3,3'-Dichlorobenzidine	1.14	ND	Pyrene	1.13	ND
Dibenzo[a,h]anthracene	0.84	ND	1,2,4-Trichlorobenzene	1.21	ND

LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:



George Stancu

Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 3: Semivolatile Organic Compounds (Acid Extractables)
Method: EPA 625

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	10/17/18
Client Sample ID:	IS-181017-RLF	Date Extracted:	10/22/18
Lab Sample ID:	WW-92776-9	Extraction Method:	EPA 625
AAT Project No.:	Q35308	Date Analyzed:	11/20/18
Sample Size:	1 liter	pH:	<2
Matrix:	Non-Potable Water	Dilution Factor:	1

<u>Compound Name</u>	<u>LOD</u> <u>(ug/L)</u>	<u>Result</u> <u>(ug/L)</u>	<u>Compound Name</u>	<u>LOD</u> <u>(ug/L)</u>	<u>Result</u> <u>(ug/L)</u>
4-Chloro-3-Methylphenol	1.52	ND	2-Nitrophenol	0.94	ND
2-Chlorophenol	1.01	ND	4-Nitrophenol	1.82	ND
2,4-Dichlorophenol	1.50	ND	Pentachlorophenol	1.87	ND
2,4-Dimethylphenol	1.31	ND	Phenol	1.39	ND
4,6-Dinitro-2-methylphenol	0.83	ND	2,4,6-Trichlorophenol	1.62	ND
2,4-Dinitrophenol	1.74	ND			

LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 4: Pesticides and PCB's
Method: EPA 608

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	10/17/18
Client Sample ID:	IS-181017-RLF	Date Extracted:	10/22/18
Lab Sample ID:	WW-92776-10	Extraction Method:	EPA 608
AAT Project No.:	035308	Date Analyzed:	11/19/18
Sample Size:	1 liter	pH:	5.0-9.0
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Aldrin	0.20	ND	Endrin	0.10	ND
Alpha-BHC	0.10	ND	Endrin aldehyde	0.20	ND
Beta-BHC	0.10	ND	Heptachlor	0.19	ND
Gamma-BHC (Lindane)	0.10	ND	Heptachlor Epoxide	0.10	ND
Delta-BHC	0.20	ND	Toxaphene	0.72	ND
Chlordane	0.72	ND	Methoxychlor	0.20	ND
4,4'-DDD	0.20	ND	PCB-1016	0.40	ND
4,4'-DDE	0.10	ND	PCB-1221	0.88	ND
4,4'-DDT	0.30	ND	PCB-1232	0.88	ND
Dieldrin	0.10	ND	PCB-1242	0.81	ND
Alpha-Endosulfan	0.10	ND	PCB-1248	0.79	ND
Beta-Endosulfan	0.10	ND	PCB-1254	0.88	ND
Endosulfan sulfate	0.20	ND	PCB-1260	0.20	ND

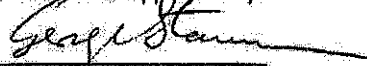
LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 5: METALS

