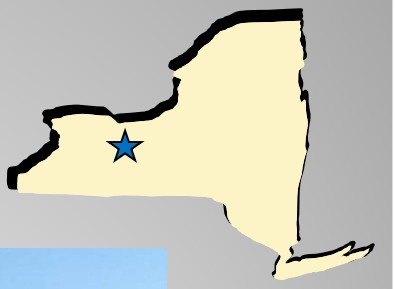
JANUARY 2015 – DECEMBER 2017
PERIODIC REVIEW REPORT

William Benson Landfill Site (826007)
Livingston County, Livonia, New York



Prepared for:

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

New York State Department of Environmental Conservation
Division of Environmental Remediation

Prepared by:

EA ENGINEERING, P.C. and Its Affiliate
EA SCIENCE and TECHNOLOGY

January 2018

This page intentionally left blank

Periodic Review Report
January 2015 – December 2017
William Benson Landfill

Town of Livonia
Livingston County, New York

Prepared for

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7012

Prepared by

EA Engineering, P.C. and Its Affiliate
EA Science and Technology
6712 Brooklawn Parkway, Suite 104
Syracuse, New York 13211
(315) 431-4610

January 2018
Version: DRAFT
EA Project No. 14907.12

This page left intentionally blank

Periodic Review Report
January 2015 – December 2017
William Benson Landfill

Town of Livonia
Livingston County, New York

Prepared for

New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, New York 12233-7012

Prepared by

EA Engineering, P.C. and Its Affiliate
EA Science and Technology
6712 Brooklawn Parkway, Suite 104
Syracuse, New York 13211
(315) 431-4610

Donald Conan, P.E. Date
Vice President

Christopher Schroer Date
Project Manager

January 2018
Version: DRAFT
EA Project No. 14907.12

This page left intentionally blank

TABLE OF CONTENTS

Page

LIST OF FIGURES iii

LIST OF TABLES iv

LIST OF ACRONYMS AND ABBREVIATIONS v

ES. EXECUTIVE SUMMARY ES-1

1. INTRODUCTION 1

1.1 SITE BACKGROUND 1

1.1.1 Site Description 1
1.1.2 Site History 1

1.2 REMEDIAL HISTORY 2

1.2.1 Summary of Remedial Actions 2
1.2.2 Remaining Contamination 3
1.2.3 Operations, Maintenance, and Monitoring Plan 3
1.2.4 Site Management Plan 3

1.3 SITE GEOLOGY AND HYDROGEOLOGY 3
1.4 SITE MANAGEMENT OBJECTIVES 4
1.5 PERIODIC REVIEW REPORT 5

2. EVALUATION OF REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS 7

2.1 MONITORING PLAN COMPLIANCE REPORT 7

2.1.1 GROUNDWATER MONITORING WELL AND PIEZOMETER MONITORING 7
2.1.2 GROUNDWATER SAMPLING PROCEDURES AND ANALYSIS 7
2.1.3 GROUNDWATER SAMPLING RESULTS 9

3. SITE INSPECTION AND SURVEY 11

3.1 LANDFILL INSPECTION AND GAS MONITORING 11

4. COST EVALUATION 13

4.1 SUMMARY OF COSTS 13

5. RECOMMENDATIONS 15

5.1 GROUNDWATER MONITORING 15
5.2 LANDFILL INSPECTION AND AIR MONITORING 15
5.3 SUMMARY 15

6. REFERENCES 17

APPENDIX A: INSTITUTIONAL/ENGINEERING CONTROL CERTIFICATION
APPENDIX B: LANDFILL INSPECTION REPORT AND GROUNDWATER FIELD FORMS
APPENDIX C: DAILY FIELD REPORTS
APPENDIX D: ANALYICAL RESULTS 2017

LIST OF FIGURES

Number	Title
1	Site Location
2	Site Layout
3	Groundwater Elevation and Predicted Flow Path October 2017

LIST OF TABLES

Number	Title
1	Historical Groundwater Elevations
2	Historical Summary of Metals/Inorganics in Groundwater Samples
3	Summary of Detected Per/Poly Fluorinated Compounds and 1,4-Dioxane in Groundwater Samples
4	Historical Landfill Monitoring 2007–2017
5	Historical Gas Vent Monitoring 2007–2017

LIST OF ACRONYMS AND ABBREVIATIONS

AWQS	Ambient Water Quality Standard
DO	Dissolved oxygen
EA	EA Engineering, P.C. and Its Affiliate EA Science and Technology
EC	Engineering control
EPA	Environmental Protection Agency
FS	Feasibility Study
ft	Feet (foot)
IC	Institutional control
IRIS	Integrated Risk Information System
NYCRR	New York Code of Rules and Regulations
NTU	Nephelometric turbidity unit
NYSDEC	New York State Department of Environmental of Conservation
OMMP	Operations, Maintenance, and Monitoring Plan
ORP	Oxidation reduction potential
PFC	Per/poly fluorinated compounds
PRR	Periodic Review Report
RI	Remedial Investigation
ROD	Record of Decision
SCG	Standards, Criteria, and Guidance
SMP	Site Management Plan
SVOC	Semi-volatile organic compound
VOC	Volatile organic compound
WBLF	William Benson Landfill

This page left intentionally blank

ES. EXECUTIVE SUMMARY

The New York State Department of Environmental Conservation (NYSDEC) tasked EA Engineering, P.C. and Its Affiliate EA Science and Technology to provide site management at the William Benson Landfill in the Town of Livonia, Livingston County, New York (**Figure 1**). This Work Assignment is conducted under the NYSDEC State Superfund Standby Contract (Work Assignment Number D007624-12) for site management from January 2015 to December 2017.

Post-closure monitoring and facility maintenance program activities were conducted at the William Benson Landfill in April 2015, June 2016, and October 2017 in accordance with New York State Solid Waste Management Facilities Regulations (6 New York State Code of Rules and Regulations Part 360-2.15[k][4]) and as stipulated in Section 8, Paragraph 3 of the Record of Decision (NYSDEC 2000).

Groundwater sampling coincided with the October 2017 landfill inspection. Site monitoring wells were inspected and observed to be in serviceable condition. Monitoring wells MW-8S and MW-8U were not located; and thus, not sampled during the October 2017 sampling event.

Landfill inspections were completed in every 15 months starting in 2015. Landfill cover material and surrounding areas were consistently observed to be in good condition with minimal human and animal disturbance. No major deterioration, damage, or erosion to cover materials, drainage swales, or access roads was noted during inspections. Some stressed vegetation was noted, but was attributed to animal activities such as grazing and bed downs.

Additionally, landfill gas concentrations were consistently within acceptable limits along the landfill perimeter and over the surface of the landfill cover material.

The landfill cover materials continue to provide protection to human health and the environment from contaminants of concern and landfill gases at this time. A completed institutional/engineering controls certification is included in **Appendix A**.

This page left intentionally blank

1. INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC) tasked EA Engineering, P.C. and Its Affiliate EA Science and Technology (EA) to provide site management at the William Benson Landfill (WBLF) in the Town of Livonia, Livingston County, New York (**Figure 1**). This Work Assignment is being conducted under the NYSDEC State Superfund Standby Contract (Work Assignment Number D007624-12) for site management from January 2015 to December 2017.

Post-closure monitoring and facility maintenance program activities were conducted at the WBLF in April 2015, June 2016, and October 2017 in accordance with New York State Solid Waste Management Facilities Regulations (6 New York State Code of Rules and Regulations [NYCRR] Part 360-2.15[k][4]) and as stipulated in Section 8, Paragraph 3 of the Record of Decision (ROD) (NYSDEC 2000).

1.1 SITE BACKGROUND

The site is located off Richmond Mills Road in the Town of Livonia, Livingston County, New York. The site is surrounded by forest and agricultural land. The WBLF is a 13-acre landfill that received hazardous waste during its operational history (approximately 1970–1984) and was not properly closed.

1.1.1 Site Description

The site is located in the Town of Livonia, Livingston County, New York and is identified as Block 6 and Lot 18.21 on the Livingston County Tax Map. The site is an approximately a 13-acre area bounded by fields to the north, south, east, and west. The site is accessed by a private drive off Richmond Mills Road (**Figure 1**).

1.1.2 Site History

The site is a historic landfill that received hazardous waste during its operational history (approximately 1970–1984). According to a 1985 Community Right-to Know survey produced by the NYSDEC, wastes disposed of at the site included 40 tons of halogenated aliphatics, halogenated aromatics, plasticizers, esters, ethers, alcohols, and inorganic salts by the Lucidol Division of Pennwalt Corporation from approximately 1970 to 1978. The survey also indicated that Pennwalt Corporation disposed an unknown quantity of organic peroxide prior to 1981. Throughout the landfilling activities, the landfill operator never obtained the Part 360 permit to operate a sanitary landfill and never closed the landfill according to the Part 360 regulations.

1.2 REMEDIAL HISTORY

A site assessment (Malcom Pirnie 1998) and a remedial investigation (RI) (Malcolm Pirnie 1999a) identified contaminants of concern including metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) in the surface and subsurface soil, leachate, and groundwater.

As described in the RI Report, soil, groundwater, leachate, surface water, and sediment samples were collected at the site to characterize the nature and extent of contamination. The categories of contaminants, which exceeded their Standards, Criteria, and Guidance (SCGs) are inorganics (metals), VOCs, SVOCs, and pesticides. The inorganic contaminants, which exceeded their SCGs, are aluminum, antimony, arsenic, barium, cadmium, iron, lead, magnesium, manganese, sodium, selenium, and zinc. The VOC contaminants, which exceeded their SCGs were benzene, toluene, ethylbenzene, xylenes; acetone; chloroethane; 1,l-dichloroethane; and methyl-ethyl-ketone. The pesticide contaminants, which exceeded SCGs are heptachlor, aldrin, 4,4'-dichlorodiphenyldichloroethylene, endrin, dieldrin, and 4,4'-dichlorodiphenyldichloroethane.

A Focused Feasibility Study (FS) was finalized in November 1999 (Malcolm Pirnie, Inc. 1999b) and recommended Alternative 4, which was the construction of a modified 6 NYCRR Part 360 cover system and implementation of a long-term monitoring plan. Based on the RI and FS, a ROD (NYSDEC 2000) was issued selecting Alternative 4. The ROD indicated that the pesticide contaminants were consistent with the concentrations that would be found in an agricultural setting and were not considered to be contaminants of concern.

1.2.1 Summary of Remedial Actions

The site was remediated in accordance with the NYSDEC-approved Remedial Action Work Plan (GeoSyntec 2002).

The following is a summary of the remedial actions performed at the site:

- Relocation and compaction of waste within landfill to achieve design grades.
- Construction and maintenance of a cover system consisting of, from waste to top, a cover foundation layer, a geosynthetic gas venting layer, a geomembrane layer, a geosynthetic drainage layer, a soil barrier protection layer, and a vegetative layer to prevent human exposure to remaining contaminated soil/fill remaining at the site and infiltration of rain water into the waste.
- Installation of gas vents within the landfill to vent built up landfill gases.
- Execution and recording of a deed restriction to restrict land use and prevent future exposure to any contamination remaining at the site.

- Other major remedial elements including all institutional controls (ICs) listed here:

  — Compliance with an Environmental Easement and the Site Management Plan (SMP) (EA 2013, 2017).

  — All ECs must be operated and maintained as specified in the SMP.

  — All ECs on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.

  — Groundwater monitoring must be performed as defined in the SMP.

  — Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP.

- Development and implementation of a SMP for long-term management of remaining contamination as required by the deed restriction, which includes plans for: (1) ICs and engineering controls (ECs), (2) monitoring, (3) operation and maintenance, and (4) reporting.

Remedial activities were substantially completed at the site in October 2003.

1.2.2 Remaining Contamination

No contaminated material was removed from the site as part of the remedial action; although, it was consolidated under a Part 360 landfill cap; the waste was not characterized. Any site contamination is the same as that prior to the remedial action.

1.2.3 Operations, Maintenance, and Monitoring Plan

An Operations, Maintenance, and Monitoring Plan (OMMP) (GeoSyntec 2004) was finalized in August 2004. The OMMP provided direction for implementation of the remedy selected by the ROD (NYSDEC 2000).

1.2.4 Site Management Plan

The SMP (EA 2007) was completed in October 2007 and detailed the future management of the WBLF. The SMP was revised in 2013 and 2017 (EA 2013, 2017) to comply with NYSDEC requirements.

1.3 SITE GEOLOGY AND HYDROGEOLOGY

The site is located on the glaciated upland area of the Appalachian Plateau physiographic province. Situated near a topographic saddle, the surface topography generally slopes to the north on the west flank of the landfill and toward the south on the east flank. Subsurface

conditions were determined from the results of 13 overburden borings completed by Malcolm Pirnie during the RI, and a total of 8 piezometers and 5 existing wells completed during previous investigations. The generalized stratigraphy of the units characterized at the site includes waste/fill, glaciolacustrine deposits, and glacial till. Waste/fill identified consisted of paper, glass, rubber, wood, and cover material.

The geologic formations that underlie Livingston County are composed of a glacial till, glaciolustrine, and glacial outwash sediments. Glacial till deposits occur as lodgement or ablation tills. Lodgment tills were deposited sub-glacially and are a dense, poorly-sorted aggregate of clay, silt, sand, and gravel. Ablation till is less dense and has a coarser clastic component due to reworking by lacustrine and fluvial sorting processes. These deposits are underlain by various types of sedimentary rock.

The bedrock of Livingston County is comprised of flat lying to gently dipping (approximately 40–50 feet [ft]/mile to the southwest) sedimentary rocks deposited during the middle- to late-Devonian period. Shales and siltstones of the Hamilton, Genesee, Sonyea, West Falls, and Java groups underlie the overburden deposits of Livingston County. Combined thickness of these middle Devonian shales is approximately 200–250 ft.

Groundwater is present in overburden at WBLF at a depth of 4–9 ft below ground surface. The water bearing aquifer beneath the site is dense sandy-silt ablation till interspersed with slightly more fine gravel than clay. Hydraulic conductivities calculated for groundwater monitoring wells ranged from a low of 8.8×10^{-7} centimeters per second to a high of 2.0×10^{-6} centimeters per second. Shallow groundwater flows generally to the northeast within the landfill, and to the northwest and east off the sides of the landfill.

1.4 SITE MANAGEMENT OBJECTIVES

Environmental monitoring points at the WBLF have been maintained and sampled during the post-closure monitoring period in accordance with the SMP (EA 2013, 2017). This included collection of groundwater samples at various locations surrounding the landfill and inspection of the landfill cover material. Sampling locations, sampling methodology, list of analytes, analytical methods, and landfill cover material inspection methodology, and site maintenance objectives are documented in the SMP.

The objectives of the post-closure monitoring and facility maintenance program are to:

- Collect representative groundwater samples in order to monitor any potential leachate migration from the landfill.
- Evaluate the data to determine whether any potential impacts may be occurring that could affect human health or the environment.
- Periodically inspect the landfill and provide minor maintenance, as necessary.

- Document and report this information to the NYSDEC.

1.5 PERIODIC REVIEW REPORT

The purpose of this Periodic Review Report (PRR) is to summarize the results of the 2017 groundwater-monitoring event and the 2015, 2016, and 2017 landfill inspection events; and to provide sufficient documentation that the remedy remains in place, is performing properly and effectively, and is protective of public health and the environment. Specifically, this report provides the following information:

- Results of groundwater monitoring
- Results of landfill gas monitoring
- Results of landfill cover and monitoring systems inspections.

This report also documents any problems or changes necessary for the site to be in compliance with the SMP (EA 2017) including removal of ICs/ECs that are no longer applicable; modifications in monitoring or OMMP (GeoSyntec 2004) requirements, as applicable; or a Corrective Action Work Plan and schedule, as necessary. A completed ICs/ECs certification is included in **Appendix A**.

This page left intentionally blank

2. EVALUATION OF REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

2.1 MONITORING PLAN COMPLIANCE REPORT

This PRR assesses whether the WBLF site has been remediated and managed as set forth in the SMP (EA 2013, 2017) and ROD (NYSDEC 2000). The Monitoring Plan includes a description of the methods and rationale to be used for assessing the remedy effectiveness, including the following elements:

- Sampling and analysis of all appropriate media (i.e., groundwater).
- Assessing compliance with applicable NYSDEC SCGs, particularly ambient water quality standards (AWQS).
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.

In 2013, the NYSDEC approved a change to no longer sample for VOCs and pesticides based on the recommendations of the PRR. Detections of site contaminants from those classes in groundwater were routinely concentrations less than SCGs.

2.1.1 GROUNDWATER MONITORING WELL AND PIEZOMETER MONITORING

The site monitoring wells and piezometers were gauged prior to the October 2017 sampling event. An independent gauging event was also performed in June 2016. Monitoring well and piezometer locations are illustrated in **Figure 2**. Monitoring wells 6S, 13S, and 13D were decommissioned during the 2010 monitoring period under direction of the NYSDEC. Monitoring wells MW-8S and MW-8D could not be located during either event. Water elevation data for all sampling events conducted as part of this Work Assignment are summarized in **Table 1**.

Groundwater elevations were calculated based on data from the shallow monitoring wells and piezometers, and used to construct the groundwater flow map for the October 2017 gauging event (**Figure 3**). Shallow groundwater flows generally to the northwest within the landfill.

2.1.2 GROUNDWATER SAMPLING PROCEDURES AND ANALYSIS

Groundwater monitoring wells were sampled in October 2017. Wells were purged using low-flow sampling techniques (peristaltic pump) and water quality readings were allowed to stabilize prior to sample collection. Monitoring well MW-8U was purged dry during the event and was allowed to recharge prior to sample collection.

Field groundwater quality parameters were collected using a water quality meter that was calibrated in accordance with manufacturer's specifications prior to use (i.e., pH, dissolved oxygen (DO), temperature, conductivity, turbidity, and oxidation-reduction potential).

Purging was considered complete once three consecutive field parameter readings satisfied the following criteria.

Turbidity	<5 Nephelometric turbidity unit (NTU), or within 10 percent of each
DO	<0.5 milligrams per liter or within 10 percent of each
Conductance	Within 3 percent of each
pH	+/- 0.1 unit
Oxidation reduction potential (ORP)	+/- 10 Millivolts (mV)

Groundwater quality data were recorded on field purging and sampling forms, and are provided in **Appendix B**. Daily field reports are provided in **Appendix C**.

Samples were submitted to Con-Test Analytical Laboratory, located in East Longmeadow, Massachusetts, for analysis of target analyte list metals using U.S. Environmental Protection Agency Method 6010; for per/poly fluorinated compound (PFC) analysis using Method SOP 434-PFAAS; and for 1,4 dioxane using Method SW-846 8270D.

Samples from three well locations were analyzed for PFCs and 1,4 dioxane as part of this sampling event. Due to the high sensitivity of these parameters and the potential sources of trace levels of PFCs, several precautions were taken to reduce the risk of false detections within samples.

The following general preparations were taken prior to and during the sampling event:

- **Food Considerations**

  — Field personnel avoided the use of paper bags, paper packaging, aluminum foil, and coated paper packaging or coated textiles to be in contact with food products.

  — Avoided eating any fried foods.

  — Did not eat snacks or meals within the immediate vicinity of the monitoring wells or inside the vehicle.

  — Removed gloves prior to eating.

  — Ate downwind of the well locations, if necessary.

- **Field Gear**

  — Field personnel avoided plastic coating or glued materials, waterproof field books/paper, pens and sharpie markers. The use of aluminum clipboards was allowed with loose-leaf paper.

  — Wore disposable nitrile gloves at all times and changed them frequently.

  — Did not wear water resistant, waterproof, or stain-treated clothing. Field clothing was laundered with minimal use of soap and no fabric softeners or scented products were used. Clothing was rinsed with water after the initial cleaning.

- **Field Vehicle**

  — The field vehicle seats were covered with a well-laundered cotton blanket for the duration of the sampling event.

- **Personal Hygiene**

  — Field personnel did not use shampoo, conditioner, hand cream, etc. as part of their personal cleaning/showering routine on the day of the sampling event. A shower the night before the sampling event, or a rinse with water the day of was acceptable.

  — Moisturizers, cosmetics, sunscreen, or insect repellent were not used throughout the duration of the sampling event.

  — Handwashing with soap was allowed and the field personnel allowed extra rinsing time with water after use of soap.

Samples were collected using a high-density polyethylene tubing. The tubing that was connected to the Horiba during the collection of water quality parameters was cut prior to sampling. Sample tubing did not touch the sample jars during sample collection.

After samples were collected, they were placed in a cooler with ice that was bagged in high-density polyethylene tubing bags for shipment to the laboratory. Groundwater samples were submitted to Con-Test Analytical Laboratory located in East Longmeadow, Massachusetts.

2.1.3 GROUNDWATER SAMPLING RESULTS

Groundwater sampling results for the October 2017 event and each previous event conducted under the previous Work Assignment were compared to NYSDEC AWQS (NYSDEC 1999) for Class GA waters. In addition, select analytes were compared to SCG values as identified in the OMMP (GeoSyntec 2004). Analytical results for metals from previous events are summarized in

Table 2. Analytical results from previous groundwater sampling events are discussed in detail within the PRR for that year.

Concentrations of metals contaminants detected in groundwater at WBLF have generally remained consistent with previous groundwater sampling events. Analytes which were detected in groundwater at concentrations greater than SCGs during the 2017 sampling event are barium (1 of 5 samples), iron (5 of 5 samples), magnesium (2 of 5 samples), and sodium (5 of 5 samples). Selenium was not detected, but the method detection limit exceeded its respective SCG. Generally, the greatest concentrations of inorganics were detected in the sample collected at groundwater monitoring well MW-8U; this is consistent with the March 2014 monitoring event. During the October 2017 sampling event, concentrations of aluminum, antimony, barium, iron, iron, magnesium, manganese, and sodium have decreased significantly in comparison to previous sampling events.

Analytical results for 1,4-dioxane are compared to the U.S. Environmental Protection Agency's (EPA) Integrated Risk Information System (IRIS) 2013 for drinking water representing a 1 x 10-6 cancer risk level. Analytical results for PFCs are compared to EPA health advisory level for drinking water, a combined concentration of perfluorooctanoic acid and perfluorooctanesulfonic acid. Results for PFCs and 1,4-Dioxane are summarized in **Table 3**. Complete analytical results for the October 2017 sampling event are included in **Appendix D**.

PFC samples and 1,4-Dioxane were collected from 3 of the 5 wells sampled. Concentrations of 1,4-Dioxane were detected above the EPAs IRIS 2013 guidance value for drinking water of 0.35 micrograms per liter (µg/L) in MW-5 (2.2 µg/L) and MW-8U (6.9 µg/L). PFC compounds were detected in all three wells (MW-5, MW-8U and MW-9D) but were not detected above the EPA health advisory level of 70 nanograms per liter for drinking water.