<u>Parameter</u>	<u>Lab Sample ID</u>	<u>Client Sample ID</u>	<u>Result</u>	<u>Unit</u>	<u>RLs</u>	<u>Date of Analysis</u>	<u>Analyst</u>	<u>Method</u>
Antimony (Sb)*	WW-92776-1	IS-181017-RLF	ND	mg/l	0.003*	10/30/18	-	EPA 200.7
Arsenic (As)*	WW-92776-1	IS-181017-RLF	ND	mg/l	0.002*	10/30/18	-	EPA 200.7
Beryllium (Be)*	WW-92776-1	IS-181017-RLF	ND	mg/l	0.001*	10/30/18	-	EPA 200.7
Boron (B)*	WW-92776-1	IS-181017-RLF	ND	mg/l	0.030*	10/30/18	-	EPA 200.7
Cadmium (Cd)	WW-92776-1	IS-181017-RLF	ND	mg/l**	0.001	11/01/18	G. Stancu	SM 3111 B
Chromium (Cr)	WW-92776-1	IS-181017-RLF	ND	mg/l**	0.011	11/08/18	G. Stancu	SM 3111 B
Copper (Cu)	WW-92776-1	IS-181017-RLF	0.032	mg/l	0.010	11/01/18	G. Stancu	SM 3111 B
Lead (Pb)	WW-92776-1	IS-181017-RLF	ND	mg/l**	0.016	11/08/18	G. Stancu	SM 3111 B
Manganese (Mn)	WW-92776-1	IS-181017-RLF	1.31	mg/l	0.025	11/01/18	G. Stancu	SM 3111 B
Mercury (Hg)	WW-92776-1	IS-181017-RLF	ND	mg/l	0.001	10/24/18	G. Stancu	EPA 245.1
Total Mercury Digestion	WW-92776-1	IS-181017-RLF	Completed	-	-	10/24/18	G. Stancu	EPA 245.1
Molybdenum (Mo)*	WW-92776-1	IS-181017-RLF	ND	mg/l	0.003*	10/30/18	-	EPA 200.7
Nickel (Ni)	WW-92776-1	IS-181017-RLF	ND	mg/l**	0.010	11/08/18	G. Stancu	SM 3111 B
Selenium (Se)*	WW-92776-1	IS-181017-RLF	ND	mg/l	0.005*	10/30/18	-	EPA 200.7
Silver (Ag)	WW-92776-1	IS-181017-RLF	ND	mg/l	0.010	11/01/18	G. Stancu	SM 3111 B
Thallium (Tl)	WW-92776-1	IS-181017-RLF	ND	mg/l**	0.033	11/08/18	G. Stancu	SM 3111 B
Zinc (Zn)	WW-92776-1	IS-181017-RLF	0.040	mg/l	0.010	11/01/18	G. Stancu	SM 3111 B
Total Metals Digestion	WW-92776-1	IS-181017-RLF	Completed	-	-	10/25/18	G. Stancu	EPA 200.2

RLs = Laboratory Reporting/Quantitation Limit

When "ND" is present immediately following the "RLs" units, the "RLs" is the Method Detection Limit (MDL).

A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs

"B" indicates a value that is >than MDL but < than laboratory quantitation limit

*Analysis was performed by Phoenix Environmental Laboratories Inc., 587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040, NY Lab Registration #11301

*RL/PQL= Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation)

*ND = Not Detected; BRL = Below Reporting Limit

*Total Metals Digestion was completed on 10/29/18

Reviewed and approved by:

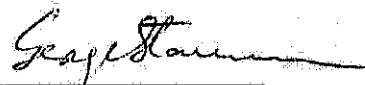


George Stancu
Technical Director

CERTIFICATION

Client Name: Rockland County Sewer District #1	Date of Report: 11/21/18
4 Route 340	AAT Project Number: 035308
Orangeburg, NY 10962	Client Project Name: RC181017
	Sampled by: Rockland County Sewer District #1
	Matrix: Non-Potable Water
	Date Received: 10/17/18

I certify under penalty of law that this document 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 systems, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


George Stancu
Technical Director

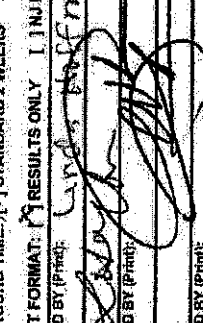
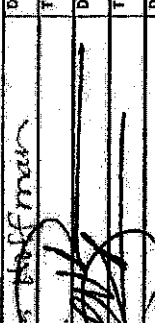
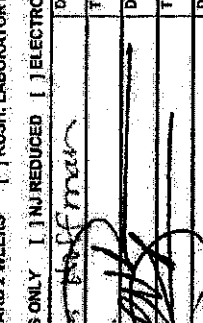
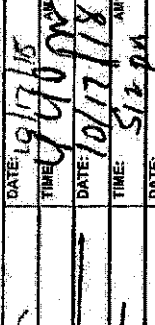
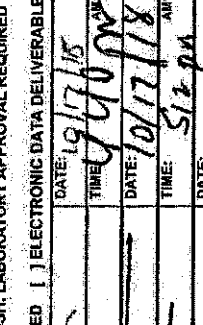
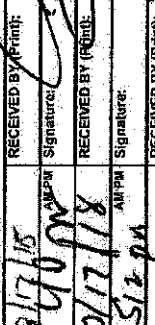
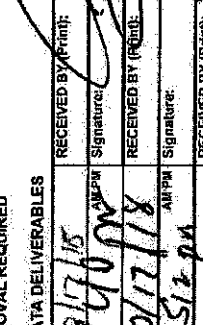