3. SITE INSPECTION AND SURVEY

3.1 LANDFILL INSPECTION AND GAS MONITORING

Landfill inspections were performed during April 2015, June 2016, and October 2017 to ensure that the landfill cover materials, site drainage structures, passive gas outlets, onsite monitoring wells, and general site security have been maintained and are functioning within the design standards.

Landfill cover material and surrounding areas were consistently observed to be in good condition with minimal human and animal disturbance. No major deterioration, damage, or erosion to cover materials, drainage swales, or access roads was noted during inspections. Some stressed vegetation was noted, but was attributed to animal activities such as grazing and bed downs.

In addition, monitoring wells were inspected during each event and have been observed to generally be in good condition. During the October 2017 event, GP-8 was found damaged as a tree had fallen on the well. The metal stick-up pipe and concrete pad were tipped over at a 45-degree angle. Areal flooding had filled the cracked PVC casing at the base of the well. GP-24 was previously noted as damaged, but during the October 2017 sampling event, the piezometer was missing, and therefore, not gauged. GP-12 was blocked and could not be gauged. MW-7S, GP-24 and GP-7 were not located. These locations are not sampled as part of the groundwater monitoring. MW-8S and MW-8D could not be located during the June 2016 and the October 2017 events. These wells are part of the existing monitoring well network for groundwater sampling at the site.

Landfill and vent gas monitoring activities were performed by taking readings for carbon monoxide, hydrogen sulfide, lower explosive limit, oxygen, and total VOCs from within 2 ft of the landfill cover material surface along the entire landfill perimeter and across the landfill using an approximate 100-ft on-center grid pattern. Monitoring was conducted at the passive gas vent outlets by taking a reading within 6 inches of the passive gas vent opening. Locations of passive gas vent outlets are shown in the site plan (**Figure 2**).

The landfill gas concentration readings were consistently within acceptable limits along the perimeter and over the surface of the landfill cover material. Trends of landfill gas monitoring along the landfill perimeter and cover material, as well as gas vent monitoring data, are presented in **Tables 2 and 3**, respectively. There is no indication of any landfill gas migration through the perimeter or cover material, indicating significant wear or deterioration of the material has not occurred. Landfill inspection and gas monitoring data for April 2015, June 2016, and December 2017 are included in the landfill inspection reports provided in **Appendix B**. Daily field reports from inspection events are included in **Appendix C**.

This page left intentionally blank

4. COST EVALUATION

4.1 SUMMARY OF COSTS

Total costs for site management services, including groundwater monitoring and sampling, site inspection, and monitoring well maintenance was $28,483 for the three-year reporting period. A breakdown of major costs January 2015 through December 2017 is provided in the following table.

Site Management Activity	Cost Incurred for the period of January 2015 - December 2017
Site Management and Site Management Plan (EA)	$8,582
Site Inspections, Monitoring, Sampling, Oversight, Supplies/Equipment, Travel, and Reporting (EA)	$17,546
Analytical Laboratory (Con-Test Analytical, Inc.)	$2,355

The monitoring, sampling, inspection, oversight and reporting costs, which are billed by EA, include costs associated with project management, quality assurance, and periodic reporting throughout the reporting period. These monitoring and reporting costs are based on fiscal data generated and tracked by an EA internal financial management system and includes travel expenses, equipment/supply costs, and other direct charges.

The analytical costs, billed by Con-Test Analytical Laboratory, of East Longmeadow, Massachusetts covered groundwater analyses.

This page left intentionally blank

5. RECOMMENDATIONS

5.1 GROUNDWATER MONITORING

Based on requirements for the ROD (NYSDEC 2000) and results from the previous 5 years of monitoring, groundwater monitoring should continue. Inorganics, such as iron, sodium, and magnesium are consistently detected at concentrations greater than their respective NYSDEC AWQS. At some wells (e.g., MW-8U), concentrations have been detected at an order of magnitude greater than their respective NYSDEC AWQS. However, in general, concentrations of metals have remained stable, if not slightly declining, and there is no evidence that contaminants are migrating off-site.

5.2 LANDFILL INSPECTION AND AIR MONITORING

The landfill cover material and surrounding areas were consistently observed to be in good condition with minimal human and animal encroachment during the 2015, 2016, and 2017 inspections. Although some minor areas exist where the cover material has been eroded slightly and the geo-membrane fabric has been exposed, the degree and extent of erosion has not further intensified during the monitoring program.

The field readings of landfill gas concentrations were within acceptable limits along the perimeter and over the surface of the landfill cover material. There was no indication of any landfill gas migration through the perimeter or cover material, indicating no significant wear or deterioration of the material.

5.3 SUMMARY

The following actions are recommended:

- It is recommended that the monitoring period continue once every 3 years for inorganics.
- Site management tasks should continue. Landfill inspections and gas vent monitoring should continue at once every 15 months or as needed in the event of a catastrophic weather event, which could erode the cover system. Annual mowing should continue.
- General landfill maintenance activities (e.g., mowing) are performed by the NYSDEC and should continue as needed.
- Repair/replace groundwater monitoring wells GP-8, GP-24, and GP-12.
- Locate and install flagging or visible posts for MW-7S, GP-24, GP-7, MW-8S, and MW-8D.
- Update the site survey and reestablish locations and top of casing elevations for groundwater monitoring wells and piezometers.

This page left intentionally blank

6. REFERENCES

EA. 2007. Site Management Plan William Benson Landfill (8-26-007) Livonia, New York. October.

——. 2013. SMP for the WBLF, Livonia, New York, NYSDEC Site No. 8-26-007. February.

——. 2017. SMP for the WBLF, Livonia, New York, NYSDEC Site No. 8-26-007. September.

GeoSyntec Consultants. 2002. Remedial Action Work Plan. William Benson Landfill Livingston County, New York.

——. 2004. Final Revision 2 Operation, Maintenance, and Monitoring Plan. William Benson Landfill Livingston County, New York. August.

Malcolm Pirnie, Inc. 1998. Preliminary Site Characterization Report. September.

——. 1999a. Remedial Investigation for the William Benson Landfill (Vol 1-3). March.

——. 1999b. Focused Feasibility Study for the William Benson Landfill. November.

NYSDEC. 1999. Water Quality Regulations – Surface Water and Groundwater Classifications and Standards NYCRR Title 6, Chapter X Parts 700-706.

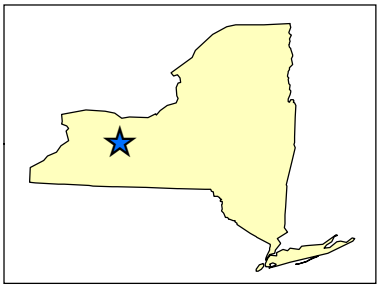
——. 2000. Record of Decision, William Benson Landfill Site, Livonia (T) Livingston County, Site Number 826007. March.

This page left intentionally blank

Figures

This page intentionally left blank

G:\Projects\State&Local\NYSDEC - D007624\D007624 - Work Assignments\14907.12 - William Benson Landfill SM\GIS\Projects\PRR\2018\Figure1_SiteLocation.mxd



0 0.125 0.25 0.5
Miles

1 inch = 0.25 miles

N

Legend

Site Boundary

Figure 1
SITE LOCATION
Periodic Review Report 2018
William Benson Landfill
Livonia, New York

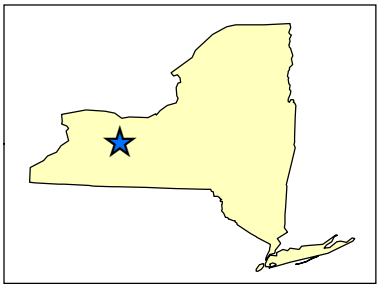
Map Date: 1/14/2018
Projection: NAD 1983 StatePlane New York West FIPS 3103 Feet

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

EA

This page intentionally left blank

G:\Projects\State&Local\NYSDEC - D007624\D007624 - Work Assignments\14907.12 - William Benson Landfill SM\GIS\Projects\PRR\2018\Figure2_SiteLayout.mxd



Legend

- Site Boundary
- Piezometer
- Monitoring Well
- Landfill Gas Vent
- Survey Control Point

0 75 150 300
Feet

1 inch = 200 feet

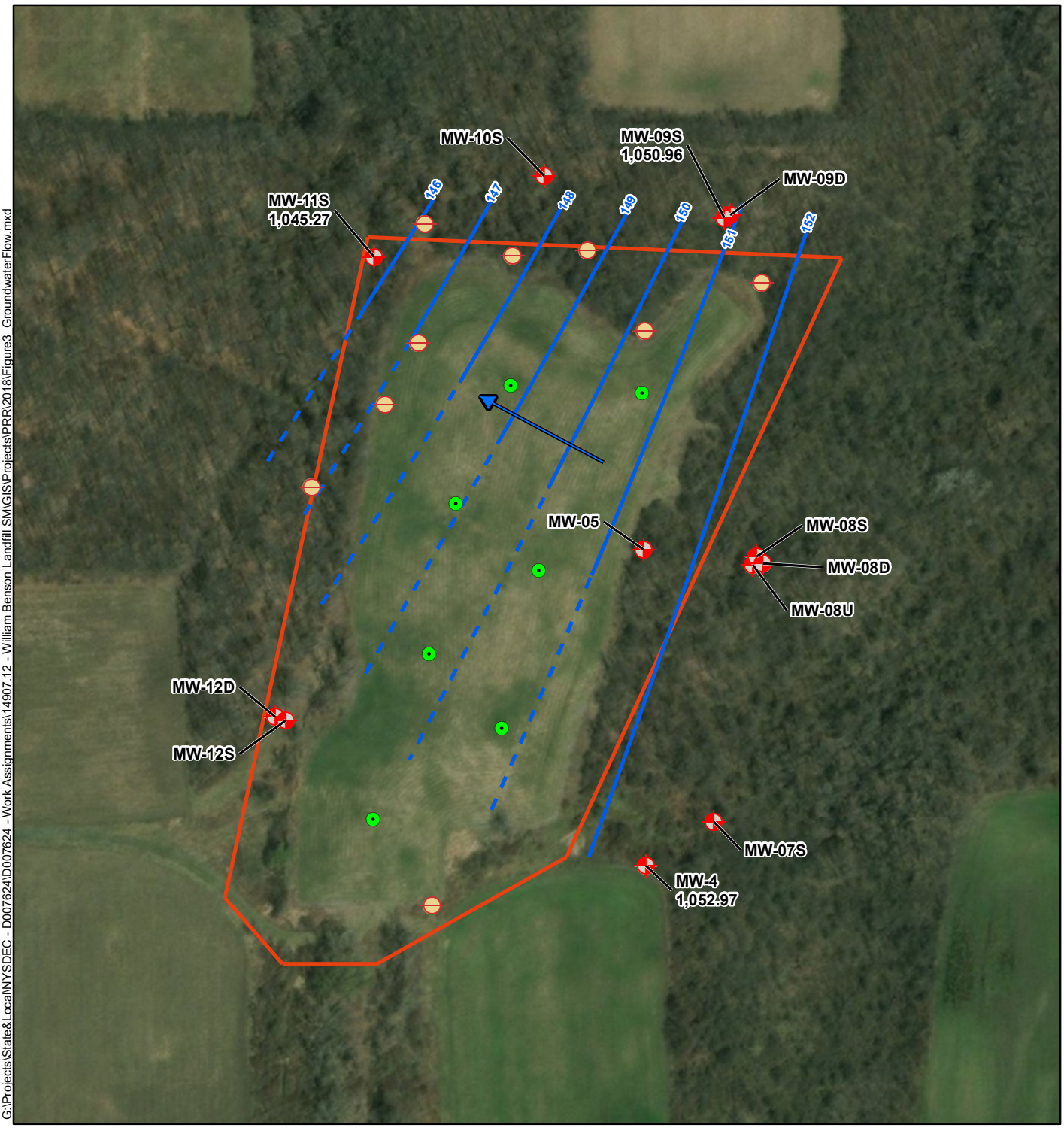
N

Figure 2
SITE LAYOUT
Periodic Review Report 2018
William Benson Landfill
Livonia, New York

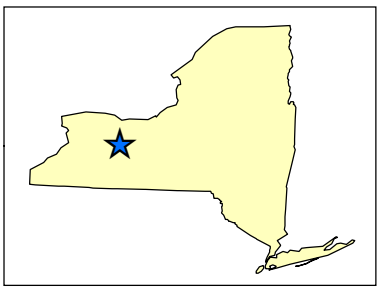
Map Date: 1/14/2018
Projection: NAD 1983 StatePlane New York West FIPS 3103 Feet

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

This page intentionally left blank



G:\Projects\State&Local\NYSDEC - D007624\D007624 - Work Assignments\14907.12 - William Benson Landfill SM\GIS\Projects\PRR\2018\Figure3_GroundwaterFlow.mxd



0 75 150 300
Feet

1 inch = 200 feet

N

Legend

- Site Boundary
- Groundwater Monitoring Well
- Piezometers
- 1-Foot Groundwater Contour (Dashed Where Inferred)
- Groundwater Flow Direction

Figure 3
Groundwater Elevation and Predicted Flow Path October 2017
Periodic Review Report 2018
William Benson Landfill
Livonia, New York

Map Date: 1/15/2018
Projection: NAD 1983 StatePlane New York West FIPS 3103 Feet

NEW YORK STATE OF OPPORTUNITY Department of Environmental Conservation

EA

This page intentionally left blank

Tables

This page intentionally left blank

Table 1 Historical Groundwater Elevations

Monitoring Well / Piezometer	TOC (ft AMSL)	Water Elevation (ft AMSL)									
		December 2007	March 2008	September 2008	June 2009	March 2010	January 2012	March 2013	June 2014	June 2016	October 2017
OP-1	1084.06	NA	NA	NA	NA	NA	NA	NA	NA	NA	1065.37
GP-6	1072.21	1057.1	1058.07	NA	NA	1055.31	1055.26	1066.21	NA	NA	1063.7
GP-7	1053.98	1055.31	1055.37	NA	NA	1055.4	1054.38	NA	NA	NA	NA
GP-8	1055	1056.31	1057.19	NA	NA	1056.71	1056.62	NA	NA	NA	NA
GP-11	1048	1049.41	1049.1	NA	NA	1049.68	1049.64	NA	NA	NA	1045.82
GP-12	1055.99	1057.73	1059.14	NA	NA	1057.34	1057.49	NA	NA	NA	NA
GP-13	1061.74	NA	NA	NA	NA	1062.55	1060.8	NA	NA	NA	1050.2
GP-21	1058.8	1061.35	1061.78	NA	NA	1061.47	1061.04	NA	NA	NA	1057.7
GP-22	1051.93	1055.37	1055.54	NA	NA	1056.12	1055.59	NA	NA	NA	1049.57
MW-4	1057.29	1057.57	1059.08	1055.33	1058.24	1059.39	1059.02	1053.44	NA	NA	1052.97
MW-5	1058.65	1055.53	1060.18	1054.58	1057.17	1058.08	1057.62	1054.15	1053.03	1052.64	NA
MW-6S	NA	1055.63	1066.96	NA	1064.17	1067	DECOM	DECOM	DECOM	NA	NA
MW-7S	1053.69	1055.14	1056.95	1052.92	1056.12	1056.66	1056.04	NA	NA	NA	NA
MW-8D	1054.63	1055.69	1057.9	1053.26	1055.99	1056.21	1056.53	1052.09	1049.71	NA	NA
MW-8S	1055.19	1055.86	1056.82	1052.97	1056.01	1057.1	1057.53	1052.42	1050.37	NA	NA
MW-8U	1054.93	NA	NA	NA	NA	NA	NA	1052.38	1048.43	1049.83	NA
MW-9D	1061.88	1051.47	1062.05	1055.23	1059.97	1062.03	1061.97	1056.81	1052.82	1053.16	1037.48
MW-9S	1061.41	1051	1062.11	1054.86	1060.51	1062.94	1062.16	1057.02	1054.92	1053.23	1050.96
MW-11D	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-11S	1047.61	1049.44	1049.93	1046.99	1048.9	1050.08	1049.67	1045.09	1043.59	1042.33	1045.27
MW-12D	1066.31	1064.07	1066.56	1062.38	1063.84	1066.36	NA	1061.91	NA	NA	1058.75
MW-13D	NA	1067.59	1075.25	NA	1075.5	1075.09	DECOM	DECOM	DECOM	NA	NA
MW-13S	NA	1070.73	1076.2	NA	1075.81	1076.38	DECOM	DECOM	DECOM	NA	NA

NOTE:
ft = Foot (feet)
TOC = Top of Casing
AMSL = Above Mean Sea Level
NA = Not Available
DECOM = Decommissioned

This page intentionally left blank

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-05																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	37	U	76.8	B	37	U	**117**	J	56	U	56	U	111	B	66	U	**1,800**		**109**	B	(<37)	U	100 (s)
Antimony	µg/L		U		U		U		U			**6.1**		5.1	B	**9.3**	U	9.3	U	9.3	U	(<0.48)	U	3 (s)
Arsenic	µg/L	**68.8**		**83.8**		**62.2**		**72.3**		**77.5**		**59.7**		**54.8**		**51.6**		**40.7**		22.1		23		25 (s)
Barium	µg/L	**1,410**		**1,250**		**1,250**		**1,380**		**1,280**		**1,140**		**1,060**		**1,220**		865		830		360		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	0.080	B	0.26	U	0.26	U	.26	U	(<0.61)	U	3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.61	J	0.14	U	0.14	U	0.54	B	0.89	U	0.89	U	.89	U	(<0.48)	U	5 (s)
Calcium	µg/L	144,000		120,000		115,000		140,000		137,000		136,000		138,000		167,000		147,000		221,000		91,000		---
Chromium	µg/L	0.22	U	0.71	B	0.22	U	1.1	J	1.3	B	1.1	U	1.2	B	0.73	B	**53.0**		0.77	B	(<2.5)	U	50 (s)
Cobalt	µg/L	**6**	J	**7**	B	4.6	B	4.2	J	3.9	B	3.40		4.5	B	3.3	B	4.0	B	2.6	B	1.2		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	5	U	6.8	U	4.7	U	3.6	U	9.0	B	0.67	U	(<1.8)	U	200 (s)
Iron	µg/L	**15,400**		**13,500**		**12,500**		**18,300**		**14,600**		**13,400**		**14,800**		**11,700**		**14,900**		**10,600**		**4,600**		300 (s)
Lead	µg/L	1.2	U	11.1		1.2	U	1.2	U	2.2	U	2.2	U	3.7	B	4.2	U	4.2	U	4.2	U	(<0.69)	U	25 (s)
Magnesium	µg/L	**63,200**		**58,200**		**59,300**		**67,300**		**63,600**		**57,600**		**52,500**		**57,100**		**51,500**		**52,300**		24,000		35,000 (g)
Manganese	µg/L	48.3	J	48.1	B	47.2	B	43.1	J	41.2	B	46.1		53.4		114		222		198		100		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	U	0.016	UN	0.056	U	0.056	U	0.028	U	0.7	U	0.028	U	(<0.034)	U	0.7 (s)
Nickel	µg/L	58.4		57.9		52.5		50.9		51.4		43.4		35.2	B	44.1	B	63.2		36.2	B	8.5		100 (s)
Potassium	µg/L	29,200		26,100		23,600		25,100		26,500		24,300		17,300		17,300		14,400		8750	E	6,600		---
Selenium	µg/L	**11.6**	J	**21**	B	**12**	B	5.2	U	6.6	U	6.6	U	10.4	B	**12**	U	**12**	U	12	U	(<11)	U	10 (s)
Silver	µg/L	8.9	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	2.4	U	6.9	U	6.9	U	6.9	U	(<0.38)	U	50 (s)
Sodium	µg/L	**299,000**		**242,000**		**239,000**		**285,000**		**241,000**		**209,000**		**148,000**		**195,000**		**119,000**		**139,000**		**28,000**		20,000 (s)
Thallium	µg/L	2.8	U	2.8	U	2.8	U	2.8	U	4.2	U	4.2	U	5.7	U	**6.2**	U	**6.2**	U	**6.2**	U	(<0.37)	U	0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1.2	B	1.5	J	1.3	B	0.96	U	1.0	B	1.1	U	3.8	B	3.8	U	(<13)	U	14 (s)
Zinc	µg/L	n/a		18.7	B	12.4	B	20.3	J	14.7	B	10.0		24.4	B	12.5	B	24.8	B	11.9	B	(<24)	U	2,000 (g)
Parameter List EPA Method 6010	**Well ID**	**8-26-007-MW-08D**																						**NYSDEC Ambient Water Quality Standard (µg/L)**
	Sample Date	**Jun-07**		**Sep-07**		**Dec-07**		**Mar-08**		**Sep-08**		**Jun-09**		**Mar-10**		**Jun-11**		**Mar-13**		**Jun-14**		**Oct-17***		
Aluminum	µg/L	37	U	37	U	37	U	37	U	56	U	56	U	**107**	B	66	U	93.0	B	66	U	n/a		100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**9.7**	B	**9.3**	U	**9.3**	U	**9.3**	U	n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	3	U	5.3	U	5.3	U	3.1	U	4.3	U	4.3	U	4.3	U	n/a		25 (s)
Barium	µg/L	129	J	132	B	128	B	119	J	126	B	102		122	B	118	B	127	B	119	B	n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	0.037	U	0.26	U	0.26	U	0.26	U	n/a		3 (g)
Cadmium	µg/L	0.11	U	0.85	B	0.77	B	0.55	J	0.23	B	0.210	U	0.67	B	0.89	U	1.6	B	1.1	B	n/a		5 (s)
Calcium	µg/L	16,800		18,100		17,400		17,800		16,700		14,900		18,200		16,500		16,400		17,600		n/a		---
Chromium	µg/L	0.22	U	0.41	B	0.25	B	0.44	J	1.1	U	1.1	U	0.96	B	0.64	U	8.0	B	8.0	U	n/a		50 (s)
Cobalt	µg/L	0.068	U	0.36	B	0.3	B	0.068	U	1.2	U	1.2	U	0.67	U	0.67	U	0.67	U	0.67	U	n/a		5 (s)
Copper	µg/L	1.7	U	1.9	B	3	B	1.7	U	5	U	6.20	U	4.7	U	3.6	U	8.5	B	8.5	U	n/a		200 (s)
Iron	µg/L	**332**		**490**		**323**		**316**		**443**		**324.0**		**501**		**445**		**1,380**		**688**		n/a		300 (s)
Lead	µg/L	1.2	U	4.2	B	1.2	U	1.3	J	2.2	U	2.2	U	2.1	U	4.2	U	4.2	U	4.2	U	n/a		25 (s)
Magnesium	µg/L	21,500		21,400		21,300		21,000		20,900		19,600		20,800		20,100		22,900		22,800		n/a		35,000 (g)
Manganese	µg/L	10.3	B	14.2	B	14.6	B	13	J	18.1	B	12.4		18.4	B	12.5	B	23.9	B	14.6	B	n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	J	0.016	UN	0.056	U	0.076	B	0.028	U	10		10	U	n/a		0.7 (s)
Nickel	µg/L	0.79	J	1.7	B	1.7	B	0.67	J	1.5	U	1.5	U	0.65	B	0.85	U	6.5	B	6.5	E	n/a		100 (s)
Potassium	µg/L	2,590		2,520		2,420		2,370		2,240		2,180		2,290		2,190		2,300		2,220	U	n/a		---
Selenium	µg/L	9.3	J	7.3	B	5.2	U	5.2	U	6.6	U	7.2		**10**	U	**12**	U	12	U	12	U	n/a		10 (s)
Silver	µg/L	1.2	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	2.4	U	6.9	U	6.9	U	6.9		n/a		50 (s)
Sodium	µg/L	**30,500**		**29,800**		**29,800**		**29,300**		**28,400**		**27,800**		**28,500**		**29,600**		**31,900**		**31,700**	U	n/a		20,000 (s)
Thallium	µg/L	2.8	U	2.8	U	2.8	U	2.8	U	4.2	U	4.2	U	**5.7**	U	**6.2**	U	6.2	U	6.2	U	n/a		0.5 (g)
Vanadium	µg/L	n/a		0.4	U	0.47	B	0.4	U	0.96	U	0.96	U	0.34	U	1.1	U	1.1	U	1.1	B	n/a		14 (s)
Zinc	µg/L	n/a		22.2	B	23.7	B	14.5	J	26.5	B	16.4		31.7	B	27.5	B	25.5	B	30.6	U	n/a		2,000 (g)