NELAP CERTIFIED NY LAB ID: 11713, NUDEP LAB ID: NY100

CHAIN OF CUSTODY

PAGE 1 OF 1

MM 92776-1-13

Company Name: ROCKLAND COUNTY SEWER DISTRICT #1 Address: 4 ROUTE 340 ORANGEBURG, NY 10962 Contact Name: LINDA HOFFMAN Tel/Fax: 845-365-6626 Sampler's Name/Affiliation: (Print)		Client Project Name: RC181017- Client Project Number: RC181017 Client Purchase Order No: Project Mgr. Name: LINDA HOFFMAN Send Invoice to: LINDA HOFFMAN AAT Project No: 035308		FOR LABORATORY USE ONLY PRESERVATION Unpreserved _____ pH REC: 7.08, 6.65 Ascorbic/HCl Vials _____ HCl Vials _____ HCl _____ HNO ₃ _____ H ₂ SO ₄ _____ NaOH _____ NaOH/Zn Acetate _____ Na ₂ S ₂ O ₃ _____	
LAB SAMPLE ID IS 181017- KLF WW 9277b (1-13)		COLLECTION DATE: 10/17/18 TIME: 9:00 AM Start: 9:00 AM End: 9:00 AM		NUMBER OF PRESERVED CONTAINERS NONE: 1 HNO ₃ : 1 H ₂ SO ₄ : 1 NaOH: 1 Na ₂ S ₂ O ₃ : 1 OTHER:	
SAMPLE LOCATION / FIELD ID IS 181017- KLF WW 9277b (1-13)		ANALYSIS REQUESTED Metals (16) B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, As, Ti, Zn Chlorides, TDS Ammonia, TKN, +-phosphorus Total Free Cyanide Formaldehydes, Semivolatiles PCB's Pesticides Anals Oil/Grease, TPH, VOC's		SPECIAL INSTRUCTIONS 	
MATRIX CODES: DW: DRINKING WATER, GW: GROUND WATER, WW: NON POTABLE WATER, SW: SOIL, SL: SLUDGE, SOL: NON SOIL SOLID, O: OTHER					
TURNAROUND TIME: X1 STANDARD 2 WEEKS 1 RUSH, LABORATORY APPROVAL REQUIRED REPORT FORMAT: X1 RESULTS ONLY 1 NJ REDUCED 1 ELECTRONIC DATA DELIVERABLES					
RELINQUISHED BY (Print): Linda Hoffman Signature: 		RECEIVED BY (Print): Linda Hoffman Signature: 		DATE: 10/17/18 TIME: 9:00 AM	
RELINQUISHED BY (Print): Linda Hoffman Signature: 		RECEIVED BY (Print): Linda Hoffman Signature: 		DATE: 10/17/18 TIME: 9:00 AM	
RELINQUISHED BY (Print): Linda Hoffman Signature: 		RECEIVED BY (Print): Linda Hoffman Signature: 		DATE: 10/17/18 TIME: 9:00 AM	
RELINQUISHED BY (Print): Linda Hoffman Signature: 		RECEIVED BY (Print): Linda Hoffman Signature: 		DATE: 10/17/18 TIME: 9:00 AM	

White - Original

Yellow - Laboratory Copy

Pink - Client Copy

ROCKLAND COUNTY SEWER DISTRICT #1

4 Route 340
Orangeburg, New York 10962
Phone: (845) 365-6111 Fax: (845) 365-6686
RCSD@co.rockland.ny.us

George Hoehmann
Chairman

Dianne T. Philipps, P.E.
Executive Director

June 26, 2019

Michael Sadowski, PE
Deputy Director
Town of Ramapo, DPW
Pioneer Avenue
Tallman, N.Y. 10982

TOWN OF RAMAPO

JUL - 1 2019

**DEPARTMENT OF
PUBLIC WORKS**

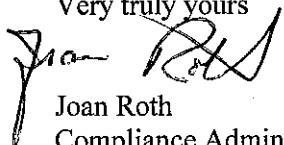
Re: Wastewater Analysis Report/s - 2019

Dear Mr. Sadowski:

Enclosed is the analysis report/s for the sample/s collected from your facility on May 15, 2019. 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 2020.

Should you have any questions or need additional information please call this office.