NOTE:
EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
* = Well could not be found.
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-08S																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17*		
Aluminum	µg/L	37	U	**185**	B	**112**	B	37	U	65.5	B	56	U	**104**	B	66	U	**583**	B	66	U	n/a		100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**4.2**	U	**9.3**	U	**9.3**	U	**9.3**	U	n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	2.5	U	5.3	U	5.3	U	3.1	U	4.3	U	4.3	U	4.3	U	n/a		25 (s)
Barium	µg/L	341		507		103	B	417		124	B	113		231		128	B	233	B	176	B	n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.058	J	0.13	U	0.13	U	0.037	U	0.26	U	0.26	U	0.26	U	n/a		3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.11	U	0.43	B	0.14	U	0.5	U	0.89	U	0.89	U	0.89	U	n/a		5 (s)
Calcium	µg/L	139,000		140,000		96,300		140,000		99,800		99,900		131,000		104,000		126,000		104,000		n/a		---
Chromium	µg/L	0.22	U	0.33	B	0.22	U	0.68	J	1.1	U	1.1	U	1.1	B	0.66	B	3.3	B	3.3	U	n/a		50 (s)
Cobalt	µg/L	0.068	U	3.1	B	0.23	B	0.44	J	1.2	U	1.2	U	1.1	B	0.67	U	0.96	B	0.96	U	n/a		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	5	U	10.9	U	17.9	B	3.6	U	7.1	B	7.1	U	n/a		200 (s)
Iron	µg/L	**3,020**		**7,160**		203		**5,490**		234		61	U	**1,110**		**465**		**3,130**		**2,110**		n/a		300 (s)
Lead	µg/L	1.2	U	3.4	B	1.2	U	1.4	J	2.2	U	2.2	U	4.1	B	4.2	U	4.2	U	4.2	U	n/a		25 (s)
Magnesium	µg/L	**47,500**		**54,000**		27,400		**53,600**		28,100		28,500		**47,400**		27,400		**45,700**		33,000		n/a		35,000 (g)
Manganese	µg/L	41	J	43.2	B	19.9	B	42.9	J	18.5	B	14.6		79.9		44.3	B	93.3		133		n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.15	J	0.016	UN	0.056	U	0.056	U	0.028	U	**0.85**	U	**0.85**	U	n/a		0.7 (s)
Nickel	µg/L	12.1	J	17.1	B	4.5	B	13.6	J	2.4	B	1.70		10.7	B	1.3	B	11.5	B	4.3	B	n/a		100 (s)
Potassium	µg/L	1,420		1840		1,160		1,530		1,000		849		1,260		981	B	1,680		1,240	E	n/a		---
Selenium	µg/L	6.2	J	**21.7**	B	**19.2**	B	5.2	U	6.6	U	6.6	U	**10.1**	B	**12**	U	**12**	U	**12**	U	n/a		10 (s)
Silver	µg/L	10.7	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	2.4	U	6.9	U	6.9	U	6.9	U	n/a		50 (s)
Sodium	µg/L	**82,800**		**98,700**		**27,900**		**118,000**		**32,700**		**37,200**		**88,400**		**33,300**		**82,900**		**48,300**		n/a		20,000 (s)
Thallium	µg/L	2.8	U	2.8	U	2.8	U	2.8	U	4.2	U	4.2	U	**5.7**	U	**6.2**	U	**6.2**	U	**6.2**	U	n/a		0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1.5	B	0.67	J	0.96	U	0.96	U	0.46	B	1.1	U	2.3	B	2.3	U	n/a		14 (s)
Zinc	µg/L	n/a		23	B	9.7	B	19.9	J	14.5	B	9.5		18.9	B	16.1	B	49.9	B	4.9	U	n/a		2,000 (g)
Parameter List EPA Method 6010	**Well ID**	**8-26-007-MW-08U**																						**NYSDEC Ambient Water Quality Standard (µg/L)**
	Sample Date	**Jun-07**		**Sep-07**		**Dec-07**		**Mar-08**		**Sep-08**		**Jun-09**		**Mar-10**		**Jun-11**		**Mar-13**		**Jun-14**		**Oct-17**		
Aluminum	µg/L	37	U	70.8	B	37	U	37	U	65	B	56	U	79.6	B	66	U	**2,580**		**21,400**		(<37)	U	100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**4.2**	U	**9.3**	U	**9.3**	U	**10.3**	B	0.97		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	2.5	U	5.3	U	5.3	U	3.1	U	4.3	U	4.3	U	4.3	U	(<1.8)	U	25 (s)
Barium	µg/L	89.9	J	95.7	B	101	B	96	J	99.9	B	91.20		99.5	B	102	B	**2,080**		**2,500**		**1,800**		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	0.037	U	0.26	U	0.26	U	1.1	B	(<0.61)	U	3 (g)
Cadmium	µg/L	0.11	U	0.5	B	1.1	B	0.58	J	0.23	B	0.43	U	1.5	B	0.89	U	2.5	B	1.5	B	(<0.48)	U	5 (s)
Calcium	µg/L	13,700		14,100		14,300		14,600		13,100		14,100		14,500		14,100		146,000		727,000		95,000		---
Chromium	µg/L	0.22	U	0.47	B	0.25	B	0.36	J	1.1	U	1.1	U	0.77	B	0.64	U	4.5	B	39.0		(<2.5)	U	50 (s)
Cobalt	µg/L	0.068	U	0.32	B	0.2	B	0.068	U	1.2	U	1.2	U	0.67	U	0.67	U	4.3	B	20.3	B	3.2		5 (s)
Copper	µg/L	1.7	U	1.7	U	3.1	B	1.7	U	5	U	7.4	U	4.7	U	3.6	U	18.2	B	60.3		2.6		200 (s)
Iron	µg/L	**673**		**651**		**643**		**681**		**673**		**624.0**		**631**		**726**		**8,180**		**48,100**		**6,900**		300 (s)
Lead	µg/L	1.2	U	2	B	1.2	U	1.2	U	2.2	U	2.2	U	2.1	U	4.2	U	5.2	B	**37.6**		(<0.69)	U	25 (s)
Magnesium	µg/L	20,000		20,700		21,100		20,500		19,300		20,200		21,200		21,000		**52,200**		**140,000**		**41,000**		35,000 (g)
Manganese	µg/L	41	B	14.5	B	12.5	B	13.5	J	18.8	B	13.0		13.4	B	12.6	B	**374**		**2,860**		150		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	U	0.058	BN	0.056	U	0.056	U	0.028	U	0.7	U	0.040	B	(<0.034)	U	0.7 (s)
Nickel	µg/L	0.76	J	1.1	B	1.7	B	0.53	J	1.5	U	1.5	U	0.64	U	0.85	U	49.4	B	80.2		30		100 (s)
Potassium	µg/L	2,150		2,220		1,960		2,010		1,840		1,920		1,940		2,070		35,700		43,000	E	41,000		---
Selenium	µg/L	4.2	J	5.2	U	5.6	B	5.2	U	6.6	U	6.6	U	**10**	U	**12**	U	**12**	U	**12**	U	(<11)	U	10 (s)
Silver	µg/L	1.4	J	1.2	U	1.6	B	1.2	U	0.59	U	0.59		2.4	U	6.9	U	6.9	U	6.9	U	(<0.38)	U	50 (s)
Sodium	µg/L	**29,000**		**29,100**		**28,600**		**29,600**		**26,600**		**28,600**		**29,800**		**29,800**		**191,000**		**173,000**		**120,000**		20,000 (s)
Thallium	µg/L	2.8	U	2.8	U	2.8	U	2.8	U	4.2	U	4.2	U	**5.7**	U	**6.2**	U	**6.2**	U	**6.2**	U	(<0.37)	U	0.5 (g)
Vanadium	µg/L	n/a		0.4	U	0.53	B	0.4	U	0.96	U	0.96	U	0.34	U	1.1	U	6.6	B	**55.4**		(<13)	U	14 (s)
Zinc	µg/L	n/a		20.9	B	19.6	B	19.7	J	21.7	B	11.6		32.2	B	19.1	B	38.4	B	235		(<24)	U	2,000 (g)

NOTE:
EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
* = Well could not be found.
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-09D																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	37	U	89	B	37	U	37	U	56	U	56	U	56.9	B	66	U	66.1	B	66.1	U	(<37)	U	100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**9**	B	**9.3**	U	**9.3**	U	**9.3**	U	(<0.48)	U	3 (s)
Arsenic	µg/L	2.5	U	2.5	U	3.9	B	3	U	5.3	U	5.3	U	5.1	B	4.3	U	4.3	U	13.8	B	(<1.8)	U	25 (s)
Barium	µg/L	88.4	J	88.7	B	96.3	B	83.4	J	98	B	80.90		85.5	B	87.6	B	95.4	B	108	B	100		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	0.04	B	0.26	U	0.26	U	0.26	U	(<0.61)	U	3 (g)
Cadmium	µg/L	0.11	U	0.39	B	0.11	U	0.52	J	0.14	U	0.14	U	0.5	U	4.4	B	0.89	U	1.3	B	(<0.48)	U	5 (s)
Calcium	µg/L	61,300		60,600		63,800		63,800		59,400		57,100		60,200		58,200		59,400		60,700		59,000		---
Chromium	µg/L	0.22	U	0.22	U	0.22	U	0.37	J	1.1	U	1.1	U	1.4	B	0.68	B	5.3	B	1.6	B	(<2.5)	U	50 (s)
Cobalt	µg/L	0.71	J	1.5	B	0.45	B	0.068	U	1.2	U	1.2	U	0.74	B	0.67	U	0.67	U	0.67	U	(<0.45)	U	5 (s)
Copper	µg/L	1.7	U	1.7	U	3.1	B	1.7	U	6.4	B	10.6	U	4.7	U	3.6	U	14.0	B	6.6	B	(<1.8)	U	200 (s)
Iron	µg/L	**1870**		**1020**		**1420**		169	J	**1,450**		**478**		**659**		**304**		**664**		**2,740**		**590**		300 (s)
Lead	µg/L	1.2	U	6	B	1.2	U	1.9	J	2.2	U	2.2	U	2.4	B	4.2	U	5.7	B	4.5	B	(<0.69)	U	25 (s)
Magnesium	µg/L	30,800		30,300		31,600		30,600		28,700		28,100		29,600		28,900		30,300		30,100		27,000		35,000 (g)
Manganese	µg/L	39.7	J	52.8		44.5	B	17	J	53.7		58.2		12.2	B	31.3	B	28.4	B	26.2	B	46		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	U	0.016	UN	0.056	U	0.056	U	0.028	U	0.7	U	0.7	U	(<0.034)	U	0.7 (s)
Nickel	µg/L	2.2	J	4	B	2.9	B	0.97	J	1.6	B	1.5	U	1.5	B	0.97	B	4.7	B	1.3	B	(<1.9)	U	100 (s)
Potassium	µg/L	2,250		2,270		2,160		2,150		1,890		1,850		2,030		2,100		2,140		2,140	E	1,800		---
Selenium	µg/L	**10.1**	J	**14.8**	B	**17.6**	B	5.2	U	6.6	U	6.6	U	**12.3**	B	**12**	U	**12**	U	**12**	U	(<11)	U	10 (s)
Silver	µg/L	4.4	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	2.4	U	6.9	U	6.9	U	6.9	U	(<0.38)	U	50 (s)
Sodium	µg/L	**26,200**		**25,100**		**21,600**		**25,200**		**22,100**		**22,800**		**26,400**		**25,100**		**27,600**		**26,300**		**24,000**		20,000 (s)
Thallium	µg/L	2.8	U	**3.2**	B	2.8	U	2.8	U	4.2	U	4.2	U	**5.7**	U	**6.2**	U	**6.2**	U	**6.2**	U	(<0.37)	U	0.5 (g)
Vanadium	µg/L	n/a		0.4	U	0.72	B	0.4	U	0.96	U	0.96	U	0.8	B	1.1	U	1.1	U	1.1	U	(<13)	U	14 (s)
Zinc	µg/L	n/a		17.9	B	12.8	B	16.7	J	27.7	B	10.40		32.8	B	32.9	B	23.7	B	15.6	B	54		2,000 (g)

Parameter List EPA Method 6010	Well ID	8-26-007-MW-09S																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	37	U	37	U	37	U	37	U	56	U	56	U	**107**	B	66	U	**228**		66	U	(<37)	U	100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**4.2**	U	**9.3**	U	**9.3**	U	4.6	U	(<0.48)	U	3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.9	B	2.5	U	5.3	U	5.3	U	3.1	U	4.3	U	4.3	U	5.3	U	(<1.8)	U	25 (s)
Barium	µg/L	128	J	133	B	123	B	75	J	84	B	55.90		63	B	117	B	77.1	B	87.2	B	120		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13		0.086	B	0.26	U	0.26	U	0.26	U	(<0.61)	U	3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.11	U	0.14	U	0.14	U	0.5	U	0.89	U	0.89	U	0.89	U	(<0.48)	U	5 (s)
Calcium	µg/L	113,000		116,000		111,000		103,000		91,900		97,500		97,100		113,000		102,000		104,000		110,000		---
Chromium	µg/L	0.22	U	0.22	U	0.22	U	0.91	J	1.1	U	1.1	U	1.1	B	0.64	U	5.0	B	5.0	U	(<2.5)	U	50 (s)
Cobalt	µg/L	0.068	U	2.5	B	0.21	B	0.068	U	1.2	U	1.2	U	0.67	U	0.67	U	0.67	U	0.67	U	1.1		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	11.4	B	11.2	U	4.7	U	3.6	U	3.6	U	3.6	U	(<1.8)	U	200 (s)
Iron	µg/L	**2,640**		**1,030**		125	B	**890**		237		61	U	**538**		**2,380**		**1,490**		**371**		**1,500**		300 (s)
Lead	µg/L	1.2	U	8	B	1.2	U	1.2	U	2.2	U	2.2	U	2.1	U	4.2	U	4.2	U	4.2	U	(<0.69)	U	25 (s)
Magnesium	µg/L	33,300		34,300		32,800		27,000		24,000		23,900		25,300		33,000		27,500		28,600		32,000		35,000 (g)
Manganese	µg/L	44.1	J	66.7		43.4	B	19.8	J	13.8	B	6.80	U	12.2	B	71.4		42.4	B	37.5	B	170		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	U	0.034	BN	0.056		0.056	U	0.028	U	0.7	U	0.7	U	(<0.034)	U	0.7 (s)
Nickel	µg/L	4	J	6.2	B	4.1	B	0.85	J	1.9	B	1.5	U	0.81	B	0.93	B	3.7	B	3.7	U	3.2		100 (s)
Potassium	µg/L	1,410		1,940		1,860		1,110		835	B	777		1,000		1,460		1,230		1,800	E	1,300		---
Selenium	µg/L	7.6	J	**26.7**	B	**19.3**	B	5.2	U	6.6	U	6.6	U	**10**	U	**12**	U	**12**	U	**12**	U	(<11)	U	10 (s)
Silver	µg/L	8.5	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59		2.4	U	6.9	U	6.9	U	6.9	U	(<0.38)	U	50 (s)
Sodium	µg/L	4,120		4,630		4,880		4,830		3,320		3,630		3,750		4,190		6,470		4,450		4,800		20,000 (s)
Thallium	µg/L	2.8	U	**4.8**	B	2.8	U	2.8	U	4.2	U	4.2		5.7	U	6.2	U	6.2	U	6.2	U	(<0.37)	U	0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1.3	B	0.4	U	0.96	U	0.96	U	0.34	U	1.1	U	1.1	U	1.1	U	(<13)	U	14 (s)
Zinc	µg/L	n/a		18.2	B	9.8	B	15.2	J	20.2	B	12.90		18.6	B	11.1	B	8.7	B	8.7	U	(<24)	U	2,000 (g)

NOTE:
EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-11S																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	37	U	62.6	B	37	U	37	U	56	U	56	U	59.1	B	66	U	**515**		**318**		(<37)	U	100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**5.2**	B	**9.3**	U	9.3	U	9.5	B	(<0.48)	U	3 (s)
Arsenic	µg/L	2.5	U	6.4	B	17.7	B	**28.3**		6.8	B	5.80		10.7	B	12.5	B	20.9		4.7	B	19		25 (s)
Barium	µg/L	821		571		610		711		615		**1,080**		809		654		783		785		450		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	0.08	B	0.26	U	0.26	U	0.26	U	(<0.61)	U	3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.26	B	0.28	J	0.14	U	0.14	U	0.5	U	0.89	U	0.89	U	2.4	B	(<0.48)	U	5 (s)
Calcium	µg/L	140,000		112,000		109,000		124,000		117,000		143,000		123,000		108,000		123,000		123,000		98,000		---
Chromium	µg/L	0.22	U	0.22	U	0.22	U	0.76	J	1.1	U	1.1	U	1.2	B	0.69	B	23.9		0.83	B	(<2.5)	U	50 (s)
Cobalt	µg/L	0.068	U	3.1	B	1.1	B	0.54	J	1.2	U	1.2	U	1.6	B	0.68	B	1.3	B	1.2	B	0.74		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	5	U	10.80	U	4.7	U	3.6	U	3.6	U	4.5	B	(<1.8)	U	200 (s)
Iron	µg/L	**11,300**		**6,820**		**14,300**		**20,600**		**7,270**		**9,350**		**11,300**		**5,850**		**14,600**		**7,290**		**7,400**		300 (s)
Lead	µg/L	1.2	U	2.9	B	1.2	U	2	J	2.2	U	2.2	U	2.8	B	4.2	U	4.2	U	4.2	U	(<0.69)	U	25 (s)
Magnesium	µg/L	**64,700**		**52,500**		**51,600**		**57,100**		**54,300**		**68,100**		**59,300**		**52,300**		**60,500**		**59,000**		**47,000**		35,000 (g)
Manganese	µg/L	45	J	38.9	B	38.5	B	37.7	J	40.9	B	33.4		34.2	B	32.6	B	67.6		42.7	B	26		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	U	0.016	UN	0.056	U	0.056	U	0.028	U	0.7	U	0.7	U	(<0.034)	U	0.7 (s)
Nickel	µg/L	19.5	J	14.3	B	12.4	B	10.3	J	10.6	B	13.20		10.9	B	7.4	B	26.2	B	10	B	4.4		100 (s)
Potassium	µg/L	2190		1,880		1,710		1,700		1,940		3,910		2,720		2,810		3,410		4230	E	1,900		---
Selenium	µg/L	8	J	**22.5**	B	**18.3**	B	5.2	U	6.6	U	6.6	U	**10**	U	**12**	U	12	U	12.9	B	(<11)	U	10 (s)
Silver	µg/L	9.2	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	2.4	U	6.9	U	6.9	U	6.9	U	(<0.38)	U	50 (s)
Sodium	µg/L	**123,000**		**80,600**		**77,700**		**87,000**		**82,700**		**123,000**		**87,800**		**73,300**		**78,600**		**82,300**		**44,000**		20,000 (s)
Thallium	µg/L	2.8	U	**3.3**	B	2.8	U	2.8	U	4.2	U	4.2	U	5.7	U	6.2	U	6.2	U	6.2	U	(<0.37)	U	0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1	B	2.4	J	0.96	U	1.10		1.4	B	1.1	U	2.1	B	1.3	B	(<13)	U	14 (s)
Zinc	µg/L	n/a		18.3	B	13.7	B	17.5	J	29.4	B	9.5		19.6	B	20.1	B	10.6	B	11.9	B	(<24)	U	2,000 (g)
Parameter List EPA Method 6010	**Well ID**	**DUPLICATE**																						**NYSDEC Ambient Water Quality Standard (µg/L)**
	Sample Date	**Jun-07[a]**		**Sep-07[b]**		**Dec-07[c]**		**Mar-08[d]**		**Sep-08[e]**		**Jun-09[f]**		**Mar-10[g]**		**Jun-11[h]**		**Mar-13[i]**		**Jun-14[i]**		**Oct-17[k]**		
Aluminum	µg/L	37	U	81	B	37	U	37	U	**665**		56	U	72.5	B	66	U	**1,570**		66	U	(<37)	U	100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	**4.2**	U	**9.3**	U	9.3	U	9.3	U	(<0.48)	U	3 (s)
Arsenic	µg/L	**69.4**		2.5	U	2.5	U	2.5	U	5.3	U	5.3	U	16.1	B	4.3	U	**36.3**		4.3	U	(<1.8)	U	25 (s)
Barium	µg/L	**1,380**		76.6	B	196	B	76.7	J	237		77.4		837		100	B	840		86.4	B	98		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	0.054	B	0.26	U	0.26	U	0.26	U	(<0.61)	U	3 (g)
Cadmium	µg/L	0.11	U	0.15	B	0.11	U	0.11	U	0.14	U	0.14	U	0.5	U	0.89	U	0.89	U	0.89	U	(<0.48)	U	5 (s)
Calcium	µg/L	141,000		83,500		61,200		89,500		140,000		59,300		128,000		13,600		142,000		103,000		58,000		---
Chromium	µg/L	0.22	U	0.53	B	0.22	U	0.51	J	1.7	B	1.1	U	0.94	B	0.64	U	**50.3**		0.64	U	(<2.5)	U	50 (s)
Cobalt	µg/L	6	J	1.8	B	0.37	B	0.1	J	1.2	U	1.2	U	1.3	B	0.67	U	3.6	B	3.6	U	(<0.45)	U	5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	5	U	5.10	U	4.7	U	3.6	U	7.4	B	7.4	U	(<1.8)	U	200 (s)
Iron	µg/L	**15,200**		**523**		**958**		**338**		**5,910**		**500**		**12,000**		**732**		**14,000**		**393**		**450**		300 (s)
Lead	µg/L	1.2	U	4.8	B	1.2	U	2.5	J	2.2	U	2.2	U	2.1	U	4.2	U	4.2	U	4.2	U	(<0.69)		25 (s)
Magnesium	µg/L	**62,800**		27,800		28,700		24,100		**38,700**		28,800		**61,600**		20,400		**51,000**		28,200		27,000		35,000 (g)
Manganese	µg/L	42.5	J	34.2	B	15.3	B	76.1		185		57.8		33.3	B	10	U	206		36.8	B	46		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.12	J	0.016	UN	0.056	U	0	U	0.028	U	0.7	U	0.028	U	(<0.034)	U	0.7 (s)
Nickel	µg/L	58.8		5.8	B	2.4	B	0.89	J	3.4	B	1.5	U	10.8	B	0.85	U	59.9		0.97	U	(<1.9)	U	100 (s)
Potassium	µg/L	29,400		1,260		975	B	1,070		1,280		1,860		2,790		2,030		14,500		2,400	E	1,800		---
Selenium	µg/L	**13.1**	J	**27.9**	B	**13**	B	6	J	6.6	U	6.6	U	**10.6**	B	**12**	U	**13.4**	B	12	U	(<11)	U	10 (s)
Silver	µg/L	8.5	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	2.4	U	6.9	U	6.9	U	6.9	U	(<0.38)	U	50 (s)
Sodium	µg/L	**292,000**		4,620		11,700		18,900		**30,300**		**23,100**		**90,000**		**29,700**		**116,000**		4,500		**25,000**		20,000 (s)
Thallium	µg/L	**2.8**	U	**3.8**	B	**2.8**	U	**2.8**	U	**4.2**	U	**4.2**	U	**6**	U	**6.2**	U	**6.2**	U	**6.2**	U	(<0.37)	U	0.5 (g)
Vanadium	µg/L	n/a		0.91	B	0.84	B	2.2	J	2	B	0.96	U	1.6	B	1.1	U	3.6	B	3.6	U	(<13)	U	14 (s)
Zinc	µg/L	n/a		22.9	B	9.2	B	35.9	J	18.7	B	13.10		20.2	B	19.4	B	21.0	B	7.8	B	44		2,000 (g)

NOTE:

EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

(a) Duplicate sample was collected at MW-5
(b) Duplicate sample was collected at MW-13S
(c) Duplicate sample was collected at MW-13D
(d) Duplicate sample was collected at MW-13S
(e) Duplicate sample was collected at MW-4
(f) Duplicate sample was collected at MW-9S
(g) Duplicate sample was collected at MW-11S
(h) Duplicate sample was collected at MW-08U
(i) Duplicate sample was collected at MW-5
(j) Duplicate sample was collected at MW-9S
(k) Duplicate sample was collected at MW-9D.

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-12D																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	37	U	85.7	B	37	U	37	U	56	U	56	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Antimony	ug/L		U		U		U		U			4.6	U	n/a		n/a		n/a		n/a		n/a		3 (s)
Arsenic	µg/L	2.5	U	4.7	B	4.2	B	3.1	J	5.3	U	5.3	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Barium	µg/L	490		602		834		178	J	750		278		n/a		n/a		n/a		n/a		n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	n/a		n/a		n/a		n/a		n/a		3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.11	U	0.14	U	0.14	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Calcium	µg/L	153,000		153,000		182,000		139,000		174,000		40,600		n/a		n/a		n/a		n/a		n/a		---
Chromium	µg/L	0.22	U	0.22	U	0.22	U	0.3	J	1.1	U	1.1	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Cobalt	µg/L	0.068	U	3	B	0.41	B	0.73	J	1.2	U	1.2	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	11.8	B	12.8	U	n/a		n/a		n/a		n/a		n/a		200 (s)
Iron	µg/L	**7,730**		**8,210**		**8,140**		**2,590**		**7,370**		**2,440**		n/a		n/a		n/a		n/a		n/a		300 (s)
Lead	µg/L	1.2	U	3.9	B	1.2	U	1.3	J	2.2	U	2.2	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Magnesium	µg/L	**65,800**		**68,900**		**81,000**		**46,700**		**75,600**		25,800		n/a		n/a		n/a		n/a		n/a		35,000 (g)
Manganese	µg/L	267		155		120		279		123		14.70		n/a		n/a		n/a		n/a		n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	J	0.016	UN	0.056	U	n/a		n/a		n/a		n/a		n/a		0.7 (s)
Nickel	µg/L	6	J	8.9	B	8.4	B	2.7	J	3.9	B	1.5	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Potassium	µg/L	1,520		1,820		1,950		1,400		1,890		1,470		n/a		n/a		n/a		n/a		n/a		---
Selenium	µg/L	5.9	J	**20.3**	B	**19.8**	B	5.2	U	6.6	U	6.6	U	n/a		n/a		n/a		n/a		n/a		10 (s)
Silver	µg/L	11.4	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Sodium	µg/L	**24,700**		**29,400**		**47,100**		18,900		**43,700**		**22,200**		n/a		n/a		n/a		n/a		n/a		20,000 (s)
Thallium	µg/L	2.8	U	**5**	B	2.8	U	2.8	U	4.2	U	4.2	U	n/a		n/a		n/a		n/a		n/a		0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1.9	B	0.57	J	0.96	U	0.96	U	n/a		n/a		n/a		n/a		n/a		14 (s)
Zinc	µg/L	n/a		19.3	B	10.2	B	20.3	J	20.4	B	11.0		n/a		n/a		n/a		n/a		n/a		2,000 (g)
Parameter List EPA Method 6010	**Well ID**	**8-26-007-MW-13D**																						**NYSDEC Ambient Water Quality Standard (µg/L)**
	Sample Date	**Jun-07**		**Sep-07**		**Dec-07**		**Mar-08**		**Sep-08**		**Jun-09**		**Mar-10**		**Jun-11**		**Mar-13**		**Jun-14**		**Oct-17**		
Aluminum	µg/L	37	U	38.1	B	37	U	37	U	n/a		56	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Antimony	ug/L		U		U		U		U	n/a		4.6	U	n/a		n/a		n/a		n/a		n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	3	U	n/a		5.3	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Barium	µg/L	183	J	188	B	205		185	J	n/a		179		n/a		n/a		n/a		n/a		n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	n/a		0.13		n/a		n/a		n/a		n/a		n/a		3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.12	J	n/a		0.14	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Calcium	µg/L	62,400		59,600		63,900		64,200		n/a		58,300		n/a		n/a		n/a		n/a		n/a		---
Chromium	µg/L	0.22	U	0.22	U	0.22	U	0.39	J	n/a		1.1	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Cobalt	µg/L	0.068	U	1.2	B	0.068	U	0.068	U	n/a		1.2	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	n/a		18.1	U	n/a		n/a		n/a		n/a		n/a		200 (s)
Iron	µg/L	**1,840**		**1,190**		**995**		**2,050**		n/a		**1,670**		n/a		n/a		n/a		n/a		n/a		300 (s)
Lead	µg/L	1.2	U	3.3	B	1.2	U	2.1	J	n/a		2.2	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Magnesium	µg/L	28,700		27,800		29,900		29,200		n/a		27,300		n/a		n/a		n/a		n/a		n/a		35,000 (g)
Manganese	µg/L	17.3	B	14.8	B	16.9	B	16	J	n/a		13.4		n/a		n/a		n/a		n/a		n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	U	n/a		0.056		n/a		n/a		n/a		n/a		n/a		0.7 (s)
Nickel	µg/L	2.1	J	3.2	B	2.3	B	0.74	J	n/a		1.5	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Potassium	µg/L	978	J	1,050		1,000		974	J	n/a		889		n/a		n/a		n/a		n/a		n/a		---
Selenium	µg/L	5.8	J	**16.5**	B	**17.1**	B	5.2	U	n/a		6.6	U	n/a		n/a		n/a		n/a		n/a		10 (s)
Silver	µg/L	4.8	J	1.2	U	1.2	U	1.2	U	n/a		0.59		n/a		n/a		n/a		n/a		n/a		50 (s)
Sodium	µg/L	17,900		13,500		12,300		13,300		n/a		12,900		n/a		n/a		n/a		n/a		n/a		20,000 (s)
Thallium	µg/L	2.8	U	2.8	U	2.8	U	2.8	U	n/a		4.2	U	n/a		n/a		n/a		n/a		n/a		0.5 (g)
Vanadium	µg/L	n/a		0.4	U	0.84	B	0.4	U	n/a		0.96	U	n/a		n/a		n/a		n/a		n/a		14 (s)
Zinc	µg/L	n/a		15.7	B	9.7	B	19.6	J	n/a		10.30		n/a		n/a		n/a		n/a		n/a		2,000 (g)

NOTE:
EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-04																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	**2,700**		**3,040**		**472**		**2,910**		**238**		**655**		n/a		n/a		n/a		n/a		n/a		100 (s)
Antimony	µg/L		U		U		U		U			4.6	U	n/a		n/a		n/a		n/a		n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	3	U	5.3	U	5.3	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Barium	µg/L	265		267		252		269		170	B	203		n/a		n/a		n/a		n/a		n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.26	J	0.13	U	0.13	U	n/a		n/a		n/a		n/a		n/a		3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.29	J	0.14	U	0.14	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Calcium	µg/L	147,000		149,000		131,000		317,000		96,500		127,000		n/a		n/a		n/a		n/a		n/a		---
Chromium	µg/L	2.6	J	2.8	B	0.22	U	5	J	1.1	U	1.2		n/a		n/a		n/a		n/a		n/a		50 (s)
Cobalt	µg/L	2.9	J	4.4	B	0.51	B	2.9	J	1.2	U	1.2	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Copper	µg/L	9.8	J	1.7	U	1.7	U	13	J	5	U	8.0	U	n/a		n/a		n/a		n/a		n/a		200 (s)
Iron	µg/L	**8,920**		**7,960**		**5,470**		**13,700**		**2,890**		**6,200**		n/a		n/a		n/a		n/a		n/a		300 (s)
Lead	µg/L	3.3	J	12.5		1.2	U	9.1	J	2.2	U	2.2	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Magnesium	µg/L	**38,700**		**42,100**		**35,800**		**91,300**		25,500		**35,300**		n/a		n/a		n/a		n/a		n/a		35,000 (g)
Manganese	µg/L	239		236		143		**1,010**		84.3		145		n/a		n/a		n/a		n/a		n/a		300 (s)
Mercury	µg/L	0.2	U	0.2	U	0.11	U	0.12	J	0.04	BN	0.056	U	n/a		n/a		n/a		n/a		n/a		0.7 (s)
Nickel	µg/L	9.1	J	10.9	B	5.4	B	7.7	J	2.3	B	2.0		n/a		n/a		n/a		n/a		n/a		100 (s)
Potassium	µg/L	1,900		1,870		1,300		1,660		1,370		1,130		n/a		n/a		n/a		n/a		n/a		---
Selenium	µg/L	9.8	J	**26.4**	B	**19.6**	B	7.2	J	6.6	U	6.6	U	n/a		n/a		n/a		n/a		n/a		10 (s)
Silver	µg/L	10.5	J	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Sodium	µg/L	**35,900**		**31,800**		**35,100**		**30,200**		**23,900**		**27,300**		n/a		n/a		n/a		n/a		n/a		20,000 (s)
Thallium	µg/L	2.8	U	**5.8**	B	2.8	U	2.8	U	4.2	U	4.2	U	n/a		n/a		n/a		n/a		n/a		0.5 (g)
Vanadium	µg/L	n/a		4.1	B	2.1	B	8.8	J	1	B	1.2		n/a		n/a		n/a		n/a		n/a		14 (s)
Zinc	µg/L	n/a		25.5	B	11	B	55.8		18.4	B	13.5		n/a		n/a		n/a		n/a		n/a		2,000 (g)
Parameter List EPA Method 6010	**Well ID**	**8-26-007-MW-13S**																						**NYSDEC Ambient Water Quality Standard (µg/L)**
	Sample Date	**Jun-07**		**Sep-07**		**Dec-07**		**Mar-08**		**Sep-08**		**Jun-09**		**Mar-10**		**Jun-11**		**Mar-13**		**Jun-14**		**Oct-17**		
Aluminum	µg/L	37	U	70	B	37	U	73	J	n/a		56	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Antimony	ug/L		U		U		U		U	n/a		**7.50**		n/a		n/a		n/a		n/a		n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	2.5	U	n/a		5.3	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Barium	µg/L	66.8	J	74	B	93	B	76	J	n/a		91.7		n/a		n/a		n/a		n/a		n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	n/a		0.13	U	n/a		n/a		n/a		n/a		n/a		3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.11	U	n/a		0.67	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Calcium	µg/L	86,000		80,700		96,400		90,400		n/a		92,200		n/a		n/a		n/a		n/a		n/a		---
Chromium	µg/L	0.22	U	0.47	B	0.22	U	0.77	J	n/a		1.1	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Cobalt	µg/L	0.068	U	1.7	B	0.33	B	0.068	U	n/a		2.3		n/a		n/a		n/a		n/a		n/a		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	2.9	J	n/a		16.20	U	n/a		n/a		n/a		n/a		n/a		200 (s)
Iron	µg/L	**494**		**483**		**383**		**442**		n/a		**1,370**		n/a		n/a		n/a		n/a		n/a		300 (s)
Lead	µg/L	1.2	U	7.3	B	1.2	U	2	J	n/a		2.6	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Magnesium	µg/L	27,300		26,800		25,800		24,700		n/a		25,800		n/a		n/a		n/a		n/a		n/a		35,000 (g)
Manganese	µg/L	23.4	J	36.2	B	117		84		n/a		**769**		n/a		n/a		n/a		n/a		n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	J	n/a		0.056	U	n/a		n/a		n/a		n/a		n/a		0.7 (s)
Nickel	µg/L	3.2	J	4.7	B	3.8	B	0.99	J	n/a		1.8		n/a		n/a		n/a		n/a		n/a		100 (s)
Potassium	µg/L	933	J	1,250		1,100		1,020		n/a		1,130		n/a		n/a		n/a		n/a		n/a		---
Selenium	µg/L	**11.4**	J	**21.6**	B	**18**	B	5.2	U	n/a		6.6	U	n/a		n/a		n/a		n/a		n/a		10 (s)
Silver	µg/L	7	J	1.2	U	1.2	U	1.5	J	n/a		0.59	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Sodium	µg/L	6,570		4,620		19,200		18,100		n/a		10,200		n/a		n/a		n/a		n/a		n/a		20,000 (s)
Thallium	µg/L	2.8	U	**3.3**	B	2.8	U	2.8	U	n/a		4.2	U	n/a		n/a		n/a		n/a		n/a		0.5 (g)
Vanadium	µg/L	n/a		1.2	B	4.2	B	2.3	J	n/a		5.3		n/a		n/a		n/a		n/a		n/a		14 (s)
Zinc	µg/L	n/a		25.8	B	11.6	B	43.1	J	n/a		21.50		n/a		n/a		n/a		n/a		n/a		2,000 (g)

NOTE:
EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

Table 2 Historical Summary of Metals/Inorganics in Groundwater Samples

Parameter List EPA Method 6010	Well ID	8-26-007-MW-06S																						NYSDEC Ambient Water Quality Standard (µg/L)
	Sample Date	Jun-07		Sep-07		Dec-07		Mar-08		Sep-08		Jun-09		Mar-10		Jun-11		Mar-13		Jun-14		Oct-17		
Aluminum	µg/L	**797**		**316**		**333**		**3,280**		n/a		**300**		n/a		n/a		n/a		n/a		n/a		100 (s)
Antimony	µg/L		U		U		U		U	n/a		4.6	U	n/a		n/a		n/a		n/a		n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	3.2	B	2.5	U	n/a		5.3	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Barium	µg/L	32.7	J	41.5	B	50.1	B	39.3	J	n/a		35.3		n/a		n/a		n/a		n/a		n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.067	B	0.22	J	n/a		0.13	U	n/a		n/a		n/a		n/a		n/a		3 (g)
Cadmium	µg/L	0.11	U	0.011	U	0.11	U	0.29	J	n/a		0.14	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Calcium	µg/L	96,800		103,000		104,000		97,300		n/a		86,400		n/a		n/a		n/a		n/a		n/a		---
Chromium	µg/L	0.22	U	0.44	B	0.22	U	1.4	J	n/a		1.1	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Cobalt	µg/L	0.068	U	2.8	B	1.9	B	1.2	J	n/a		1.2	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	2.6	J	n/a		6.9	U	n/a		n/a		n/a		n/a		n/a		200 (s)
Iron	µg/L	**1,010**		**683**		**770**		**1,670**		n/a		**568**		n/a		n/a		n/a		n/a		n/a		300 (s)
Lead	µg/L	3	J	4.7	B	1.3	B	8.9	J	n/a		2.2	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Magnesium	µg/L	18,000		26,100		22,900		21,700		n/a		17,100		n/a		n/a		n/a		n/a		n/a		35,000 (g)
Manganese	µg/L	27.2	J	21.7	B	163		66.3		n/a		26.1		n/a		n/a		n/a		n/a		n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	J	n/a		0.056	U	n/a		n/a		n/a		n/a		n/a		0.7 (s)
Nickel	µg/L	3.8	J	5.8	B	4.6	B	2	J	n/a		1.5	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Potassium	µg/L	721	J	773	B	1,060		1,000		n/a		986		n/a		n/a		n/a		n/a		n/a		---
Selenium	µg/L	**15.8**	J	**23.2**	B	**15.9**	B	5.2	U	n/a		8.1		n/a		n/a		n/a		n/a		n/a		10 (s)
Silver	µg/L	7.7	J	1.2	U	1.2	U	1.2	U	n/a		0.59	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Sodium	µg/L	3,740		4,850		**5,170**		7,840		n/a		8,800		n/a		n/a		n/a		n/a		n/a		20,000 (s)
Thallium	µg/L	2.8	U	**4**	B	2.8	U	2.8	U	n/a		4.2	U	n/a		n/a		n/a		n/a		n/a		0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1.4	B	1.3	J	n/a		0.96	U	n/a		n/a		n/a		n/a		n/a		14 (s)
Zinc	µg/L	n/a		23.9	B	11.7	B	21.6	J	n/a		12.8		n/a		n/a		n/a		n/a		n/a		2,000 (g)
Parameter List EPA Method 6010	**Well ID**	**8-26-007-MW-07S**																						**NYSDEC Ambient Water Quality Standard (µg/L)**
	Sample Date	**Jun-07**		**Sep-07**		**Dec-07**		**Mar-08**		**Sep-08**		**Jun-09**		**Mar-10**		**Jun-11**		**Mar-13**		**Jun-14**		**Oct-17**		
Aluminum	µg/L	37	U	37	U	56.4	B	37	U	56	U	56	U	n/a		n/a		n/a		n/a		n/a		100 (s)
Antimony	µg/L		U		U		U		U			4.6	U	n/a		n/a		n/a		n/a		n/a		3 (s)
Arsenic	µg/L	2.5	U	2.5	U	2.5	U	2.5	U	5.3	U	5.3	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Barium	µg/L	834		504		492		463		466		391		n/a		n/a		n/a		n/a		n/a		1,000 (s)
Beryllium	µg/L	5	U	0.051	U	0.051	U	0.051	U	0.13	U	0.13	U	n/a		n/a		n/a		n/a		n/a		3 (g)
Cadmium	µg/L	0.11	U	0.11	U	0.11	U	0.11	U	0.14	U	0.14	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Calcium	µg/L	139,000		132,000		132,000		134,000		131,000		118,000		n/a		n/a		n/a		n/a		n/a		---
Chromium	µg/L	0.22	U	0.22	U	0.22	U	0.44	J	1.1	U	1.1	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Cobalt	µg/L	1.3	J	2.6	B	0.068	U	0.068	U	1.2	U	1.2	U	n/a		n/a		n/a		n/a		n/a		5 (s)
Copper	µg/L	1.7	U	1.7	U	1.7	U	1.7	U	5	U	6.7	U	n/a		n/a		n/a		n/a		n/a		200 (s)
Iron	µg/L	**76,900**		**4,950**		**4,610**		**6,010**		**4,380**		**4,520**		n/a		n/a		n/a		n/a		n/a		300 (s)
Lead	µg/L	2	J	2.2	B	1.2	U	1.2	U	2.2	U	2.2	U	n/a		n/a		n/a		n/a		n/a		25 (s)
Magnesium	µg/L	**50,500**		**50,800**		**50,800**		**51,400**		**49,600**		**45,100**		n/a		n/a		n/a		n/a		n/a		35,000 (g)
Manganese	µg/L	35.1	J	24.2	B	26	B	26.3	J	26.6	B	22.7		n/a		n/a		n/a		n/a		n/a		300 (s)
Mercury	µg/L	0.2	U	0.11	U	0.11	U	0.11	J	0.016	UN	0.056	U	n/a		n/a		n/a		n/a		n/a		0.7 (s)
Nickel	µg/L	9.9	J	12.2	B	10.7	B	8.3	J	7.5	B	5.3		n/a		n/a		n/a		n/a		n/a		100 (s)
Potassium	µg/L	1,390		1,570		1,500		1,390		1,370		1,300		n/a		n/a		n/a		n/a		n/a		---
Selenium	µg/L	**10.3**	J	**20.2**	B	**20.6**	B	5.2	U	6.6	U	6.6	U	n/a		n/a		n/a		n/a		n/a		10 (s)
Silver	µg/L	1.2	U	1.2	U	1.2	U	1.2	U	0.59	U	0.59	U	n/a		n/a		n/a		n/a		n/a		50 (s)
Sodium	µg/L	**36,800**		**42,300**		**43,000**		**54,200**		**42,700**		**40,700**		n/a		n/a		n/a		n/a		n/a		20,000 (s)
Thallium	µg/L	**10.5**	J	**5.1**	B	2.8	U	2.8	U	4.2	U	4.2	U	n/a		n/a		n/a		n/a		n/a		0.5 (g)
Vanadium	µg/L	n/a		0.4	U	1.4	B	0.41	J	0.96	U	0.96	U	n/a		n/a		n/a		n/a		n/a		14 (s)
Zinc	µg/L	n/a		16.8	B	11.3	B	16.2	J	16.1	B	10.5		n/a		n/a		n/a		n/a		n/a		2,000 (g)

NOTE:
EPA = U.S. Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
µg/L = Micrograms per Liter
n/a = Not Analyzed
U = The analyte ws analyzed for, but was not detected above the sample reporting limit.
B = indicates a "trace" concentration below the reporting limit and equal to or above the detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample
(s) = Value is listed as a standard value
(g) = Value is listed as a guidance value
All analytical data results provided by Mitkem Corporation
Only parameters that had at least one detection from the data set are shown
Bold values indicate that the analyte was detected above the NYSDEC AWQS

This page intentionally left blank

Table 3 Summary of Detected Per/Poly Fluorinated Compounds and 1,4-Dioxane in Groundwater Samples

Parameter List	Location ID	MW-9D		MW-5		MW-8U		MW-Duplicate-01		Guidance Values
	Lab ID	17K0048-01		17K0048-03		17K0048-04		17K0048-07		
	Sample Type	Groundwater		Groundwater		Groundwater		Groundwater		
	Sample Date	10/30/2017		10/30/2017		10/30/2017		10/30/2017		
Method SW-846 8270D										
1,4-Dioxane	µg/l	<0.033	U	**2.2**		**6.9**		<0.033	U	0.35 [1]
Method SOP 434-PFAAS										
Perfluorobutanesulfonic acid (PFBS)	ng/l	(<2.0)	U	(<2.0)	U	5.7		(<2.0)	U	---
Perfluorohexanoic acid (PFHxA)	ng/l	4.5		11		82		4.8		---
Perfluoroheptanoic acid (PFHpA)	ng/l	(<2.0)	U	3.4		38		(<2.0)	U	---
Perfluorohexanesulfonic acid (PFHxS)	ng/l	(<2.0)	U	4.8		16		(<2.0)	U	---
Perfluorooctanoic acid (PFOA)	ng/l	(<2.0)	U	9.3		17		(<2.0)	U	70 [2]
Perfluorooctanesulfonic acid (PFOS)	ng/l	(<2.0)	U	3.8		(<2.0)	U	(<2.0)	U	70 [2]

NOTE:
[1] Environmental Protection Agency (EPA)'s Integrated Risk Information System (IRIS) 2013 for drinking water representing a 1 x 10-6 cancer risk level.
[2] EPA health advisory level for drinking water - combined concentrations of PFOA and PFAS.
-- = Not analyzed.
U = The analyte was analyzed for, but was not detected above the sample reporting limit.
µg/l = micrograms per liter = parts per billion (ppb)
ng/l = nanograms per liter = parts per trillion (ppt)
Values shown in **bold** exceed the guidance value indicated.
Data provided by Con-Test Analytical.