Very truly yours



Joan Roth
Compliance Administrator

Encl

CC: D. T. Philipps, PE

M.R. Saber, PE

File: Ramapo Landfill (P) - 2019
Reader

ROCKLAND COUNTY SEWER DISTRICT NO. 1
4 Route 340
Orangeburg, N.Y. 10962

PRETREATMENT PROGRAM - SAMPLE ANALYSIS REPORT

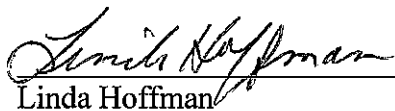
REPORT FOR: RAMAPO LANDFILL, HILBURN, NY

LOCATION SAMPLED: Manhole Immediately Upstream of Wetwell

MATRIX: Water DATE SAMPLED: 05/15/19 Sample ID: IS-190514-RLF

PARAMETER	RESULTS	DATE OF ANALYSIS	ANALYST INITIALS	METHOD AS PER 40CFR
pH	6.4	05/15/19	SH	SM 4500-H-B
BIOCHEMICAL OXYGEN DEMAND (mg/L)	2	05/20/2019	SH	SM 5210 B
CHEMICAL OXYGEN DEMAND (mg/L)	35	05/15/2019	BC	SM 5220 D
TOTAL SUSPENDED SOLIDS (mg/L)	2	05/16/2019	BC	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 25, 2019

Linda Hoffman

Laboratory Director

NYSDOH ID No. 10447

No. of pages in this report: 11

CHAIN OF CUSTODY DOCUMENT

RAMAPO LANDFILL, Hillburn

(Permit No. 9 - Expired: 8/14/2020)

SENTENCES

LOCATION SAMPLED: Manhole immediately upstream of wetwell near road

DD Format (YY - MM - DD)

SAMPLE ID NO. IS-1907184 -RLF

pH CALIBRATION DATE: 1st 5/14/15 2nd 5/15/19

2025-01-07

Buffer 4 Reading: 4.00
Buffer 7 Reading: 1.01

*****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 NEEDED mL
START	5/14/19	9:20A	[Signature]	7.25	12.4				
END	5/15/19	8:33P	[Signature]	6.37	12.5				

ICE IN SAMPLE COOLER? YES or NO
 SAMPLES IN PROPER CONTAINERS? YES or NO

ICE 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 RELINOLISHED BY:

DATE: 5/15/09

75716

SAMPLES RECEIVED BY:

DATE: 2/15/09

TIME: 1:30 PM

COMMENTS:

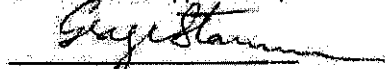
Metals (16) to be analyzed are B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, Zn

Samples Summary

Client Name: Rockland County Sewer District #1	Date of Report: 06/18/19
4 Route 340	AAT Project Number: 036135
Orangeburg, NY 10962	Client Project Name: RC190515
	Sampled by: Rockland County Sewer District #1
	Matrix: Non-Potable Water
	Date Received: 05/15/19

Parameter	Lab Sample ID	Client Sample ID	Sampling Method	Sampling Date/Time
Metals	WW-94972-1	IS-190514-RLF	Composite	05/15/19 09:20-08:33
Chloride (Cl ⁻)	WW-94972-2	IS-190514-RLF	Composite	05/15/19 09:20-08:33
Total Dissolved Solids (TDS)	WW-94972-3	IS-190514-RLF	Composite	05/15/19 09:20-08:33
Ammonia as N	WW-94972-4	IS-190514-RLF	Composite	05/15/19 09:20-08:33
Kjeldahl Nitrogen	WW-94972-5	IS-190514-RLF	Composite	05/15/19 09:20-08:33
Phosphorus Total	WW-94972-6	IS-190514-RLF	Composite	05/15/19 09:20-08:33
Cyanide, Amenable	WW-94972-7	IS-190514-RLF	Grab	05/15/19 08:33
Cyanide, Total	WW-94972-7	IS-190514-RLF	Grab	05/15/19 08:33
Formaldehyde	WW-94972-8	IS-190514-RLF	Grab	05/15/19 08:33
Semivolatile Organic Compounds (SVOC)	WW-94972-9	IS-190514-RLF	Grab	05/15/19 08:33
Pesticides/PCBs	WW-94972-10	IS-190514-RLF	Grab	05/15/19 08:33
Phenols	WW-94972-11	IS-190514-RLF	Grab	05/15/19 08:33
Oil & Grease	WW-94972-12	IS-190514-RLF	Grab	05/15/19 08:33
Total Petroleum Hydrocarbons (TPH)	WW-94972-12	IS-190514-RLF	Grab	05/15/19 08:33
Volatile Organic Compounds (VOC)	WW-94972-13	IS-190514-RLF	Grab	05/15/19 08:33

Reviewed and approved by:



George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Client Name: Rockland County Sewer District #1	Date of Report: 06/18/19
4 Route 340	AAT Project Number: 036135
Orangeburg, NY 10962	Client Project Name: RC190515
	Sampled by: Rockland County Sewer District #1
	Sampling Date: 05/15/19
	Matrix: Non-Potable Water
	Date Received: 05/15/19