This page intentionally left blank

Table 4 Historical Landfill Monitoring 2007-2017

Product	Sampling Point Location	Date							
		2007-Jun	2007-Sept	2007-Dec	2008-Mar	2008-Sept	2008-Dec	2009-Mar	2009-Jun
Carbon Monoxide	Base	0	0	0	0	0	0-2	0-1	0
	Grid over landfill	0	0	0	0	0	0	0	0
Lower Explosive Limit	Base	0	0	0-5	0	0	0	0	0
	Grid over landfill	0	0	0-5	0	0	0	0	0
Hydrogen Sulfide	Base	0	0	0-1	0	0	0	0	0
	Grid over landfill	0	0	0-1	0	0	0	0	0
Oxygen	Base	20.3	19.9-21.4	20.3-20.6	14-16	20.6-20.7	20.9	20.9	20.9
	Grid over landfill	20.2-20.3	19.9-21.2	20.3-20.6	14-16	20.6-20.7	20.9	20.9	20.9

Product	Sampling Point Location	Date							
		2009-Sept	2009-Dec	2010-Mar	2011-Mar	2011-June	2011-Oct	2011-Dec	2012-Apr
Carbon Monoxide	Base	0	0	0	0	0	0	0	0-2
	Grid over landfill	0	0	0	0	0	0	0	0-2
Lower Explosive Limit	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Hydrogen Sulfide	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Oxygen	Base	20.4	20.9	20.5-20.9	20.9	20.5-20.9	20.9	20.9	20.9
	Grid over landfill	20.4	20.9	20.5-20.9	20.9	20.5-20.9	20.9	20.9	20.9

Product	Sampling Point Location	Date							
		2012- Nov	2012-Dec	2012-Apr	2012- Nov	2012-Dec	2013-Mar	2013-Jun	2013-Sep
Carbon Monoxide	Base	0	0	0-2	0	0	0	0	0
	Grid over landfill	0	0	0-2	0	0	0	0	0
Lower Explosive Limit	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Hydrogen Sulfide	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Oxygen	Base	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
	Grid over landfill	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9

Product	Sampling Point Location	Date							
		2013-Dec	2014-Mar	2014-Jun	2014-Sep	2014-Dec	2015-Apr	2016-Jun	2017-Oct
Carbon Monoxide	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Lower Explosive Limit	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Hydrogen Sulfide	Base	0	0	0	0	0	0	0	0
	Grid over landfill	0	0	0	0	0	0	0	0
Oxygen	Base	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
	Grid over landfill	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9

This page intentionally left blank

Table 5 Historical Gas Vent Monitoring 2007-2017

		Date																										
Product	**Vent**	**2007-Jun**	**2007-Sep**	**2007-Dec**	**2008-Mar**	**2008-Sep**	**2008-Dec**	**2009-Mar**	**2009-Jun**	**2009-Sep**	**2009-Dec**	**2010-Mar**	**2011-Mar**	**2011-Jun**	**2011-Oct**	**2011-Dec**	**2012-Apr**	**2012-Nov**	**2012-Dec**	**2013-Mar**	**2013-Jun**	**2013-Dec**	**2014-Mar**	**2014-Jun**	**2014-Sep**	**2014-Dec**	**2015-Apr**	**2016-Jun**	**2017-Oct**
	Vent 1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0
	Vent 3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 4	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0
Carbon	Base	0	0	0	0	0	0-2	0-1	0	0	0	0	0	0	0	0	0-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monoxide	Grid	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 1	0	1	91	82	0	0	98	73	0	0	0	0	100	7	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 2	0	0	22	100	0	0	100	100	0	0	0	7	100	6	0	0	0	92	0	0	0	92	0	0	0	0	0	0	0
	Vent 3	0	0	72	27	0	0	100	100	0	1	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 4	0	20	18	100	0	0	71	80	0	0	0	0	52	3	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 5	0	1	2	100	0	0	86	65	0	0	0	0	100	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 6	1	47	59	100	1	0	12	88	0	0	0	0	100	7	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower	Vent 7	10	33	60	100	0	0	100	100	0	22	0	0	100	7	0	6	0	17	0	0	0	17	0	0	0	0	0	0	0
Explosive	Base	0	0	0-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limit	Grid	0	0	0-5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 5	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 6	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrogen	Base	0	0	0-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sulfide	Grid	0	0	0-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Vent 1	20.3	21.3	15.9	-	20.7	20.9	19.5	20.5	20.4	20.9	20.9	20.9	19.3	20.9	20.9	20.6	21.7	20.9	20.2	20.9	20.9	20.9	20.2	20.9	20.9	20.9	20.9	20.9	20.9
	Vent 2	20.3	21.3	12.9	-	20.7	20.9	18.1	19.3	20.4	20.9	20.9	20.9	18.2	20.9	20.9	20.4	20.9	17.4	20.2	20.9	20.9	17.4	20.2	20.9	20.9	20.9	20.9	20.9	20.9
	Vent 3	20.3	20.7	14.9	-	20.7	20.9	19	17.5	20.4	20.9	20.7	20.9	19	20.9	20.1	20.4	20.9	20.5	20.2	20.9	20.9	20.5	20.2	20.9	20.9	20.9	20.9	20.9	20.9
	Vent 4	20.2	21.5	16.8	-	20.7	20.9	19.5	19.4	20.4	20.9	20.7	20.9	20.1	20.9	20.4	20.5	22.3	20.9	20.3	20.9	20.9	20.9	20.3	20.9	20.9	20.9	20.9	20.9	20.9
	Vent 5	20.5	21.5	20.9	-	20.7	20.9	19.3	20.9	20.4	20.9	20.6	20.9	14.9	20.9	20.3	20.4	20.9	20.9	20.3	20.9	20.9	20.9	20.3	20.9	20.9	20.9	20.9	20.9	20.9
	Vent 6	20.5	14.7	10	-	20.7	20.9	20.3	19.7	20.4	20.9	20.5	20.9	10	20.9	20.9	20.9	20.9	20.9	20.3	20.9	20.9	20.9	20.3	20.9	20.9	20.9	20.9	20.9	20.9
	Vent 7	20.2	20.3	19.8	-	20.7	20.9	18.1	19.8	20.4	20.9	20.5	20.6	18.8	20.9	20.9	20.3	20.9	20.2	20.2	20.9	20.9	20.2	20.2	20.9	20.9	20.9	20.9	20.9	20.9
	Base	20.3	21.4	20.6	16	20.7	20.9	20.9	20.4	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.2	20.9	20.9	20.9	20.2	20.9	20.9	20.9	20.9	20.9	20.9
Oxygen	Grid	20.2	21.2	20.6	16	20.7	20.9	20.9	20.9	20.4	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.2	20.9	20.9	20.9	20.2	20.9	20.9	20.9	20.9	20.9	20.9

This page intentionally left blank

Appendix A

Institutional/Engineering Control Certification

This page intentionally left blank

Enclosure 1
Engineering Controls - Standby Consultant/Contractor Certification Form

Site Details **Box 1**

Site No. **826007**

Site Name William Benson Landfill

Site Address: 7404 Richmond Mills Road Zip Code: 14487
City/Town: Livonia
County: Livingston
Site Acreage: 13.0

Reporting Period: December 31, 2014 to December 31, 2017

	YES	NO
1. Is the information above correct?	X	☐
If NO, include handwritten above or on a separate sheet.		
2. To your knowledge has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	X
3. To your knowledge has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	X
4. To your knowledge 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. To your knowledge is the site currently undergoing development?	☐	☐

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Closed Landfill	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 contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Standby Consultant/Contractor Date

SITE NO. 826007 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
76-1-18.21	Benson William J.	Monitoring Plan Site Management Plan IC/EC Plan Ground Water Use Restriction Landuse Restriction O&M Plan

Institutional Control: A Deed Restriction is in place that restricts site use to commercial/industrial and restricts groundwater usage.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
76-1-18.21	Cover System

Engineering Control: Modified 6 NYCRR Part 360 cover system consisting of, from top to bottom, a vegetativ layer, a soil barrier protection layer, a geosynthetic drainage layer, a geomembrane, a geosynthetic gas venting layer and a cover foundation layer.

Box 5

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, including data and material prepared by previous contractors for the current certifying period, if any;

   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 compete.

YES	NO
X	☐

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) nothing has occurred that would constitute a failure to comply with the Site Management Plan, or equivalent if no Site Management Plan exists.

YES	NO
X	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and contact the DEC PM regarding the development of a Corrective Measures Work Plan to address these issues.

Signature of Standby Consultant/Contractor

Date

Box 6

IC/EC CERTIFICATIONS

Professional Engineer Signature

I certify that all information in Boxes 2 through 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Donald Conan at EA Engineering, P.C.
print name

6712 Brooklawn Pkwy

Syracuse NY 13211
(print business address)

am certifying as a Professional Engineer.

Donald Conan

Signature of Professional Engineer

Stamp Required for PE

1/31/18
Date

Enclosure 1
Institutional and Engineering Controls - Property Owner Survey

Site Details **Box 1**

Site No. 826007

Site Name William Benson Landfill

Site Address: 7404 Richmond Mills Road Zip Code: 14487
City/Town: Livonia
County: Livingston
Site Acreage: 13.0

Reporting Period: December 31, 2014 to December 31, 2017

	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?	☐	☐
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, 3 or 4, include documentation with this form.		
5. Is the site currently undergoing development?	☐	X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Closed Landfill	X	☐
7. Are all Institutional Controls (ICs) in place and functioning as designed?	X	☐

Jean M Benson
Signature of Property Owner

12-14-17
Date

SITE NO. 826007 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
76-1-18.21	Benson William J. Deceased	Monitoring Plan Site Management Plan IC/EC Plan Ground Water Use Restriction Landuse Restriction O&M Plan

Institutional Control: A Deed Restriction is in place that restricts site use to commercial/industrial and restricts groundwater usage.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
76-1-18.21	Cover System

Engineering Control: Modified 6 NYCRR Part 360 cover system consisting of, from top to bottom, a vegetativ layer, a soil barrier protection layer, a geosynthetic drainage layer, a geomembrane, a geosynthetic gas venting layer and a cover foundation layer.

Box 5

Periodic Review Report (PRR) Survey Statements

For each Institutional or Engineering control listed in Boxes 3 and/or 4, by checking "YES" below I believe all of the following statements to be true:

(a) the Institutional Control(s) and/or Engineering Control(s) employed at this site remain 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; and

(d) if a Site Management Plan (SMP) exists, nothing has occurred that would constitute a violation or failure to comply with the SMP for this Control.

YES	NO
X	☐

Joan M Benson 12-14-17

Signature of Property Owner Date

Appendix B

Landfill Inspection Reports and Groundwater Field Forms

This page intentionally left blank

LANDFILL INSPECTION REPORT **Day: Thursday Date: 4/16/15**

	NYSDEC		Temperature: (F)	45	(am)	N/A	(pm)
			Wind Direction:	N 5 mph	(am)	N/A	(pm)
WILLIAM BENSON LANDFILL			Weather:	(am) Sunny			
NYSDEC Site # 8-26-007				(pm) N/A			
Contract # 14907.12			Arrive at site	0815	am		
Livonia, New York			Leave site:	0945	am		

Site Security

Evidence of vandalism (wells, vents, protective cover damage):

None

Evidence of cover system intrusion (ruts, burrows, excavations):

None.

Evidence of penetrations (poles, posts, stakes):

None

Evidence of human encroachment (trash, fire pits, tire/footprints):

None

General site condition:
Good.

Additional Comments:

No evidence of disturbance.

Vegetative Cover and Geosynthetics

Evidence of erosion, settlement, rutting, potholes, slippage:

None.

Evidence of stressed vegetation or bare spots:

None.

Exposed geosynthetics, if so, any visible signs of damage to geosynthetics:

None.

Additional Comments:
None.

Gas Venting System & Groundwater Monitoring Points

Evidence of damage to wells/vents or surrounding area (cracking, misalignment, missing pieces):

GP-24: Piezometer well pad is broken.

Evidence of cover system subsidence or upheaval near wells/vents:

None

Evidence of wildlife intrusion (nests, burrows, wasp nests):

Deer beds.

Evidence of spilled liquids (well tampering/vent blowout):

None

GAS VENTS: Unusual conditions – belching, whistling, excessive gas (odor) production:

None

MONITORING WELLS: Well covers in place and secure:

All wells are covered and secure.

LANDFILL INSPECTION REPORT **Day: Wednesday Date: 6.22.16**

	NYSDEC		Temperature: (F)	75	(am)	85	(pm)
			Wind Direction:		(am)		(pm)
WILLIAM BENSON LANDFILL			Weather:	(am) Sunny			
NYSDEC Site # 8-26-007				(pm) N/A			
Contract # 14907.12			Arrive at site	1120	am		
Livonia, New York			Leave site:	320	pm		

Site Security

Evidence of vandalism (wells, vents, protective cover damage):

None.

Evidence of cover system intrusion (ruts, burrows, excavations):

None.

Evidence of penetrations (poles, posts, stakes):

None.

Evidence of human encroachment (trash, fire pits, tire/footprints):

None.

General site condition:

Good, very overgrown, lots of deer and deer beds.

Additional Comments:

Vegetative Cover and Geosynthetics

Evidence of erosion, settlement, rutting, potholes, slippage:

None.

Evidence of stressed vegetation or bare spots:

None.

Exposed geosynthetics, if so, any visible signs of damage to geosynthetics:

None.

Additional Comments:

Overgrown, grass was chest high, trees and plants had covered the gas vents and wells.

Gas Venting System & Groundwater Monitoring Points

Evidence of damage to wells/vents or surrounding area (cracking, misalignment, missing pieces):

None, some vents were covered with plants.

Evidence of cover system subsidence or upheaval near wells/vents:

None.

Evidence of wildlife intrusion (nests, burrows, wasp nests):

None.

Evidence of spilled liquids (well tampering/vent blowout):

None.

GAS VENTS: Unusual conditions – belching, whistling, excessive gas (odor) production:

None.

MONITORING WELLS: Well covers in place and secure:

On the wells that were found. Most wells, were covered in growth and not visible or found.

Additional Comments:

Landfill/Gas Vent Monitoring Data

Landfill Monitoring			Gas Vent Monitoring		
Area	CO %LEL	FID Reading (ppm) O_2 / H_2S	Gas Vent	CO %LEL	FID Reading (ppm) O_2 / H_2S
South	0	0	1	0	0
	0	20.9 / 0		0	20.9 / 0
West	0	0	2	0	0
	0	20.9 / 0		0	20.9 / 0
North	0	0	3	0	0
	0	20.9 / 0		0	20.9 / 0
East	0	0	4	0	0
	0	20.9 / 0		0	20.9 / 0
Top of Landfill	0	0	5	0	0
	0	20.9 / 0		0	20.9 / 0
			6	0	0
				0	20.9 / 0
			7	0	0
				0	20.9 / 0

Inspection Photo log

Additional Comments:

Removed 5.25” from OP-1 casing so it will close properly

Landfill/Gas Vent Monitoring Data

Landfill Monitoring			Gas Vent Monitoring		
Area	CO	FID Reading (ppm)	Gas Vent	CO	FID Reading (ppm)
	%LEL	O_2		%LEL	O_2
South	0	0	1	0	0
	0	20.9		0	20.9
West	0	0	2	0	0
	0	20.9		0	20.9
North	0	0	3	0	0
	0	20.9		0	20.9
East	0	0	4	0	0
	0	20.9		0	20.9
Top of Landfill	0	0	5	0	0
	0	20.9		0	20.9
			6	0	0
				0	20.9
			7	0	0
				0	20.9

Inspection Photo log

Looking North.

Looking South.

West side of Landfill.

Northeast side of Landfill.

LANDFILL INSPECTION REPORT **Day: Monday Date: 10.30.17**

	NYSDEC		**Temperature: (F)**	45	(am)	46	(pm)
			Wind Direction:	NNE	(am)	NE	(pm)
WILLIAM BENSON LANDFILL			**Weather:**	(am) Cold, overcast, light rain (pm) windy, cold, overcast			
NYSDEC Site # 8-26-007							
Contract # 14907.12			**Arrive at site**	815	am		
Livonia, New York			**Leave site:**	430	pm		

Site Security

Evidence of vandalism (wells, vents, protective cover damage):

None.

Evidence of cover system intrusion (ruts, burrows, excavations):

None.

Evidence of penetrations (poles, posts, stakes):

None.

Evidence of human encroachment (trash, fire pits, tire/footprints):

None.

General site condition:

Good, area around the wells were overgrown. Gas vents were cleared of debris.

Additional Comments:

Gate was locked and secured in place. The gate area was slightly overgrown.

Vegetative Cover and Geosynthetics

Evidence of erosion, settlement, rutting, potholes, slippage:

None.

Evidence of stressed vegetation or bare spots:

None.

Exposed geosynthetics, if so, any visible signs of damage to geosynthetics:

None.

Additional Comments:

Sampling was conducted in the fall, natural dying processes were starting to take place.

Gas Venting System & Groundwater Monitoring Points

Evidence of damage to wells/vents or surrounding area (cracking, misalignment, missing pieces):

None.

Evidence of cover system subsidence or upheaval near wells/vents:

None.

Evidence of wildlife intrusion (nests, burrows, wasp nests):

None.

Evidence of spilled liquids (well tampering/vent blowout):

None.

GAS VENTS: (Unusual conditions – belching, whistling, excessive gas (odor) production):

None. Area around gas vents was clear.

MONITORING WELLS: (Well covers in place and secure)

Tried to gauged GP-8, the well and pad was tipped over by a tree. Also, the rain from the previous day caused area flooding. Water was under the well and possibly had entered the pvc casing. Cut the well locks on GP-6, GP-12, GP-11 and GP-22. GP-12 had something blocking the well and the well could not be gauged. GP-21 did not have a casing around the PVC. MW-8S and MW-8D were not found during the sampling event. Could not locate MW-7S, GP-24 and GP-7.

LANDFILL INSPECTION REPORT

Day: **Monday** **Date:** **10.30.17**

Additional Comments:

Rain from the previous day caused area flooding at the site.

Landfill/Gas Vent Monitoring Data

Landfill Monitoring			Gas Vent Monitoring		
Area	CO %LEL	PID Reading (ppm) O_2 / H_2S	Gas Vent	CO %LEL	PID Reading (ppm) O_2 / H_2S
South	0	0.0	1	0	0.2
	0	20.9 /0		0	20.9 /0
West	0	0.0	2	0	0.0
	0	20.9 /0		0	20.9 /0
North	0	0.0	3	0	0.0
	0	20.9 /0		0	20.9 /0
East	0	0.0	4	0	0.0
	0	20.9 /0		0	20.9 /0
Top of Landfill	0	0.0	5	0	0.0
	0	20.9 /0		0	20.9 /0
			6	0	0.0
				0	20.9 /0
			7	0	0.0
				0	20.9 /0

Inspection Photo log

	
GP-8, knocked over by tree.	GP-8, underside.
	
MW-8U	MW-11S

EA Engineering, PC and Its Affiliate
EA Science and Technology

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

GROUNDWATER SAMPLING PURGE FORM

Well I.D.: MW-5	**EA Personnel:** S. Nelson / J. Marra	**Client:** NYSDEC
Location: William Benson Landfill	**Well Condition:** good, overgrown	**Weather:** light rain, ~46 F, cloudy, cold
Sounding Method: 100-ft Solinst WLI	**Gauge Date:** 10.30.17	**Measurement Ref:** TOC
Stick Up/Down (ft): up 2.5'	**Gauge Time:** 1310	**Well Diameter (in):** 2"

Purge Date: 10.30.17	**Purge Time:** 1318-1342
Purge Method: Low Flow - Peristaltic Pump	**Field Technician:** S. Nelson / J. Marra

Well Volume

A. Well Depth (ft):	**D. Well Volume (ft):** 0.163	**Depth/Height of Top of PVC:** up 2.5'
B. Depth to Water (ft):	**E. Well Volume (gal) C*D):** 0	**Pump Type:** Peristaltic
C. Liquid Depth (ft) (A-B): 0	**F. Five Well Volumes (gal) (E3):** 0	**Pump Designation:** 20.00'

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (Lpm)	pH (pH units)	ORP (mV)	Temp (oC)	Cond (uS/cm)	DO (ug/L)	Turbidity (ntu)
1318	--	0	0.25	6.06	-44	12.25	0.79	1.87	216
1322	--	1	0.25	6.07	-49	12.35	0.708	1.14	112
1326	--	2	0.25	6.00	-50	12.34	0.70	0.81	47.5
1330	--	3	0.25	5.99	-51	12.38	0.698	0.63	30.1
1334	--	4	0.25	5.99	-54	12.38	0.702	0.48	23.6
1338	--	5	0.25	5.94	-53	12.41	0.711	0.38	23.8
1342	--	6	0.25	6.08	-55	12.42	0.719	0.36	25.2

Total Quantity of Water Removed (Liter): 6
Samplers: SN/JM
Sampling Date: 10.30.17
Sampling Time: 1342
Split Sample With: MS/MSD
Sample Type: grab, GW

COMMENTS AND OBSERVATIONS: Collected PFC and 1,4 Dioxane samples at this location, could not collect gauging information due to the sensitivity of the sampling. The well was not gauged to prevent contamination in the samples.

EA Engineering, PC and its Affliate
EA Science and Technology

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

GROUNDWATER SAMPLING PURGE FORM

Well I.D.: MW-8U	**EA Personnel:** S. Nelson / J. Marra	**Client:** NYSDEC
Location: William Benson Landfill	**Well Condition:** ok	**Weather:** ~46 F, cloudy, cold, windy
Sounding Method: 100-ft Solinst WLI	**Gauge Date:** 10.30.17	**Measurement Ref:** TOC
Stick Up/Down (ft): up 2.5'	**Gauge Time:**	**Well Diameter (in):** 2"

Purge Date: 10.30.17	**Purge Time:** 1405-1411
Purge Method: Low Flow - Peristaltic Pump	**Field Technician:** S. Nelson / J. Marra

Well Volume

A. Well Depth (ft):	**D. Well Volume (ft):** 0.163	**Depth/Height of Top of PVC:** up 2.5'
B. Depth to Water (ft):	**E. Well Volume (gal) C*D):** 0	**Pump Type:** Peristaltic
C. Liquid Depth (ft) (A-B): 0	**F. Five Well Volumes (gal) (E3):** 0	**Pump Designation:** 20.00'

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (Lpm)	pH (pH units)	ORP (mV)	Temp (oC)	Cond (uS/cm)	DO (ug/L)	Turbidity (ntu)
1405	--	0	0.25	6.97	-27	11.94	1.53	6.36	181
1408	--	0.75	0.25	6.90	-20	11.36	1.5	4.43	112
1411	--	1.5	0.25	6.84	-20	11.75	1.53	2.36	194

Total Quantity of Water Removed (Liter): 1.5
Samplers: SN/JM
Sampling Date: 10.30.17
Sampling Time: 1445
Split Sample With: none
Sample Type:

COMMENTS AND OBSERVATIONS: Collected PFC and 1,4 Dioxane samples at this location, could not collect gauging information due to the sensitivity of the sampling. The well was not gauged to prevent contamination in the samples. Well went dry during purging at 1412, was allowed to recharge prior to sampling.

EA Engineering, PC and its Affliate
EA Science and Technology

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

GROUNDWATER SAMPLING PURGE FORM

Well I.D.: MW-9S	**EA Personnel:** S. Nelson / J. Marra	**Client:** NYSDEC
Location: William Benson Landfill	**Well Condition:** good	**Weather:** ~46 F, cloudy, cold, windy
Sounding Method: 100-ft Solinst WLI	**Gauge Date:** 10.30.17	**Measurement Ref:** TOC
Stick Up/Down (ft): up 2.5'	**Gauge Time:** 1155	**Well Diameter (in):** 2"

Purge Date: 10.30.17	**Purge Time:** 1204-1232
Purge Method: Low Flow - Peristaltic Pump	**Field Technician:** S. Nelson / J. Marra

Well Volume

A. Well Depth (ft): 22.38	**D. Well Volume (ft):** 0.163	**Depth/Height of Top of PVC:** up 2.5'
B. Depth to Water (ft): 10.45	**E. Well Volume (gal) C*D):** 1.94459	**Pump Type:** Peristaltic
C. Liquid Depth (ft) (A-B): 11.93	**F. Five Well Volumes (gal) (E3):** 9.72295	**Pump Designation:** 20.00'

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (Lpm)	pH (pH units)	ORP (mV)	Temp (oC)	Cond (uS/cm)	DO (ug/L)	Turbidity (ntu)
1204	10.67	0	0.25	6.48	82	11.71	0.684	20.59	315
1208	10.81	1	0.25	5.70	50	11.99	0.684	5.03	42.1
1212	10.81	2	0.25	5.70	49	12.07	0.678	3.73	37.9
1216	10.85	3	0.25	5.71	60	12.15	0.676	2.51	42.0
1220	10.87	4	0.25	5.89	106	12.05	0.683	3.66	41.2
1224	10.89	5	0.25	5.81	94	12.13	0.682	2.09	40.0
1228	10.91	6	0.25	5.80	100	12.17	0.682	2.03	39.1
1232	10.96	7	0.25	5.82	102	12.3	0.682	2.17	37.1

Total Quantity of Water Removed (Liter): 7
Samplers: SN/JM
Sampling Date: 10.30.17
Sampling Time: 1232
Split Sample With: none
Sample Type: grab, GW

COMMENTS AND OBSERVATIONS:

EA Engineering, PC and its Affliate
EA Science and Technology

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

GROUNDWATER SAMPLING PURGE FORM

Well I.D.: MW-9D	**EA Personnel:** S. Nelson / J. Marra	**Client:** NYSDEC
Location: William Benson Landfill	**Well Condition:** good	**Weather:** ~46 F, cloudy, cold, windy
Sounding Method: 100-ft Solinst WLI	**Gauge Date:** 10.30.17	**Measurement Ref:** TOC
Stick Up/Down (ft): up 2.5'	**Gauge Time:** 1145	**Well Diameter (in):** 2"

Purge Date: 10.30.17	**Purge Time:** 1057-1117
Purge Method: Low Flow - Peristaltic Pump	**Field Technician:** S. Nelson / J. Marra

Well Volume

A. Well Depth (ft): 35.9	**D. Well Volume (ft):** 0.163	**Depth/Height of Top of PVC:** up 2.5'
B. Depth to Water (ft): 24.4	**E. Well Volume (gal) C*D):** 1.8745	**Pump Type:** Peristaltic
C. Liquid Depth (ft) (A-B): 11.5	**F. Five Well Volumes (gal) (E3):** 9.3725	**Pump Designation:** 20.00'

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (Lpm)	pH (pH units)	ORP (mV)	Temp (oC)	Cond (uS/cm)	DO (ug/L)	Turbidity (ntu)
1057		0	0.25	7.41	-96	12.84	0.11	0.525	4.0
1101		1	0.25	7.40	-89	11.93	0.0	0.535	2.0
1105		2	0.25	7.37	-83	11.84	0.0	0.533	1.1
1109		3	0.25	7.34	-82	11.43	0.0	0.537	1.8
1113		4	0.25	7.33	-81	11.36	0.0	0.536	1.7
1117		5	0.25	7.32	-81	11.29	0.0	0.536	1.4

Total Quantity of Water Removed (Liter): 5
Samplers: SN/JM
Sampling Date: 10.30.17
Sampling Time: 1117
Split Sample With: duplicate
Sample Type: grab, GW

COMMENTS AND OBSERVATIONS: Collected PFC and 1,4 Dioxane samples at this location, could not collect gauging information due to the sensitivity of the sampling. The well was not gauged to prevent contamination in the samples.

EA Engineering, PC and its Affiliate
EA Science and Technology

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

GROUNDWATER SAMPLING PURGE FORM

Well I.D.: MW-11S	**EA Personnel:** S. Nelson / J. Marra	**Client:** NYSDEC
Location: William Benson Landfill	**Well Condition:** good	**Weather:** ~46 F, cloudy, cold, windy
Sounding Method: 100-ft Solinst WLI	**Gauge Date:** 10.30.17	**Measurement Ref:** TOC
Stick Up/Down (ft): up 2.5'	**Gauge Time:** 1500	**Well Diameter (in):** 2"

Purge Date: 10.30.17	**Purge Time:** 1512-1544
Purge Method: Low Flow - Peristaltic Pump	**Field Technician:** S. Nelson / J. Marra

Well Volume

A. Well Depth (ft): 22.79	**D. Well Volume (ft):** 0.163	**Depth/Height of Top of PVC:** up 2.5'
B. Depth to Water (ft): 2.34	**E. Well Volume (gal) C*D):** 3.33335	**Pump Type:** Peristaltic
C. Liquid Depth (ft) (A-B): 20.45	**F. Five Well Volumes (gal) (E3):** 16.66675	**Pump Designation:** 20.00'

Water Quality Parameters

Time (hrs)	DTW (ft btoc)	Volume (liters)	Rate (Lpm)	pH (pH units)	ORP (mV)	Temp (oC)	Cond (uS/cm)	DO (ug/L)	Turbidity (ntu)
1512	3.22	0	0.25	6.97	-45	11.17	0.968	11.59	200
1516	3.30	1	0.25	6.73	-74	11.88	0.966	2.26	93.0
1520	3.34	2	0.25	6.62	-73	11.98	0.965	1.29	73.0
1524	3.35	3	0.25	6.57	-71	12.01	0.964	0.90	61.3
1528	3.50	4	0.25	6.55	-70	12.13	0.966	0.74	56.4
1532	3.61	5	0.25	6.53	-70	12.21	0.967	0.58	53.2
1536	3.75	6	0.25	6.58	-69	12.28	0.968	0.51	50.5
1540	3.81	7	0.25	6.52	-69	12.31	0.969	0.47	48.2
1544	3.90	8	0.25	6.51	-69	12.31	0.971	0.45	49.6

Total Quantity of Water Removed (Liter): 8
Samplers: SN/JM
Sampling Date: 10.30.17
Sampling Time: 1544
Split Sample With: none
Sample Type: grab / GW

COMMENTS AND OBSERVATIONS:

Appendix C

Daily Field Reports

This page intentionally left blank

DAILY OBSERVATION REPORT **Day: Wednesday** **Date: 6.22.16**

Temperature: (F)	70	(am)	80	(pm)
Wind Direction:		(am)		(pm)
Weather:	(am) Sunny, hot, some clouds			
	(pm) sunny, hot, some clouds			

Project Name
William Benson Landfill
NYSDEC Site # 8-26-007

Contract # 149074.12

Livonia, New York

Arrive at site 1120 (am)

Leave site: 320 (pm)

HEALTH & SAFETY:

Are there any changes to the Health & Safety Plan? Yes ( ) No (X)
(If yes, list the deviation under items for concern)

Are monitoring results at acceptable levels?	Soil	Yes ( )	n/a (X)	* No ( )
	Waters	Yes ( )	n/a (X)	* No ( )
	Air	Yes ( )	n/a (X)	* No ( )

OTHER ITEMS:

- *If No, provide comments*

Site Sketch Attached: Yes ( ) No (X)
Photos Taken: Yes (X) No ( )

DESCRIPTION OF DAILY WORK PERFORMED:

Conducted an inspection of the landfill cap and surrounding area, including the gas vents and monitoring wells. Photos recorded and included in Inspection Report.

CONTRACTOR/SUBCONTRACTOR EQUIPMENT AND PERSONNEL ON SITE:

(Name of contractor) personnel: Sarah Nelson

(Name of Subcontractor) personnel: none

(Name of contractor) equipment: 5 gas meter, WLI, pickup truck

(*Indicates active equipment)

Other Subcontractors: none

VISITORS TO SITE:

1. None

PROJECT SCHEDULE ISSUES:

NONE

PROJECT BUDGET ISSUES:

NONE

ITEMS OF CONCERN:

NONE

COMMENTS:

NONE

ATTACHMENT(S) TO THIS REPORT:

NONE

SITE REPRESENTATIVE:

Name: Sarah Nelson

DAILY OBSERVATION REPORT **Day: Monday** **Date: 10.30.17**

Temperature: (F)	45	(am)	48	(pm)
Wind Direction:	SE 20mph	(am)	SE 25mph	(pm)
Weather:	(am) light rain, overcast, cold, windy (pm) overcast, windy, cold			

Project Name
William Benson Landfill
NYSDEC Site # 8-26-007

Contract # 149074.12

Livonia, New York

Arrive at site 815 (am)

Leave site: 445 (pm)

HEALTH & SAFETY:

Are there any changes to the Health & Safety Plan? Yes ( ) No (X)
(If yes, list the deviation under items for concern)

Are monitoring results at acceptable levels?

Soil	Yes ( )	n/a (X)	* No ( )
Waters	Yes ( )	n/a (X)	* No ( )
Air	Yes ( )	n/a (X)	* No ( )

OTHER ITEMS:

- *If No, provide comments*

Site Sketch Attached: Yes ( ) No (X)
Photos Taken: Yes (X) No ( )

DESCRIPTION OF DAILY WORK PERFORMED:

Onsite for groundwater sampling and landfill inspection. JM and SN onsite at 815 am. Gauged 15 wells prior to sampling. Conducted landfill inspection and used a 5 part gas meter to collect readings of H2S, CO2, LEL, O2 and VOCs at seven gas vent locations. Collected groundwater samples at 5 locations. Monitoring wells MW-8S and MW-8D were missing and could not be found. GP-8 was knocked over by a tree and a large amount of water that had accumulated from the previous days rain event was flowing under the well, therefore the well was not gauged.

SAMPLING (Soil/Water/Air)

Sample ID:	Sample Date / Time:	Description of analysis:
MW-9D (duplicate)	10.30.17 / 1117	TAL metals, T Cyanide, 1,4-Dioxane, PFC
MW-9S	10.30.17 / 1232	TAL metals, T Cyanide
MW-8U	10.30.17 / 1445	TAL metals, T Cyanide, 1,4-Dioxane, PFC
MW-5 (ms/msd)	10.30.17 / 1342	TAL metals, T Cyanide, 1,4-Dioxane, PFC
MW-11S	10.30.17 / 1544	TAL metals, T Cyanide

DAILY OBSERVATION REPORT

Day: Monday **Date: 10.30.17**

CONTRACTOR/SUBCONTRACTOR EQUIPMENT AND PERSONNEL ON SITE:

(Name of contractor) personnel: Sarah Nelson, Justin Marra

(Name of Subcontractor) personnel: none

(Name of contractor) equipment: 5 gas meter, WLI, pickup truck, peristaltic pump, tubing, Horiba-U52,

(*Indicates active equipment)

Other Subcontractors: none

VISITORS TO SITE:

1. None

PROJECT SCHEDULE ISSUES:

NONE

PROJECT BUDGET ISSUES:

NONE

ITEMS OF CONCERN:

NONE

COMMENTS:

NONE

ATTACHMENT(S) TO THIS REPORT:

NONE

SITE REPRESENTATIVE:

Name: Sarah Nelson

DAILY OBSERVATION REPORT **Day: Monday** **Date: 10.30.17**

PHOTO LOG

MW-11S

GP-08

GP-08 underneath

MW-8U

This page intentionally left blank

Appendix D

Analytical Results 2017

This page intentionally left blank

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

November 10, 2017

Christopher Schroer
EA Engineering, Science & Tech. - NY
6712 Brooklawn Parkway, Suite 104
Syracuse, NY 13211

Project Location: William Benson Landfill - Livonia, NY
Client Job Number:
Project Number: 14907.12
Laboratory Work Order Number: 17K0048

Enclosed are results of analyses for samples received by the laboratory on November 1, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Aaron L. Benoit
Project Manager

Table of Contents

Sample Summary 3

Case Narrative 4

Sample Results 5

17K0048-01 5

17K0048-02 8

17K0048-03 10

17K0048-04 13

17K0048-05 16

17K0048-06 18

17K0048-07 19

Sample Preparation Information 22

QC Data 23

1,4-Dioxane by isotope dilution GC/MS 23

B190132 23

Metals Analyses (Total) 24

B190439 24

B190440 25

B190529 27

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) 28

B190009 28

Flag/Qualifier Summary 29

Certifications 30

Chain of Custody/Sample Receipt 32

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EA Engineering, Science & Tech. - NY
6712 Brooklawn Parkway, Suite 104
Syracuse, NY 13211
ATTN: Christopher Schroer

REPORT DATE: 11/10/2017

PURCHASE ORDER NUMBER: 14907.12

PROJECT NUMBER: 14907.12

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17K0048

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William Benson Landfill - Livonia, NY

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-9D	17K0048-01	Ground Water		SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8270D	
				SW-846 9014	
MW-9S	17K0048-02	Ground Water		SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 9014	
MW-5	17K0048-03	Ground Water		SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8270D	
				SW-846 9014	
MW-8U	17K0048-04	Ground Water		SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8270D	
				SW-846 9014	
MW-11S	17K0048-05	Ground Water		SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 9014	
Rinse Blank	17K0048-06	Rinse Blank		SW-846 8270D	
MW-Duplicate-01	17K0048-07	Ground Water		SW-846 6010C-D	
				SW-846 6020A-B	
				SW-846 7470A	
				SW-846 8270D	
				SW-846 9014	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 6010C-D

Qualifications:

MS-19

Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

Analyte & Samples(s) Qualified:

Calcium
17K0048-03[MW-5], B190439-MS1, B190439-MSD1

Magnesium
17K0048-03[MW-5], B190439-MSD1

Sodium
17K0048-03[MW-5], B190439-MSD1

SW-846 6010C/D SW-846 6020A/B

For NC, Metals methods SW-846 6010D and SW-846 6020B are followed, and for all other states methods SW-846 6010C and SW-846 6020A are followed.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-9D Sampled: 10/30/2017 11:17

Sample ID: 17K0048-01

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.20	0.033	µg/L	1		SW-846 8270D	11/3/17	11/9/17 18:26	CJM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	21.4	15-110		11/9/17 18:26

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-9D Sampled: 10/30/2017 11:17

Sample ID: 17K0048-01

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.037	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:57	QNW
Antimony	ND	5.0	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Arsenic	ND	2.0	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Barium	100	50	26	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Beryllium	ND	2.0	0.61	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Cadmium	ND	2.5	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Calcium	59	0.15	0.11	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:57	QNW
Chromium	ND	5.0	2.5	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Cobalt	ND	5.0	0.45	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Copper	ND	25	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Iron	0.59	0.050	0.040	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:57	QNW
Lead	ND	5.0	0.69	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Magnesium	27	0.15	0.026	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:57	QNW
Manganese	46	5.0	0.97	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	11/9/17	11/9/17 18:19	TJK
Nickel	ND	25	1.9	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Potassium	1.8	2.0	0.32	mg/L	1	J	SW-846 6010C-D	11/8/17	11/9/17 20:57	QNW
Selenium	ND	25	11	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Silver	ND	2.5	0.38	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Sodium	24	2.0	0.28	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:57	QNW
Thallium	ND	1.0	0.37	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Vanadium	ND	25	13	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD
Zinc	54	50	24	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:26	WSD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-9D Sampled: 10/30/2017 11:17

Sample ID: 17K0048-01

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	ND	0.010	0.0080	mg/L	1		SW-846 9014	11/2/17	11/3/17 10:20	VAK

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-9S Sampled: 10/30/2017 12:32

Sample ID: 17K0048-02

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.037	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:02	QNW
Antimony	ND	5.0	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Arsenic	ND	2.0	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Barium	120	50	26	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Beryllium	ND	2.0	0.61	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Cadmium	ND	2.5	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Calcium	110	0.15	0.11	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:02	QNW
Chromium	ND	5.0	2.5	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Cobalt	1.1	5.0	0.45	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Copper	ND	25	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Iron	1.5	0.050	0.040	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:02	QNW
Lead	ND	5.0	0.69	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Magnesium	32	0.15	0.026	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:02	QNW
Manganese	170	5.0	0.97	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	11/9/17	11/9/17 18:20	TJK
Nickel	3.2	25	1.9	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Potassium	1.3	2.0	0.32	mg/L	1	J	SW-846 6010C-D	11/8/17	11/9/17 21:02	QNW
Selenium	ND	25	11	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Silver	ND	2.5	0.38	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Sodium	4.8	2.0	0.28	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:02	QNW
Thallium	ND	1.0	0.37	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Vanadium	ND	25	13	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD
Zinc	ND	50	24	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:36	WSD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-9S Sampled: 10/30/2017 12:32

Sample ID: 17K0048-02

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	ND	0.010	0.0080	mg/L	1		SW-846 9014	11/2/17	11/3/17 10:20	VAK

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-5 Sampled: 10/30/2017 13:42

Sample ID: 17K0048-03

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	2.2	0.20	0.033	µg/L	1		SW-846 8270D	11/3/17	11/9/17 18:45	CJM

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	28.2	15-110		11/9/17 18:45	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-5 Sampled: 10/30/2017 13:42

Sample ID: 17K0048-03

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.037	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:53	QNW
Antimony	ND	5.0	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Arsenic	23	2.0	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Barium	360	50	26	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Beryllium	ND	2.0	0.61	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Cadmium	ND	2.5	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Calcium	91	0.15	0.11	mg/L	1	MS-19	SW-846 6010C-D	11/8/17	11/9/17 20:53	QNW
Chromium	ND	5.0	2.5	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Cobalt	1.2	5.0	0.45	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Copper	ND	25	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Iron	4.6	0.050	0.040	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:53	QNW
Lead	ND	5.0	0.69	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Magnesium	24	0.15	0.026	mg/L	1	MS-19	SW-846 6010C-D	11/8/17	11/9/17 20:53	QNW
Manganese	100	5.0	0.97	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	11/9/17	11/9/17 18:06	TJK
Nickel	8.5	25	1.9	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Potassium	6.6	2.0	0.32	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 20:53	QNW
Selenium	ND	25	11	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Silver	ND	2.5	0.38	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Sodium	28	2.0	0.28	mg/L	1	MS-19	SW-846 6010C-D	11/8/17	11/9/17 20:53	QNW
Thallium	ND	1.0	0.37	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Vanadium	ND	25	13	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD
Zinc	ND	50	24	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:23	WSD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-5 Sampled: 10/30/2017 13:42

Sample ID: 17K0048-03

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	ND	0.010	0.0080	mg/L	1		SW-846 9014	11/2/17	11/3/17 10:20	VAK

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-8U Sampled: 10/30/2017 14:45

Sample ID: 17K0048-04

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	6.9	0.20	0.032	µg/L	1		SW-846 8270D	11/3/17	11/9/17 19:05	CJM

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,4-Dioxane-d8	30.3	15-110		11/9/17 19:05	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-8U Sampled: 10/30/2017 14:45

Sample ID: 17K0048-04

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.037	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:07	QNW
Antimony	0.97	5.0	0.48	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Arsenic	ND	2.0	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Barium	1800	50	26	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Beryllium	ND	2.0	0.61	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Cadmium	ND	2.5	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Calcium	95	0.15	0.11	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:07	QNW
Chromium	ND	5.0	2.5	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Cobalt	3.2	5.0	0.45	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Copper	2.6	25	1.8	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Iron	6.9	0.050	0.040	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:07	QNW
Lead	ND	5.0	0.69	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Magnesium	41	0.15	0.026	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:07	QNW
Manganese	150	5.0	0.97	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	11/9/17	11/9/17 18:22	TJK
Nickel	30	25	1.9	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Potassium	41	2.0	0.32	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:07	QNW
Selenium	ND	25	11	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Silver	ND	2.5	0.38	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Sodium	120	2.0	0.28	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:07	QNW
Thallium	ND	1.0	0.37	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Vanadium	ND	25	13	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD
Zinc	ND	50	24	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:40	WSD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-8U Sampled: 10/30/2017 14:45

Sample ID: 17K0048-04

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	ND	0.010	0.0080	mg/L	1		SW-846 9014	11/2/17	11/3/17 10:20	VAK

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-11S Sampled: 10/30/2017 15:44