Parameter	Lab Sample ID	Client Sample ID	Result	Unit	RLs	Date of Analysis	Analyst	Method
Metals	WW-94972-1	IS-190514-RLF	See Table #5	mg/L	-	-	-	-
Chloride (Cl)*	WW-94972-2	IS-190514-RLF	123	mg/L	3.0*	05/17/19	-	SM 19 4500CLE-11
Total Dissolved Solids (TDS)*	WW-94972-3	IS-190514-RLF	470	mg/L	10*	05/20/19	-	SM 2540C-11
Ammonia as N*	WW-94972-4	IS-190514-RLF	0.280	mg/L	0.050*	05/18/19	-	EPA 350.1
Kjeldahl Nitrogen*	WW-94972-5	IS-190514-RLF	0.480	mg/L	0.100*	05/21/19	-	EPA 351.1
Phosphorus Total*	WW-94972-6	IS-190514-RLF	3.92	mg/L	0.250*	05/20/19	-	SM 4500PE-11
Cyanide, Amenable**	WW-94972-7	IS-190514-RLF	ND	mg/L	0.0050**	05/28/19	-	SM 4500CN G-2011
Total Cyanide**	WW-94972-7	IS-190514-RLF	ND	mg/L	0.0020**	05/29/19	-	KELADA-01
Formaldehyde*	WW-94972-8	IS-190514-RLF	See Attached Report	ug/L	-	-	-	-
Semivolatile Organic Compounds (SVOC)	WW-94972-9	IS-190514-RLF	See Table #2 & 3	ug/L	-	-	G. Stancu	EPA 625
Pesticides/PCBs	WW-94972-10	IS-190514-RLF	See Table #4	ug/L	-	-	G. Stancu	EPA 608
Phenols*	WW-94972-11	IS-190514-RLF	ND	mg/L	0.015*	05/20/19	-	EPA 420.4
Oil & Grease**	WW-94972-12	IS-190514-RLF	ND	mg/L	1.9**	05/28/19	-	EPA 1664B
Total Petroleum Hydrocarbons (TPH)*	WW-94972-12	IS-190514-RLF	ND	mg/L	1.9**	05/28/19	-	EPA 1664B
Volatile Organic Compounds (VOC)	WW-94972-13	IS-190514-RLF	See Table #1	ug/L	-	-	G. Stancu	EPA 624

*Analysis was performed by Phoenix Environmental Laboratories Inc., 587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040.

NY Lab Registration #11301

*RL/PQL = Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation)

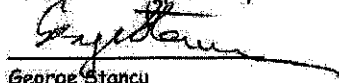
**ND = Not Detected, BRL = Below Reporting Limit

**Analysis was performed ALS Environmental, 301 Fulling Mill Road, Middletown, PA 17057, NY Lab Certification No: NY 11759

**RDL = Reporting Detection Limit

**ND = Not Detected - Indicates that the analyte was Not Detected at the RDL

Reviewed and approved by:


George Stancu
Technical Director



Environmental Laboratories, Inc.
537 East Middle Turnpike, P.O. Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823



Analysis Report

May 22, 2019

FOR: Attn: Slava Kogan
Advanced Analytical Technologies, Inc.
37 Ramland Road
Orangeburg, NY 10962

Sample Information

Matrix: WASTE WATER
Location Code: ADV-ANA
Rush Request: Standard
P.O.#:

Custody Information

Collected by:
Received by: CP
Analyzed by: see "By" below

Date Time

05/15/19 8:33
05/16/19 18:13

Laboratory Data

SDG ID: GCD16298
Phoenix ID: CD16298

Project ID:
Client ID: WW-94972-8

Parameter	Result	RL/ PQL	LOD/ MDL	Units	Dilution	Date/Time	By	Reference
Formaldehyde Prep by HPLC	Completed					05/16/19 00:00	Z/N	
Formaldehyde	ND	50	25	ug/L	1	05/17/19 18:59	MH	E1667

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL
BRL=Below Reporting Level L=Biased Low LOD=Limit of Detection MDL=Method Detection Limit

Comments:

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200.
The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Phyllis Shiller, Laboratory Director

May 22, 2019

Reviewed and Released by: Kathleen Cressia, QA/QC Officer

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 1: VOLATILE ORGANICS DATA SHEET
Method: EPA 624

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	05/15/19 08:33
Client Sample ID:	IS-190514-RLF	Date Analyzed:	05/20/19
Lab Sample ID:	WW-94972-13	Preparation Method:	EPA 624
AAT Project No.:	036135	Dilution Factor:	1:2

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Benzene	0.82	ND	1,1-dichloroethene	1.76	ND
Bromodichloromethane	0.50	ND	trans-1,2-dichloroethene	1.62	ND
Bromoform	1.14	ND	1,2-Dichloropropane	0.84	ND
Bromomethane	1.10	ND	cis-1,3-dichloropropene	1.18	ND
Carbon tetrachloride	1.34	ND	trans-1,3-dichloropropene	1.06	ND
Chlorobenzene	0.70	ND	Dichlorofluoromethane	1.22	ND
Chloroethane	0.78	ND	Ethylbenzene	0.56	ND
2-chloroethylvinyl ether	0.52	ND	Methylene chloride	0.92	2.30 J
Chloroform	0.68	1.27 J	1,1,2,2-Tetrachloroethane	0.96	ND
Chloromethane	1.36	ND	Tetrachloroethene	1.28	ND
Dibromochloromethane	1.18	ND	Toluene	1.06	ND
1,2-dichlorobenzene	0.84	ND	1,1,1-trichloroethane	0.94	ND
1,3-dichlorobenzene	0.82	ND	1,1,2-trichloroethane	1.28	ND
1,4-dichlorobenzene	0.84	ND	Trichloroethene	0.66	ND
1,1-dichloroethane	1.02	ND	Trichlorofluoromethane	0.94	ND
1,2-dichloroethane	0.64	ND	Vinyl chloride	1.00	ND

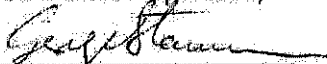
LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 2: Semivolatile Organic Compounds (Base Neutral Extractables)
Method: EPA 625

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	05/15/19 08:33
Client Sample ID:	IS-190514-RLF	Date Extracted:	05/20/19
Lab Sample ID:	WW-94972-9	Extraction Method:	EPA 625
AAT Project No.:	036135	Date Analyzed:	06/06/19
Sample Size:	1 liter	pH:	>11
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Acenaphthene	1.18	ND	Diethylphthalate	0.91	ND
Acenaphthylene	1.07	ND	Dimethylphthalate	1.20	1.38 J
Anthracene	1.44	ND	2,4-Dinitrotoluene	0.88	ND
Benzidine	1.33	ND	2,6-Dinitrotoluene	1.13	ND
Benzo[a]anthracene	0.97	ND	Di-n-octylphthalate	0.77	ND
Benzo[b]fluoranthene	1.28	ND	Fluoranthene	0.75	ND
Benzo[a]pyrene	1.24	ND	Fluorene	1.17	ND
Benzo[g,h,i]perylene	0.98	ND	Hexachlorobenzene	1.04	ND
Benzo[k]fluoranthene	1.23	ND	Hexachlorobutadiene	1.16	ND
Bis[2-chloroethoxy]methane	1.42	ND	Hexachlorocyclopentadiene	1.94	ND
Bis[2-chloroethyl]ether	1.25	ND	Hexachloroethane	0.85	ND
Bis[2-chloroisopropyl]ether	0.97	ND	Indeno[1,2,3-cd]pyrene	0.80	ND
Bis[2-ethylhexyl]phthalate	0.29	1.20 J	Isophorone	1.43	ND
4-Bromophenyl-phenylether	1.05	ND	N-Nitrosodi-n-propylamine	1.23	ND
Butylbenzylphthalate	0.85	ND	N-Nitrosodimethylamine	1.31	ND
2-chloronaphthalene	1.30	ND	N-Nitrosodiphenylamine	1.21	ND
4-Chlorophenyl-phenylether	0.96	ND	Naphthalene	0.95	ND
Chrysene	1.25	ND	Nitrobenzene	1.10	ND
Di-n-Butylphthalate	1.01	ND	Phenanthrene	1.31	ND
3,3'-Dichlorobenzidine	1.14	ND	Pyrene	1.13	ND
Dibenzof[a,h]anthracene	0.84	ND	1,2,4-Trichlorobenzene	1.21	ND

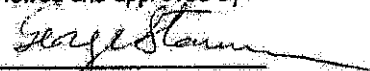
LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value.

"b" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 3: Semivolatile Organic Compounds (Acid Extractables)
Method: EPA 625

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	05/15/19 08:33
Client Sample ID:	IS-190514-RLF	Date Extracted:	05/20/19
Lab Sample ID:	WW-94972-9	Extraction Method:	EPA 625
AAT Project No.:	036135	Date Analyzed:	06/06/19
Sample Size:	1 liter	pH:	<2
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/l)	Compound Name	LOD (ug/l)	Result (ug/l)
4-Chloro-3-Methylphenol	1.52	ND	2-Nitrophenol	0.94	ND
2-Chlorophenol	1.01	ND	4-Nitrophenol	1.82	ND
2,4-Dichlorophenol	1.50	ND	Pentachlorophenol	1.87	ND
2,4-Dimethylphenol	1.31	ND	Phenol	1.39	ND
4,6-Dinitro-2-methylphenol	0.83	ND	2,4,6-Trichlorophenol	1.62	ND
2,4-Dinitrophenol	1.74	ND			

LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"b" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 4: Pesticides and PCB's
Method: EPA 608

Client Name:	Rockland County Sewer District #1	Date/Time Sampled:	05/15/19 08:33
Client Sample ID:	IS-190514-RLF	Date Extracted:	05/20/19
Lab Sample ID:	WW-94972-10	Extraction Method:	EPA 608
AAT Project No.:	036135	Date Analyzed:	06/07/19
Sample Size:	1 liter	pH:	5.0-9.0
Matrix:	Non-Potable Water	Dilution Factor:	1

Compound Name	LOD (ug/L)	Result (ug/L)	Compound Name	LOD (ug/L)	Result (ug/L)
Aldrin	0.20	ND	Endrin	0.10	ND
Alpha-BHC	0.10	ND	Endrin aldehyde	0.20	ND
Beta-BHC	0.10	ND	Heptachlor	0.19	ND
Gamma-BHC (Lindane)	0.10	ND	Heptachlor Epoxide	0.10	ND
Delta-BHC	0.20	ND	Toxaphene	0.72	ND
Chlordane	0.72	ND	Methoxychlor	0.20	ND
4, 4'-DDD	0.20	ND	PCB-1016	0.40	ND
4, 4'-DDE	0.10	ND	PCB-1221	0.88	ND
4,4'-DDT	0.30	ND	PCB-1232	0.88	ND
Dieldrin	0.10	ND	PCB-1242	0.81	ND
Alpha-Endosulfan	0.10	ND	PCB-1248	0.79	ND
Beta-Endosulfan	0.10	ND	PCB-1254	0.88	ND
Endosulfan sulfate	0.20	ND	PCB-1260	0.20	ND

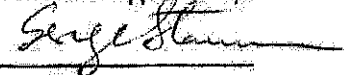
LOD = Limit of Detection

A result of "ND" indicates that the analyte was Not Detected at the Limit of Detection

"J" indicates a value that is greater than LOD but less than the lowest calibration standard and the result is an estimated value

"D" = Diluted; "B" = Compound also found in the Lab Blank

Reviewed and approved by:


George Stancu
Technical Director

ANALYTICAL REPORT
NYS DOH LABORATORY ID NO: 11713

Table 5: METALS

Parameter	Lab Sample ID	Client Sample ID	Result	Unit	RLs	Date of Analysis	Analyst	Method
Antimony (Sb)*	WW-94972-1	IS-190514-RLF	ND	mg/l	0.003*	05/20/19	-	EPA 200.7
Arsenic (As)*	WW-94972-1	IS-190514-RLF	ND	mg/l	0.002*	05/20/19	-	EPA 200.7
Beryllium (Be)*	WW-94972-1	IS-190514-RLF	ND	mg/l	0.001*	05/20/19	-	EPA 200.7
Boron (B)*	WW-94972-1	IS-190514-RLF	0.09	mg/l	0.030*	05/20/19	-	EPA 200.7
Cadmium (Cd)	WW-94972-1	IS-190514-RLF	0.009	mg/l**	0.001	05/22/19	G. Stancu	SM 3111 B
Chromium (Cr)	WW-94972-1	IS-190514-RLF	ND	mg/l**	0.011	05/22/19	G. Stancu	SM 3111 B
Copper (Cu)	WW-94972-1	IS-190514-RLF	ND	mg/l	0.010	05/31/19	G. Stancu	SM 3111 B
Lead (Pb)	WW-94972-1	IS-190514-RLF	ND	mg/l**	0.016	05/31/19	G. Stancu	SM 3111 B
Manganese (Mn)	WW-94972-1	IS-190514-RLF	0.383	mg/l	0.025	05/22/19	G. Stancu	SM 3111 B
Mercury (Hg)	WW-94972-1	IS-190514-RLF	ND	mg/l	0.001	05/30/19	G. Stancu	EPA 245.1
Molybdenum (Mo)*	WW-94972-1	IS-190514-RLF	ND	mg/l	0.003*	05/20/19	-	EPA 200.7
Nickel (Ni)	WW-94972-1	IS-190514-RLF	ND	mg/l**	0.010	05/22/19	G. Stancu	SM 3111 B
Selenium (Se)*	WW-94972-1	IS-190514-RLF	ND	mg/l	0.005*	05/20/19	-	EPA 200.7
Silver (Ag)	WW-94972-1	IS-190514-RLF	ND	mg/l	0.010	06/05/19	G. Stancu	SM 3111 B
Thallium (Tl)	WW-94972-1	IS-190514-RLF	ND	mg/l**	0.033	06/05/19	G. Stancu	SM 3111 B
Zinc (Zn)	WW-94972-1	IS-190514-RLF	0.019	mg/l	0.010	05/31/19	G. Stancu	SM 3111 B
Total Metals Digestion	WW-94972-1	IS-190514-RLF	Completed	-	-	05/20/19	G. Stancu	EPA 200.2

RLs = Laboratory Reporting/Quantitation Limit

When "*" is present immediately following the "RLs" units, the "RLs" is the Method Detection Limit (MDL).

A result of "ND" indicates the concentration of the analyte tested was either not detected or below the RLs

"B" indicates a value that is >than MDL but < than laboratory quantitation limit

** Analysis was performed ALS Environmental, 301 Fulling Mill Road, Middletown, PA 17057, NY Lab Certification No. NY 11759

**RDL - Reporting Detection Limit

**ND - Not Detected - indicates that the analyte was Not Detected at the RDL

** Sample was prepared on 05/18/19

Reviewed and approved by:

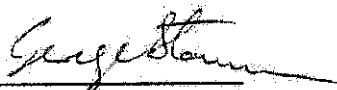


George Stancu
Technical Director

CERTIFICATION

Client Name: Rockland County Sewer District #1	Date of Report: 06/18/19
4 Route 340	AAT Project Number: 036135
Orangeburg, NY 10962	Client Project Name: RC190515
	Sampled by: Rockland County Sewer District #1
	Matrix: Non-Potable Water
	Date Received: 05/15/19

I certify under penalty of law that this document 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 systems, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



George Stancu
Technical Director

37 Ramland Road
Orangeburg, NY 10962
Tel: 201-484-7461
Fax: 845-818-3593



CHAIN OF STUDY

PAGE 1 OF 1

NELAP CERTIFIED, NY LAB ID: 11713, NJDEP LAB ID: NY-100

Company Name: ROCKLAND COUNTY SEWER DISTRICT #1		Client Project Name: RC190515	
Address: 4 ROUTE 340 ORANGEBURG, NY 10962		Client Project Number: RC190515	
Contact Name: LINDA HOFFMAN		Client Purchase Order No:	
Tel/Fax: 845-365-6626		Project Mgr. Name: LINDA HOFFMAN	
Sampler's Name/Affiliation: (Print) AS PER L. HOFFMAN (1-13)		Send Invoice to:	
Sampler's Signature:		AAT Project No: 036135	

SAMPLE LOCATION / FIELD ID	LAB SAMPLE ID	DATE	COLLECTION		NUMBER OF PRESERVED CONTAINERS										ANALYSIS REQUESTED			
			Start	End	TIME	SAMPLE TYPE	Matrix	grab	compo	grab	NONE	HNO ₃	HCl	H ₂ SO ₄		NaOH	Na ₂ SO ₄	OTHER
IS-190514-RLF-bw	WW 949725/15/19	9:20A	8:33A	X	WW 16													metals (16B, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Hg, Mo, Ni, Se, Ag, Tl, Zn)
				X														Chlorides, TDS
			8:33A	X														Ammonia, TRN, Total phosphorus
				X														Total, Free cyanide
				X														Formaldehyde, Semi volatiles
				X														ACB's Pesticides
				X														Phenols, Oil/Grease, TPH
				X														VOC's

MATRIX CODES: DW: DRINKING WATER, GW: GROUND WATER, WW: NON POTABLE WATER, SW: SOIL, SL: SLUDGE, SOL: NON SOIL, SOLID, O: OTHER

TURNAROUND TIME: X 1 STANDARD 2 WEEKS [] RUSH. LABORATORY APPROVAL REQUIRED	
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