Sample ID: 17K0048-05

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.037	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:11	QNW
Antimony	ND	5.0	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Arsenic	19	2.0	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Barium	450	50	26	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Beryllium	ND	2.0	0.61	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Cadmium	ND	2.5	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Calcium	98	0.15	0.11	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:11	QNW
Chromium	ND	5.0	2.5	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Cobalt	0.74	5.0	0.45	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Copper	ND	25	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Iron	7.4	0.050	0.040	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:11	QNW
Lead	ND	5.0	0.69	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Magnesium	47	0.15	0.026	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:11	QNW
Manganese	26	5.0	0.97	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	11/9/17	11/9/17 18:24	TJK
Nickel	4.4	25	1.9	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Potassium	1.9	2.0	0.32	mg/L	1	J	SW-846 6010C-D	11/8/17	11/9/17 21:11	QNW
Selenium	ND	25	11	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Silver	ND	2.5	0.38	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Sodium	44	2.0	0.28	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:11	QNW
Thallium	ND	1.0	0.37	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Vanadium	ND	25	13	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD
Zinc	ND	50	24	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:43	WSD

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-11S Sampled: 10/30/2017 15:44

Sample ID: 17K0048-05

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	ND	0.010	0.0080	mg/L	1		SW-846 9014	11/2/17	11/3/17 10:20	VAK

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: Rinse Blank Sampled: 10/30/2017 14:25

Sample ID: 17K0048-06

Sample Matrix: Rinse Blank

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.20	0.032	µg/L	1		SW-846 8270D	11/3/17	11/9/17 19:24	CJM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	25.8	15-110		11/9/17 19:24

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-Duplicate-01 Sampled: 10/30/2017 00:00

Sample ID: 17K0048-07

Sample Matrix: Ground Water

1,4-Dioxane by isotope dilution GC/MS

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
1,4-Dioxane	ND	0.20	0.033	µg/L	1		SW-846 8270D	11/3/17	11/9/17 19:43	CJM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
1,4-Dioxane-d8	24.8	15-110		11/9/17 19:43

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-Duplicate-01 Sampled: 10/30/2017 00:00

Sample ID: 17K0048-07

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Aluminum	ND	0.050	0.037	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:16	QNW
Antimony	ND	5.0	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Arsenic	ND	2.0	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Barium	98	50	26	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Beryllium	ND	2.0	0.61	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Cadmium	ND	2.5	0.48	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Calcium	58	0.15	0.11	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:16	QNW
Chromium	ND	5.0	2.5	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Cobalt	ND	5.0	0.45	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Copper	ND	25	1.8	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Iron	0.45	0.050	0.040	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:16	QNW
Lead	ND	5.0	0.69	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Magnesium	27	0.15	0.026	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:16	QNW
Manganese	46	5.0	0.97	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Mercury	ND	0.00010	0.000034	mg/L	1		SW-846 7470A	11/9/17	11/9/17 18:25	TJK
Nickel	ND	25	1.9	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Potassium	1.8	2.0	0.32	mg/L	1	J	SW-846 6010C-D	11/8/17	11/9/17 21:16	QNW
Selenium	ND	25	11	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Silver	ND	2.5	0.38	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Sodium	25	2.0	0.28	mg/L	1		SW-846 6010C-D	11/8/17	11/9/17 21:16	QNW
Thallium	ND	1.0	0.37	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Vanadium	ND	25	13	µg/L	5		SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD
Zinc	44	50	24	µg/L	5	J	SW-846 6020A-B	11/8/17	11/9/17 13:46	WSD

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0048

Date Received: 11/1/2017

Field Sample #: MW-Duplicate-01 Sampled: 10/30/2017 00:00

Sample ID: 17K0048-07

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	DL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Cyanide	ND	0.010	0.0080	mg/L	1		SW-846 9014	11/2/17	11/3/17 10:20	VAK

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 3005A-SW-846 6010C-D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
17K0048-01 [MW-9D]	B190439	50.0	50.0	11/08/17
17K0048-02 [MW-9S]	B190439	50.0	50.0	11/08/17
17K0048-03 [MW-5]	B190439	50.0	50.0	11/08/17
17K0048-04 [MW-8U]	B190439	50.0	50.0	11/08/17
17K0048-05 [MW-11S]	B190439	50.0	50.0	11/08/17
17K0048-07 [MW-Duplicate-01]	B190439	50.0	50.0	11/08/17

Prep Method: SW-846 3005A-SW-846 6020A-B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
17K0048-01 [MW-9D]	B190440	50.0	50.0	11/08/17
17K0048-02 [MW-9S]	B190440	50.0	50.0	11/08/17
17K0048-03 [MW-5]	B190440	50.0	50.0	11/08/17
17K0048-04 [MW-8U]	B190440	50.0	50.0	11/08/17
17K0048-05 [MW-11S]	B190440	50.0	50.0	11/08/17
17K0048-07 [MW-Duplicate-01]	B190440	50.0	50.0	11/08/17

Prep Method: SW-846 7470A Prep-SW-846 7470A

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
17K0048-01 [MW-9D]	B190529	6.00	6.00	11/09/17
17K0048-02 [MW-9S]	B190529	6.00	6.00	11/09/17
17K0048-03 [MW-5]	B190529	6.00	6.00	11/09/17
17K0048-04 [MW-8U]	B190529	6.00	6.00	11/09/17
17K0048-05 [MW-11S]	B190529	6.00	6.00	11/09/17
17K0048-07 [MW-Duplicate-01]	B190529	6.00	6.00	11/09/17

Prep Method: SW-846 3510C-SW-846 8270D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
17K0048-01 [MW-9D]	B190132	1000	1.00	11/03/17
17K0048-03 [MW-5]	B190132	1000	1.00	11/03/17
17K0048-04 [MW-8U]	B190132	710	0.700	11/03/17
17K0048-06 [Rinse Blank]	B190132	920	0.900	11/03/17
17K0048-07 [MW-Duplicate-01]	B190132	1000	1.00	11/03/17

SW-846 9014

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
17K0048-01 [MW-9D]	B190009	50.0	50.0	11/02/17
17K0048-02 [MW-9S]	B190009	50.0	50.0	11/02/17
17K0048-03 [MW-5]	B190009	50.0	50.0	11/02/17
17K0048-04 [MW-8U]	B190009	50.0	50.0	11/02/17
17K0048-05 [MW-11S]	B190009	50.0	50.0	11/02/17
17K0048-07 [MW-Duplicate-01]	B190009	50.0	50.0	11/02/17

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

1,4-Dioxane by isotope dilution GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B190132 - SW-846 3510C										
Blank (B190132-BLK1)				Prepared: 11/03/17 Analyzed: 11/09/17						
1,4-Dioxane	ND	0.20	µg/L							
Surrogate: 1,4-Dioxane-d8	*2.21*		µg/L	10.0		22.1	15-110			
LCS (B190132-BS1)				Prepared: 11/03/17 Analyzed: 11/09/17						
1,4-Dioxane	10.4	0.20	µg/L	10.0		104	40-140			
Surrogate: 1,4-Dioxane-d8	*2.53*		µg/L	10.0		25.3	15-110			
LCS Dup (B190132-BSD1)				Prepared: 11/03/17 Analyzed: 11/09/17						
1,4-Dioxane	11.9	0.20	µg/L	10.0		119	40-140	13.3	30	
Surrogate: 1,4-Dioxane-d8	*2.50*		µg/L	10.0		25.0	15-110			
Matrix Spike (B190132-MS2)	**Source: 17K0048-03**			Prepared: 11/03/17 Analyzed: 11/09/17						
1,4-Dioxane	13.4	0.20	µg/L	10.0	2.23	112	40-140			
Surrogate: 1,4-Dioxane-d8	*3.04*		µg/L	10.0		30.4	15-110			
Matrix Spike Dup (B190132-MSD2)	**Source: 17K0048-03**			Prepared: 11/03/17 Analyzed: 11/09/17						
1,4-Dioxane	14.2	0.20	µg/L	10.0	2.23	120	40-140	5.47	20	
Surrogate: 1,4-Dioxane-d8	*2.78*		µg/L	10.0		27.8	15-110			

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B190439 - SW-846 3005A											
Blank (B190439-BLK1)				Prepared: 11/08/17 Analyzed: 11/09/17							
Aluminum	ND	0.050	mg/L								
Calcium	ND	0.15	mg/L								
Iron	ND	0.050	mg/L								
Magnesium	ND	0.15	mg/L								
Potassium	ND	2.0	mg/L								
Sodium	ND	2.0	mg/L								
LCS (B190439-BS1)				Prepared: 11/08/17 Analyzed: 11/09/17							
Aluminum	0.465	0.050	mg/L	0.500		93.0		80-120			
Calcium	4.20	0.15	mg/L	4.00		105		80-120			
Iron	4.23	0.050	mg/L	4.00		106		80-120			
Magnesium	4.09	0.15	mg/L	4.00		102		80-120			
Potassium	4.10	2.0	mg/L	4.00		103		80-120			
Sodium	4.16	2.0	mg/L	4.00		104		80-120			
LCS Dup (B190439-BSD1)				Prepared: 11/08/17 Analyzed: 11/09/17							
Aluminum	0.453	0.050	mg/L	0.500		90.6		80-120	2.61	20	
Calcium	4.11	0.15	mg/L	4.00		103		80-120	2.02	20	
Iron	4.15	0.050	mg/L	4.00		104		80-120	2.11	20	
Magnesium	4.01	0.15	mg/L	4.00		100		80-120	2.08	20	
Potassium	4.03	2.0	mg/L	4.00		101		80-120	1.90	20	
Sodium	4.08	2.0	mg/L	4.00		102		80-120	1.91	20	
Duplicate (B190439-DUP1)	**Source: 17K0048-03**			Prepared: 11/08/17 Analyzed: 11/09/17							
Aluminum	ND	0.050	mg/L		ND				NC	20	
Calcium	94.3	0.15	mg/L		90.8				3.76	20	
Iron	4.71	0.050	mg/L		4.56				3.16	20	
Magnesium	24.5	0.15	mg/L		23.6				3.44	20	
Potassium	6.85	2.0	mg/L		6.63				3.26	20	
Sodium	29.0	2.0	mg/L		28.0				3.46	20	
Matrix Spike (B190439-MS1)	**Source: 17K0048-03**			Prepared: 11/08/17 Analyzed: 11/09/17							
Aluminum	0.492	0.050	mg/L	0.500	ND	98.4		75-125			
Calcium	99.1	0.15	mg/L	4.00	90.8	**206**	*	75-125			MS-19
Iron	9.04	0.050	mg/L	4.00	4.56	112		75-125			
Magnesium	28.4	0.15	mg/L	4.00	23.6	120		75-125			
Potassium	11.0	2.0	mg/L	4.00	6.63	109		75-125			
Sodium	33.0	2.0	mg/L	4.00	28.0	125		75-125			
Matrix Spike Dup (B190439-MSD1)	**Source: 17K0048-03**			Prepared: 11/08/17 Analyzed: 11/09/17							
Aluminum	0.484	0.050	mg/L	0.500	ND	96.7		75-125	1.73	20	
Calcium	103	0.15	mg/L	4.00	90.8	**299**	*	75-125	3.65	20	MS-19
Iron	9.14	0.050	mg/L	4.00	4.56	114		75-125	1.20	20	
Magnesium	29.2	0.15	mg/L	4.00	23.6	**140**	*	75-125	2.71	20	MS-19
Potassium	11.0	2.0	mg/L	4.00	6.63	110		75-125	0.270	20	
Sodium	34.0	2.0	mg/L	4.00	28.0	**148**	*	75-125	2.72	20	MS-19

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B190440 - SW-846 3005A										
Blank (B190440-BLK1)				Prepared: 11/08/17 Analyzed: 11/09/17						
Antimony	ND	5.0	µg/L							
Arsenic	ND	2.0	µg/L							
Barium	ND	50	µg/L							
Beryllium	ND	2.0	µg/L							
Cadmium	ND	2.5	µg/L							
Chromium	ND	5.0	µg/L							
Cobalt	ND	5.0	µg/L							
Copper	ND	25	µg/L							
Lead	ND	5.0	µg/L							
Manganese	ND	5.0	µg/L							
Nickel	ND	25	µg/L							
Selenium	ND	25	µg/L							
Silver	ND	2.5	µg/L							
Thallium	ND	1.0	µg/L							
Vanadium	ND	25	µg/L							
Zinc	ND	50	µg/L							
LCS (B190440-BS1)				Prepared: 11/08/17 Analyzed: 11/09/17						
Antimony	541	10	µg/L	500		108	80-120			
Arsenic	536	4.0	µg/L	500		107	80-120			
Barium	521	100	µg/L	500		104	80-120			
Beryllium	547	4.0	µg/L	500		109	80-120			
Cadmium	526	5.0	µg/L	500		105	80-120			
Chromium	520	10	µg/L	500		104	80-120			
Cobalt	523	10	µg/L	500		105	80-120			
Copper	1030	50	µg/L	1000		103	80-120			
Lead	549	10	µg/L	500		110	80-120			
Manganese	534	10	µg/L	500		107	80-120			
Nickel	511	50	µg/L	500		102	80-120			
Selenium	531	50	µg/L	500		106	80-120			
Silver	492	5.0	µg/L	500		98.4	80-120			
Thallium	474	2.0	µg/L	500		94.7	80-120			
Vanadium	533	50	µg/L	500		107	80-120			
Zinc	1120	100	µg/L	1000		112	80-120			
LCS Dup (B190440-BSD1)				Prepared: 11/08/17 Analyzed: 11/09/17						
Antimony	529	10	µg/L	500		106	80-120	2.27	20	
Arsenic	525	4.0	µg/L	500		105	80-120	2.05	20	
Barium	511	100	µg/L	500		102	80-120	1.95	20	
Beryllium	538	4.0	µg/L	500		108	80-120	1.75	20	
Cadmium	516	5.0	µg/L	500		103	80-120	1.99	20	
Chromium	507	10	µg/L	500		101	80-120	2.67	20	
Cobalt	508	10	µg/L	500		102	80-120	2.86	20	
Copper	1000	50	µg/L	1000		100	80-120	2.60	20	
Lead	534	10	µg/L	500		107	80-120	2.67	20	
Manganese	519	10	µg/L	500		104	80-120	2.79	20	
Nickel	499	50	µg/L	500		99.8	80-120	2.39	20	
Selenium	530	50	µg/L	500		106	80-120	0.211	20	
Silver	484	5.0	µg/L	500		96.8	80-120	1.61	20	
Thallium	463	2.0	µg/L	500		92.6	80-120	2.24	20	
Vanadium	521	50	µg/L	500		104	80-120	2.37	20	
Zinc	1080	100	µg/L	1000		108	80-120	3.65	20	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B190440 - SW-846 3005A										
Duplicate (B190440-DUP1)	**Source: 17K0048-03**			Prepared: 11/08/17 Analyzed: 11/09/17						
Antimony	ND	5.0	µg/L		ND			NC	20	
Arsenic	22.3	2.0	µg/L		22.5			0.932	20	
Barium	368	50	µg/L		364			0.965	20	
Beryllium	ND	2.0	µg/L		ND			NC	20	
Cadmium	ND	2.5	µg/L		ND			NC	20	
Chromium	ND	5.0	µg/L		ND			NC	20	
Cobalt	1.27	5.0	µg/L		1.25			1.56	20	J
Copper	ND	25	µg/L		ND			NC	20	
Lead	ND	5.0	µg/L		ND			NC	20	
Manganese	103	5.0	µg/L		102			0.655	20	
Nickel	8.60	25	µg/L		8.53			0.744	20	J
Selenium	ND	25	µg/L		ND			NC	20	
Silver	ND	2.5	µg/L		ND			NC	20	
Thallium	ND	1.0	µg/L		ND			NC	20	
Vanadium	ND	25	µg/L		ND			NC	20	
Zinc	ND	50	µg/L		ND			NC	20	
Matrix Spike (B190440-MS1)	**Source: 17K0048-03**			Prepared: 11/08/17 Analyzed: 11/09/17						
Antimony	548	10	µg/L	500	ND	110	75-125			
Arsenic	567	4.0	µg/L	500	22.5	109	75-125			
Barium	905	100	µg/L	500	364	108	75-125			
Beryllium	545	4.0	µg/L	500	ND	109	75-125			
Cadmium	531	5.0	µg/L	500	ND	106	75-125			
Chromium	531	10	µg/L	500	ND	106	75-125			
Cobalt	531	10	µg/L	500	1.25	106	75-125			
Copper	1020	50	µg/L	1000	ND	102	75-125			
Lead	548	10	µg/L	500	ND	110	75-125			
Manganese	642	10	µg/L	500	102	108	75-125			
Nickel	525	50	µg/L	500	8.53	103	75-125			
Selenium	549	50	µg/L	500	ND	110	75-125			
Silver	438	5.0	µg/L	500	ND	87.7	75-125			
Thallium	480	2.0	µg/L	500	ND	96.1	75-125			
Vanadium	552	50	µg/L	500	ND	110	75-125			
Zinc	1100	100	µg/L	1000	ND	110	75-125			
Matrix Spike Dup (B190440-MSD1)	**Source: 17K0048-03**			Prepared: 11/08/17 Analyzed: 11/09/17						
Antimony	543	10	µg/L	500	ND	109	75-125	1.08	20	
Arsenic	568	4.0	µg/L	500	22.5	109	75-125	0.0676	20	
Barium	904	100	µg/L	500	364	108	75-125	0.105	20	
Beryllium	537	4.0	µg/L	500	ND	107	75-125	1.44	20	
Cadmium	524	5.0	µg/L	500	ND	105	75-125	1.17	20	
Chromium	530	10	µg/L	500	ND	106	75-125	0.222	20	
Cobalt	529	10	µg/L	500	1.25	105	75-125	0.416	20	
Copper	1010	50	µg/L	1000	ND	101	75-125	0.865	20	
Lead	553	10	µg/L	500	ND	111	75-125	0.933	20	
Manganese	646	10	µg/L	500	102	109	75-125	0.638	20	
Nickel	522	50	µg/L	500	8.53	103	75-125	0.612	20	
Selenium	552	50	µg/L	500	ND	110	75-125	0.387	20	
Silver	446	5.0	µg/L	500	ND	89.2	75-125	1.76	20	
Thallium	492	2.0	µg/L	500	ND	98.4	75-125	2.40	20	
Vanadium	548	50	µg/L	500	ND	110	75-125	0.678	20	
Zinc	1090	100	µg/L	1000	ND	109	75-125	0.710	20	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B190529 - SW-846 7470A Prep										
Blank (B190529-BLK1)				Prepared & Analyzed: 11/09/17						
Mercury	ND	0.00010	mg/L							
LCS (B190529-BS1)				Prepared & Analyzed: 11/09/17						
Mercury	0.00190	0.00010	mg/L	0.00200		95.0	80-120			
LCS Dup (B190529-BSD1)				Prepared & Analyzed: 11/09/17						
Mercury	0.00191	0.00010	mg/L	0.00200		95.5	80-120	0.536	20	
Duplicate (B190529-DUP1)		**Source: 17K0048-03**		Prepared & Analyzed: 11/09/17						
Mercury	ND	0.00010	mg/L		ND			NC	20	
Matrix Spike (B190529-MS1)		**Source: 17K0048-03**		Prepared & Analyzed: 11/09/17						
Mercury	0.00195	0.00010	mg/L	0.00200	ND	97.3	75-125			
Matrix Spike Dup (B190529-MSD1)		**Source: 17K0048-03**		Prepared & Analyzed: 11/09/17						
Mercury	0.00193	0.00010	mg/L	0.00200	ND	96.5	75-125	0.859	20	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B190009 - SW-846 9014										
Blank (B190009-BLK1)				Prepared: 11/02/17 Analyzed: 11/03/17						
Cyanide	ND	0.010	mg/L							
LCS (B190009-BS1)				Prepared: 11/02/17 Analyzed: 11/03/17						
Cyanide	0.64	0.010	mg/L	0.672		94.5	80-120			
LCS Dup (B190009-BSD1)				Prepared: 11/02/17 Analyzed: 11/03/17						
Cyanide	0.63	0.010	mg/L	0.672		93.3	80-120	1.29	20	
Matrix Spike (B190009-MS1)	**Source: 17K0048-03**			Prepared: 11/02/17 Analyzed: 11/03/17						
Cyanide	0.30	0.010	mg/L	0.382	ND	79.7	75-125			
Matrix Spike Dup (B190009-MSD1)	**Source: 17K0048-03**			Prepared: 11/02/17 Analyzed: 11/03/17						
Cyanide	0.31	0.010	mg/L	0.382	ND	81.3	75-125	1.98	20	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
J	Detected but below the Reporting Limit (lowest calibration standard); therefore, result is an estimated concentration (CLP J-Flag).
MS-19	Sample to spike ratio is greater than or equal to 4:1. Spiked amount is not representative of the native amount in the sample. Appropriate or meaningful recoveries cannot be calculated.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 6010C-D in Water	
Aluminum	CT,NH,NY,ME,VA,NC
Calcium	CT,NH,NY,ME,VA,NC
Iron	CT,NH,NY,ME,VA,NC
Magnesium	CT,NH,NY,ME,VA,NC
Potassium	CT,NH,NY,ME,VA,NC
Sodium	CT,NH,NY,ME,VA,NC
SW-846 6020A-B in Water	
Antimony	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,ME,VA,NC
Barium	CT,NH,NY,ME,VA,NC
Beryllium	CT,NH,NY,ME,VA,NC
Cadmium	CT,NH,NY,RI,ME,VA,NC
Chromium	CT,NH,NY,ME,VA,NC
Cobalt	CT,NH,NY,ME,VA,NC
Copper	CT,NH,NY,ME,VA,NC
Lead	CT,NH,NY,ME,VA,NC
Manganese	CT,NH,NY,ME,VA,NC
Nickel	CT,NH,NY,ME,VA,NC
Selenium	CT,NH,NY,ME,VA,NC
Silver	CT,NH,NY,ME,VA,NC
Thallium	CT,NH,NY,ME,VA,NC
Vanadium	CT,NH,NY,ME,VA,NC
Zinc	CT,NH,NY,ME,VA,NC
SW-846 7470A in Water	
Mercury	CT,NH,NY,NC,ME,VA
SW-846 8270D in Water	
1,4-Dioxane	NY
SW-846 9014 in Water	
Cyanide	NY,CT,NH,NC,ME,VA

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

con-test ANALYTICAL LABORATORY

17K0048

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 380 Rev 1_03242017

CHAIN OF CUSTODY RECORD (New York)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: EA Engineering
Address: 6712 Brooklawn Parkway
Phone: 315 431 4610
Project Name: William Benson Landfill
Project Location: Livonia, NY
Project Number: 14907.12
Project Manager: Chris Schroer
Con-Test Quote Name/Number:
Invoice Recipient: northeastap@eaest.com
Sampled By: Sarah Nelson

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☐ EXCEL ☒
Other: NYSEquis Cat B US
CLP Like Data Pkg Required: ☐
Email To: cschroer@eaest.com
Fax To #:

	1,4 Dioxane	TAL Metals	+ cyanide
# of Containers	14	8	8
2 Preservation Code	I	N	X
3 Container Code	A	P	P

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	~~Ending~~ Date/Time	Composite	Grab	1 Matrix Code	Conc Code	1,4 Dioxane	TAL Metals	+ cyanide
01	MW-9D	10.30.17	1117		X	GW	U	X 2	X 1	X 1
02	MW-9S	10.30.17	1232		X	GW	U	.	1	1
03	MW-5	10.30.17	1342		X	GW	U	6	3	3
04	MW-8U	10.30.17	1445		X	GW	U	2	1	1
05	MW-11S	10.30.17	1544		X	GW	U	~~2~~	1	1
06	Rinse Blank	10.30.17	1425		X	O	U	2		
07	MW-Duplicate-01	10.30.17	—		X	GW	U	X	X	X

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

1 Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define) DI Water

2 Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

3 Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

	Date/Time:
Relinquished by: (signature) [signature]	10.30.17 1800
Received by: (signature) [signature] 33/22	11.01.17 9:35
Relinquished by: (signature)	
Received by: (signature)	
Relinquished by: (signature)	
Received by: (signature)	

Program & Regulatory Information
☐ AWQ STDS ☐ NY TOGS
☐ NYC Sewer Discharge ☐ NY CP-51
☒ Part 360 GW (Landfill)
☐ NY Restricted Use
☐ NY Unrestricted Use
☐ NY Part 375
Other:

Deliverables
☐ Enhanced Data Package
☐ NYSDEC EQuIS EDD
☒ EQuIS (Standard) EDD
☐ NY Regulatory EDD
☐ NY Regs Hits-Only EDD
Other:

NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP, LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Sign In

FedEx® Tracking

806832457155

Ship date:		Actual delivery:
Mon 10/30/2017	**Delivered**	**Wed 11/01/2017 9:35 am**
SYR US	*Signed for by: R.REBECCA*	MA US

Travel History

▲Date/Time	Activity	Location
- 11/01/2017 - Wednesday		
9:35 am	Delivered	MA
7:53 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:46 am	At local FedEx facility	WINDSOR LOCKS, CT
- 10/31/2017 - Tuesday		
6:24 pm	At destination sort facility	EAST GRANBY, CT
3:19 pm	Departed FedEx location	MEMPHIS, TN
4:09 am	In transit	MEMPHIS, TN
3:29 am	In transit	MEMPHIS, TN
- 10/30/2017 - Monday		
11:12 pm	Arrived at FedEx location	MEMPHIS, TN
6:38 pm	Left FedEx origin facility	ROCHESTER, NY
6:51 pm	Picked up	ROCHESTER, NY
6:34 pm	Picked up Tendered at FedEx Office	VICTOR, NY

Shipment Facts

Tracking Number	806832457155	**Service**	FedEx Priority Overnight
Weight	55 lbs / 24.95 kgs	**Dimensions**	24x14x14 in.
Delivered To	Shipping/Receiving	**Total pieces**	1
Total shipment weight	55 lbs / 24.95 kgs	**Terms**	Recipient
Shipper reference	1490712 2152	**Packaging**	Your Packaging
Special handling section	Deliver Weekday, Additional Handling Surcharge	**Standard transit**	10/31/2017 by 10:30 am

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client EA Engineering

Received By RAP Date 10/6/17 Time 935

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____
Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 3.3 / 2.2
By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA
Was COC Relinquished ? T Does Chain Agree With Samples? T
Are there broken/leaking/loose caps on any samples? F
Is COC in ink/ Legible? T Were samples received within holding time? T
Did COC include all pertinent Information? Client T Project T Analysis T ID's T Sampler Name T Collection Dates/Times T
Are Sample labels filled out and legible? T
Are there Lab to Filters? F Who was notified? _____
Are there Rushes? F Who was notified? _____
Are there Short Holds? F Who was notified? _____
Is there enough Volume? T
Is there Headspace where applicable? F MS/MSD? T
Proper Media/Containers Used? T Is splitting samples required? F
Were trip blanks received? F On COC? F
Do all samples have the proper pH? Acid T Base T

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.	14	1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	16	4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

Samples were received in 2 coolers. The cooler that was 3.3°C was received on 10/3/17 at 937. The 2.2°C cooler was received on 10/6/17 at 935.

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

November 10, 2017

Christopher Schroer
EA Engineering, Science & Tech. - NY
6712 Brooklawn Parkway, Suite 104
Syracuse, NY 13211

Project Location: William Benson Landfill - Livonia, NY
Client Job Number:
Project Number: 14907.12
Laboratory Work Order Number: 17K0055

Enclosed are results of analyses for samples received by the laboratory on November 1, 2017. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Aaron L. Benoit
Project Manager

Table of Contents

Sample Summary 3

Case Narrative 4

Sample Results 5

17K0055-01 5

17K0055-02 6

17K0055-03 7

17K0055-04 8

17K0055-05 9

17K0055-06 10

Sample Preparation Information 11

QC Data 12

Miscellaneous Organic Analyses 12

B189926 12

Flag/Qualifier Summary 14

Certifications 15

Chain of Custody/Sample Receipt 16

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

EA Engineering, Science & Tech. - NY
6712 Brooklawn Parkway, Suite 104
Syracuse, NY 13211
ATTN: Christopher Schroer

REPORT DATE: 11/10/2017

PURCHASE ORDER NUMBER: 14907.12

PROJECT NUMBER: 14907.12

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 17K0055

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: William Benson Landfill - Livonia, NY

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-9D	17K0055-01	Ground Water		SOP 434-PFAAS	
MW-5	17K0055-02	Ground Water		SOP 434-PFAAS	
MW-8U	17K0055-03	Ground Water		SOP 434-PFAAS	
Field Blank	17K0055-04	Field Blank		SOP 434-PFAAS	
Rinse Blank	17K0055-05	Rinse Blank		SOP 434-PFAAS	
MW- Duplicate	17K0055-06	Ground Water		SOP 434-PFAAS	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SOP 434-PFAAS

Qualifications:

S-18

Surrogate recovery is outside of control limits, matrix interference suspected. Insufficient sample available for reanalysis.

Analyte & Samples(s) Qualified:

13C-PFDA
17K0055-03[MW-8U]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Lisa A. Worthington
Project Manager

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0055

Date Received: 11/1/2017

Field Sample #: MW-9D Sampled: 10/30/2017 11:17

Sample ID: 17K0055-01

Sample Matrix: Ground Water

Miscellaneous Organic Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorohexanoic acid (PFHxA)	4.5	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
NMeFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
NEtFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 16:49	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	98.9	70-130		11/9/17 16:49
13C-PFDA	109	70-130		11/9/17 16:49
d5-NEtFOSAA	90.8	70-130		11/9/17 16:49

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0055

Date Received: 11/1/2017

Field Sample #: MW-5 Sampled: 10/30/2017 13:42

Sample ID: 17K0055-02

Sample Matrix: Ground Water

Miscellaneous Organic Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorohexanoic acid (PFHxA)	11	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluoroheptanoic acid (PFHpA)	3.4	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorohexanesulfonic acid (PFHxS)	4.8	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorooctanoic acid (PFOA)	9.3	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorooctanesulfonic acid (PFOS)	3.8	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
NMeFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
NEtFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:02	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	84.7	70-130		11/9/17 17:02
13C-PFDA	104	70-130		11/9/17 17:02
d5-NEtFOSAA	80.8	70-130		11/9/17 17:02

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0055

Date Received: 11/1/2017

Field Sample #: MW-8U Sampled: 10/30/2017 14:45

Sample ID: 17K0055-03

Sample Matrix: Ground Water

Miscellaneous Organic Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	5.7	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorohexanoic acid (PFHxA)	82	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluoroheptanoic acid (PFHpA)	38	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorohexanesulfonic acid (PFHxS)	16	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorooctanoic acid (PFOA)	17	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
NMeFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
NEtFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 20:10	BLM

Surrogates	% Recovery		Recovery Limits	Flag/Qual	
13C-PFHxA	101		70-130		11/9/17 20:10
13C-PFDA	**173**	*	70-130	S-18	11/9/17 20:10
d5-NEtFOSAA	96.9		70-130		11/9/17 20:10

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0055

Date Received: 11/1/2017

Field Sample #: Field Blank Sampled: 10/30/2017 14:40

Sample ID: 17K0055-04

Sample Matrix: Field Blank

Miscellaneous Organic Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
NMeFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
NEtFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:27	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	93.5	70-130		11/9/17 17:27
13C-PFDA	100	70-130		11/9/17 17:27
d5-NEtFOSAA	80.9	70-130		11/9/17 17:27

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0055

Date Received: 11/1/2017

Field Sample #: Rinse Blank Sampled: 10/30/2017 14:25

Sample ID: 17K0055-05

Sample Matrix: Rinse Blank

Miscellaneous Organic Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
NMeFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
NEtFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:40	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	109	70-130		11/9/17 17:40
13C-PFDA	114	70-130		11/9/17 17:40
d5-NEtFOSAA	96.7	70-130		11/9/17 17:40

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: William Benson Landfill - Livonia Sample Description: Work Order: 17K0055

Date Received: 11/1/2017

Field Sample #: MW- Duplicate Sampled: 10/30/2017 00:00

Sample ID: 17K0055-06

Sample Matrix: Ground Water

Miscellaneous Organic Analyses

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorohexanoic acid (PFHxA)	4.8	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
NMeFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
NEtFOSAA	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L	1		SOP 434-PFAAS	11/2/17	11/9/17 17:53	BLM

Surrogates	% Recovery	Recovery Limits	Flag/Qual	
13C-PFHxA	88.6	70-130		11/9/17 17:53
13C-PFDA	95.1	70-130		11/9/17 17:53
d5-NEtFOSAA	84.6	70-130		11/9/17 17:53

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: EPA 537-SOP 434-PFAAS

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
17K0055-01 [MW-9D]	B189926	250	1.00	11/02/17
17K0055-02 [MW-5]	B189926	250	1.00	11/02/17
17K0055-03 [MW-8U]	B189926	250	1.00	11/02/17
17K0055-04 [Field Blank]	B189926	250	1.00	11/02/17
17K0055-05 [Rinse Blank]	B189926	250	1.00	11/02/17
17K0055-06 [MW- Duplicate]	B189926	250	1.00	11/02/17

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Miscellaneous Organic Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B189926 - EPA 537										
Blank (B189926-BLK1)				Prepared: 11/01/17 Analyzed: 11/07/17						
Perfluorobutanesulfonic acid (PFBS)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	2.0	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	2.0	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	2.0	ng/L							
Perfluorooctanoic acid (PFOA)	ND	2.0	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	2.0	ng/L							
Perfluorononanoic acid (PFNA)	ND	2.0	ng/L							
Perfluorodecanoic acid (PFDA)	ND	2.0	ng/L							
NMeFOSAA	ND	2.0	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	2.0	ng/L							
NEtFOSAA	ND	2.0	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	2.0	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	2.0	ng/L							
Perfluorotetradecanoic acid (PFTA)	ND	2.0	ng/L							
Surrogate: 13C-PFHxA	*40.0*		ng/L	40.0		100	70-130			
Surrogate: 13C-PFDA	*41.0*		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	*143*		ng/L	160		89.4	70-130			
LCS (B189926-BS1)				Prepared: 11/01/17 Analyzed: 11/07/17						
Perfluorobutanesulfonic acid (PFBS)	1.77	2.0	ng/L	1.77		99.9	70-130			
Perfluorohexanoic acid (PFHxA)	2.09	2.0	ng/L	2.00		105	70-130			
Perfluoroheptanoic acid (PFHpA)	1.75	2.0	ng/L	2.00		87.3	70-130			
Perfluorohexanesulfonic acid (PFHxS)	1.53	2.0	ng/L	1.82		83.8	70-130			
Perfluorooctanoic acid (PFOA)	1.73	2.0	ng/L	2.00		86.4	70-130			
Perfluorooctanesulfonic acid (PFOS)	2.04	2.0	ng/L	1.85		110	70-130			
Perfluorononanoic acid (PFNA)	1.64	2.0	ng/L	2.00		82.0	70-130			
Perfluorodecanoic acid (PFDA)	1.90	2.0	ng/L	2.00		94.8	70-130			
NMeFOSAA	1.71	2.0	ng/L	2.00		85.6	70-130			
Perfluoroundecanoic acid (PFUnA)	1.56	2.0	ng/L	2.00		77.9	70-130			
NEtFOSAA	1.66	2.0	ng/L	2.00		83.1	70-130			
Perfluorododecanoic acid (PFDoA)	1.72	2.0	ng/L	2.00		86.2	70-130			
Perfluorotridecanoic acid (PFTrDA)	1.51	2.0	ng/L	2.00		75.7	70-130			
Perfluorotetradecanoic acid (PFTA)	1.81	2.0	ng/L	2.00		90.5	70-130			
Surrogate: 13C-PFHxA	*34.8*		ng/L	40.0		87.1	70-130			
Surrogate: 13C-PFDA	*36.8*		ng/L	40.0		91.9	70-130			
Surrogate: d5-NEtFOSAA	*136*		ng/L	160		85.3	70-130			
Matrix Spike (B189926-MS1)	**Source: 17K0055-02**			Prepared: 11/01/17 Analyzed: 11/09/17						
Perfluorobutanesulfonic acid (PFBS)	3.52	2.0	ng/L	1.77	1.46	117	70-130			
Perfluorohexanoic acid (PFHxA)	13.0	2.0	ng/L	2.00	10.7	113	70-130			
Perfluoroheptanoic acid (PFHpA)	5.60	2.0	ng/L	2.00	3.42	109	70-130			
Perfluorohexanesulfonic acid (PFHxS)	6.40	2.0	ng/L	1.82	4.80	87.8	70-130			
Perfluorooctanoic acid (PFOA)	11.7	2.0	ng/L	2.00	9.30	120	70-130			
Perfluorooctanesulfonic acid (PFOS)	5.81	2.0	ng/L	1.85	3.80	109	70-130			
Perfluorononanoic acid (PFNA)	2.16	2.0	ng/L	2.00	ND	108	70-130			
Perfluorodecanoic acid (PFDA)	2.31	2.0	ng/L	2.00	ND	115	70-130			
NMeFOSAA	2.02	2.0	ng/L	2.00	ND	101	70-130			
Perfluoroundecanoic acid (PFUnA)	2.00	2.0	ng/L	2.00	ND	100	70-130			
NEtFOSAA	2.47	2.0	ng/L	2.00	ND	123	70-130			
Perfluorododecanoic acid (PFDoA)	1.73	2.0	ng/L	2.00	ND	86.6	70-130			
Perfluorotridecanoic acid (PFTrDA)	1.83	2.0	ng/L	2.00	ND	91.5	70-130			
Perfluorotetradecanoic acid (PFTA)	1.90	2.0	ng/L	2.00	ND	94.9	70-130			

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Miscellaneous Organic Analyses - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B189926 - EPA 537										
Matrix Spike (B189926-MS1)		**Source: 17K0055-02**		Prepared: 11/01/17 Analyzed: 11/09/17						
Surrogate: 13C-PFHxA	*40.2*		ng/L	40.0		101	70-130			
Surrogate: 13C-PFDA	*49.6*		ng/L	40.0		124	70-130			
Surrogate: d5-NEtFOSAA	*154*		ng/L	160		96.1	70-130			
Matrix Spike Dup (B189926-MSD1)		**Source: 17K0055-02**		Prepared: 11/01/17 Analyzed: 11/09/17						
Perfluorobutanesulfonic acid (PFBS)	2.95	2.0	ng/L	1.77	1.46	84.2	70-130	17.7	30	
Perfluorohexanoic acid (PFHxA)	12.9	2.0	ng/L	2.00	10.7	109	70-130	0.676	30	
Perfluoroheptanoic acid (PFHpA)	5.68	2.0	ng/L	2.00	3.42	113	70-130	1.30	30	
Perfluorohexanesulfonic acid (PFHxS)	6.30	2.0	ng/L	1.82	4.80	82.2	70-130	1.61	30	
Perfluorooctanoic acid (PFOA)	11.5	2.0	ng/L	2.00	9.30	108	70-130	2.02	30	
Perfluorooctanesulfonic acid (PFOS)	5.85	2.0	ng/L	1.85	3.80	111	70-130	0.718	30	
Perfluorononanoic acid (PFNA)	1.69	2.0	ng/L	2.00	ND	84.4	70-130	24.7	30	
Perfluorodecanoic acid (PFDA)	1.89	2.0	ng/L	2.00	ND	94.7	70-130	19.6	30	
NMeFOSAA	1.50	2.0	ng/L	2.00	ND	75.1	70-130	29.6	30	
Perfluoroundecanoic acid (PFUnA)	1.85	2.0	ng/L	2.00	ND	92.4	70-130	8.14	30	
NEtFOSAA	2.06	2.0	ng/L	2.00	ND	103	70-130	17.7	30	
Perfluorododecanoic acid (PFDoA)	1.65	2.0	ng/L	2.00	ND	82.4	70-130	4.88	30	
Perfluorotridecanoic acid (PFTrDA)	1.56	2.0	ng/L	2.00	ND	78.1	70-130	15.8	30	
Perfluorotetradecanoic acid (PFTA)	1.77	2.0	ng/L	2.00	ND	88.3	70-130	7.16	30	
Surrogate: 13C-PFHxA	*34.7*		ng/L	40.0		86.8	70-130			
Surrogate: 13C-PFDA	*40.8*		ng/L	40.0		102	70-130			
Surrogate: d5-NEtFOSAA	*127*		ng/L	160		79.3	70-130			

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit
DL	Method Detection Limit
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
S-18	Surrogate recovery is outside of control limits, matrix interference suspected. Insufficient sample available for reanalysis.

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications

No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	02/1/2018
MA	Massachusetts DEP	M-MA100	06/30/2018
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2018
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2018
RI	Rhode Island Department of Health	LAO00112	12/30/2017
NC	North Carolina Div. of Water Quality	652	12/31/2017
NJ	New Jersey DEP	MA007 NELAP	06/30/2018
FL	Florida Department of Health	E871027 NELAP	06/30/2018
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2018
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2017
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2018
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2018
NC-DW	North Carolina Department of Health	25703	07/31/2018

17K0055

con-test ANALYTICAL LABORATORY

Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

http://www.contestlabs.com Doc # 380 Rev 1_03242017

CHAIN OF CUSTODY RECORD (New York)

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 1

Company Name: EA Engineering
Address: 6712 Brooklawn Parkway Syracuse NY
Phone: 315 431 4610
Project Name: William Benson LF
Project Location: Livonia, NY
Project Number: 14907.17
Project Manager: ~~14907.17~~ Chris Schroer
Con-Test Quote Name/Number:
Invoice Recipient: northeastap@eaest.com
Sampled By: Sarah Nelson

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☐ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☐ EXCEL ☒
Other: NYS equis Cat B V3
CLP Like Data Pkg Required: ☐
Email To: cschroer@eaest.com
Fax To #:

ANALYSIS REQUESTED: PFAS trace (# of Containers: 8; Preservation Code: I; Container Code: P)

Dissolved Metals Samples
☐ Field Filtered
☐ Lab to Filter

Orthophosphate Samples
☐ Field Filtered
☐ Lab to Filter

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	~~Ending Date~~/Time	Composite	Grab	Matrix Code	Conc Code	PFAS trace
01	MW-9D	10.30.17	1117		X	GW	U	1
	~~MW-9S~~	~~10.30.17~~	~~1232~~		~~X~~	~~GW~~	~~U~~	~~1~~
02	MW-5	10.30.17	1342		X	GW	U	3
03	MW-8U	10.3.17	1445		X	GW	U	1
04	Field Blank	10.30.17	1440		X	O	U	1
05	Rinse Blank	10.30.17	1425		X	O	U	1
06	MW Duplicate	10.30.17	—		X	GW	U	1

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

[1] Matrix Codes:
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define) aqueous

[2] Preservation Codes:
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] Container Codes:
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

Signature	Date/Time
Relinquished by: (signature) Sarah Nelson	10.30.17 1800
Received by: (signature) [signature] 3.3/22	11/1/17 935
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Program & Regulatory Information
☐ AWQ STDS ☐ NY TOGS
☐ NYC Sewer Discharge ☐ NY CP-51
☒ Part 360 GW (Landfill)
☐ NY Restricted Use
☐ NY Unrestricted Use
☐ NY Part 375

Deliverables
☐ Enhanced Data Package
☒ NYSDEC EQuIS EDD
☐ EQuIS (Standard) EDD
☐ NY Regulatory EDD
☐ NY Regs Hits-Only EDD

Other:
Other:
NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP, LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

Table of Contents

Sign In

FedEx® Tracking

806832457155

Ship date:
Mon 10/30/2017
SYR US

Delivered
Signed for by: R.REBECCA

Actual delivery:
Wed 11/01/2017 9:35 am
MA US

Travel History

Date/Time	Activity	Location
11/01/2017 - Wednesday		
9:35 am	Delivered	MA
7:53 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:46 am	At local FedEx facility	WINDSOR LOCKS, CT
10/31/2017 - Tuesday		
6:24 pm	At destination sort facility	EAST GRANBY, CT
3:19 pm	Departed FedEx location	MEMPHIS, TN
4:09 am	In transit	MEMPHIS, TN
3:29 am	In transit	MEMPHIS, TN
10/30/2017 - Monday		
11:12 pm	Arrived at FedEx location	MEMPHIS, TN
8:38 pm	Left FedEx origin facility	ROCHESTER, NY
6:51 pm	Picked up	ROCHESTER, NY
6:34 pm	Picked up Tendered at FedEx Office	VICTOR, NY

Shipment Facts

Tracking Number	806832457155	**Service**	FedEx Priority Overnight
Weight	55 lbs / 24.95 kgs	**Dimensions**	24x14x14 in.
Delivered To	Shipping/Receiving	**Total pieces**	1
Total shipment weight	55 lbs / 24.95 kgs	**Terms**	Recipient
Shipper reference	1490712 2152	**Packaging**	Your Packaging
Special handling section	Deliver Weekday, Additional Handling Surcharge	**Standard transit**	10/31/2017 by 10:30 am

OUR COMPANY
About FedEx
Our Portfolio
Investor Relations
Careers
FedEx Blog
Corporate Responsibility
Newsroom
Contact Us

MORE FROM FEDEX
FedEx Compatible
Developer Resource Center
FedEx Cross Border

LANGUAGE
Change Country
English

FOLLOW FEDEX

Ask FedEx

39 Spruce St.
East Longmeadow, MA. 01028
P: 413-525-2332
F: 413-525-6405
www.contestlabs.com

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client EA Engineering

Received By BSP Date 11/1/17 Time 935

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 1 Actual Temp - 2.2 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Project T Analysis ID's T T Sampler Name T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? F Who was notified? _____

Are there Short Holds? F Who was notified? _____

Is there enough Volume? T F

Is there Headspace where applicable? _____ MS/MSD? T

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? N/A Acid _____ Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	8	4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments: