Village of Cuba Landfill Site

ALLEGANY COUNTY, NEW YORK

Periodic Review Report
(2019-2020)

NYSDEC Site Number: 902012

Prepared for

Village of Cuba
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Cuba, New York 14727

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February 2020

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICIES

EXECUTIVE SUMMARY

The Cuba Landfill Site (the "Site") is a 40-acre former waste disposal facility located on Jackson Hill Road in the Town of Cuba, Allegany County, New York. The Site is owned by the Village of Cuba and was operated by the Village of Cuba from the 1950s to the 1980s. The New York State Department of Environmental Conservation (NYSDEC) and the Village of Cuba entered into an Order on Consent to close the Cuba Landfill. This Order on Consent required the remedial parties, NYSDEC and the Village of Cuba, to investigate and remediate contaminated media at the Site.

During the Remedial Investigation (RI) conducted at the Site in 1999, waste material, soil, groundwater, air, leachate, and sediment samples were collected to characterize the nature and extent of contamination. Results of the Cuba Landfill RI indicated that Site waste included a source of contamination that presented a threat to the environment and that off-Site contaminant migration was occurring. Analytical results showed that the contaminants of concern, identified as volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs), were present in relatively low concentrations and were typical of unlined landfills that received domestic and industrial waste.

The Record of Decision, dated June 2000, authorized the selected remedy of the installation of a low permeability cap with passive gas venting, an up-gradient surface water diversion, a phytoremediation system for control of leachate, and long-term groundwater monitoring. A series of monitoring wells were installed at the Site during the remedial process as part of the long-term groundwater monitoring program. The monitoring of these wells, among other tasks, is summarized in this Periodic Review Report (PRR).

Operation, maintenance, and monitoring activities associated with the remedial action implementation are conducted at the Cuba Landfill as part of ongoing implementation of the Site Management Plan (SMP). These monitoring activities provide data to evaluate remedy performance, effectiveness, and protectiveness. As a component of the SMP, annual Site inspections are conducted in addition to groundwater, surface water, and landfill gas evaluation events.

Remedy performance monitoring data obtained during this reporting period indicate the remedies implemented continue to perform as expected, are effective, protective, and progressing toward the remedial action objectives during this reporting period. Chlorinated VOC (cVOC) exceedances occurred with respect to 6 New York Codes, Rules and Regulations (6 NYCRR) Part 703.5 Class GA Ambient Groundwater Quality Standards (Part 703.5 AWQS) at five (5) wells in September, 2019. However, the data indicate that groundwater VOC concentrations have generally decreased since remedy implementation. Inorganic concentrations show minor fluctuations in constituent concentrations, with some exceedances in iron, sodium and manganese. As indicated by the data, surface water quality does not appear to be impacted by surface water runoff from the Site.

1.0 PERIODIC REVIEW REPORT

This PRR was prepared by Lu Engineers, on behalf of the Village of Cuba, in accordance with the requirements set forth in NYSDEC Department of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines set forth by NYSDEC. The first PRR was required 14 months after the final completion of construction in May 2010. The reporting period for this PRR is from January 25, 2019 to January 25, 2020. The following items are included in this PRR:

- Identification, assessment, and certification of each EC/institutional controls (IC) required by the remedy for the Site.
- Results of the Site inspection and sampling events including applicable inspection forms and other records generated for the Site during the reporting period.
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions.
- Data summary tables of groundwater and surface water contaminants of concern. These include a presentation of past VOC data as part of an evaluation of contaminant concentration trends.
- Laboratory analytical results, and the required laboratory data deliverables for each sample collected during the reporting period have been and will continue to be submitted electronically in a NYSDEC-approved EQuIS format.
- A Site evaluation, which includes the following:
  I. The compliance of the remedy with the requirements of the Site-specific ROD.
  II. The operation and the effectiveness of each treatment unit, including identification of any needed repairs or modifications.
  III. Any new conclusions or observations regarding Site contamination based on inspection or lab data generated during the monitoring events.
  IV. Recommendations regarding any necessary changes to the remedy and/or SMP.
  V. The overall performance and effectiveness of the remedy to date.

2.0 SITE OVERVIEW

2.1 INTRODUCTION

The Cuba Landfill is a 40-acre former waste disposal facility located in the Town of Cuba, Allegany County, New York. The landfill Site is owned by the Village of Cuba and was operated by the Village of Cuba from the 1950s to the 1980s. The Site is bordered to the north by Deep Snow Road and a hay field, and to the west, east, and south by undeveloped wooded lands. The topography of the Site slopes steeply to the south. The landfill ground cover consists primarily of mowed grass. Storm water drainage trenches oriented north-south and lined with rip-rap exist on the western portion of the landfill cap. These swales drain to a storm water detention pond at the toe of the slope. An unnamed intermittent tributary of the north branch of Van Campen Creek closely parallels the eastern border.

The boundaries of the Site are more fully described in the metes and bounds Site description that is a component of the NYSDEC's Declaration of Covenants and Restrictions. The Site is accessed via Jackson Hill Road and the seasonal Deep Snow Road.

The NYSDEC and the Village of Cuba entered into an Order on Consent (No. B9-461-94-09) to close the Cuba Landfill. This Order on Consent required the remedial parties, NYSDEC and the Village of Cuba, to investigate and remediate contaminated media at the Site. In 2013, the Village of Cuba purchased a 10-acre rectangular parcel of land that adjoins the Site to the immediate south, as illustrated on Figure 1 and Figure 2. This parcel is not considered part of the definition or boundary of the Site. Off-Site monitoring wells MW-7, MW-8, MW-10 and MW-10D are contained within the boundary of this 10-acre parcel.

2.2 BACKGROUND

Starting in the early 1950s, household, commercial, and industrial wastes were disposed of within the Cuba Landfill. The Village of Cuba acquired the Site in 1967 and operated it as an un-permitted municipal landfill. The facility was issued a sanitary landfill permit in 1979 by the NYSDEC and became inactive in approximately 1981. The landfill was inspected on a regular basis by NYSDEC until the Village completed an approved closure plan in 1987.

In 1994, results of Phase II Preliminary Site Assessment (PSA) were completed for the NYSDEC to determine if the Site qualified for the New York State Registry of Inactive Hazardous Waste Disposal Sites (IHWDS). Results of testing at the Site conducted by URS Consultants, Inc. indicated the presence of VOCs in Site groundwater and leachate and confirmed the disposal of hazardous waste including solvents, plating wastes, PCB capacitors, and paint sludges. Based on these findings and the confirmed disposal of hazardous waste including solvents, plating wastes, PCB capacitors, and paint sludges, the Site was reclassified from Class 2a to Class 2 (significant threat to public health or the environment; action required) in 1994.

During the RI conducted at the Site in 1999 and subsequent confirmatory sampling events, waste material/soil, groundwater, air, leachate, and sediment samples were collected to characterize the nature and extent of the contamination. The RI results indicated that the Site was a source of contamination and that there was migration of contaminants off-Site. Analytical testing results showed that contaminants of concern (VOCs and PCBs) were present in relatively low concentrations typical of unlined landfills that receive domestic and industrial waste. The following presents a summary of the RI activities and findings:

- Soil –Twelve (12) surface soil locations were sampled. Phenol, Aroclor 1260, and several metals including arsenic, beryllium, cobalt, copper, iron, nickel, selenium, and zinc were detected at concentrations above applicable standards, criteria, and guidelines (SCGs). Subsurface soil samples from two (2) locations did not contain concentrations of VOCs, semi-volatile organic compounds (SVOCs), pesticides, or PCBs greater than the SCGs.

- Upper Bedrock Groundwater – Predominantly impacted with VOCs in excess of applicable standards. Limited exceedances of SVOCs, pesticides, and metals were detected.
- Surface Water Sediment – No VOCs, pesticides, or PCBs were detected in any of the sediment samples analyzed. One (1) sampling location at the southwest corner of the property contained one (1) SVOC, phenol, and a few metals exceeding the SCGs. Both upgradient and downgradient samples from both tributaries contained similar metals concentrations.
- Groundwater Springs – Groundwater springs located downgradient and at various off-Site locations contained VOCs, endrin, Aroclor 1260, and a few metals were detected at concentrations greater than the SCGs.

In 2008, the NYSDEC issued a work authorization to EA to provide construction, administration, and inspection services at the Cuba Landfill Site. EA was also retained to provide inspection services during construction activities, and to prepare the Final Engineering Report (FER) for these activities. D'Virka and Bartilucci Consulting Engineers was the design engineer of record for the landfill closure. The NYSDEC awarded the landfill closure contract to Modern Environmental Group, Inc. (Modern) for the construction activities. The Site was remediated in accordance with the NYSDEC-approved remedial design dated February 2008. The overall goal of the remedial actions at the Site is protection of human health and the environment, and meeting relevant SCGs. Specific remedial action objectives are as follows:

- Eliminate, to the extent practicable, direct human or animal exposure to waste in the landfill.
- Eliminate, to the extent practicable, the migration of contaminants from the landfill to groundwater.
- Reduce, control, or eliminate, to the extent practicable, the generation of leachate within the landfill mass.
- Eliminate, to the extent practicable, ingestion of groundwater affected by the Site that does not meet 6 NYCRR 703.5 Class GA Ambient Water Quality Criteria.
- Eliminate, to the extent practicable, off-Site migration of groundwater that does not meet 6 NYCRR Part 703.5 Class GA Ambient Water Quality Criteria.

After completion of the remedial work as specified within the February 2008 Contract Documents (Contract D006905), some contamination remained in the subsurface at the Site. Engineering controls (ECs) were incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. In accordance with the New York State Solid Waste Management Facilities Regulations (6NYCRR Part 360-2.15[k][4]) and the Site-specific SMP, environmental monitoring sampling points have been, and continue to be maintained, monitored, and sampled to evaluate surface water and groundwater quality and assess potential residual impacts to the environment immediately surrounding the landfill to support eventual Site closure.

A chronology of the significant actions/events of the remedial program for the Site is presented in the following table.

CUBA LANDFILL PERIODIC REVIEW REPORT REMEDY IMPLEMENTATION CHRONOLOGY	
Significant Action/Event	**Date**
Phase I –PSA	October 1990
Phase II –PSA	January 1994
RI Report[1]	July 1999
Feasibility Study Report[2]	December 1999
Record of Decision[3]	June 2000
Remedial Design Work Plan[4]	June 2001
Pre-Design Investigation Report	October 2003
Remedy Design Completion	February 2008
NYSDEC Design Approval	April 2008
Project Health and Safety Plan	April 2008
Remedy Implementation	September 2008
Substantial Completion	October 2009
NYSDEC Approval of Remedy Construction Completion (Final Completion)	May 2010
Site-Specific Quality Assurance Project Plan Addendum	January 2011
First Quarterly Report[5]	April 2011
NYSDEC Site Management Plan Approval	August 2011
Second Quarterly Report[5]	July 2011
Annual Report No. 1, May 2010 – July 2011[5]	September 2011
Declaration of Covenants and Restrictions	October 2011
Periodic Review Report[5]	November 2011
Third Quarterly Report (July/August 2011 event)[5]	December 2011
Fourth Quarterly Report (November 2011 event)[5]	April 2012
Fifth Quarterly Report (February 2012 event)[5]	June 2012
Sixth Inspection/Monitoring Report (July 2014 event, Lu Engineers)	July 2014
Seventh Inspection/Monitoring Report (November 2014 event, Lu Engineers)	November 2014
Eighth Inspection/Monitoring Report (June 2015 event, Lu Engineers)	June 2015
Ninth Inspection/Monitoring Report (October 2016 event, Lu Engineers)	October 2016
Tenth Inspection/Monitoring Report (March 2017 event, Lu Engineers)	March 2017
Eleventh Inspection/Monitoring Report (May 2018 event, Lu Engineers)	May 2018
NYSDEC Emerging Contaminant Sampling Event	August 2018
Twelfth Inspection/Monitoring Report (September 2019 event, Lu Engineers)	September 2019

(1) Dvirka and Bartilucci Consulting Engineers. 1999. Remedial Investigation Report. Cuba Municipal Waste Disposal Site (Registry No. 9-02-012), Village of Cuba, Alleghany County, New York. July.

(2) Dvirka and Bartilucci Consulting Engineers. 1999. Feasibility Study Report, Cuba Municipal Waste Disposal Site (Registry No. 9-02-012), Village of Cuba, Alleghany County, New York. December.

(3) New York State Department of Environmental Conservation. 2000. Record of Decision, Village of Cuba Municipal Waste Disposal Site, Village of Cuba, Alleghany County, Site Number 9-02-012. June.

(4) Dvirka and Bartilucci Consulting Engineers. 2001. Remedial Design Work Plan, Cuba Municipal Waste Disposal Site (Registry No. 9-02-012), Village of Cuba, Alleghany County, New York. June.

(5) Prepared by EA Science and Technology, an affiliate of EA Engineering, P.C.

3.0 REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS EVALUATION

Post-remedial groundwater sampling indicates that low-level residual groundwater contamination persists at the Site since completion of remedial work. Ten (10) post-remediation sampling events were conducted in accordance with and as outlined in the SMP in:

- January 2011
- November 2011
- July 2014
- November 2014
- June 2015
- October 2016
- March 2017
- May/August 2018
- September 2019

The results of the first three (3) quarterly monitoring/sampling/inspection events conducted by EA Science and Technology during preceding reporting periods are summarized in previously submitted quarterly sampling reports.

Table 2 (refer to attachments) illustrates VOC results trend for groundwater analytical results observed in the post-remediation sampling events. Table 3 illustrates inorganic parameter groundwater analytical results trend since July 2014. Figure 3 shows analytical exceedances and the groundwater contour for the sampling event documented in this report. Concentrations in groundwater samples were compared to the applicable 6 NYCRR Part 703.5 Class GA Ambient Groundwater Quality Standards. Analytical reports are provided in Appendix C.

Remedy monitoring data indicate that the Cuba Landfill remedies are functioning as intended. In particular, the monitoring data indicate that the remedies are making progress toward the remedial action objectives which are as follows:

- *Control the potential for leachate within the landfill to migrate to groundwater or surface water, by reducing leachate within the Site.* The remedy appears to be successfully reducing leachate volume and head through implementation of the Site cap and phytoremediation area. The cap is serving to reduce groundwater quality impacts as observed by the reduction in leachate indicator parameters.
- *Control the potential for direct contact with waste materials, leachate, or contaminated groundwater.* Direct contact is being prevented by the engineered landfill cap, land use restrictions, and Site access controls.
- *Provide for attainment of SCGs for groundwater quality, to the extent practicable*. Number of contaminants is fewer and concentrations are generally lower than previously observed data, thus contributing to attainment of SCGs to the degree feasible. Natural attenuation of VOCs is also likely occurring at the Site.

- *Eliminate the potential for future ingestion, inhalation of, or dermal contact with organic contaminants in groundwater*.

In addition, the Site inspections conducted as required by the SMP indicate the following:

- Landfill cap drainage is largely effective and structures are in good working condition; however, minor ponding was observed at the base of the hill on the southern edge of Site (refer to Appendix B, Site Photographs).
- The placement of large tree stumps on either side of the western access road appears to be inhibiting vehicular trespassing.
- Minor erosion has been observed on the eastern and western access roads on the steepest portions. A small area of exposed geotextile was observed on the landfill cap (refer to Appendix B, Site Photographs).
- In the 2018 sampling event, approximately 30% (eastern-most) of the willow trees, a component of the phytoremediation effort at the Site, appeared to have died. In the September 2019 sampling event, the willow trees appeared to be partially recovered (refer to Appendix B, Site Photographs).

The monitoring program has been and continues to be compliant with the approved SMP for the Cuba Landfill Site. The result of the monitoring program is discussed in Section 7.

The Site remedy does not rely on any mechanical long-term treatment systems, such as sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this PRR.

4.0 INSTITUTIONAL CONTROL/ENGINEERING CONTROL COMPLIANCE

The Cuba Landfill Site remedies involve the use of both ICs and ECs to protect public health and the environment. The IC/EC Plan is one (1) component of the SMP and is subject to revision by NYSDEC. ICs/ECs include the following:

<u>Institutional Controls:</u>

- Land Use Restriction
- Groundwater Use Restriction
- Excavation Work Plan
- Soil Vapor Intrusion Evaluation

<u>Engineering Controls:</u>

- Engineered Landfill Cap
- Passive Gas Vents
- Landfill Surface Drainage
- Leachate Phytoremediation

- Site Entrance Gates
- Access Road.

Each of the above listed controls is described in Table 4. Information in Table 4 includes a description of the objective of the control, how the performance of the control is monitored, and summarizes the current performance and status of each control. Based on the information in Table 4, each of the ICs and ECs at the Cuba Landfill Site remain in place and continue to be effective.

The required IC/EC certification has been completed as a component of this report and is included as Appendix E.

5.0 MONITORING PLAN COMPLIANCE

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, the soil cover system, and all affected Site media identified in the following table:

Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater Monitoring	Annual (rotating quarterly)	Groundwater	EPA Method 8260 VOCs; EPA Method 6010 TAL Metals
Surface Water Monitoring	Annual (rotating quarterly)	Surface Water	EPA Method 8260 VOCs; EPA Method 6010 TAL Metals
Landfill Gas Monitoring	Annual (rotating quarterly)	Organic Vapors	PID Screening
Cover System Monitoring	Annual (rotating quarterly)	Soil/Geotextile Cover System	Visual Inspection, determine applicable maintenance

*The frequency of events will be conducted as specified until otherwise approved by NYSDEC

Monitoring activities completed during this reporting period (2019) included the following:

- Annual groundwater sampling of eight (8) monitoring wells, and one (1) downgradient residential well located at 8345 Jackson Hill Road, nine 9 total (refer to Figure 2);
- Annual sampling of two (2) surface water locations (note: SW-1 and SW-2 were dry at the time of the sampling event);
- Annual landfill gas monitoring;
- Annual inspection of the Site cover system

The monitoring locations, analytical testing requirements and inspection protocols for each monitoring/sampling/inspection event are outlined in the approved SMP. Site wells were sampled on September 19, 2019 and September 20, 2019 using sampling methods and procedures outlined in the SMP.

Groundwater quality measurements including temperature, turbidity, pH, conductivity and oxidation reduction potential (ORP) were collected during the purging process at each well. Purge water from each well was released to the ground surface near the well. At each well, samples were collected for analysis of VOCs and TAL metals. Samples were submitted to ALS Environmental, a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) - certified laboratory located in Rochester, New York.

Three (3) monitoring wells were sampled in August 2018 as part of New York State's emerging contaminant program. The sampled wells were approved by NYSDEC and were analyzed for 1,4-dioxane and PFAs; however, PFOA sampling was not conducted during the 2019 sampling period. Groundwater monitoring logs are included as Appendix A of this report.

6.0 MONITORING RESULTS

6.1 GROUNDWATER DATA

The following constituents were detected in exceedance of 6 NYCRR Part 703.5 Class GA Groundwater Standards for the reporting period:

Volatile Organics

- 1,1,1-trichloroethane (1,1,1-TCA)
- 1,1-dichloroethane (1,1-DCA)
- 1, 1-dichloroethene (1,1-DCE)
- chloroethane (ETC)
- cis-1,2-dichloroethene (cis-1,2-DCE)
- trichloroethene (TCE)

Metals

- Iron
- Manganese
- Sodium

The following provides a comprehensive summary of September 2019 Findings:

- No VOCs exceedances were detected at the upgradient well, MW-1D, consistent with previous sampling events;
- All VOC exceedances detected at MW-4 have increased in concentration in reference to May 2018 sample results with the exception of TCE, which fell below NYSDEC Part 703.5 standard;
- At MW-07, cVOC concentrations continue to decline with respect to TCE and 1,1,1-TCE since November 2011, as indicated by Table 2. Reduced concentrations of TCE and the presence of daughter products (below Part 703.5 AWQS) suggest on-going reductive dechlorination;

- VOC concentrations decreased with respect to each parameter detected at MW-08 and MW-11;
- Levels of cis-1,2-DCE, 1,1-DCA, 1,1,1-TCA, and TCE exceeded Part 703.5 AWQS in September 2019, and increased slightly since the previous sampling round;
- No VOC concentrations were detected in MW-12;
- Upgradient wells MW-1S and MW-9 and downgradient wells, MW-2, MW-3, and MW-10 were not sampled and no parameters were obtained due to the low volume.
- Iron, manganese, and/or sodium, were detected in exceedance of Part 703.5 AWQS at MW-1D, MW-4, MW-7, MW-8, MW-10D, MW-11, MW-12, and MW-13, and increased in concentration referencing the May 2018 sampling period, with the exception on MW-13 and MW-10D (Table 3).

No Part 703.5 AWQS analytical exceedances occurred in the sample from the residential well located at 8345 Jackson Hill Road. A previous sampling event in October 2016 indicated an elevated concentration of lead at this residential well. However, the October 2016 sample was obtained from the hose bib, which may have accounted for the elevated concentration of lead in the sample.

6.2 SURFACE WATER DATA

SW-4 exhibited an iron exceedance consistent with previous sampling rounds. Previously detected iron exceedances at SW-3 were not observed during the May 2018 or September 2019 sampling rounds. However, it should be noted that the iron detections in September 2019 increased in reference to the May 2018 sampling event.

6.3 LEACHATE INDICATOR DATA

Leachate indicators, such as total organic carbon (TOC) and biochemical oxygen demand (BOD), help determine the extent and magnitude of total leachate impacts throughout the landfill. Table 3 presents the most recent leachate indicator data, which was collected in July 2014.

Analytical results associated with unfiltered groundwater samples collected as part of the post-remedial sampling events in July/August 2011, November 2011, February 2012 were submitted for NYSDEC Part 360 2.11 (d) routine leachate indicator analysis.

There were no exceedances of Part 703.5 AWQS values in samples collected in July/August 2011. Overburden monitoring well MW-3 exceeded the applicable NYSDEC AWQS for phenolics in November 2011. Surface water sample results from sample points SW-03 and SW-04 exceeded the applicable NYSDEC AWQS for phenolics in February 2013.

In July 2014, groundwater and surface water samples were analyzed for NYSDEC Part 360 2.11 (d) baseline leachate indicator analysis. Groundwater and surface water samples collected in July 2014 did not exceed the NYSDEC AWQS for leachate indicator parameters. Leachate indicators, other than TAL metals, have not been collected since 2014.

6.4 LANDFILL GAS MONITORING DATA

The landfill gas vents were monitored during the September 2019 sampling event for VOCs and explosivity. Refer to Figure 2 for gas vent locations. No elevated readings in the vents were found during the September 2019 sampling event and Site-wide inspection, as documented in Appendix D.

6.5. SITE INSPECTIONS

In September 2019, the landfill cap grades and swales were in good condition. The vegetated cap system appeared to be limiting the amount of surface water infiltration through buried waste and reducing the impact on groundwater quality as determined by water quality parameters. A small patch of exposed green geotextile was observed on the Site cap as indicated in Appendix B, Site Photographs. A copy of the Site-wide inspection form is included as Appendix D of this report.

6.6 RESULTS SUMMARY

In general, the remedy performance monitoring data presented above indicate that the remedies implemented are performing as expected, are effective and protective, and are progressing towards the remedial action objectives. cVOCs are the primary contaminants of concern at the Site. Groundwater cVOC concentrations have generally decreased over time, but have fluctuated since 2011. The landfill cap is serving to reduce groundwater impacts as determined by previous leachate indicator parameter concentrations. The data also indicate that water quality does not appear to have been impacted from surface water runoff from the Site. These findings demonstrate progress towards attaining the remediation goals set forth in the controlling documents and the Record of Decision.

7.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

7.1 COMPLIANCE WITH SITE MANAGEMENT PLAN

The controlling document for the Site is the approved SMP. The implementation of and compliance with the requirements specified in the SMP have been met during the reporting period of this PRR. The ROD for the Site requires groundwater use restrictions.
NYSDEC placed a Declaration of Covenants and Restrictions on file at the Allegany County Clerk's office that restricts groundwater use in the area around the Site.

7.2 PERFORMANCE AND EFFECTIVENESS OF THE REMEDIES

Overall, the remedy performance monitoring data collected during this reporting period indicate that the remedies implemented for both of the operable units are performing as expected, are effective and protective. The landfill cap is serving to reduce groundwater impacts as determined by overall declining leachate indicator parameter concentrations. Landfill gas is typical and not impacting resources. It appears that stream and tributary water quality has not been impacted from surface water discharges from the Site.

These factors demonstrate progress towards attaining the remediation goals set forth in the controlling documents and the ROD.

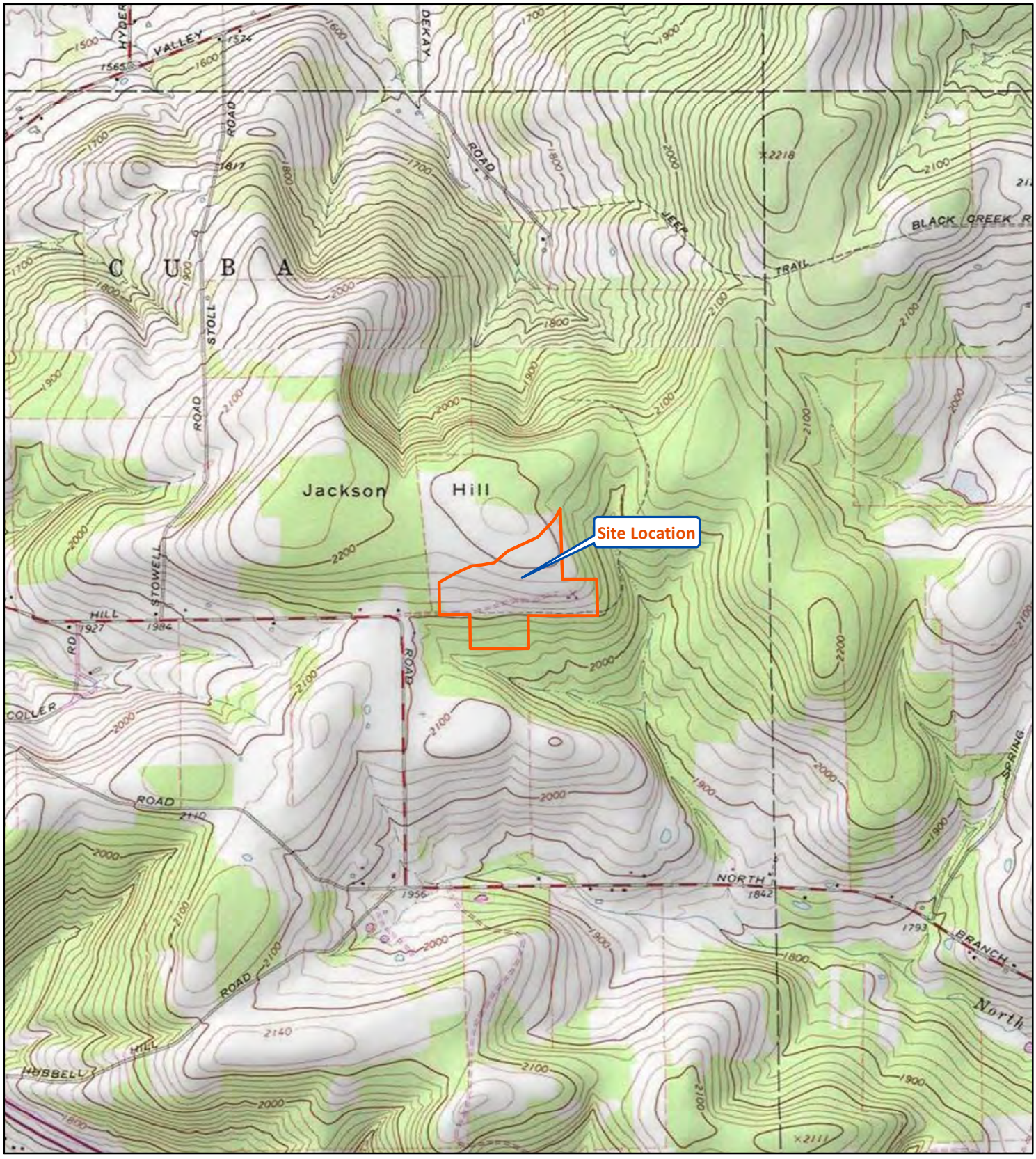
The following repairs are recommended for Site maintenance:

- Continue to monitor willow trees;
- If determined necessary, repair the exposed green geotextile on the Site cap;
- Replace landfill vent caps.

7.3 FUTURE SAMPLING SCHEDULE AND PERIODIC REVIEW REPORT SUBMITTALS

Based on the analytical data generated during this reporting period, it is evident that VOCs and metal concentrations are the primary contaminants of concern at the Site. Increased concentrations of Iron and manganese in multiple wells may be attributed to seasonal lows in water depth elevations. The trend of VOC concentrations suggests that degradation is occurring. Lu Engineers recommends that the overburden and bedrock monitoring wells, and surface waters included in the SMP monitoring program be sampled annually for VOCs and TAL metals, on a rotating quarterly basis. Lu Engineers will perform the next sampling event during the 4th quarter of 2020.

It is recommended that the next PRR be submitted approximately one (1) year from submittal of this PRR. A final determination of the submittal schedule for future Site reporting requirements will be determined by the NYSDEC.



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1,000 0 1,000 2,000 3,000 4,000

Feet

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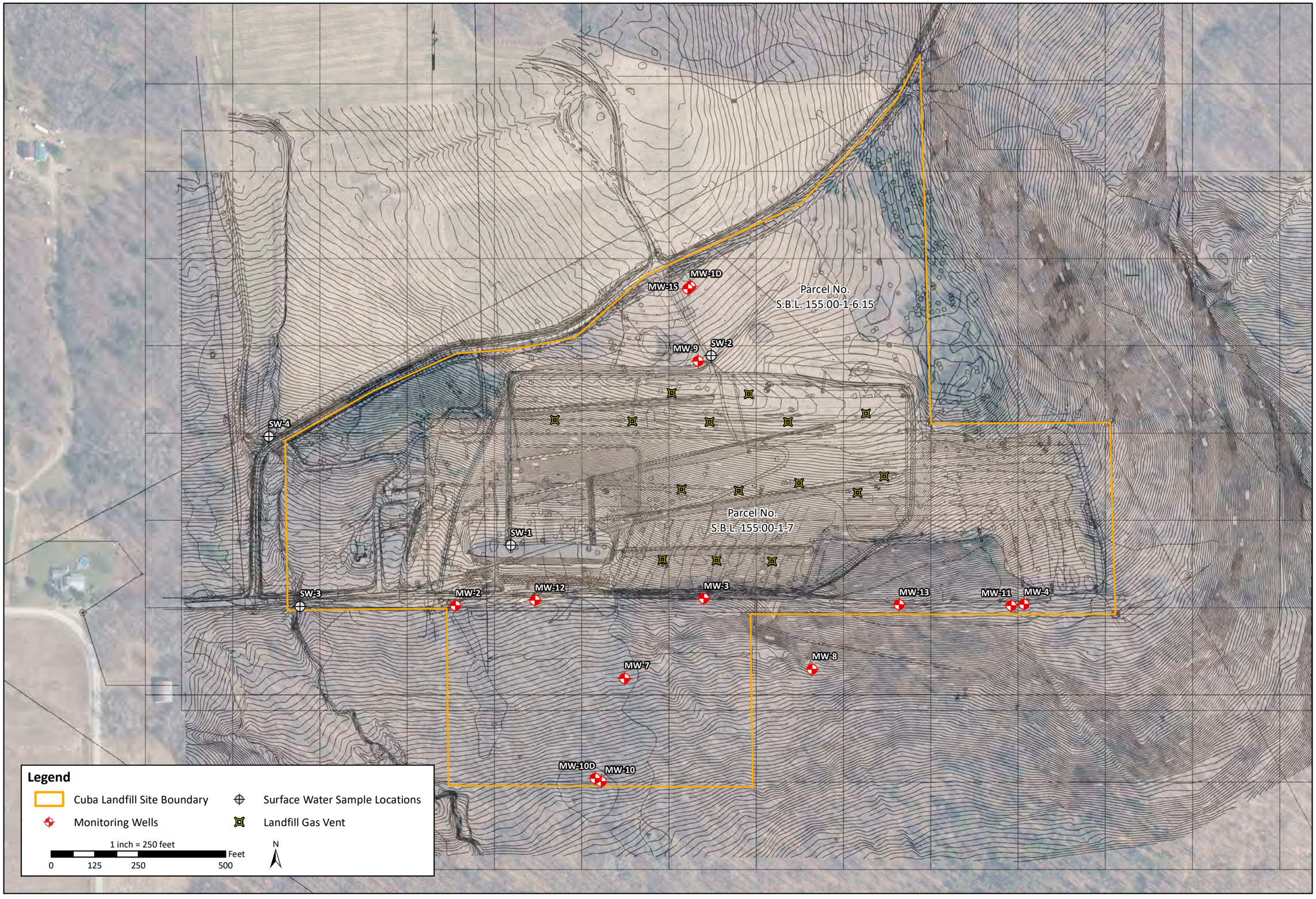
Figure 1. Site Location Plan
Cuba Landfill Site
NYSDEC SITE #902012
Cuba, New York

DATE: January 2020
PROJECT #: 50191-01
DRAWN/CHECKED: BGS/GLA
DATA SOURCE: ESRI Online Basemap



DATE: January 2020
Project Number: 50191-01
DRAWN/CHECKED: BGS/GLA
DATA SOURCE:
ESRI Online Basemap; Client Data

Figure 2. Site Layout Plan
Cuba Landfill Site
NYSDEC Site #902012
Cuba, New York

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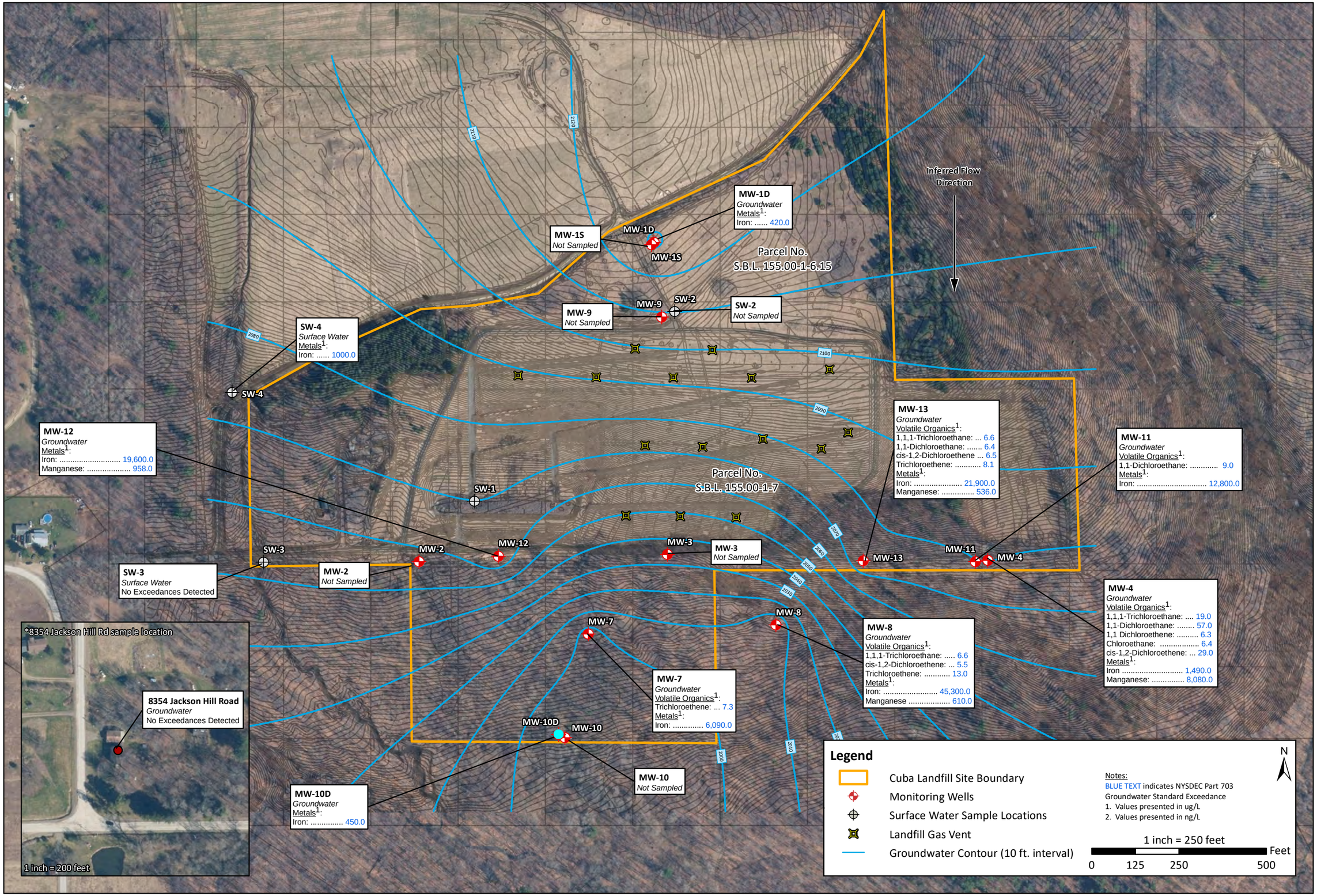

DATE: January 2020
Project Number: 50191-01
DRAWN/CHECKED: BGS/GLA
DATA SOURCE: ESRI Online Basemap; Client Data

Figure 3. Analytical Results and Groundwater Contour Map
Cuba Landfill Site
NYSDEC Site #902012
Cuba, New York

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Tables

Village of Cuba Landfill Site
NYSDEC Site #902012
Periodic Review Report (2019)

Table 1 - Volatile Organic Compounds Detected in Groundwater & Surface Water (September 2019)

Detected Parameter List USEPA Method 8260B	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	8354 Jackson	MW-1S	MW-1D	MW-3	MW-4	MW-7	MW-8	MW-9	MW-10	MW-10D
		Sample Type	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
		Sample Date	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/20/2019	9/19/2019	9/19/2019	9/19/2019	9/20/2019
1,1,1-Trichloroethane	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**19**	**4.4**	**6.6**	NS	NS	1.60
1,1-Dichloroethane	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**57**	**1.6**	**4.7**	NS	NS	< 1.0 U
1,1-Dichloroethene	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**6.3**	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U
Acetone	50*	µg/L	< 5.0 U	NS	< 5.0 U	NS	7.90 B	5.40 B	< 5.0 U	NS	NS	< 5.0 U
Chloroethane	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**6.4**	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U
cis-1,2-Dichloroethene	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**29**	**3.0**	**5.5**	NS	NS	< 1.0 U
1,2-Dichloroethane	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	< 1.0 U	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U
Tetrachloroethene	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	< 1.0 U	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U
Trichloroethene	5(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**2.5**	**7.3**	**13.0**	NS	NS	< 1.0 J
Vinyl chloride	2(s)	µg/L	< 1.0 U	NS	< 1.0 U	NS	**3.0**	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U

Detected Parameter List USEPA Method 8260B	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	MW-11	MW-12	MW-13	SW-01	SW-02	SW-03	SW-04	Field-DUP
		Sample Type	Groundwater	Groundwater	Groundwater	Surfacewater	Surfacewater	Surfacewater	Surfacewater	Groundwater
		Sample Date	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019	9/19/2019
1,1,1-Trichloroethane	5(s)	µg/L	**2.5**	< 1.0 U	**6.6**	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethane	5(s)	µg/L	**9**	< 1.0 U	**6.4**	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
1,1-Dichloroethene	5(s)	µg/L	< 1.0 U	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
Acetone	50*	µg/L	< 5.0 U	< 5.0 U	< 5.0 U	NS	NS	< 5.0 U	< 5.0 J	**6.30**
Chloroethane	5(s)	µg/L	2.10	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
cis-1,2-Dichloroethene	5(s)	µg/L	3.6	< 1.0 U	**6.5**	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
1,2-Dichloroethane	5(s)	µg/L	< 1.0 U	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U	< 1.0 J	< 1.0 U
Tetrachloroethene	5(s)	µg/L	< 1.0 U	< 1.0 U	**4.6**	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
Trichloroethene	5(s)	µg/L	1.3	< 1.0 U	**8.1**	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U
Vinyl chloride	2(s)	µg/L	< 1.0 U	< 1.0 U	< 1.0 U	NS	NS	< 1.0 U	< 1.0 U	< 1.0 U

USEPA = U.S. Environmental Protection Agency

NYDEC = New York State Department of Environmental Conservation

--- = indicates no applicable standard.

µg/L = micrograms per liter.

U = Not detected at the Practical Quantitation Limit. Sample quantitiation limits shown as <_.

NS = No sample collected.

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

Ambient Water Quality Standards and Guidance Values from Division of Water and Technical and Operational Guidance Series (TOGS) 1.1.1, August 1999.

* = NYSDEC Part 703.5 Guidance Value (no standard)

J=Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.

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Table 2A - 1S VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-1S									
		Pre-Remediation	Post-Remediation								
VOCs 8260B		Nov-97	11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	ND	ND	**2.21**	ND	ND	ND	NS	ND	NS	NS
Chloroethane	**5**	ND	ND	ND	ND	ND	ND	NS	ND	NS	NS
cis-1,2-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	NS	ND	NS	NS
1,1-Dichloroethane	**5**	ND	ND	ND	ND	ND	ND	NS	ND	NS	NS
1,1-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	NS	ND	NS	NS
Ethylbenzene	**5**	ND	**0.11**	ND	ND	ND	ND	NS	ND	NS	NS
1,1,1-Trichloroethane	**5**	**1**	ND	ND	ND	ND	ND	NS	ND	NS	NS
Tetrachloroethene	**5**	**1**	ND	ND	ND	ND	ND	NS	ND	NS	NS
Toluene	**5**	ND	**0.47**	ND	ND	ND	ND	NS	ND	NS	NS
Trichloroethene	**5**	ND	ND	ND	ND	ND	ND	NS	ND	NS	NS

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2B - MW-1D VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-1D								
		Post-Remediation								
VOCs 8260B		11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	ND	NA	ND	ND	ND	NS	**2.6 J**	ND	ND
Chloroethane	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND
cis-1,2-Dichloroethene	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND
1,1-Dichloroethane	**5**	**0.19**	NA	ND	ND	ND	NS	ND	ND	ND
1,1-Dichloroethene	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND
Ethylbenzene	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND
1,1,1-Trichloroethane	**5**	**0.2**	NA	ND	ND	ND	NS	ND	ND	ND
Tetrachloroethene	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND
Toluene	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND
Trichloroethene	**5**	ND	NA	ND	ND	ND	NS	ND	ND	ND

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2C - MW-03 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-03									
		Pre-Remediation	Post-Remediation								
VOCs 8260B		Nov-97	11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	**14**	**433**	ND	NS	NS	ND	NS	NS	NS	NS
Chloroethane	**5**	**4.0**	**20.6**	**56.2**	NS	NS	**14.0**	NS	NS	NS	NS
cis-1,2-Dichloroethene	**5**	ND	**622**	ND	NS	NS	**79.0**	NS	NS	NS	NS
1,1-Dichloroethane	**5**	**11.0**	**81.6**	**86.4**	NS	NS	**27.0**	NS	NS	NS	NS
1,1-Dichloroethene	**5**	**65.0**	**7.2**	**4.8**	NS	NS	ND	NS	NS	NS	NS
Ethylbenzene	**5**	ND		ND	NS	NS	ND	NS	NS	NS	NS
1,1,1-Trichloroethane	**5**	**240.0**	**73.8**	**84.8**	NS	NS	**33.0**	NS	NS	NS	NS
Tetrachloroethene	**5**	ND	ND	ND	NS	NS	ND	NS	NS	NS	NS
Toluene	**5**	ND	ND	ND	NS	NS	ND	NS	NS	NS	NS
Trichloroethene	**5**	**290.0**	**99.8**	**162.0**	NS	NS	**210.0**	NS	NS	NS	NS

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2D - MW-04 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-04										
		Pre-Remediation	Post-Remediation									
VOCs 8260B		Nov-97	11-Jan	11-Jul	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	Mar-18	May-18	Sep-19
Acetone	**50***	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**7.9 B**
Chloroethane	**5**	ND	**5.62**	**6.22**	**2.12**	**5.1**	**11.0**	**12.0**	ND	**9.6**	**6.0**	**6.4**
cis-1,2-Dichloroethene	**5**	ND	**13.4**	**10.2**	**10.1**	**15.0**	**18.0**	**21.0**	**20.0**	**12.0**	**10.0**	**29.0**
1,1-Dichloroethane	**5**	**100.0**	**85.5**	**84.6**	**62.7**	**89.0**	**79.0**	**68.0**	**100.0**	**38.0**	**30.0**	**57.0**
1,1-Dichloroethene	**5**	**1.0**	**3.62**	**3.95**	**3.08**	**8.7**	**6.9**	**7.7**	**6.0**	**3.1**	**3.3**	**6.2**
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	**12.0**	**30.1**	**24.5**	**19.7**	**35.0**	**24.0**	**32.0**	**30.0**	**12.0**	**10.0**	**19.0**
Tetrachloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	**5**	ND	**2.26**	**1.25**	**1.55**	ND	ND	ND	ND	**0.44**	ND	ND
Trichloroethene	**5**	**4.0**	**14.1**	**6.22**	**6.75**	ND	ND	ND	**6.4**	**5.3**	**4.3**	**2.5**

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2E - MW-07 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-07							
		Post-Remediation							
VOCs 8260B		11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	ND	ND	ND	ND	NS	ND	ND	**5.4 B**
Chloroethane	**5**	ND	ND	ND	ND	NS	ND	ND	ND
cis-1,2-Dichloroethene	**5**	**3.22**	ND	ND	ND	NS	**2.9**	**2.8**	**3.0**
1,1-Dichloroethane	**5**	**1.53**	ND	ND	ND	NS	**1.3 J**	**1.3 J**	**1.6**
1,1-Dichloroethene	**5**	**0.55**	ND	ND	ND	NS	**0.56**	**0.62**	ND
Ethylbenzene	**5**	ND	ND	ND	ND	NS	ND	ND	ND
1,1,1-Trichloroethane	**5**	**5.63**	**5.9**	ND	ND	NS	**4.5**	**4.4**	**4.4**
Tetrachloroethene	**5**	ND	ND	ND	ND	NS	ND	ND	ND
Toluene	**5**	ND	ND	ND	ND	NS	ND	ND	ND
Trichloroethene	**5**	**7.55**	**6.9**	**6.9**	**7.1**	NS	**6.4**	**6.3**	**7.3**

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2F - MW-08 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-08											
		Post-Remediation											
VOCs 8260B		11-Nov	14-Jul	14-Nov	Nov-97	11-Jan	11-Nov	14-Jul	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	ND	ND	ND	ND	ND	**51.5**	NS	ND	ND	ND	ND	ND
Chloroethane	**5**	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	**5**	**6.66**	**5.2**	**6.5**	ND	**0.59**	**0.53**	NS	**5.4**	**5.4**	**8.4**	**12**	**5.5**
1,1-Dichloroethane	**5**	**5.61**	**5.3**	**6.2**	**2**	**3.48**	**2.71**	NS	**5.6**	**6**	**7.6**	**8.4**	**4.7**
1,1-Dichloroethene	**5**	0.54	ND	ND	ND	ND	ND	NS	ND	ND	**0.72**	**1.3**	ND
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	**9.92**	**8.4**	**11.0**	**0.9**	**0.8**	**0.3**	NS	**10.0**	**8.1**	**12.0**	**13.0**	**6.6**
Tetrachloroethene	**5**	ND	ND	ND	**2**	ND	ND	NS	ND	ND	ND	ND	ND
Toluene	**5**	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND
Trichloroethene	**5**	**18.6**	**12.0**	**18.0**	ND	ND	ND	NS	**15.0**	**14**	**21.0**	**27.0**	**13.0**

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2G - MW-09 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-09									
		Pre-Remediation	Post-Remediation								
VOCs 8260B		Nov-97	11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	ND	**8.18**	**51.5**	NS	NS	NS	NS	NS	NS	NS
Benzene	**1**	ND	**0.12**	**0.54**	NS	NS	NS	NS	NS	NS	NS
Chloroethane	**5**	ND	**1.3**	**0.96**	NS	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	**5**	ND	**0.59**	**0.53**	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethane	**5**	**2**	**3.48**	**2.71**	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethene	**5**	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS
Ethylbenzene	**5**	ND	**0.15**	ND	NS	NS	NS	NS	NS	NS	NS
1,1,1-Trichloroethane	**5**	**0.9**	**0.78**	**0.31**	NS	NS	NS	NS	NS	NS	NS
1,1,2-Trichloroethane	**1**	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	**5**	**2**	ND	ND	NS	NS	NS	NS	NS	NS	NS
Toluene	**5**	ND	**0.73**	ND	NS	NS	NS	NS	NS	NS	NS
trans-1,2-Dichloroethene	**5**	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	**5**	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS
Vinyl chloride	**2**	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS
Xylenes (total)	**5**	ND	0.6	ND	NS	NS	NS	NS	NS	NS	NS

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Village of Cuba Landfill Site
NYSDEC Site #902012
Periodic Review Report (2019)

Table 2H - MW-10 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-10								
		Post-Remediation								
VOCs 8260B		11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	**4.62**	**2.13**	**12.0**	ND	**17.0**	ND	ND	ND	NS
Benzene	**1**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Chloroethane	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
cis-1,2-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
1,1-Dichloroethane	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
1,1-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
1,1,1-Trichloroethane	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
1,1,2-Trichloroethane	**1**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Tetrachloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Toluene	**5**	**0.34**	ND	ND	ND	ND	ND	ND	ND	NS
trans-1,2-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Trichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Vinyl chloride	**2**	ND	ND	ND	ND	ND	ND	ND	ND	NS
Xylenes (total)	**5**	ND	ND	ND	ND	ND	ND	ND	ND	NS

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2I - MW-10D VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-10D							
		Post-Remediation							
VOCs 8260B		11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	**6.66**	ND	ND	ND	ND	ND	5.7	ND
Benzene	**1**	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	**5**	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	**5**	**0.69**	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**5**	**0.5**	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	**5**	**0.18**	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	**1.66**	ND	ND	ND	ND	**0.99**	**ND**	**1.6**
1,1,2-Trichloroethane	**1**	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	**5**	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**5**	**0.7**	ND	ND	ND	ND	**0.64**	**0.41 J**	ND
Vinyl chloride	**2**	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	**5**	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Village of Cuba Landfill Site
NYSDEC Site #902012
Periodic Review Report (2019)

Table 2J - MW-11 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-11								
		Post-Remediation								
VOCs 8260B		11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	**5.45**	**1.81**	ND	ND	ND	ND	ND	ND	ND
Benzene	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	**5**	**2.23**	**1.17**	ND	ND	ND	ND	**1.5 J**	**ND**	**2.1**
cis-1,2-Dichloroethene	**5**	**4.87**	**4.17**	**9.1**	ND	**8.1**	ND	**7.0**	**7.3**	**3.6**
1,1-Dichloroethane	**5**	**50.5**	**44.0**	**53.0**	**25.0**	**39.0**	ND	**24.0**	**26.0**	**8.8**
1,1-Dichloroethene	**5**	1.61	**1.48**	ND	ND	ND	ND	**1.4**	**2.1**	**ND**
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	**13.9**	**12.8**	**15.0**	**6.0**	**11.0**	ND	**6.4**	**7.9**	**2.5**
1,1,2-Trichloroethane	**1**	ND	**0.16**	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**5**	**1.45**	**2.92**	ND	ND	ND	ND	**1.6**	**1.4**	ND
Toluene	**5**	**0.34**	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**5**	**4.03**	**4.27**	ND	ND	ND	ND	**4.0**	**4.5**	**1.3**
Vinyl chloride	**2**	**0.34**	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Village of Cuba Landfill Site
NYSDEC Site #902012
Periodic Review Report (2019)

Table 2K - MW-12 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-12								
		Post-Remediation								
VOCs 8260B		11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	**5.22**	**2.41**	ND	ND	ND	ND	**1.7**	ND	ND
Benzene	**1**	**0.14**	**0.52**	ND	ND	ND	ND	ND	ND	ND
Chloroethane	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	**5**	**1.29**	**1.47**	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	**5**	**2.1**	**2.14**	ND	ND	ND	ND	**0.70 J**	ND	ND
1,1-Dichloroethene	**5**	**0.32**	**0.21**	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	**1.97**	**1.59**	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	**5**	**0.12**	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**5**	**1.33**	**1.45**	ND	ND	ND	ND	**0.78**	**0.28 J**	ND
Vinyl chloride	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 2L - MW-13 VOC Groundwater Results Trend Analysis

Detected Parameters[1]	NYS Groundwater Standard[2]	MW-13								
		Post Remediation								
VOCs 8260B		11-Jan	11-Nov	14-Jul	14-Nov	15-Jun	16-Oct	17-Mar	18-May	19-Sep
Acetone	**50***	**6.21**	**1.61**	ND	ND	ND	ND	**1.70 J**	ND	ND
Benzene	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	**5**	**0.61**	**0.37**	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	**5**	**14.7**	**17.1**	**12.0**	**11.0**	**7.4**	**9.7**	**6.1**	**4.4**	**6.5**
1,1-Dichloroethane	**5**	**21.4**	**20.0**	**15.0**	**14.0**	**9.3**	**12**	**6.6**	**5.4**	**6.4**
1,1-Dichloroethene	**5**	**1.06**	**1.67**	ND	ND	ND	ND	**0.93**	**0.43 J**	ND
Ethylbenzene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	**5**	**27.4**	**24.7**	**16.0**	**14.0**	**11.0**	**11**	**9.0**	**5.3**	**6.6**
1,1,2-Trichloroethane	**1**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND
Tetrachloroethene	**5**	**7.39**	**6.55**	**6.4**	**5.7**	**5.4**	**6**	**5.9**	**4.5**	**4.6**
Toluene	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	**5**	ND	**0.14**	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	**5**	**17.8**	**15.9**	**13.0**	**13.0**	**9.9**	**12**	**9.5**	**6.4**	**8.1**
Vinyl chloride	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (total)	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

ND - Not detected above reporting limit

NS - No sample collected

1 - Results presentend in ug/L or parts per billion (ppb)

2 - NYS Ambient Groundwater Standards (6 NYCRR Part 703.5)

* - NYSDEC Guidance Value (TOGS 1.1.1)

NOTE: Sample results are illustrated for all available data. Not all wells were sampled during each sampling event presented in this table.

Table 3 - Baseline Leachate Indicator & Inorganic Parameters Detected in Groundwater & Surface Water

Baseline Parameter List	USEPA Method	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	MW-1S					MW-1D					MW-3					MW-4				
			Sample Type	Water					Water					Water					Water				
			Sample Date	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019
Leachate Indicators																							
Alkalinity, as CaCO3	SM 2320 B	---	mg/L	70.3	NS	NS	NS	NS	75.7	NS	NS	NS	NA	NS	NS	NS	NS	NS	156	NA	NA	NA	NA
Ammonia (as N)	E350.1	2(s)	mg/L	0.123	NS	NS	NS	NS	<0.050	NS	NS	NS	NA	NS	NS	NS	NS	NS	0.444	NA	NA	NA	NA
Biochemical oxygen demand (BOD5)	SM5210B	---	mg/L	4.5	NS	NS	NS	NS	<2.0	NS	NS	NS	NA	NS	NS	NS	NS	NS	9.2	NA	NA	NA	NA
Bromide	300	2(g)	mg/L	<1.0	NS	NS	NS	NS	<1.0	NS	NS	NS	NA	NS	NS	NS	NS	NS	<1.0	NA	NA	NA	NA
Chemical Oxygen Demand	E410.4	---	mg/L	<5.0	NS	NS	NS	NS	<5.0	NS	NS	NS	NA	NS	NS	NS	NS	NS	22.1	NA	NA	NA	NA
Chloride	300	250(s)	mg/L	<2.0	NS	NS	NS	NS	9.8	NS	NS	NS	NA	NS	NS	NS	NS	NS	2.1	NA	NA	NA	NA
Color	SM2120B	---	color units	32	NS	NS	NS	NS	18	NS	NS	NS	NA	NS	NS	NS	NS	NS	13	NA	NA	NA	NA
Hardness, Calcium/Magnesium (as CaCO3)	M2340B	---	mg/L	86.8	NS	NS	NS	NS	86.1	NS	NS	NS	NA	NS	NS	NS	NS	NS	169	NA	NA	NA	NA
Kjeldahl Nitrogen - Total (as N)	E351.2	---	mg/L	0.6	NS	NS	NS	NS	0.4	NS	NS	NS	NA	NS	NS	NS	NS	NS	0.67	NA	NA	NA	NA
Nitrate (as N)	300	10(s)	mg/L	<1.0	NS	NS	NS	NS	<1.0	NS	NS	NS	NA	NS	NS	NS	NS	NS	<1.0	NA	NA	NA	NA
Organic carbon-Total (TOC)	SM5310B	---	mg/L	1	NS	NS	NS	NS	1.7	NS	NS	NS	NA	NS	NS	NS	NS	NS	7.8	NA	NA	NA	NA
Phenolics, Total Recoverable	420.4	0.001(s)	mg/L	<0.0050	NS	NS	NS	NS	<0.0050	NS	NS	NS	NA	NS	NS	NS	NS	NS	<0.0050	NA	NA	NA	NA
Residue-filterable (TDS)	SM2540C	---	mg/L	111	NS	NS	NS	NS	125	NS	NS	NS	NA	NS	NS	NS	NS	NS	168	NA	NA	NA	NA
Sulfate (as SO4)	300	250(s)	mg/L	9.1	NS	NS	NS	NS	10.8	NS	NS	NS	NA	NS	NS	NS	NS	NS	8.3	NA	NA	NA	NA
Inorganic Parameters																							
Aluminum	SW6010C	---	µg/L	14600	NS	13400	NS	NS	5180	NS	28700	1220	240	NS	NS	NS	NS	NS	709	740	37.7	12.2	1020
Antimony	SW6010C	3 (g)	µg/L	<60.0	NS	<60.0	NS	NS	<60.0	NS	0.68 J	1.6 J	<60.0	NS	NS	NS	NS	NS	<60.0	<60.0	<60.0	<60.0	<60.0
Arsenic	SW6010C	25 (s)	µg/L	<10.0	NS	7.79	NS	NS	<10.0	NS	4.25	0.28 J	<10.0	NS	NS	NS	NS	NS	<10	<10	<10	<10	<10.0
Barium	SW6010C	1000 (s)	µg/L	159	NS	216.2	NS	NS	30.6	NS	184.8	7.72	<20.0	NS	NS	NS	NS	NS	20.7	34	12.72	14.57	51
Beryllium	SW6010C	3 (g)	µg/L	<3.0	NS	0.83	NS	NS	<3	NS	1.6	<3	<3.0	NS	NS	NS	NS	NS	<3	<3	<3	<3	<3.0
Boron	SW6010C	1000 (s)	µg/L	<200.0	NS	NA	NS	NS	<200	NS	NA	NA	NA	NS	NS	NS	NS	NS	<200	<200	NA	NA	NA
Cadmium	SW6010C	5	µg/L	<5	NS	0.06 J	NS	NS	<5	NS	1.19	<5	<5.0	NS	NS	NS	NS	NS	<5	<5	0.13 J	<5	<5.0
Calcium	SW6010C	---	µg/L	22200	NS	27800	NS	NS	18700	NS	26900	23100	18800	NS	NS	NS	NS	NS	48900	30700	31000	31100	38400
Chromium	SW6010C	50 (s)	µg/L	19.9	NS	21.47	NS	NS	<10	NS	43.25	0.29 J	<10.0	NS	NS	NS	NS	NS	<10	<10	<10	.25J	<10.0
Chromium, Hexavalent	SW6010C	50 (s)	µg/L	<0.010	NS	NA	NS	NS	<0.010	NS	NA	NA	NA	NS	NS	NS	NS	NS	<0.010	<0.010	NA	NA	NA
Cobalt	SW6010C	---	µg/L	<50	NS	14.5	NS	NS	<50	NS	27.42	<50	<50	NS	NS	NS	NS	NS	<50	<50	<50	<50	<50.0
Copper	SW6010C	200 (s)	µg/L	<20.0	NS	24.27	NS	NS	95.5	NS	689.5	2.67	<20	NS	NS	NS	NS	NS	<20.0	<20.0	0.95 J	1.39	<20.0
Cyanide, Total	SW6010C	200 (s)	µg/L	<0.010	NS	NA	NS	NS	<0.010	NS	NA	NA	NA	NS	NS	NS	NS	NS	<0.010	NS	NA	NA	NA
Iron	SW6010C	300 (a)	µg/L	18300	NS	30800	NS	NS	3410	NS	44100	128	420	NS	NS	NS	NS	NS	1050	1230	67.3	73	1490
Lead	SW6010C	25	µg/L	7.4	NS	15.53	NS	NS	6.8	NS	268	2.99	<50.0	NS	NS	NS	NS	NS	<5	<50	<5	<5	<50.0
Magnesium	SW6010C	35,000 (g)	µg/L	7580	NS	8700	NS	NS	9600	NS	17000	9280	8800	NS	NS	NS	NS	NS	11500	8800	7170	786	10000
Manganese	SW6010C	300 (a)	µg/L	509	NS	983.2	NS	NS	82.9	NS	1096	9.48	23	NS	NS	NS	NS	NS	1090	2170	4115	1840	8080
Mercury	SW7470A	0.7 (s)	µg/L	<0.200	NS	<0.200	NS	NS	<0.200	NS	<0.200	<0.200	<0.20	NS	NS	NS	NS	NS	<0.200	<0.200	<0.200	<0.200	<0.20
Nickel	SW6010C	100 (s)	µg/L	<40.0	NS	29.69	NS	NS	<40.0	NS	62.44	<40.0	<40.0	NS	NS	NS	NS	NS	<40.0	<40.0	5.04	3.14	<40.0
Potassium	SW6010C	---	µg/L	5970	NS	3140	NS	NS	2780	NS	5470	1160	<2000	NS	NS	NS	NS	NS	3800	2500	2250	2280	2800
Selenium	SW6010C	10 (s)	µg/L	<10.0	NS	1.93 J	NS	NS	<10.0	NS	3.61 J	<10.0	<10.0	NS	NS	NS	NS	NS	<10.0	<10.0	<10.0	<10.0	<10.0
Silver	SW6010C	50 (s)	µg/L	<10.0	NS	<10.0	NS	NS	<10.0	NS	1.51	<10.0	<10.0	NS	NS	NS	NS	NS	<10.0	<10.0	<10.0	<10.0	<10.0
Sodium	SW6010C	20,000(s)	µg/L	2200	NS	1840	NS	NS	3670	NS	3480	3980	3600	NS	NS	NS	NS	NS	4340	4000	2850	3120	3800
Vanadium	SW6010C	---	µg/L	<50	NS	14.85	NS	NS	<50.0	NS	34.12	<50.0	<50.0	NS	NS	NS	NS	NS	<50.0	<50.0	<50.0	<50.0	<50.0
Zinc	SW6010C	2,000 (g)	µg/L	55.3	NS	75.59	NS	NS	37.7	NS	280.7	<20	<20.0	NS	NS	NS	NS	NS	<20.0	<20.0	8.01 J	6.07 J	<20.0

Baseline Parameter List	USEPA Method	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	MW-7					MW-8					MW-9					MW-10				
			Sample Type	Water					Water					Water					Water				
			Sample Date	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/20/2019	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019
Leachate Indicators																							
Alkalinity, as CaCO3	SM 2320 B	---	mg/L	177	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Ammonia (as N)	E350.1	2(s)	mg/L	<0.050	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Biochemical oxygen demand (BOD5)	SM5210B	---	mg/L	<2.0	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Bromide	300	2(g)	mg/L	<1.0	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Chemical Oxygen Demand	E410.4	---	mg/L	<5.0	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Chloride	300	250(s)	mg/L	24.5	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Color	SM2120B	---	color units	14	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Hardness, Calcium/Magnesium (as CaCO3)	M2340B	---	mg/L	241	NA	NA	NA	NA	124	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Kjeldahl Nitrogen - Total (as N)	E351.2	---	mg/L	0.71	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Nitrate (as N)	300	10(s)	mg/L	<1.0	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Organic carbon-Total (TOC)	SM5310B	---	mg/L	1.2	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Phenolics, Total Recoverable	420.4	0.001(s)	mg/L	<0.0050	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Residue-filterable (TDS)	SM2540C	---	mg/L	277	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Sulfate (as SO4)	300	250(s)	mg/L	23	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Inorganic Parameters																							
Aluminum	SW6010C	---	µg/L	32900	NA	4719	1310	6400	6800	17600	17900	288	34900	NS	NS	NS	NS	NS	NS	3080	1500	100	NS
Antimony	SW6010C	3 (g)	µg/L	<60.0	NA	0.68 J	.57 J	<60.0	<60.0	<60.0	<60.0	.47 J	<60.0	NS	NS	NS	NS	NS	NS	<60.0	0.56 J	.46 J	NS
Arsenic	SW6010C	25 (s)	µg/L	17.5	NA	3.31	0.86	<10.0	<10	<10	8.7	.30 J	18	NS	NS	NS	NS	NS	NS	<10	2.7	1.11	NS
Barium	SW6010C	1000 (s)	µg/L	277	NA	88.04	59.85	87	51.1	158	311.2	48.49	215	NS	NS	NS	NS	NS	NS	941	53.01	16.98	NS
Beryllium	SW6010C	3 (g)	µg/L	<3	NA	0.37 J	.29 J	<3.0	<3	<3	1.76	<3	<3.0	NS	NS	NS	NS	NS	NS	<3	<3	<3	NS
Boron	SW6010C	1000 (s)	µg/L	<200	NA	NA	NA	NA	<200	<200	NA	NA	NA	NS	NS	NS	NS	NS	NS	<200	NA	NA	NS
Cadmium	SW6010C	5	µg/L	<5	NA	1.08	0.56	<5.0	<5	<5	0.4	<5	<5.0	NS	NS	NS	NS	NS	NS	<5	0.35	0.2	NS
Calcium	SW6010C	---	µg/L	46800	NA	50200	53200	48900	28000	33300	46000	39400	36600	NS	NS	NS	NS	NS	NS	117000	112000	46000	NS
Chromium	SW6010C	50 (s)	µg/L	47.3	NA	13.55	1.78	<10.0	<10	23	24.73	.65 J	44	NS	NS	NS	NS	NS	NS	<10	9.61	3.15	NS
Chromium, Hexavalent	SW6010C	50 (s)	µg/L	<0.010	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	<0.010	NA	NA	NS
Cobalt	SW6010C	---	µg/L	<50	NA	5.36	0.77	<50.0	<50	<50	31.38	.29 J	<50.0	NS	NS	NS	NS	NS	NS	<50	1.44	.25 J	NS
Copper	SW6010C	200 (s)	µg/L	4990	NA	114.8	27.47	<20.0	<20.0	53	203.8	2.33 J	91	NS	NS	NS	NS	NS	NS	<20.0	6.89	3.5	NS
Cyanide, Total	SW6010C	200 (s)	µg/L	<0.010	NA	NA	NA	NA	NS	NA	NA	NA	NA	NS	NS	NS	NS	NS	NS	NA	NA	NA	NS
Iron	SW6010C	300 (a)	µg/L	40700	NA	10200	1830	6090	5780	20900	34400	588	45300	NS	NS	NS	NS	NS	NS	3920	2730	175	NS
Lead	SW6010C	25	µg/L	499	NA	21.57	6.84	3 J	<5	<50	28.11	.40 J	9 J	NS	NS	NS	NS	NS	NS	<5	2.05	1.8	NS
Magnesium	SW6010C	35,000 (g)	µg/L	30000	NA	23700	24000	25200	13200	14200	20100	12800	22300	NS	NS	NS	NS	NS	NS	33000	17200	14900	NS
Manganese	SW6010C	300 (a)	µg/L	961	NA	348.2	66.68	146	65.9	333	1231	8.82	610	NS	NS	NS	NS	NS	NS	1710	122.1	13.77	NS
Mercury	SW7470A	0.7 (s)	µg/L	<0.200	NA	<0.200	<0.200	<0.20	<0.200	<0.200	<0.200	<0.200	<0.20	NS	NS	NS	NS	NS	NS	<0.200	<0.200	<0.200	NS
Nickel	SW6010C	100 (s)	µg/L	77.3	NA	11.66	1.92 J	<40.0	<40.0	<40.0	43.56	.77 J	<40.0	NS	NS	NS	NS	NS	NS	<40.0	350	<40.0	NS
Potassium	SW6010C	---	µg/L	10600	NA	2940	2240	3600	3390	6500	4520	1470	12300	NS	NS	NS	NS	NS	NS	14800	4130	5570	NS
Selenium	SW6010C	10 (s)	µg/L	<10.0	NA	<10.0	<10.0	<10.0	<10.0	<10.0	5.45	<10.0	<10.0	NS	NS	NS	NS	NS	NS	<10.0	<10.0	<10.0	NS
Silver	SW6010C	50 (s)	µg/L	<10.0	NA	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	NS	NS	NS	NS	NS	NS	<10.0	<10.0	<10.0	NS
Sodium	SW6010C	20,000(s)	µg/L	6170	NA	5940	6760	6300	4520	5000	4500	5050	5300	NS	NS	NS	NS	NS	NS	28300	17900	16200	NS
Vanadium	SW6010C	---	µg/L	<50.0	NA	6.89	<50.0	<50.0	<50.0	<50.0	24.61	<50.0	50	NS	NS	NS	NS	NS	NS	<50.0	4.96	<50.0	NS
Zinc	SW6010C	2,000 (g)	µg/L	584	NA	49.47	14.61	<20.0	<20.0	51	13.61	<20.0	121	NS	NS	NS	NS	NS	NS	23	20.48	5.40 J	NS

Notes:

USEPA = U.S. Environmental Protection Agency

NYDEC = New York State Department of Environmental Conservation

--- = indicates no applicable standard.

µg/L = micrograms per liter.

U = Not detected at the Practical Quantitation Limit. Sample quantitiation limits shown as <_.

NS = No sample collected.

🟦 Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

Ambient Water Quality Standards and Guidance Values from Division of Water and Technical and Operational Guidance Series (TOGS) 1.1.1, August 1999.

* = NYSDEC Part 703.5 Guidance Value (no standard)

J=Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.

Table 3 - Baseline Leachate Indicator & Inorganic Parameters Detected in Groundwater & Surface Water

Baseline Parameter List	USEPA Method	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	MW-10D					MW-11					MW-12					MW-13				
			Sample Type	Water					Water					Water					Water				
			Sample Date	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/14/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019
Leachate Indicators																							
Alkalinity, as CaCO3	SM 2320 B	---	mg/L	177	NA	NA	NA	NA	154	NA	NA	NA	NA	356	NA	NA	NA	NA	199	NA	NA	NA	NA
Ammonia (as N)	E350.1	2(s)	mg/L	<0.050	NA	NA	NA	NA	0.148	NA	NA	NA	NA	0.109	NA	NA	NA	NA	0.15	NA	NA	NA	NA
Biochemical oxygen demand (BOD5)	SM5210B	---	mg/L	<2.0	NA	NA	NA	NA	<2.0	NA	NA	NA	NA	<2.0	NA	NA	NA	NA	<2.0	NA	NA	NA	NA
Bromide	300	2(g)	mg/L	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA
Chemical Oxygen Demand	E410.4	---	mg/L	<5.0	NA	NA	NA	NA	9.8	NA	NA	NA	NA	<5.0	NA	NA	NA	NA	<5.0	NA	NA	NA	NA
Chloride	300	250(s)	mg/L	14.5	NA	NA	NA	NA	<2.0	NA	NA	NA	NA	2.8	NA	NA	NA	NA	<2.0	NA	NA	NA	NA
Color	SM2120B	---	color units	12	NA	NA	NA	NA	16	NA	NA	NA	NA	17	NA	NA	NA	NA	17	NA	NA	NA	NA
Hardness, Calcium/Magnesium (as CaCO3)	M2340B	---	mg/L	186	NA	NA	NA	NA	147	NA	NA	NA	NA	334	NA	NA	NA	NA	215	NA	NA	NA	NA
Kjeldahl Nitrogen - Total (as N)	E351.2	---	mg/L	<0.20	NA	NA	NA	NA	0.58	NA	NA	NA	NA	1	NA	NA	NA	NA	0.95	NA	NA	NA	NA
Nitrate (as N)	300	10(s)	mg/L	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA
Organic carbon-Total (TOC)	SM5310B	---	mg/L	1.7	NA	NA	NA	NA	3.7	NA	NA	NA	NA	2	NA	NA	NA	NA	1.6	NA	NA	NA	NA
Phenolics, Total Recoverable	420.4	0.001(s)	mg/L	<0.0050	NA	NA	NA	NA	<0.0050	NA	NA	NA	NA	<0.0050	NA	NA	NA	NA	<0.005	NA	NA	NA	NA
Residue-filterable (TDS)	SM2540C	---	mg/L	226	NA	NA	NA	NA	182	NA	NA	NA	NA	393	NA	NA	NA	NA	218	NA	NA	NA	NA
Sulfate (as SO4)	300	250(s)	mg/L	26.1	NA	NA	NA	NA	7.6	NA	NA	NA	NA	28.3	NA	NA	NA	NA	11.5	NA	NA	NA	NA
Inorganic Parameters																							
Aluminum	SW6010C	---	µg/L	464	1950	1.9	290	490	1750	10400	1580	2250	13000	11400	2540	24000	2220	16200	34800	3560	98100	17300	16300
Antimony	SW6010C	3 (g)	µg/L	<60.0	<60.0	<60	1.26 J	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	0.51 J	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0	<60.0
Arsenic	SW6010C	25 (s)	µg/L	<10	<10	1.94	0.42 J	<10.0	<10	<10	1.3	0.26 J	<10.0	<10	<10	10.39	1.62	<10.0	13.4	<10	17.93	4.68	<10.0
Barium	SW6010C	1000 (s)	µg/L	48.7	862	89.74	101.2	48	26.7	63	32.31	15.18	93	101	79	345.7	71.64	146	223	67	2132	25.06	128
Beryllium	SW6010C	3 (g)	µg/L	<3	<3	0.13 J	<3	<3.0	<3	<3	<3	<3	<3.0	<3	<3	1.21	<3	<3.0	<3	<3	5.2	0.91	<3.0
Boron	SW6010C	1000 (s)	µg/L	<200	<200	NA	NA	NA	<200	<200	NA	NA	NA	<200	<200	NA	NA	NA	<200	<200	NA	NA	NA
Cadmium	SW6010C	5	µg/L	<5	<5	<5	0.1 J	<5.0	<5	<5	0.27	0.06 J	<5.0	<5	<5	0.26	<5	<5.0	<5	<5	1.75	<5	<5.0
Calcium	SW6010C	---	µg/L	42900	103000	45500	40800	41700	41300	8300	42700	42700	39400	69200	76100	93100	80700	79200	59500	89700	94400	57100	77300
Chromium	SW6010C	50 (s)	µg/L	<10	<10	2.72	0.64 J	<10.0	<10	12	2.08	0.42 J	13	16	<10	39.68	3.5	20	50.6	<10	169.7	29.27	23
Chromium, Hexavalent	SW6010C	50 (s)	µg/L	<0.010	<0.010	NA	NA	NA	<0.010	<0.010	NA	NA	NA	<0.020	NA	NA	NA	NA	<0.010	<0.010	NA	NA	NA
Cobalt	SW6010C	---	µg/L	<50	<50	3.22	1.12	<50.0	<50	<50	1.59	0.2 J	<50	<50	<50	31.38	2.04	<50	<50.0	<50	112.9	15.75	<50.0
Copper	SW6010C	200 (s)	µg/L	<20.0	<20.0	3.99	7.32	<20.0	<20.0	<20.0	3.87	0.85 J	<20	<20.0	<20.0	42.28	3.79	<20	30.5	<20.0	170.1	25.29	<20.0
Cyanide, Total	SW6010C	200 (s)	µg/L	<0.010	NS	NA	NA	NA	<0.010	NS	NA	NA	NA	<0.010	NS	NA	NA	NA	<0.010	NS	NA	NA	NA
Iron	SW6010C	300 (a)	µg/L	470	2550	3900	487	450	1600	13400	2850	3640	12800	14400	3130	50700	4150	19600	46300	3770	187000	33500	21900
Lead	SW6010C	25	µg/L	<5	<50	1.49	1.4	<50.0	<5	<50	1.88	0.46 J	4 J	<5	<50	31.72	2.57	6 J	10.8	<50	94.83	10.51	<50.0
Magnesium	SW6010C	35,000 (g)	µg/L	19300	34000	16700	17000	18900	10800	3100	9660	9560	11100	39300	36100	46300	30500	43200	16100	12100	33900	11200	13400
Manganese	SW6010C	300 (a)	µg/L	95.5	1200	2352	443	219	855	462	1824	84.14	2190	335	314	6411	413.6	958	1040	147	12340	1092	536
Mercury	SW7470A	0.7 (s)	µg/L	<0.200	<0.200	<0.200	<0.200	<0.20	<0.200	<0.200	<0.200	<0.200	<0.20	<0.200	<0.200	<0.200	<0.200	<0.20	<0.200	<0.200	<0.200	<0.200	<0.20
Nickel	SW6010C	100 (s)	µg/L	<40.0	<40.0	5.63	1.32 J	<40.0	<40.0	<40.0	4.36	0.62 J	<40.0	<40.0	<40.0	52.44	4.29	<40.0	<40.0	<40.0	210.3	34.04	<40.0
Potassium	SW6010C	---	µg/L	2520	16600	2430	7730	2200	2290	4500	2110	1920	5700	10500	5800	9930	5640	9100	13300	5900	14700	4400	8400
Selenium	SW6010C	10 (s)	µg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	3.60 J	<10.0	<10.0	<10.0	<10.0	21.2	2.23 J	<10.0
Silver	SW6010C	50 (s)	µg/L	<10.0	<10.0	<10.0	<10.1	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	0.18 J	<10.0	<10.0
Sodium	SW6010C	20,000(s)	µg/L	17300	29700	21800	23200	15300	3610	2000	2980	3160	3500	21500	22700	21900	19600	23800	5580	5600	6120	4870	4100
Vanadium	SW6010C	---	µg/L	<50.0	<50.0	2.66 J	<50.0	<50.0	<50.0	<50.0	2.45 J	<50.0	<50.0	<50.0	<50	29.54	3.23 J	<50.0	<50.0	<50	60.69	0.14	<50.0
Zinc	SW6010C	2,000 (g)	µg/L	<20.0	<20.0	13.92	19.52	<20.0	<20.0	45	16.14	<20.0	46	34.4	<20.0	141.1	11.4	46	113	<20.0	497.7	19.88	49

Baseline Parameter List	USEPA Method	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	SW-01					SW-02					SW-03					SW-04				
			Sample Type	Water					Water					Water					Water				
			Sample Date	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019	7/15/2014	10/24/2016	3/23/2017	5/9/2018	9/19/2019
Leachate Indicators																							
Alkalinity, as CaCO3	SM 2320 B	---	mg/L	116	NA	NA	NA	NS	13.2	NS	NS	NS	NS	107	NA	NA	NA	NA	23.5	NA	NA	NA	NA
Ammonia (as N)	E350.1	2(s)	mg/L	<0.050	NA	NA	NA	NS	<0.050	NS	NS	NS	NS	<0.050	NA	NA	NA	NA	<0.050	NA	NA	NA	NA
Biochemical oxygen demand (BOD5)	SM5210B	---	mg/L	3.9	NA	NA	NA	NS	<2.0	NS	NS	NS	NS	<2.0	NA	NA	NA	NA	<2.0	NA	NA	NA	NA
Bromide	300	2(g)	mg/L	<1.0	NA	NA	NA	NS	<1.0	NS	NS	NS	NS	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA
Chemical Oxygen Demand	E410.4	---	mg/L	51.8	NA	NA	NA	NS	35.5	NS	NS	NS	NS	35	NA	NA	NA	NA	30.3	NA	NA	NA	NA
Chloride	300	250(s)	mg/L	8.7	NA	NA	NA	NS	<2.0	NS	NS	NS	NS	5.9	NA	NA	NA	NA	2.3	NA	NA	NA	NA
Color	SM2120B	---	color units	130	NA	NA	NA	NS	90	NS	NS	NS	NS	86	NA	NA	NA	NA	190	NA	NA	NA	NA
Hardness, Calcium/Magnesium (as CaCO3)	M2340B	---	mg/L	114	NA	NA	NA	NS	12.8	NS	NS	NS	NS	101	NA	NA	NA	NA	17.3	NA	NA	NA	NA
Kjeldahl Nitrogen - Total (as N)	E351.2	---	mg/L	4.46	NA	NA	NA	NS	1.24	NS	NS	NS	NS	1.11	NA	NA	NA	NA	2.12	NA	NA	NA	NA
Nitrate (as N)	300	10(s)	mg/L	<1.0	NA	NA	NA	NS	<1.0	NS	NS	NS	NS	<1.0	NA	NA	NA	NA	<1.0	NA	NA	NA	NA
Organic carbon-Total (TOC)	SM5310B	---	mg/L	16.9	NA	NA	NA	NS	16.8	NS	NS	NS	NS	18	NA	NA	NA	NA	20.9	NA	NA	NA	NA
Phenolics, Total Recoverable	420.4	0.001(s)	mg/L	<0.005	NA	NA	NA	NS	<0.005	NS	NS	NS	NS	<0.005	NA	NA	NA	NA	<0.005	NA	NA	NA	NA
Residue-filterable (TDS)	SM2540C	---	mg/L	155	NA	NA	NA	NS	51	NS	NS	NS	NS	174	NA	NA	NA	NA	118	NA	NA	NA	NA
Sulfate (as SO4)	300	250(s)	mg/L	6	NA	NA	NA	NS	<2.0	NS	NS	NS	NS	5.3	NA	NA	NA	NA	3.9	NA	NA	NA	NA
Inorganic Parameters																							
Aluminum	SW6010C	---	µg/L	3590	440	38.9	15	NS	285	NS	NS	NS	NS	536	600	361	10.8	<100.0	8960	640	1830	638	1130
Antimony	SW6010C	3 (g)	µg/L	<60.0	<60.0	0.48	<60.0	NS	<60.0	NS	NS	NS	NS	<60.0	<60.0	0.55 J	.64 J	<60.0	<60.0	<60.0	0.63 J	<60.0	<60.0
Arsenic	SW6010C	25 (s)	µg/L	<10.0	<10	0.4	.49 J	NS	<10.0	NS	NS	NS	NS	<10.0	<10	0.88	0.55	<10.0	<10.0	<10	1.63	1.51	<10.0
Barium	SW6010C	1000 (s)	µg/L	43.7	<20.0	8.4	13.75	NS	<20.0	NS	NS	NS	NS	<20.0	<20.0	8.03	13.38	<20.0	56.9	<20.0	17.83	10.62	<20.0
Beryllium	SW6010C	3 (g)	µg/L	<3	<3	<3	<3	NS	<3	NS	NS	NS	NS	<3	<3	<3	<3	<3.0	<3	<3	<3	<3	<3.0
Boron	SW6010C	1000 (s)	µg/L	<200	<200	NA	NA	NS	<200	NS	NS	NS	NS	<200	<200	NA	NA	NA	<200	<200	NA	NA	NA
Cadmium	SW6010C	5	µg/L	<5	<5	<5	<5	NS	<5	NS	NS	NS	NS	<5	<5	<5	.11 J	<5.0	<5	<5	0.29	<5	<5.0
Calcium	SW6010C	---	µg/L	29400	20400	23800	35100	NS	3610	NS	NS	NS	NS	27600	4000	5510	36500	41700	3690	3500	2720	4480	7300
Chromium	SW6010C	50 (s)	µg/L	<10.0	<10	0.18 J	<10.0	NS	<10.0	NS	NS	NS	NS	<10.0	<10	0.59 J	<10	<10.0	10.2	<10	2.56	.88 J	<10.0
Chromium, Hexavalent	SW6010C	50 (s)	µg/L	<0.010	<0.010	NA	NA	NS	<0.010	NS	NS	NS	NS	<0.010	<0.010	NA	NA	NA	<0.010	<0.010	NA	NA	NA
Cobalt	SW6010C	---	µg/L	<50.0	<50	<50	<50	NS	<50.0	NS	NS	NS	NS	<50.0	<50	0.3 J	<50	<50.0	<50.0	<50	1.72	.48 J	<50.0
Copper	SW6010C	200 (s)	µg/L	21.8	<20.0	1.06	.66 J	NS	<20.0	NS	NS	NS	NS	<20.0	<20.0	1.72	.49 J	<20.0	<20.0	<20.0	3.4	1.99	<20.0
Cyanide, Total	SW6010C	200 (s)	µg/L	<0.010	NA	NA	NA	NS	<0.010	NS	NS	NS	NS	<0.010	NA	NA	NA	NA	<0.010	NS	NA	NA	NA
Iron	SW6010C	300 (a)	µg/L	4610	1460	74.3	142	NS	370	NS	NS	NS	NS	894	510	476	73.4	140	8470	480	2970	858	1000
Lead	SW6010C	25	µg/L	<5	<5	<5	<5	NS	<5	NS	NS	NS	NS	<5.0	<5.0	0.54 J	<5.0	<5.0	<5.0	<5.0	4.02	.75 J	<50.0
Magnesium	SW6010C	35,000 (g)	µg/L	9990	3500	7070	11300	NS	<1,000	NS	NS	NS	NS	7720	<10	1060	11400	12700	1970	<10	916	871	1700
Manganese	SW6010C	300 (a)	µg/L	1010	989	6.64	11.62	NS	42.3	NS	NS	NS	NS	204	14	9.85	68.31	188	169	11	114.5	30.22	55
Mercury	SW7470A	0.7 (s)	µg/L	<0.200	<0.200	<0.200	<0.200	NS	<0.200	NS	NS	NS	NS	<0.200	<0.200	<0.200	<0.200	<0.20	<0.200	<0.200	<0.200	<0.200	<0.20
Nickel	SW6010C	100 (s)	µg/L	<40.0	<40.0	<40.0	<40.0	NS	<40.0	NS	NS	NS	NS	<40.0	<40.0	0.90 J	<40.0	<40.0	<40.0	<40.0	3.95	1.67 J	<40.0
Potassium	SW6010C	---	µg/L	3200	2600	1370	1430	NS	<2,000	NS	NS	NS	NS	2360	2300	1360	1240	<2000	3970	2800	1440	1960	3500
Selenium	SW6010C	10 (s)	µg/L	<10.0	<10.0	<10.0	<10.0	NS	<10.0	NS	NS	NS	NS	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Silver	SW6010C	50 (s)	µg/L	<10.0	<10.0	<10.0	<10.0	NS	<10.0	NS	NS	NS	NS	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Sodium	SW6010C	20,000(s)	µg/L	4990	2100	5680	12700	NS	<1,000	NS	NS	NS	NS	4010	5600	3500	13600	9900	9490	7700	5040	5230	7700
Vanadium	SW6010C	---	µg/L	<50.0	<50.0	<50.0	<50.0	NS	<50.0	NS	NS	NS	NS	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	2.43 J	<50.0	<50.0
Zinc	SW6010C	2,000 (g)	µg/L	26.7	<20.0	<50.0	<50.0	NS	<20.0	NS	NS	NS	NS	<20.0	<20.0	4.14 J	<20.0	<20.0	30.2	<20.0	17.34	<20.0	<20.0

Baseline Parameter List	USEPA Method	NYSDEC Ambient Water Quality Standard Class GA	Sample ID	Blind Dup				8354 Jackson Hill			
			Sample Type	Water				Water			
			Sample Date	10/24/2016	3/23/2017	5/9/2018	9/19/2019	10/24/2016	3/23/2017	5/9/2018	9/19/2019
Leachate Indicators											
Alkalinity, as CaCO3	SM 2320 B	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia (as N)	E350.1	2(s)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Biochemical oxygen demand (BOD5)	SM5210B	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Bromide	300	2(g)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chemical Oxygen Demand	E410.4	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	300	250(s)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Color	SM2120B	---	color units	NA	NA	NA	NA	NA	NA	NA	NA
Hardness, Calcium/Magnesium (as CaCO3)	M2340B	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Kjeldahl Nitrogen - Total (as N)	E351.2	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	300	10(s)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Organic carbon-Total (TOC)	SM5310B	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Phenolics, Total Recoverable	420.4	0.001(s)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Residue-filterable (TDS)	SM2540C	---	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate (as SO4)	300	250(s)	mg/L	NA	NA	NA	NA	NA	NA	NA	NA
Inorganic Parameters											
Aluminum	SW6010C	---	µg/L	1920	23400	24900	22200	<100	148	90	230
Antimony	SW6010C	3 (g)	µg/L	<60.0	0.64 J	<60.0	<60.0	<60.0	0.85 J	<60.0	<60.0
Arsenic	SW6010C	25 (s)	µg/L	<10	9.75	5.71	<10.0	<10	0.55 J	.20 J	<10.0
Barium	SW6010C	1000 (s)	µg/L	67	308.9	355	174	48	37.12	30.16	49
Beryllium	SW6010C	3 (g)	µg/L	<3	1.13	1.33	<3.0	<3	<3	<3	<3.0
Boron	SW6010C	1000 (s)	µg/L	<200	NA	NA	NA	<200	NA	NA	NA
Cadmium	SW6010C	5	µg/L	<5	0.26	.10 J	<5.0	<5	0.74	<5	<5.0
Calcium	SW6010C	---	µg/L	36600	91800	56400	811 00	18500	17100	14200	18300
Chromium	SW6010C	50 (s)	µg/L	<10	39.08	43.43	27	<10	0.99	.25 J	<10.0
Chromium, Hexavalent	SW6010C	50 (s)	µg/L	<0.010	NA	NA	NA	<0.010	NA	NA	NA
Cobalt	SW6010C	---	µg/L	<50	28.39	25.21	<50.0	<50	<50	<50.0	<50.0
Copper	SW6010C	200 (s)	µg/L	<20.0	38.78	36.1	<20.0	140	2.75	2.05	<20.0
Cyanide, Total	SW6010C	200 (s)	µg/L	NA	NA	NA	NA	NS	NA	NA	NA
Iron	SW6010C	300 (a)	µg/L	2950	49900	49200	25800	3170	315	134	320
Lead	SW6010C	25	µg/L	<5.0	29.05	15.85	8 J	89	7.02	3.06	<50.0
Magnesium	SW6010C	35,000 (g)	µg/L	10800	48600	13600	44800	5500	4740	3580	5700
Manganese	SW6010C	300 (a)	µg/L	5580	5344	1933	1330	47	15.2	13	<10.0
Mercury	SW7470A	0.7 (s)	µg/L	<0.200	<0.200	<0.200	<0.20	<0.200	<0.200	<0.200	<0.20
Nickel	SW6010C	100 (s)	µg/L	<40.0	50.54	52.7	<40.0	<40.0	0.56 J	<40.0	<40.0
Potassium	SW6010C	---	µg/L	3000	9980	5150	10800	<2000	1710	1620	2100
Selenium	SW6010C	10 (s)	µg/L	<10.0	3.40 J	3.20 J	<10.0	<10.0	<10.0	<10.0	<10.0
Silver	SW6010C	50 (s)	µg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Sodium	SW6010C	20,000(s)	µg/L	4700	23800	4720	24400	13900	14800	13700	17400
Vanadium	SW6010C	---	µg/L	<50.0	28.4	28.32	<50.0	<50.0	<50.0	<50.0	<50.0
Zinc	SW6010C	2,000 (g)	µg/L	<20.0	126.9	123.3	60	343	59.6	<20.0	<20.0

Notes:

USEPA = U.S. Environmental Protection Agency

NYDEC = New York State Department of Environmental Conservation

--- = indicates no applicable standard.

µg/L = micrograms per liter.

U = Not detected at the Practical Quantitation Limit. Sample quantitiation limits shown as <_.

NS = No sample collected.

🟦 Exceeds 6 NYCRR Part 703.5 Class GA Ambient Groundwater Standard or Guidance Value

Ambient Water Quality Standards and Guidance Values from Division of Water and Technical and Operational Guidance Series (TOGS) 1.1.1, August 1999.

* = NYSDEC Part 703.5 Guidance Value (no standard)

J=Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.

TABLE 4 - INSTITUTIONAL AND ENGINEERING CONTROLS COMPLIANCE SUMMARY
PERIODIC REVIEW REPORT – 2019/2020

Institutional/Engineering Control	Description	Objective	Monitoring	Performance/Status
Institutional Controls				
Land Use Restriction	Restricts the use of the landfill property.	Controls potential for direct contact with waste materials, leachate, and contaminated groundwater.	NA	Use of the property has been restricted through the recorded Declaration of Covenants and Restrictions with Allegany County.
Groundwater Use Restriction	Restricts the use of groundwater.	Controls potential for direct contact with contaminated groundwater.	NA	Groundwater use restriction in effect as part of the Declaration of Covenants and Restrictions with Allegany County for the Cuba Landfill Site area groundwater.
Excavation Work Plan	Describes procedures to be used to manage excavated contaminated soil and /or waste from the Site (sampling, analysis, disposal requirements).	To provide for appropriate handling, management, and disposal of contaminated soil and/or waste.	NA	Excavation plan to be implemented in accordance with approved Site management plan. To date, no excavation of contaminated soil or waste has occurred during the reporting period.
Soil Vapor Intrusion Evaluation	Determines the potential for soil vapor intrusion and if mitigation measures, such as creating a vapor barrier or a passive sub-slab depressurization system, are necessary.	Eliminate potential exposure to vapors in the proposed structure.	NA	The potential for vapor intrusion must be evaluated for any buildings to be developed on or around the Site, and any potential impacts that are identified must be monitored or mitigated. Measures to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the soil vapor instrusion evaluation, the NYSDOH guidance, and construction details of the proposed structure.
Engineering Controls				
Engineered Landfill Cap	Comprised of a geocompoSite gas venting layer, a 40-mil LLDPE textured geomembrane, geocompoSite drainage layer, and an 18-in. soil barrier protection layer. Topsoil and a reinforced vegetated surface are over the barrier protection layer.	Prevent exposure to remaining contamination in soil/fill at the Site by placing cap over the remaining and consolidated waste	Monitoring via Site inspections and leachate indicator monitoring.	Cap is vegetated, stable, and effective. Maintenance operations are limited to repairs to minor localized erosion and control of animal burrows in surficial cover soils. Leachate indicators are analyzed periodically. Leachate generation rates are decreasing, as would be expected following the construction of an engineered cap.

Institutional/Engineering Control	Description	Objective	Monitoring	Performance/Status
Passive Gas Vents	Polyvinyl chloride pipe gas vents were installed within the landfill cap boundaries.	Collect landfill gas generated under the cap and to convey the gas to the existing landfill gas collection system to control potential for lateral migration.	Monitored via Site inspections and monitoring of landfill gas with portable monitoring equipment.	Gas monitoring results are typical of landfill gas and appropriate operation of the gas control system is in place.
Landfill Surface Drainage	A berm constructed of soil and waste materials below the liner system defined each swale. Following the placement of the geocompoSite drainage layer, a strip of the geocompoSite was cut out in each swale for the placement of perforated 6-in. corrugated polyethylene pipe topped with pea gravel and wrapped with geotextile that was later heat seamed to the geocompoSite on either side.	Four drainage swales were included in the landfill cap design to promote efficient drainage over the cap. Each swale was constructed to allow stormwater to flow in a northeast-southwest direction across the landfill.	Monitored through Site inspections and groundwater/surface water sampling.	A media monitoring program is in place for groundwater. Groundwater and surface water samples are collected on an annual basis, per SMP. Stream and tributary water quality has not been impacted from surface water discharges from the Site. VOC and metal concentrations are generally decreasing or remaining stable in groundwater.
Phytoremediation	168 willow trees were planted south of the retention pond. Two (2) varieties of bare-root willow trees were selected to be planted. The tree varieties include golden curls willow and prairie cascade willow.	Trees were intended to mitigate potential leachate seepage south of the Site. Staining was previously observed in stream water during RI sampling along the southern boundary of the Site.	Monitored through Site inspections.	To date, there has been no evidence of excessive leachate on the access road south of the willow trees planted for phytoremediation. Approx. 30% of the willow trees have died at the east end of the planting area.
Site Security	8-ft chain link fence gates were installed at the entrances of the property on Deep Snow Road, one (1) to the southwest of the Site and one (1) to the north of the Site. Gates have been secured with locks.	Minimize the potential for trespassing and vehicular traffic.	Monitoring via Site inspection.	Security measures in place and effective.
Access Road	A permanent maintenance road was constructed by placing 6 in. of road paving material over a non-woven geotextile.	Provides access controls to the Site, minimizing the potential for human encroachment on the landfill cap surface.	Monitoring via Site inspection.	Access road in place and effective.

Groundwater Sampling Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name Cuba Landfill Monitoring/Inspection
Job # 50191-01
Location ID MW-1D
Field Sample ID MW-1D
Sampling Event # --
Activity Time 1530
Sample Time 1536
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water 78.03 feet
Measurement Point TOR
Well Diameter 2.0"
Final Depth to Water 78.03 feet
Well Depth 78.81 feet
Well Integrity:
Screen Length - feet
Pump Intake Depth -
Cap ✓
Total Volume Purged 0.25 gallons
PID Well Head
Casing ✓
Locked ✓
Collar ✓

[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
	78.03		13.8	8.08	9.68	10.12	0.186	109.1	

Purge Observations: See notes
Purge Water Containerized: No

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020
Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	
Metals	6010C	Yes

LOCATION NOTES

Well started to go dry; immediately sampled.

Signature: J. McGann
Checked By:

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-03 Field Sample ID -
Activity Time 1230 Sample Time -

Job # 50191-01
Sampling Event # --
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water - feet
Final Depth to Water - feet
Screen Length - feet
Total Volume Purged 0.0 gallons

Measurement Point -
Well Depth 25.0 feet
Pump Intake Depth -
PID Well Head -

Well Diameter 2.0
Well Integrity:
Cap ✓
Casing ✓
Locked ✓
Collar ✓

[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations:
Purge Water Containerized:

EQUIPMENT DOCUMENTATION

Type of ~~Pump~~: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	X none
Metals	6010C	

LOCATION NOTES

DRY - well not sampled

Signature: J. McGuire
Checked By:

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Job # 50191-01
Location ID SW-03
Field Sample ID SW-03
Sampling Event # __
Activity Time 1445
Sample Time 1450
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water N/A feet
Measurement Point -
Well Diameter N/A
Final Depth to Water N/A feet
Well Depth N/A feet
Well Integrity:
Screen Length - feet
Pump Intake Depth
Cap
Total Volume Purged N/A gallons
PID Well Head
Casing
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Locked
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth
Collar

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1450	—		19.7	8.14	9.90	95.4	0.012	122.7	

Purge Observations:
Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: ~~HDPE bailer~~
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020
Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	
Metals	6010C	Y/S

LOCATION NOTES

Signature: J. McGarr
Checked By:

Groundwater Sampling Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-04 Field Sample ID MW-04 Job # 50191-01
Activity Time 1140 Sample Time 1140 Sampling Event # --
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water 23.0 feet Measurement Point TOR Well Diameter 2.0"
Final Depth to Water 27.61 feet Well Depth 32.09 feet Well Integrity:
Screen Length - feet Pump Intake Depth - Cap ✓
Total Volume Purged ~3 gallons PID Well Head - Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked ✓
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1140	27.61		10.9	8.38	5.16	-	0.395	67.4	
						see notes			

Purge Observations: turbid
Purge Water Containerized: No

EQUIPMENT DOCUMENTATION

Type of ~~Pump~~: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	Yes
Metals 6010C		

LOCATION NOTES

No odor or sheen seen
Turbidity meter battery died in the field, could not take NTU measurement

Signature: [signature]
Checked By:

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Location ID SW-4 Field Sample ID SW-4 Job # 50191-01
Activity Time 1515 Sample Time 1505 Sampling Event # __
Date 9-19-20

SAMPLING NOTES

Initial Depth to Water N/A feet Measurement Point —
Final Depth to Water N/A feet Well Depth N/A feet
Screen Length — feet Pump Intake Depth ____
Total Volume Purged N/A gallons PID Well Head ____

Well Diameter N/A
Well Integrity:
Cap ____
Casing ____
Locked ____
Collar ____

[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1515			16.5	8.39	8.65	27.9	0.117	90.1	

Purge Observations: Faint sheen, no odor
Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of ~~Pump: HDPE bailer~~
Type of Tubing: HDPE
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	
Metals	6010C	yes

LOCATION NOTES

Signature: J. McGan
Checked By: ____

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-07 Field Sample ID MW-07 Job # 50191-01
Activity Time 1000 Sample Time 1050 Sampling Event # __
Date 9-20-19

SAMPLING NOTES

Initial Depth to Water See Notes feet Measurement Point TOR Well Diameter 2.0"
Final Depth to Water See Notes feet Well Depth 98.04 feet Well Integrity:
Screen Length _____ feet Pump Intake Depth _____ Cap ✓
Total Volume Purged ~2.0 gallons PID Well Head _____ Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked x
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations: _____
Purge Water Containerized: NO

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: YES

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	YES
Metals	6010 C	

LOCATION NOTES

Needs replacement lock
Water-level meter stopped working in the field; could not take depth to water measurement

Signature: J. McGann
Checked By: _____

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-08 Field Sample ID MW-08 Job # 50191-01
Activity Time 1630 Sample Time 1650 Sampling Event # __
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water 73.1 feet Measurement Point TOR Well Diameter 2.0
Final Depth to Water ____ feet Well Depth 78.32 feet Well Integrity:
Screen Length ____ feet Pump Intake Depth ____ Cap ✓
Total Volume Purged 1.25 gallons PID Well Head ____ Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked ✓
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations: ____
Purge Water Containerized: No

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	Yes
Metals	6010C	

LOCATION NOTES

Well ran dry

Signature: J. McGan
Checked By: ____

Groundwater Sampling Field Record

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Project Name Cuba Landfill Monitoring/Inspection
Job # 50191-01
Location ID MW-9
Field Sample ID –
Sampling Event # __
Activity Time _____
Sample Time _____
Date _____

SAMPLING NOTES

Initial Depth to Water – feet
Measurement Point –
Well Diameter 2.0"
Final Depth to Water – feet
Well Depth 89.21 feet
Well Integrity:
Screen Length – feet
Pump Intake Depth _____
Cap ✓
Total Volume Purged 0.0 gallons
PID Well Head _____
Casing ✓
Locked ✓
Collar ✓

[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations: _____
Purge Water Containerized: _____

EQUIPMENT DOCUMENTATION

Type of Pump: ~~HDPE bailer~~ _____
Type of Tubing: HDPE
Type of Water Quality Meter: Horiba U-22; LaMotte 2020
Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	X Nova
Metals	6010 C	

LOCATION NOTES

DRY; not sampled

Signature: J. Megyesi
Checked By: _____

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-10 Field Sample ID —
Activity Time _____ Sample Time —

Job # 50191-01
Sampling Event # __
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water _____ feet
Final Depth to Water _____ feet
Screen Length _____ feet
Total Volume Purged _____ gallons
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth

Measurement Point —
Well Depth 55.55 feet
Pump Intake Depth _____
PID Well Head _____

Well Diameter _____
Well Integrity:
Cap X
Casing ✓
Locked X
Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations: _____
Purge Water Containerized: _____

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE bailer
Type of ~~Tubing:~~ HDPE
Type of Water Quality Meter: Horiba U-22; LaMotte 2020

Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	X None
Metals	6010 C	

LOCATION NOTES

DRY; Not Sampled
Needs replacement cap and lock

Signature: J. McGaw
Checked By: _____

Groundwater Sampling Field Record

Lu Engineers
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Project Name Cuba Landfill Monitoring/Inspection
Job # 50191-01
Location ID MW-10D
Field Sample ID MW-10D
Sampling Event # __
Activity Time 1130
Sample Time 1136
Date 9-20-19

SAMPLING NOTES

Initial Depth to Water 61.89 feet
Measurement Point TOR
Well Diameter 2.0
Final Depth to Water 62.02 feet
Well Depth 89.74 feet
Well Integrity:
Screen Length - feet
Pump Intake Depth -
Cap ✓
Total Volume Purged ~7.4 gallons
PID Well Head -
Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter]
Locked x
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth
Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1136	62.02		12.3	7.8	2.85	16.2	0.436	161.4	

Purge Observations: slightly turbid
Purge Water Containerized: No

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020
Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	yes
Metals	6010C	

LOCATION NOTES

needs replacement lock

Signature: [signature]
Checked By: _____

Groundwater Sampling Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-11 Field Sample ID MW-11 Job # 50191-01
Activity Time 1150 Sample Time 1155 Sampling Event # __
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water 23.89 feet Measurement Point TOR Well Diameter 2"
Final Depth to Water 28.42 feet Well Depth 32.21 feet Well Integrity:
Screen Length - feet Pump Intake Depth - Cap ✓
Total Volume Purged ~2.7 gallons PID Well Head - Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked ✗
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1150	28.42		10.3	6.65	4.52	-	0.107	35.7	
						See notes			

Purge Observations: slightly turbid; faint sulfur odor
Purge Water Containerized: No

EQUIPMENT DOCUMENTATION

Type of ~~Pump~~: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	yes
Metals	6010C	

LOCATION NOTES

Turbidity meter died in the field; no NTU measurement taken

Well needs replacement lock

Signature: J. McGaw
Checked By:

Groundwater Sampling Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-12 Field Sample ID MW-12 Job # 50191-01
Activity Time 1250 Sample Time 1320 Sampling Event # --
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water 28.21 feet Measurement Point TOR Well Diameter 2.0"
Final Depth to Water 37.59 feet Well Depth 39.95 feet Well Integrity:
Screen Length - feet Pump Intake Depth - Cap ✓
Total Volume Purged ~3.8 gallons PID Well Head - Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked x
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1320	37.59		13.1	7.47	3.11	690 AU	0.75	90.9	

Purge Observations: Highly turbid
Purge Water Containerized: No

EQUIPMENT DOCUMENTATION

Type of ~~Pump~~: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	Yes
Metals 6010 C		

LOCATION NOTES

Needs replacement lock

Signature: G McGarr
Checked By:

Groundwater Sampling Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name Cuba Landfill Monitoring/Inspection
Location ID MW-13 Field Sample ID MW-13 Job # 50191-01
Activity Time 1210 Sample Time 1220 Sampling Event # __
Date 9-19-19

SAMPLING NOTES

Initial Depth to Water 27.37 feet Measurement Point TOR Well Diameter 2.0"
Final Depth to Water 28.24 feet Well Depth 30.15 feet Well Integrity:
Screen Length - feet Pump Intake Depth - Cap ✓
Total Volume Purged ~0.7 gallons PID Well Head - Casing ✓
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked ✓
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar ✓

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments
1220	28.24		10.4	7.11	7.42	-	0.408	76.1	
						See			
						notes			

Purge Observations: Actual volume purged = 0.25 gal
Purge Water Containerized: NO

EQUIPMENT DOCUMENTATION

Type of ~~Pump~~: HDPE bailer
Type of Tubing: ~~HDPE~~
Type of Water Quality Meter: Horiba U-22; LaMotte 2020 Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	Yes
Metals	6010C	

LOCATION NOTES

Turbidity meter battery died in the field. Purge water was observed to be highly turbid.

Signature: J. McGarr
Checked By: _____

Photo No. 1 MW-1S upheaved

Photo No. 2 Site view facing south from MW-1S

Photo No. 3 SW-2

Photo No. 4 Site view facing west from access road near MW-3

Photo No.5 Exposed geotextile

Photo No. 6 Recovering willow trees

Photo No. 7 Ponding on south edge of Site

Photo No. 8 Landfill gas vent

October 02, 2019 Service Request No:R1909190

Mr. Greg Andrus
LU Engineers
339 East Avenue
Suite 200
Rochester, NY 14604

Laboratory Results for: Cuba Landfill

Dear Mr.Andrus,

Enclosed are the results of the sample(s) submitted to our laboratory September 20, 2019
For your reference, these analyses have been assigned our service request number **R1909190.**

All testing was performed according to our laboratory's quality assurance program and met the requirements of the TNI standards except as noted in the case narrative report. Any testing not included in the lab's accreditation is identified on a Non-Certified Analytes report. All results are intended to be considered in their entirety. ALS Environmental is not responsible for use of less than the complete report. Results apply only to the individual samples submitted to the lab for analysis, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s), and represented by Laboratory Control Sample control limits. Any events, such as QC failures or Holding Time exceedances, which may add to the uncertainty are explained in the report narrative or are flagged with qualifiers. The flags are explained in the Report Qualifiers and Definitions page of this report.

Please contact me if you have any questions. My extension is 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: LU Engineers
Project: Cuba Landfill
Sample Matrix: Water

Service Request: R1909190
Date Received: 09/20/2019

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

Sample Receipt:

Thirteen water samples were received for analysis at ALS Environmental on 09/20/2019. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 6010C, 09/30/2019: The control limits for matrix spike recovery of one or more of the spiked analytes are not applicable and have been flagged with a "#". The concentration of the analyte(s) in the parent sample is more than 4x the spike concentration. No further corrective action was required.

Volatiles by GC/MS:

Method 8260C, 09/27/2019: The lower control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). Since there were no detections of the analyte(s) in the associated field samples, the quantitation is not affected. The data quality was not significantly affected and no further corrective action was taken.

Method 8260C, 09/27/2019: The Method Blank contained a low level of the following analytes above the Reporting Limit: Acetone. All associated sample results less than ten times the level found in the Method Blank are flagged. The samples were not reprepared/reanalyzed because the contamination is in the vial preservative; we are working with the vendors to correct the issue.

Approved by _____ Date 10/02/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-4			Lab ID: R1909190-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	1020			100	ug/L	6010C
Barium, Total	51			20	ug/L	6010C
Calcium, Total	38400			1000	ug/L	6010C
Iron, Total	1490			100	ug/L	6010C
Magnesium, Total	10000			1000	ug/L	6010C
Manganese, Total	8080			10	ug/L	6010C
Potassium, Total	2800			2000	ug/L	6010C
Sodium, Total	3800			1000	ug/L	6010C
1,1,1-Trichloroethane (TCA)	19			1.0	ug/L	8260C
1,1-Dichloroethane (1,1-DCA)	57			1.0	ug/L	8260C
1,1-Dichloroethene (1,1-DCE)	6.2			1.0	ug/L	8260C
Acetone	7.9	B		5.0	ug/L	8260C
Chloroethane	6.4			1.0	ug/L	8260C
Trichloroethene (TCE)	2.5			1.0	ug/L	8260C
Vinyl Chloride	3.0			1.0	ug/L	8260C
cis-1,2-Dichloroethene	29			1.0	ug/L	8260C

CLIENT ID: MW-11			Lab ID: R1909190-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	13000			100	ug/L	6010C
Barium, Total	93			20	ug/L	6010C
Calcium, Total	39400			1000	ug/L	6010C
Chromium, Total	13			10	ug/L	6010C
Iron, Total	12800			100	ug/L	6010C
Lead, Total	4	J	3	50	ug/L	6010C
Magnesium, Total	11100			1000	ug/L	6010C
Manganese, Total	2190			10	ug/L	6010C
Potassium, Total	5700			2000	ug/L	6010C
Sodium, Total	3500			1000	ug/L	6010C
Zinc, Total	46			20	ug/L	6010C
1,1,1-Trichloroethane (TCA)	2.5			1.0	ug/L	8260C
1,1-Dichloroethane (1,1-DCA)	8.8			1.0	ug/L	8260C
Chloroethane	2.1			1.0	ug/L	8260C
Trichloroethene (TCE)	1.3			1.0	ug/L	8260C
cis-1,2-Dichloroethene	3.6			1.0	ug/L	8260C

CLIENT ID: MW-13			Lab ID: R1909190-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	16200			100	ug/L	6010C
Barium, Total	128			20	ug/L	6010C
Calcium, Total	77300			1000	ug/L	6010C
Chromium, Total	23			10	ug/L	6010C

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-13			Lab ID: R1909190-003			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Iron, Total	21900			100	ug/L	6010C
Magnesium, Total	13400			1000	ug/L	6010C
Manganese, Total	536			10	ug/L	6010C
Potassium, Total	8400			2000	ug/L	6010C
Sodium, Total	4100			1000	ug/L	6010C
Zinc, Total	49			20	ug/L	6010C
1,1,1-Trichloroethane (TCA)	6.6			1.0	ug/L	8260C
1,1-Dichloroethane (1,1-DCA)	6.4			1.0	ug/L	8260C
Tetrachloroethene (PCE)	4.6			1.0	ug/L	8260C
Trichloroethene (TCE)	8.1			1.0	ug/L	8260C
cis-1,2-Dichloroethene	6.5			1.0	ug/L	8260C

CLIENT ID: MW-12			Lab ID: R1909190-004			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	16200			100	ug/L	6010C
Barium, Total	146			20	ug/L	6010C
Calcium, Total	79200			1000	ug/L	6010C
Chromium, Total	20			10	ug/L	6010C
Iron, Total	19600			100	ug/L	6010C
Lead, Total	6	J	3	50	ug/L	6010C
Magnesium, Total	43200			1000	ug/L	6010C
Manganese, Total	958			10	ug/L	6010C
Potassium, Total	9100			2000	ug/L	6010C
Sodium, Total	23800			1000	ug/L	6010C
Zinc, Total	46			20	ug/L	6010C

CLIENT ID: SW-3			Lab ID: R1909190-005			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Calcium, Total	41700			1000	ug/L	6010C
Iron, Total	140			100	ug/L	6010C
Magnesium, Total	12700			1000	ug/L	6010C
Manganese, Total	188			10	ug/L	6010C
Sodium, Total	9900			1000	ug/L	6010C

CLIENT ID: SW-4			Lab ID: R1909190-006			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	1130			100	ug/L	6010C
Calcium, Total	7300			1000	ug/L	6010C
Iron, Total	1000			100	ug/L	6010C
Magnesium, Total	1700			1000	ug/L	6010C
Manganese, Total	55			10	ug/L	6010C
Potassium, Total	3500			2000	ug/L	6010C
Sodium, Total	7700			1000	ug/L	6010C

SAMPLE DETECTION SUMMARY

CLIENT ID: SW-4	Lab ID: R1909190-006					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**

CLIENT ID: MW-1D	Lab ID: R1909190-007					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	240			100	ug/L	6010C
Calcium, Total	18800			1000	ug/L	6010C
Iron, Total	420			100	ug/L	6010C
Magnesium, Total	8800			1000	ug/L	6010C
Manganese, Total	23			10	ug/L	6010C
Sodium, Total	3600			1000	ug/L	6010C

CLIENT ID: MW-8	Lab ID: R1909190-008					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	34900			100	ug/L	6010C
Arsenic, Total	18			10	ug/L	6010C
Barium, Total	215			20	ug/L	6010C
Calcium, Total	36600			1000	ug/L	6010C
Chromium, Total	44			10	ug/L	6010C
Copper, Total	91			20	ug/L	6010C
Iron, Total	45300			100	ug/L	6010C
Lead, Total	9	J	3	50	ug/L	6010C
Magnesium, Total	22300			1000	ug/L	6010C
Manganese, Total	610			10	ug/L	6010C
Potassium, Total	12300			2000	ug/L	6010C
Sodium, Total	5300			1000	ug/L	6010C
Vanadium, Total	50			50	ug/L	6010C
Zinc, Total	121			20	ug/L	6010C
1,1,1-Trichloroethane (TCA)	6.6			1.0	ug/L	8260C
1,1-Dichloroethane (1,1-DCA)	4.7			1.0	ug/L	8260C
Trichloroethene (TCE)	13			1.0	ug/L	8260C
cis-1,2-Dichloroethene	5.5			1.0	ug/L	8260C

CLIENT ID: MW-7	Lab ID: R1909190-009					
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	6400			100	ug/L	6010C
Barium, Total	87			20	ug/L	6010C
Calcium, Total	48900			1000	ug/L	6010C
Iron, Total	6090			100	ug/L	6010C
Lead, Total	3	J	3	50	ug/L	6010C
Magnesium, Total	25200			1000	ug/L	6010C
Manganese, Total	146			10	ug/L	6010C
Potassium, Total	3600			2000	ug/L	6010C
Sodium, Total	6300			1000	ug/L	6010C
1,1,1-Trichloroethane (TCA)	4.4			1.0	ug/L	8260C

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-7			Lab ID: R1909190-009			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
1,1-Dichloroethane (1,1-DCA)	1.6			1.0	ug/L	8260C
Acetone	5.4	B		5.0	ug/L	8260C
Trichloroethene (TCE)	7.3			1.0	ug/L	8260C
cis-1,2-Dichloroethene	3.0			1.0	ug/L	8260C

CLIENT ID: MW-10D			Lab ID: R1909190-010			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	490			100	ug/L	6010C
Barium, Total	48			20	ug/L	6010C
Calcium, Total	41700			1000	ug/L	6010C
Iron, Total	450			100	ug/L	6010C
Magnesium, Total	18900			1000	ug/L	6010C
Manganese, Total	219			10	ug/L	6010C
Potassium, Total	2200			2000	ug/L	6010C
Sodium, Total	15300			1000	ug/L	6010C
1,1,1-Trichloroethane (TCA)	1.6			1.0	ug/L	8260C

CLIENT ID: 8354 Jackson Hill Road			Lab ID: R1909190-011			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	230			100	ug/L	6010C
Barium, Total	49			20	ug/L	6010C
Calcium, Total	18300			1000	ug/L	6010C
Iron, Total	320			100	ug/L	6010C
Magnesium, Total	5700			1000	ug/L	6010C
Potassium, Total	2100			2000	ug/L	6010C
Sodium, Total	17400			1000	ug/L	6010C

CLIENT ID: Field Duplicate			Lab ID: R1909190-012			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Aluminum, Total	22200			100	ug/L	6010C
Barium, Total	174			20	ug/L	6010C
Calcium, Total	81100			1000	ug/L	6010C
Chromium, Total	27			10	ug/L	6010C
Iron, Total	25800			100	ug/L	6010C
Lead, Total	8	J	3	50	ug/L	6010C
Magnesium, Total	44800			1000	ug/L	6010C
Manganese, Total	1330			10	ug/L	6010C
Potassium, Total	10800			2000	ug/L	6010C
Sodium, Total	24400			1000	ug/L	6010C
Zinc, Total	60			20	ug/L	6010C
Acetone	6.3	B		5.0	ug/L	8260C

Sample Receipt Information

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: LU Engineers **Service Request:**R1909190
Project: Cuba Landfill/50191

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1909190-001	MW-4	9/19/2019	1140
R1909190-002	MW-11	9/19/2019	1150
R1909190-003	MW-13	9/19/2019	1220
R1909190-004	MW-12	9/19/2019	1320
R1909190-005	SW-3	9/19/2019	1450
R1909190-006	SW-4	9/19/2019	1505
R1909190-007	MW-1D	9/19/2019	1536
R1909190-008	MW-8	9/19/2019	1050
R1909190-009	MW-7	9/19/2019	1050
R1909190-010	MW-10D	9/20/2019	1136
R1909190-011	8354 Jackson Hill Road	9/20/2019	1238
R1909190-012	Field Duplicate	9/19/2019	
R1909190-013	Trip Blank	9/19/2019	

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 58914

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: Cuba Landfill	Project Number: 50191
Project Manager: Ben Seifert	Report CC:
Company/Address: LU Engineers 339 East Avenue Suite 200	
Phone #: 585-385-7417	Email: bseifert@luengineers.com
Sampler's Signature:	Sampler's Printed Name: BEN SEIFERT

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	8260 TCL VOC	TAL Metals
MW-4		09/19/19	11:40	GW	5	X	X
MW-11		09/19/19	11:50				
MW-13		09/19/19	12:20				
MW-12		09/19/19	13:20				
SW-3		09/19/19	14:50				
SW-4		09/19/19	15:05				
MW-1D		09/19/19	15:36				
MW-8		09/19/19	10:50				
MW-7		09/20/19	10:50				
MW-7_MS		09/20/19	10:50				
MW-7_MSD		09/20/19	10:50				

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

GW: groundwater

Please call Ben Seifert @ (716) 225-1493 with questions or concerns

See OAPP ☐

STATE WHERE SAMPLES WERE COLLECTED NY

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
✓ Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
_____ I. Results Only
✓ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data

Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO: See addresses

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Ben Seifert					
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name	Printed Name	Printed Name	Printed Name	Printed Name	
Firm: LU Engineers	Firm: ALS	Firm	Firm	Firm	
Date/Time: 09/20/19 5:30pm	Date/Time: 9/20/19 1730	Date/Time	Date/Time	Date/Time	

R1909190 5
LU Engineers
Cuba Landfill

Distribution: White - Lab Copy; Yellow - Return to Originator

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 58915

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax)

Project Name: Cuba Landfill	Project Number: 50191
Project Manager: Ben Seifert	Report CC:
Company/Address: LU Engineers 339 East Avenue Suite 200	
Phone #: 585-385-1493	Email: bseifert@luengineers.com
Sampler's Signature:	Sampler's Printed Name: Ben Seifert

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	8260 TCL VOCs	TAL Metals						
MW-10D		09/20/19	11:36	GW	5								X	X						
8354 Jackson Hill Road		09/19/19	12:38	↓	↓								↓	↓						
Field Duplicate		09/19/19		↓	↓								↓	↓						
Trip Blank				WA	3								↓	↓						

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See OAPP ☐

STATE WHERE SAMPLES WERE COLLECTED NY

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
✓ Standard (10 business days-No Surcharge)

REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
____ I. Results Only
✓ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO: See address

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Ben Seifert	Printed Name: Daniel Wild	Printed Name	Printed Name	Printed Name	
Firm: LU Engineers	Firm: ALS	Firm	Firm	Firm	
Date/Time: 09/20/19 5:30pm	Date/Time: 9/20/19 1730	Date/Time	Date/Time	Date/Time	

R1909190 5
LU Engineers
Cuba Landfill

Distribution: White - Lab Copy; Yellow - Return to Originator

Cooler Receipt and Preservation Check Form

R1909190 5
LU Engineers
Cuba Landfill

Project/Client LuEng. Folder Number

Cooler received on 9/20/19 by: DW

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	Y (N)
2	**Custody papers** properly completed (ink, signed)?	(Y) N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N
4	Circle: **Wet Ice Dry Ice Gel packs** present?	(Y) N

5a	**Perchlorate** samples have required headspace?	Y N (NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y (N) NA
6	Where did the bottles originate?	ALS/ROC CLIENT
7	Soil VOA received as:	Bulk Encore 5035set (NA)

8. Temperature Readings Date: 9/20/19 Time: 1750 ID: IR#7 IR#10 From: Temp Blank Sample Bottle

Observed Temp (°C)	5.4						
Correction Factor (°C)	+0.0						
Corrected Temp (°C)	5.4						
Temp from:Type of bottle							
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N
If <0°C, were samples frozen?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed (described below) Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R002 by DW on 9/20/19 at 1750
5035 samples placed in storage location: _____ by _____ on _____ at _____

Cooler Breakdown/Preservation Check**: Date: 9/23/19 Time: 1540 by: DW

9. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
10. Did all bottle labels and tags agree with custody papers? (YES) NO
11. Were correct containers used for the tests indicated? (YES) NO
12. Were 5035 vials acceptable (no extra labels, not leaking)? YES NO (NA)
13. Air Samples: Cassettes / Tubes Intact with MS? Canisters Pressurized Tedlar® Bags Inflated (NA)

pH	Lot of test paper	Reagent	Preserved? Yes	Preserved? No	Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
≥12		NaOH								
≤2	230018	HNO_3	✓		1118073					
≤2		H_2SO_4								
<4		$NaHSO_4$								
5-9		For 608pest			No=Notify for 3day					
Residual Chlorine (-)		For CN, Phenol, 625, 608pest, 522			If +, contact PM to add $Na_2S_2O_3$ (625, 608, CN), ascorbic (phenol).					
		$Na_2S_2O_3$								
		ZnAcetate	-	-						
		HCl	**	**	411810					

**VOAs and 1664 Not to be tested before analysis. Otherwise, all bottles of all samples with chemical preservatives are checked (not just representatives).

Bottle lot numbers: 9-093-001, 19-07-30
Explain all Discrepancies/ Other Comments:

CLRES	BULK
DO	FLDT
HPROD	HGFB
HTR	LL3541
PH	SUB
SO3	MARRS
ALS	REV

Labels secondary reviewed by: JL
PC Secondary Review: MP

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Miscellaneous Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the ñNotesò column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an ñimmediateò hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (Ó100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

Rochester Lab ID # for State Certifications[1]

Connecticut ID # PH0556	Maine ID #NY0032	Pennsylvania ID# 68-786
Delaware Approved	New Hampshire ID # 2941	Rhode Island ID # 158
DoD ELAP #65817	New York ID # 10145	Virginia #460167
Florida ID # E87674	North Carolina #676	

[1] Analyses were performed according to our laboratoryôs NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

ALS Laboratory Group

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: LU Engineers
Project: Cuba Landfill/50191
Service Request: R1909190

Sample Name: MW-4
Lab Code: R1909190-001
Sample Matrix: Water
Date Collected: 09/19/19
Date Received: 09/20/19

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: MW-11
Lab Code: R1909190-002
Sample Matrix: Water
Date Collected: 09/19/19
Date Received: 09/20/19

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: MW-13
Lab Code: R1909190-003
Sample Matrix: Water
Date Collected: 09/19/19
Date Received: 09/20/19

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: MW-12
Lab Code: R1909190-004
Sample Matrix: Water
Date Collected: 09/19/19
Date Received: 09/20/19

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Client: LU Engineers **Service Request:** R1909190
Project: Cuba Landfill/50191

Sample Name: SW-3 **Date Collected:** 09/19/19
Lab Code: R1909190-005 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: SW-4 **Date Collected:** 09/19/19
Lab Code: R1909190-006 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: MW-1D **Date Collected:** 09/19/19
Lab Code: R1909190-007 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: MW-8 **Date Collected:** 09/19/19
Lab Code: R1909190-008 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Client: LU Engineers **Service Request:** R1909190
Project: Cuba Landfill/50191

Sample Name: MW-7 **Date Collected:** 09/19/19
Lab Code: R1909190-009 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: MW-10D **Date Collected:** 09/20/19
Lab Code: R1909190-010 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: 8354 Jackson Hill Road **Date Collected:** 09/20/19
Lab Code: R1909190-011 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Sample Name: Field Duplicate **Date Collected:** 09/19/19
Lab Code: R1909190-012 **Date Received:** 09/20/19
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
6010C	AKONZEL	KMCLAEN
7470A	AKONZEL	KMCLAEN
8260C		KRUEST

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191		

Sample Name:	Trip Blank	**Date Collected:**	09/19/19
Lab Code:	R1909190-013	**Date Received:**	09/20/19
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
8260C		KRUEST

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C	3005A/3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3005A/3010A
6010 SPLP (1312) extract	3005A/3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

Sample Results

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
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www.alsglobal.com

Volatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 11:40
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-4	**Units:**	ug/L
Lab Code:	R1909190-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	**19**	1.0	1	09/27/19 15:39	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 15:39	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 15:39	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 15:39	NA	
1,1-Dichloroethane (1,1-DCA)	**57**	1.0	1	09/27/19 15:39	NA	
1,1-Dichloroethene (1,1-DCE)	**6.2**	1.0	1	09/27/19 15:39	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 15:39	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 15:39	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 15:39	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 15:39	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
1,4-Dioxane	40 U	40	1	09/27/19 15:39	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 15:39	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 15:39	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 15:39	NA	
Acetone	**7.9 B**	5.0	1	09/27/19 15:39	NA	
Benzene	1.0 U	1.0	1	09/27/19 15:39	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 15:39	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 15:39	NA	
Bromoform	1.0 U	1.0	1	09/27/19 15:39	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 15:39	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 15:39	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 15:39	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
Chloroethane	**6.4**	1.0	1	09/27/19 15:39	NA	
Chloroform	1.0 U	1.0	1	09/27/19 15:39	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 15:39	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 15:39	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 15:39	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 15:39	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 15:39	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 15:39	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 15:39	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 15:39	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 15:39	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 15:39	NA	
Styrene	1.0 U	1.0	1	09/27/19 15:39	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 15:39	NA	
Toluene	1.0 U	1.0	1	09/27/19 15:39	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 11:40
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-4	**Units:**	ug/L
Lab Code:	R1909190-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	**2.5**	1.0	1	09/27/19 15:39	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 15:39	NA	
Vinyl Chloride	**3.0**	1.0	1	09/27/19 15:39	NA	
cis-1,2-Dichloroethene	**29**	1.0	1	09/27/19 15:39	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 15:39	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 15:39	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 15:39	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 15:39	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 15:39	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85 - 122	09/27/19 15:39	
Dibromofluoromethane	96	89 - 119	09/27/19 15:39	
Toluene-d8	97	87 - 121	09/27/19 15:39	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 11:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-11	**Units:**	ug/L
Lab Code:	R1909190-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	**2.5**	1.0	1	09/27/19 16:01	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 16:01	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 16:01	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 16:01	NA	
1,1-Dichloroethane (1,1-DCA)	**8.8**	1.0	1	09/27/19 16:01	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 16:01	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 16:01	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 16:01	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 16:01	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 16:01	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
1,4-Dioxane	40 U	40	1	09/27/19 16:01	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 16:01	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 16:01	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 16:01	NA	
Acetone	5.0 U	5.0	1	09/27/19 16:01	NA	
Benzene	1.0 U	1.0	1	09/27/19 16:01	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 16:01	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 16:01	NA	
Bromoform	1.0 U	1.0	1	09/27/19 16:01	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 16:01	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 16:01	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 16:01	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
Chloroethane	**2.1**	1.0	1	09/27/19 16:01	NA	
Chloroform	1.0 U	1.0	1	09/27/19 16:01	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 16:01	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 16:01	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 16:01	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 16:01	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 16:01	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 16:01	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 16:01	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 16:01	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 16:01	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 16:01	NA	
Styrene	1.0 U	1.0	1	09/27/19 16:01	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 16:01	NA	
Toluene	1.0 U	1.0	1	09/27/19 16:01	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 11:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-11	**Units:**	ug/L
Lab Code:	R1909190-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	**1.3**	1.0	1	09/27/19 16:01	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 16:01	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 16:01	NA	
cis-1,2-Dichloroethene	**3.6**	1.0	1	09/27/19 16:01	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 16:01	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 16:01	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 16:01	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 16:01	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 16:01	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85 - 122	09/27/19 16:01	
Dibromofluoromethane	94	89 - 119	09/27/19 16:01	
Toluene-d8	99	87 - 121	09/27/19 16:01	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 12:20
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-13	**Units:**	ug/L
Lab Code:	R1909190-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	**6.6**	1.0	1	09/27/19 16:23	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 16:23	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 16:23	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 16:23	NA	
1,1-Dichloroethane (1,1-DCA)	**6.4**	1.0	1	09/27/19 16:23	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 16:23	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 16:23	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 16:23	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 16:23	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 16:23	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
1,4-Dioxane	40 U	40	1	09/27/19 16:23	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 16:23	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 16:23	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 16:23	NA	
Acetone	5.0 U	5.0	1	09/27/19 16:23	NA	
Benzene	1.0 U	1.0	1	09/27/19 16:23	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Bromoform	1.0 U	1.0	1	09/27/19 16:23	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 16:23	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 16:23	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Chloroform	1.0 U	1.0	1	09/27/19 16:23	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 16:23	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 16:23	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 16:23	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 16:23	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 16:23	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 16:23	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 16:23	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 16:23	NA	
Styrene	1.0 U	1.0	1	09/27/19 16:23	NA	
Tetrachloroethene (PCE)	**4.6**	1.0	1	09/27/19 16:23	NA	
Toluene	1.0 U	1.0	1	09/27/19 16:23	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 12:20
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-13	**Units:**	ug/L
Lab Code:	R1909190-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	**8.1**	1.0	1	09/27/19 16:23	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 16:23	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 16:23	NA	
cis-1,2-Dichloroethene	**6.5**	1.0	1	09/27/19 16:23	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 16:23	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 16:23	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 16:23	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 16:23	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 16:23	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85 - 122	09/27/19 16:23	
Dibromofluoromethane	94	89 - 119	09/27/19 16:23	
Toluene-d8	98	87 - 121	09/27/19 16:23	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 13:20
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-12	**Units:**	ug/L
Lab Code:	R1909190-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 16:45	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 16:45	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 16:45	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 16:45	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 16:45	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 16:45	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 16:45	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 16:45	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 16:45	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 16:45	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
1,4-Dioxane	40 U	40	1	09/27/19 16:45	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 16:45	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 16:45	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 16:45	NA	
Acetone	5.0 U	5.0	1	09/27/19 16:45	NA	
Benzene	1.0 U	1.0	1	09/27/19 16:45	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Bromoform	1.0 U	1.0	1	09/27/19 16:45	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 16:45	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 16:45	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Chloroform	1.0 U	1.0	1	09/27/19 16:45	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 16:45	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 16:45	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 16:45	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 16:45	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 16:45	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 16:45	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 16:45	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 16:45	NA	
Styrene	1.0 U	1.0	1	09/27/19 16:45	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 16:45	NA	
Toluene	1.0 U	1.0	1	09/27/19 16:45	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 13:20
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-12	**Units:**	ug/L
Lab Code:	R1909190-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 16:45	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 16:45	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 16:45	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 16:45	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 16:45	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 16:45	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 16:45	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 16:45	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 16:45	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85 - 122	09/27/19 16:45	
Dibromofluoromethane	92	89 - 119	09/27/19 16:45	
Toluene-d8	97	87 - 121	09/27/19 16:45	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 14:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	SW-3	**Units:**	ug/L
Lab Code:	R1909190-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 17:07	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 17:07	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 17:07	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 17:07	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 17:07	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 17:07	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 17:07	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 17:07	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 17:07	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 17:07	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
1,4-Dioxane	40 U	40	1	09/27/19 17:07	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 17:07	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 17:07	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 17:07	NA	
Acetone	5.0 U	5.0	1	09/27/19 17:07	NA	
Benzene	1.0 U	1.0	1	09/27/19 17:07	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Bromoform	1.0 U	1.0	1	09/27/19 17:07	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 17:07	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 17:07	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Chloroform	1.0 U	1.0	1	09/27/19 17:07	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 17:07	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 17:07	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 17:07	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 17:07	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 17:07	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 17:07	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 17:07	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 17:07	NA	
Styrene	1.0 U	1.0	1	09/27/19 17:07	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 17:07	NA	
Toluene	1.0 U	1.0	1	09/27/19 17:07	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 14:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	SW-3	**Units:**	ug/L
Lab Code:	R1909190-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 17:07	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 17:07	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 17:07	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 17:07	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 17:07	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 17:07	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 17:07	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 17:07	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 17:07	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85 - 122	09/27/19 17:07	
Dibromofluoromethane	93	89 - 119	09/27/19 17:07	
Toluene-d8	99	87 - 121	09/27/19 17:07	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 15:05
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	SW-4	**Units:**	ug/L
Lab Code:	R1909190-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 17:28	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 17:28	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 17:28	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 17:28	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 17:28	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 17:28	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 17:28	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 17:28	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 17:28	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 17:28	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
1,4-Dioxane	40 U	40	1	09/27/19 17:28	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 17:28	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 17:28	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 17:28	NA	
Acetone	5.0 U	5.0	1	09/27/19 17:28	NA	
Benzene	1.0 U	1.0	1	09/27/19 17:28	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Bromoform	1.0 U	1.0	1	09/27/19 17:28	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 17:28	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 17:28	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Chloroform	1.0 U	1.0	1	09/27/19 17:28	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 17:28	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 17:28	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 17:28	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 17:28	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 17:28	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 17:28	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 17:28	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 17:28	NA	
Styrene	1.0 U	1.0	1	09/27/19 17:28	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 17:28	NA	
Toluene	1.0 U	1.0	1	09/27/19 17:28	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 15:05
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	SW-4	**Units:**	ug/L
Lab Code:	R1909190-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 17:28	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 17:28	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 17:28	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 17:28	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 17:28	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 17:28	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 17:28	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 17:28	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 17:28	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85 - 122	09/27/19 17:28	
Dibromofluoromethane	94	89 - 119	09/27/19 17:28	
Toluene-d8	98	87 - 121	09/27/19 17:28	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 15:36
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-1D	**Units:**	ug/L
Lab Code:	R1909190-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 17:50	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 17:50	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 17:50	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 17:50	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 17:50	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 17:50	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 17:50	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 17:50	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 17:50	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 17:50	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
1,4-Dioxane	40 U	40	1	09/27/19 17:50	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 17:50	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 17:50	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 17:50	NA	
Acetone	5.0 U	5.0	1	09/27/19 17:50	NA	
Benzene	1.0 U	1.0	1	09/27/19 17:50	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Bromoform	1.0 U	1.0	1	09/27/19 17:50	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 17:50	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 17:50	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Chloroform	1.0 U	1.0	1	09/27/19 17:50	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 17:50	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 17:50	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 17:50	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 17:50	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 17:50	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 17:50	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 17:50	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 17:50	NA	
Styrene	1.0 U	1.0	1	09/27/19 17:50	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 17:50	NA	
Toluene	1.0 U	1.0	1	09/27/19 17:50	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 15:36
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-1D	**Units:**	ug/L
Lab Code:	R1909190-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 17:50	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 17:50	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 17:50	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 17:50	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 17:50	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 17:50	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 17:50	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 17:50	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 17:50	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85 - 122	09/27/19 17:50	
Dibromofluoromethane	95	89 - 119	09/27/19 17:50	
Toluene-d8	99	87 - 121	09/27/19 17:50	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 10:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-8	**Units:**	ug/L
Lab Code:	R1909190-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	**6.6**	1.0	1	09/27/19 18:12	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 18:12	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 18:12	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 18:12	NA	
1,1-Dichloroethane (1,1-DCA)	**4.7**	1.0	1	09/27/19 18:12	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 18:12	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 18:12	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 18:12	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 18:12	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 18:12	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
1,4-Dioxane	40 U	40	1	09/27/19 18:12	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 18:12	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 18:12	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 18:12	NA	
Acetone	5.0 U	5.0	1	09/27/19 18:12	NA	
Benzene	1.0 U	1.0	1	09/27/19 18:12	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Bromoform	1.0 U	1.0	1	09/27/19 18:12	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 18:12	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 18:12	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Chloroform	1.0 U	1.0	1	09/27/19 18:12	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 18:12	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 18:12	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 18:12	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 18:12	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 18:12	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 18:12	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 18:12	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 18:12	NA	
Styrene	1.0 U	1.0	1	09/27/19 18:12	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 18:12	NA	
Toluene	1.0 U	1.0	1	09/27/19 18:12	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 10:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-8	**Units:**	ug/L
Lab Code:	R1909190-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	**13**	1.0	1	09/27/19 18:12	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 18:12	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 18:12	NA	
cis-1,2-Dichloroethene	**5.5**	1.0	1	09/27/19 18:12	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 18:12	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 18:12	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 18:12	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 18:12	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 18:12	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85 - 122	09/27/19 18:12	
Dibromofluoromethane	94	89 - 119	09/27/19 18:12	
Toluene-d8	98	87 - 121	09/27/19 18:12	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 10:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-7	**Units:**	ug/L
Lab Code:	R1909190-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	**4.4**	1.0	1	09/27/19 19:39	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 19:39	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 19:39	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 19:39	NA	
1,1-Dichloroethane (1,1-DCA)	**1.6**	1.0	1	09/27/19 19:39	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 19:39	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 19:39	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 19:39	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 19:39	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 19:39	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
1,4-Dioxane	40 U	40	1	09/27/19 19:39	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 19:39	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 19:39	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 19:39	NA	
Acetone	**5.4 B**	5.0	1	09/27/19 19:39	NA	
Benzene	1.0 U	1.0	1	09/27/19 19:39	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Bromoform	1.0 U	1.0	1	09/27/19 19:39	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 19:39	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 19:39	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Chloroform	1.0 U	1.0	1	09/27/19 19:39	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 19:39	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 19:39	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 19:39	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 19:39	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 19:39	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 19:39	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 19:39	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 19:39	NA	
Styrene	1.0 U	1.0	1	09/27/19 19:39	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 19:39	NA	
Toluene	1.0 U	1.0	1	09/27/19 19:39	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 10:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-7	**Units:**	ug/L
Lab Code:	R1909190-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	**7.3**	1.0	1	09/27/19 19:39	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 19:39	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 19:39	NA	
cis-1,2-Dichloroethene	**3.0**	1.0	1	09/27/19 19:39	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 19:39	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 19:39	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 19:39	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 19:39	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 19:39	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	92	85 - 122	09/27/19 19:39	
Dibromofluoromethane	92	89 - 119	09/27/19 19:39	
Toluene-d8	97	87 - 121	09/27/19 19:39	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/20/19 11:36
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-10D	**Units:**	ug/L
Lab Code:	R1909190-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	**1.6**	1.0	1	09/27/19 18:34	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 18:34	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 18:34	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 18:34	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 18:34	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 18:34	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 18:34	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 18:34	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 18:34	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 18:34	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
1,4-Dioxane	40 U	40	1	09/27/19 18:34	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 18:34	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 18:34	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 18:34	NA	
Acetone	5.0 U	5.0	1	09/27/19 18:34	NA	
Benzene	1.0 U	1.0	1	09/27/19 18:34	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Bromoform	1.0 U	1.0	1	09/27/19 18:34	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 18:34	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 18:34	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Chloroform	1.0 U	1.0	1	09/27/19 18:34	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 18:34	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 18:34	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 18:34	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 18:34	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 18:34	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 18:34	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 18:34	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 18:34	NA	
Styrene	1.0 U	1.0	1	09/27/19 18:34	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 18:34	NA	
Toluene	1.0 U	1.0	1	09/27/19 18:34	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/20/19 11:36
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-10D	**Units:**	ug/L
Lab Code:	R1909190-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 18:34	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 18:34	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 18:34	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 18:34	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 18:34	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 18:34	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 18:34	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 18:34	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 18:34	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85 - 122	09/27/19 18:34	
Dibromofluoromethane	93	89 - 119	09/27/19 18:34	
Toluene-d8	97	87 - 121	09/27/19 18:34	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/20/19 12:38
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	8354 Jackson Hill Road	**Units:**	ug/L
Lab Code:	R1909190-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 18:56	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 18:56	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 18:56	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 18:56	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 18:56	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 18:56	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 18:56	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 18:56	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 18:56	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 18:56	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
1,4-Dioxane	40 U	40	1	09/27/19 18:56	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 18:56	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 18:56	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 18:56	NA	
Acetone	5.0 U	5.0	1	09/27/19 18:56	NA	
Benzene	1.0 U	1.0	1	09/27/19 18:56	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Bromoform	1.0 U	1.0	1	09/27/19 18:56	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 18:56	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 18:56	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Chloroform	1.0 U	1.0	1	09/27/19 18:56	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 18:56	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 18:56	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 18:56	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 18:56	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 18:56	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 18:56	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 18:56	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 18:56	NA	
Styrene	1.0 U	1.0	1	09/27/19 18:56	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 18:56	NA	
Toluene	1.0 U	1.0	1	09/27/19 18:56	NA	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/20/19 12:38
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	8354 Jackson Hill Road	**Units:**	ug/L
Lab Code:	R1909190-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 18:56	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 18:56	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 18:56	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 18:56	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 18:56	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 18:56	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 18:56	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 18:56	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 18:56	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85 - 122	09/27/19 18:56	
Dibromofluoromethane	96	89 - 119	09/27/19 18:56	
Toluene-d8	99	87 - 121	09/27/19 18:56	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	Field Duplicate	**Units:**	ug/L
Lab Code:	R1909190-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 19:17	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 19:17	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 19:17	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 19:17	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 19:17	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 19:17	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 19:17	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 19:17	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 19:17	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 19:17	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
1,4-Dioxane	40 U	40	1	09/27/19 19:17	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 19:17	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 19:17	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 19:17	NA	
Acetone	**6.3 B**	5.0	1	09/27/19 19:17	NA	
Benzene	1.0 U	1.0	1	09/27/19 19:17	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Bromoform	1.0 U	1.0	1	09/27/19 19:17	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 19:17	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 19:17	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Chloroform	1.0 U	1.0	1	09/27/19 19:17	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 19:17	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 19:17	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 19:17	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 19:17	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 19:17	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 19:17	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 19:17	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 19:17	NA	
Styrene	1.0 U	1.0	1	09/27/19 19:17	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 19:17	NA	
Toluene	1.0 U	1.0	1	09/27/19 19:17	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	Field Duplicate	**Units:**	ug/L
Lab Code:	R1909190-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 19:17	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 19:17	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 19:17	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 19:17	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 19:17	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 19:17	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 19:17	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 19:17	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 19:17	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	95	85 - 122	09/27/19 19:17	
Dibromofluoromethane	92	89 - 119	09/27/19 19:17	
Toluene-d8	98	87 - 121	09/27/19 19:17	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R1909190-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	1	09/27/19 15:17	NA	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	1	09/27/19 15:17	NA	
1,1,2-Trichloroethane	1.0 U	1.0	1	09/27/19 15:17	NA	
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	1.0	1	09/27/19 15:17	NA	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	1	09/27/19 15:17	NA	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	1	09/27/19 15:17	NA	
1,2,3-Trichlorobenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
1,2,4-Trichlorobenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	2.0	1	09/27/19 15:17	NA	
1,2-Dibromoethane	1.0 U	1.0	1	09/27/19 15:17	NA	
1,2-Dichlorobenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
1,2-Dichloroethane	1.0 U	1.0	1	09/27/19 15:17	NA	
1,2-Dichloropropane	1.0 U	1.0	1	09/27/19 15:17	NA	
1,3-Dichlorobenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
1,4-Dichlorobenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
1,4-Dioxane	40 U	40	1	09/27/19 15:17	NA	
2-Butanone (MEK)	5.0 U	5.0	1	09/27/19 15:17	NA	
2-Hexanone	5.0 U	5.0	1	09/27/19 15:17	NA	
4-Methyl-2-pentanone	5.0 U	5.0	1	09/27/19 15:17	NA	
Acetone	5.0 U	5.0	1	09/27/19 15:17	NA	
Benzene	1.0 U	1.0	1	09/27/19 15:17	NA	
Bromochloromethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Bromodichloromethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Bromoform	1.0 U	1.0	1	09/27/19 15:17	NA	
Bromomethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Carbon Disulfide	1.0 U	1.0	1	09/27/19 15:17	NA	
Carbon Tetrachloride	1.0 U	1.0	1	09/27/19 15:17	NA	
Chlorobenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
Chloroethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Chloroform	1.0 U	1.0	1	09/27/19 15:17	NA	
Chloromethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Cyclohexane	1.0 U	1.0	1	09/27/19 15:17	NA	
Dibromochloromethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Dichlorodifluoromethane (CFC 12)	1.0 U	1.0	1	09/27/19 15:17	NA	
Dichloromethane	1.0 U	1.0	1	09/27/19 15:17	NA	
Ethylbenzene	1.0 U	1.0	1	09/27/19 15:17	NA	
Isopropylbenzene (Cumene)	1.0 U	1.0	1	09/27/19 15:17	NA	
Methyl Acetate	2.0 U	2.0	1	09/27/19 15:17	NA	
Methyl tert-Butyl Ether	1.0 U	1.0	1	09/27/19 15:17	NA	
Methylcyclohexane	1.0 U	1.0	1	09/27/19 15:17	NA	
Styrene	1.0 U	1.0	1	09/27/19 15:17	NA	
Tetrachloroethene (PCE)	1.0 U	1.0	1	09/27/19 15:17	NA	
Toluene	1.0 U	1.0	1	09/27/19 15:17	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	R1909190-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Prep Method: EPA 5030C

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Trichloroethene (TCE)	1.0 U	1.0	1	09/27/19 15:17	NA	
Trichlorofluoromethane (CFC 11)	1.0 U	1.0	1	09/27/19 15:17	NA	
Vinyl Chloride	1.0 U	1.0	1	09/27/19 15:17	NA	
cis-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 15:17	NA	
cis-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 15:17	NA	
m,p-Xylenes	2.0 U	2.0	1	09/27/19 15:17	NA	
o-Xylene	1.0 U	1.0	1	09/27/19 15:17	NA	
trans-1,2-Dichloroethene	1.0 U	1.0	1	09/27/19 15:17	NA	
trans-1,3-Dichloropropene	1.0 U	1.0	1	09/27/19 15:17	NA	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	93	85 - 122	09/27/19 15:17	
Dibromofluoromethane	91	89 - 119	09/27/19 15:17	
Toluene-d8	99	87 - 121	09/27/19 15:17	

Metals

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 11:40
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-4	**Basis:**	NA
Lab Code:	R1909190-001		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**1020**	ug/L	100	30	1	09/30/19 20:26	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 20:26	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 20:26	NA	
Barium, Total	6010C	**51**	ug/L	20	3	1	09/30/19 20:26	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 20:26	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 20:26	NA	
Calcium, Total	6010C	**38400**	ug/L	1000	300	1	09/30/19 20:26	NA	
Chromium, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:26	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 20:26	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 20:26	NA	
Iron, Total	6010C	**1490**	ug/L	100	20	1	09/30/19 20:26	NA	
Lead, Total	6010C	50 U	ug/L	50	3	1	09/30/19 20:26	NA	
Magnesium, Total	6010C	**10000**	ug/L	1000	30	1	09/30/19 20:26	NA	
Manganese, Total	6010C	**8080**	ug/L	10	4	1	09/30/19 20:26	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 12:47	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 20:26	NA	
Potassium, Total	6010C	**2800**	ug/L	2000	200	1	09/30/19 20:26	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 20:26	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:26	NA	
Sodium, Total	6010C	**3800**	ug/L	1000	200	1	09/30/19 20:26	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 20:26	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 20:26	NA	
Zinc, Total	6010C	20 U	ug/L	20	10	1	09/30/19 20:26	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 11:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-11	**Basis:**	NA
Lab Code:	R1909190-002		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**13000**	ug/L	100	30	1	09/30/19 20:29	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 20:29	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 20:29	NA	
Barium, Total	6010C	**93**	ug/L	20	3	1	09/30/19 20:29	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 20:29	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 20:29	NA	
Calcium, Total	6010C	**39400**	ug/L	1000	300	1	09/30/19 20:29	NA	
Chromium, Total	6010C	**13**	ug/L	10	0.6	1	09/30/19 20:29	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 20:29	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 20:29	NA	
Iron, Total	6010C	**12800**	ug/L	100	20	1	09/30/19 20:29	NA	
Lead, Total	6010C	**4 J**	ug/L	50	3	1	09/30/19 20:29	NA	
Magnesium, Total	6010C	**11100**	ug/L	1000	30	1	09/30/19 20:29	NA	
Manganese, Total	6010C	**2190**	ug/L	10	4	1	09/30/19 20:29	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 12:49	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 20:29	NA	
Potassium, Total	6010C	**5700**	ug/L	2000	200	1	09/30/19 20:29	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 20:29	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:29	NA	
Sodium, Total	6010C	**3500**	ug/L	1000	200	1	09/30/19 20:29	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 20:29	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 20:29	NA	
Zinc, Total	6010C	**46**	ug/L	20	10	1	09/30/19 20:29	NA	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 12:20
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-13	**Basis:**	NA
Lab Code:	R1909190-003		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**16200**	ug/L	100	30	1	09/30/19 20:32	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 20:32	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 20:32	NA	
Barium, Total	6010C	**128**	ug/L	20	3	1	09/30/19 20:32	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 20:32	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 20:32	NA	
Calcium, Total	6010C	**77300**	ug/L	1000	300	1	09/30/19 20:32	NA	
Chromium, Total	6010C	**23**	ug/L	10	0.6	1	09/30/19 20:32	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 20:32	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 20:32	NA	
Iron, Total	6010C	**21900**	ug/L	100	20	1	09/30/19 20:32	NA	
Lead, Total	6010C	50 U	ug/L	50	3	1	09/30/19 20:32	NA	
Magnesium, Total	6010C	**13400**	ug/L	1000	30	1	09/30/19 20:32	NA	
Manganese, Total	6010C	**536**	ug/L	10	4	1	09/30/19 20:32	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 12:52	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 20:32	NA	
Potassium, Total	6010C	**8400**	ug/L	2000	200	1	09/30/19 20:32	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 20:32	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:32	NA	
Sodium, Total	6010C	**4100**	ug/L	1000	200	1	09/30/19 20:32	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 20:32	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 20:32	NA	
Zinc, Total	6010C	**49**	ug/L	20	10	1	09/30/19 20:32	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 13:20
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-12	**Basis:**	NA
Lab Code:	R1909190-004		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**16200**		ug/L	100	30	1	09/30/19 20:35	NA	
Antimony, Total	6010C	60	U	ug/L	60	5	1	09/30/19 20:35	NA	
Arsenic, Total	6010C	10	U	ug/L	10	4	1	09/30/19 20:35	NA	
Barium, Total	6010C	**146**		ug/L	20	3	1	09/30/19 20:35	NA	
Beryllium, Total	6010C	3.0	U	ug/L	3.0	0.2	1	09/30/19 20:35	NA	
Cadmium, Total	6010C	5.0	U	ug/L	5.0	0.4	1	09/30/19 20:35	NA	
Calcium, Total	6010C	**79200**		ug/L	1000	300	1	09/30/19 20:35	NA	
Chromium, Total	6010C	**20**		ug/L	10	0.6	1	09/30/19 20:35	NA	
Cobalt, Total	6010C	50	U	ug/L	50	0.9	1	09/30/19 20:35	NA	
Copper, Total	6010C	20	U	ug/L	20	4	1	09/30/19 20:35	NA	
Iron, Total	6010C	**19600**		ug/L	100	20	1	09/30/19 20:35	NA	
Lead, Total	6010C	**6**	**J**	ug/L	50	3	1	09/30/19 20:35	NA	
Magnesium, Total	6010C	**43200**		ug/L	1000	30	1	09/30/19 20:35	NA	
Manganese, Total	6010C	**958**		ug/L	10	4	1	09/30/19 20:35	NA	
Mercury, Total	7470A	0.20	U	ug/L	0.20	0.08	1	09/27/19 12:54	NA	
Nickel, Total	6010C	40	U	ug/L	40	3	1	09/30/19 20:35	NA	
Potassium, Total	6010C	**9100**		ug/L	2000	200	1	09/30/19 20:35	NA	
Selenium, Total	6010C	10	U	ug/L	10	5	1	09/30/19 20:35	NA	
Silver, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:35	NA	
Sodium, Total	6010C	**23800**		ug/L	1000	200	1	09/30/19 20:35	NA	
Thallium, Total	6010C	10	U	ug/L	10	7	1	09/30/19 20:35	NA	
Vanadium, Total	6010C	50	U	ug/L	50	0.7	1	09/30/19 20:35	NA	
Zinc, Total	6010C	**46**		ug/L	20	10	1	09/30/19 20:35	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 14:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	SW-3	**Basis:**	NA
Lab Code:	R1909190-005		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	100	U	ug/L	100	30	1	09/30/19 20:39	NA	
Antimony, Total	6010C	60	U	ug/L	60	5	1	09/30/19 20:39	NA	
Arsenic, Total	6010C	10	U	ug/L	10	4	1	09/30/19 20:39	NA	
Barium, Total	6010C	20	U	ug/L	20	3	1	09/30/19 20:39	NA	
Beryllium, Total	6010C	3.0	U	ug/L	3.0	0.2	1	09/30/19 20:39	NA	
Cadmium, Total	6010C	5.0	U	ug/L	5.0	0.4	1	09/30/19 20:39	NA	
Calcium, Total	6010C	**41700**		ug/L	1000	300	1	09/30/19 20:39	NA	
Chromium, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:39	NA	
Cobalt, Total	6010C	50	U	ug/L	50	0.9	1	09/30/19 20:39	NA	
Copper, Total	6010C	20	U	ug/L	20	4	1	09/30/19 20:39	NA	
Iron, Total	6010C	**140**		ug/L	100	20	1	09/30/19 20:39	NA	
Lead, Total	6010C	50	U	ug/L	50	3	1	09/30/19 20:39	NA	
Magnesium, Total	6010C	**12700**		ug/L	1000	30	1	09/30/19 20:39	NA	
Manganese, Total	6010C	**188**		ug/L	10	4	1	09/30/19 20:39	NA	
Mercury, Total	7470A	0.20	U	ug/L	0.20	0.08	1	09/27/19 12:57	NA	
Nickel, Total	6010C	40	U	ug/L	40	3	1	09/30/19 20:39	NA	
Potassium, Total	6010C	2000	U	ug/L	2000	200	1	09/30/19 20:39	NA	
Selenium, Total	6010C	10	U	ug/L	10	5	1	09/30/19 20:39	NA	
Silver, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:39	NA	
Sodium, Total	6010C	**9900**		ug/L	1000	200	1	09/30/19 20:39	NA	
Thallium, Total	6010C	10	U	ug/L	10	7	1	09/30/19 20:39	NA	
Vanadium, Total	6010C	50	U	ug/L	50	0.7	1	09/30/19 20:39	NA	
Zinc, Total	6010C	20	U	ug/L	20	10	1	09/30/19 20:39	NA	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 15:05
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	SW-4	**Basis:**	NA
Lab Code:	R1909190-006		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**1130**		ug/L	100	30	1	09/30/19 20:42	NA	
Antimony, Total	6010C	60	U	ug/L	60	5	1	09/30/19 20:42	NA	
Arsenic, Total	6010C	10	U	ug/L	10	4	1	09/30/19 20:42	NA	
Barium, Total	6010C	20	U	ug/L	20	3	1	09/30/19 20:42	NA	
Beryllium, Total	6010C	3.0	U	ug/L	3.0	0.2	1	09/30/19 20:42	NA	
Cadmium, Total	6010C	5.0	U	ug/L	5.0	0.4	1	09/30/19 20:42	NA	
Calcium, Total	6010C	**7300**		ug/L	1000	300	1	09/30/19 20:42	NA	
Chromium, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:42	NA	
Cobalt, Total	6010C	50	U	ug/L	50	0.9	1	09/30/19 20:42	NA	
Copper, Total	6010C	20	U	ug/L	20	4	1	09/30/19 20:42	NA	
Iron, Total	6010C	**1000**		ug/L	100	20	1	09/30/19 20:42	NA	
Lead, Total	6010C	50	U	ug/L	50	3	1	09/30/19 20:42	NA	
Magnesium, Total	6010C	**1700**		ug/L	1000	30	1	09/30/19 20:42	NA	
Manganese, Total	6010C	**55**		ug/L	10	4	1	09/30/19 20:42	NA	
Mercury, Total	7470A	0.20	U	ug/L	0.20	0.08	1	09/27/19 12:59	NA	
Nickel, Total	6010C	40	U	ug/L	40	3	1	09/30/19 20:42	NA	
Potassium, Total	6010C	**3500**		ug/L	2000	200	1	09/30/19 20:42	NA	
Selenium, Total	6010C	10	U	ug/L	10	5	1	09/30/19 20:42	NA	
Silver, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:42	NA	
Sodium, Total	6010C	**7700**		ug/L	1000	200	1	09/30/19 20:42	NA	
Thallium, Total	6010C	10	U	ug/L	10	7	1	09/30/19 20:42	NA	
Vanadium, Total	6010C	50	U	ug/L	50	0.7	1	09/30/19 20:42	NA	
Zinc, Total	6010C	20	U	ug/L	20	10	1	09/30/19 20:42	NA	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 15:36
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-1D	**Basis:**	NA
Lab Code:	R1909190-007		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**240**		ug/L	100	30	1	09/30/19 20:45	NA	
Antimony, Total	6010C	60	U	ug/L	60	5	1	09/30/19 20:45	NA	
Arsenic, Total	6010C	10	U	ug/L	10	4	1	09/30/19 20:45	NA	
Barium, Total	6010C	20	U	ug/L	20	3	1	09/30/19 20:45	NA	
Beryllium, Total	6010C	3.0	U	ug/L	3.0	0.2	1	09/30/19 20:45	NA	
Cadmium, Total	6010C	5.0	U	ug/L	5.0	0.4	1	09/30/19 20:45	NA	
Calcium, Total	6010C	**18800**		ug/L	1000	300	1	09/30/19 20:45	NA	
Chromium, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:45	NA	
Cobalt, Total	6010C	50	U	ug/L	50	0.9	1	09/30/19 20:45	NA	
Copper, Total	6010C	20	U	ug/L	20	4	1	09/30/19 20:45	NA	
Iron, Total	6010C	**420**		ug/L	100	20	1	09/30/19 20:45	NA	
Lead, Total	6010C	50	U	ug/L	50	3	1	09/30/19 20:45	NA	
Magnesium, Total	6010C	**8800**		ug/L	1000	30	1	09/30/19 20:45	NA	
Manganese, Total	6010C	**23**		ug/L	10	4	1	09/30/19 20:45	NA	
Mercury, Total	7470A	0.20	U	ug/L	0.20	0.08	1	09/27/19 13:02	NA	
Nickel, Total	6010C	40	U	ug/L	40	3	1	09/30/19 20:45	NA	
Potassium, Total	6010C	2000	U	ug/L	2000	200	1	09/30/19 20:45	NA	
Selenium, Total	6010C	10	U	ug/L	10	5	1	09/30/19 20:45	NA	
Silver, Total	6010C	10	U	ug/L	10	0.6	1	09/30/19 20:45	NA	
Sodium, Total	6010C	**3600**		ug/L	1000	200	1	09/30/19 20:45	NA	
Thallium, Total	6010C	10	U	ug/L	10	7	1	09/30/19 20:45	NA	
Vanadium, Total	6010C	50	U	ug/L	50	0.7	1	09/30/19 20:45	NA	
Zinc, Total	6010C	20	U	ug/L	20	10	1	09/30/19 20:45	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 10:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-8	**Basis:**	NA
Lab Code:	R1909190-008		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**34900**	ug/L	100	30	1	09/30/19 20:48	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 20:48	NA	
Arsenic, Total	6010C	**18**	ug/L	10	4	1	09/30/19 20:48	NA	
Barium, Total	6010C	**215**	ug/L	20	3	1	09/30/19 20:48	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 20:48	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 20:48	NA	
Calcium, Total	6010C	**36600**	ug/L	1000	300	1	09/30/19 20:48	NA	
Chromium, Total	6010C	**44**	ug/L	10	0.6	1	09/30/19 20:48	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 20:48	NA	
Copper, Total	6010C	**91**	ug/L	20	4	1	09/30/19 20:48	NA	
Iron, Total	6010C	**45300**	ug/L	100	20	1	09/30/19 20:48	NA	
Lead, Total	6010C	**9 J**	ug/L	50	3	1	09/30/19 20:48	NA	
Magnesium, Total	6010C	**22300**	ug/L	1000	30	1	09/30/19 20:48	NA	
Manganese, Total	6010C	**610**	ug/L	10	4	1	09/30/19 20:48	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 13:05	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 20:48	NA	
Potassium, Total	6010C	**12300**	ug/L	2000	200	1	09/30/19 20:48	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 20:48	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:48	NA	
Sodium, Total	6010C	**5300**	ug/L	1000	200	1	09/30/19 20:48	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 20:48	NA	
Vanadium, Total	6010C	**50**	ug/L	50	0.7	1	09/30/19 20:48	NA	
Zinc, Total	6010C	**121**	ug/L	20	10	1	09/30/19 20:48	NA	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19 10:50
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-7	**Basis:**	NA
Lab Code:	R1909190-009		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**6400**	ug/L	100	30	1	09/30/19 20:58	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 20:58	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 20:58	NA	
Barium, Total	6010C	**87**	ug/L	20	3	1	09/30/19 20:58	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 20:58	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 20:58	NA	
Calcium, Total	6010C	**48900**	ug/L	1000	300	1	09/30/19 20:58	NA	
Chromium, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:58	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 20:58	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 20:58	NA	
Iron, Total	6010C	**6090**	ug/L	100	20	1	09/30/19 20:58	NA	
Lead, Total	6010C	**3 J**	ug/L	50	3	1	09/30/19 20:58	NA	
Magnesium, Total	6010C	**25200**	ug/L	1000	30	1	09/30/19 20:58	NA	
Manganese, Total	6010C	**146**	ug/L	10	4	1	09/30/19 20:58	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 13:07	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 20:58	NA	
Potassium, Total	6010C	**3600**	ug/L	2000	200	1	09/30/19 20:58	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 20:58	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 20:58	NA	
Sodium, Total	6010C	**6300**	ug/L	1000	200	1	09/30/19 20:58	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 20:58	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 20:58	NA	
Zinc, Total	6010C	20 U	ug/L	20	10	1	09/30/19 20:58	NA	

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/20/19 11:36
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	MW-10D	**Basis:**	NA
Lab Code:	R1909190-010		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**490**	ug/L	100	30	1	09/30/19 21:14	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 21:14	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 21:14	NA	
Barium, Total	6010C	**48**	ug/L	20	3	1	09/30/19 21:14	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 21:14	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 21:14	NA	
Calcium, Total	6010C	**41700**	ug/L	1000	300	1	09/30/19 21:14	NA	
Chromium, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 21:14	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 21:14	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 21:14	NA	
Iron, Total	6010C	**450**	ug/L	100	20	1	09/30/19 21:14	NA	
Lead, Total	6010C	50 U	ug/L	50	3	1	09/30/19 21:14	NA	
Magnesium, Total	6010C	**18900**	ug/L	1000	30	1	09/30/19 21:14	NA	
Manganese, Total	6010C	**219**	ug/L	10	4	1	09/30/19 21:14	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 13:20	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 21:14	NA	
Potassium, Total	6010C	**2200**	ug/L	2000	200	1	09/30/19 21:14	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 21:14	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 21:14	NA	
Sodium, Total	6010C	**15300**	ug/L	1000	200	1	09/30/19 21:14	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 21:14	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 21:14	NA	
Zinc, Total	6010C	20 U	ug/L	20	10	1	09/30/19 21:14	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/20/19 12:38
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	8354 Jackson Hill Road	**Basis:**	NA
Lab Code:	R1909190-011		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**230**	ug/L	100	30	1	09/30/19 21:18	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 21:18	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 21:18	NA	
Barium, Total	6010C	**49**	ug/L	20	3	1	09/30/19 21:18	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 21:18	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 21:18	NA	
Calcium, Total	6010C	**18300**	ug/L	1000	300	1	09/30/19 21:18	NA	
Chromium, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 21:18	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 21:18	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 21:18	NA	
Iron, Total	6010C	**320**	ug/L	100	20	1	09/30/19 21:18	NA	
Lead, Total	6010C	50 U	ug/L	50	3	1	09/30/19 21:18	NA	
Magnesium, Total	6010C	**5700**	ug/L	1000	30	1	09/30/19 21:18	NA	
Manganese, Total	6010C	10 U	ug/L	10	4	1	09/30/19 21:18	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 13:22	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 21:18	NA	
Potassium, Total	6010C	**2100**	ug/L	2000	200	1	09/30/19 21:18	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 21:18	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 21:18	NA	
Sodium, Total	6010C	**17400**	ug/L	1000	200	1	09/30/19 21:18	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 21:18	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 21:18	NA	
Zinc, Total	6010C	20 U	ug/L	20	10	1	09/30/19 21:18	NA	

Analytical Report

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19 17:30
Sample Name:	Field Duplicate	**Basis:**	NA
Lab Code:	R1909190-012		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	**22200**	ug/L	100	30	1	09/30/19 21:21	NA	
Antimony, Total	6010C	60 U	ug/L	60	5	1	09/30/19 21:21	NA	
Arsenic, Total	6010C	10 U	ug/L	10	4	1	09/30/19 21:21	NA	
Barium, Total	6010C	**174**	ug/L	20	3	1	09/30/19 21:21	NA	
Beryllium, Total	6010C	3.0 U	ug/L	3.0	0.2	1	09/30/19 21:21	NA	
Cadmium, Total	6010C	5.0 U	ug/L	5.0	0.4	1	09/30/19 21:21	NA	
Calcium, Total	6010C	**81100**	ug/L	1000	300	1	09/30/19 21:21	NA	
Chromium, Total	6010C	**27**	ug/L	10	0.6	1	09/30/19 21:21	NA	
Cobalt, Total	6010C	50 U	ug/L	50	0.9	1	09/30/19 21:21	NA	
Copper, Total	6010C	20 U	ug/L	20	4	1	09/30/19 21:21	NA	
Iron, Total	6010C	**25800**	ug/L	100	20	1	09/30/19 21:21	NA	
Lead, Total	6010C	**8 J**	ug/L	50	3	1	09/30/19 21:21	NA	
Magnesium, Total	6010C	**44800**	ug/L	1000	30	1	09/30/19 21:21	NA	
Manganese, Total	6010C	**1330**	ug/L	10	4	1	09/30/19 21:21	NA	
Mercury, Total	7470A	0.20 U	ug/L	0.20	0.08	1	09/27/19 13:25	NA	
Nickel, Total	6010C	40 U	ug/L	40	3	1	09/30/19 21:21	NA	
Potassium, Total	6010C	**10800**	ug/L	2000	200	1	09/30/19 21:21	NA	
Selenium, Total	6010C	10 U	ug/L	10	5	1	09/30/19 21:21	NA	
Silver, Total	6010C	10 U	ug/L	10	0.6	1	09/30/19 21:21	NA	
Sodium, Total	6010C	**24400**	ug/L	1000	200	1	09/30/19 21:21	NA	
Thallium, Total	6010C	10 U	ug/L	10	7	1	09/30/19 21:21	NA	
Vanadium, Total	6010C	50 U	ug/L	50	0.7	1	09/30/19 21:21	NA	
Zinc, Total	6010C	**60**	ug/L	20	10	1	09/30/19 21:21	NA	

QC Summary Forms

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Volatile Organic Compounds by GC/MS

ALS Environmental—Rochester Laboratory
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Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: LU Engineers **Service Request:** R1909190
Project: Cuba Landfill/50191
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260C
Extraction Method: EPA 5030C

Sample Name	Lab Code	4-Bromofluorobenzene 85-122	Dibromofluoromethane 89-119	Toluene-d8 87-121
MW-4	R1909190-001	93	96	97
MW-11	R1909190-002	94	94	99
MW-13	R1909190-003	95	94	98
MW-12	R1909190-004	93	92	97
SW-3	R1909190-005	96	93	99
SW-4	R1909190-006	94	94	98
MW-1D	R1909190-007	95	95	99
MW-8	R1909190-008	94	94	98
MW-7	R1909190-009	92	92	97
MW-10D	R1909190-010	91	93	97
8354 Jackson Hill Road	R1909190-011	94	96	99
Field Duplicate	R1909190-012	95	92	98
Trip Blank	R1909190-013	93	91	99
Method Blank	RQ1911034-04	92	91	97
Lab Control Sample	RQ1911034-03	97	97	99
MW-7 MS	RQ1911034-05	100	100	100
MW-7 DMS	RQ1911034-06	97	98	100

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19
		Date Analyzed:	09/27/19
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	MW-7	**Units:**	ug/L
Lab Code:	R1909190-009	**Basis:**	NA
Analysis Method:	8260C		
Prep Method:	EPA 5030C		

		Matrix Spike			Duplicate Matrix Spike					
		RQ1911034-05			RQ1911034-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1-Trichloroethane (TCA)	4.4	50.4	50.0	92	51.5	50.0	94	74-127	2	30
1,1,2,2-Tetrachloroethane	1.0 U	48.5	50.0	97	51.7	50.0	103	72-122	6	30
1,1,2-Trichloroethane	1.0 U	48.8	50.0	98	50.6	50.0	101	82-121	3	30
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0 U	45.7	50.0	91	46.1	50.0	92	50-147	<1	30
1,1-Dichloroethane (1,1-DCA)	1.6	47.3	50.0	92	49.4	50.0	96	74-132	4	30
1,1-Dichloroethene (1,1-DCE)	1.0 U	47.3	50.0	95	46.9	50.0	94	71-118	<1	30
1,2,3-Trichlorobenzene	1.0 U	44.0	50.0	88	47.7	50.0	95	59-129	8	30
1,2,4-Trichlorobenzene	1.0 U	44.4	50.0	89	48.7	50.0	97	69-122	9	30
1,2-Dibromo-3-chloropropane (DBCP)	2.0 U	41.6	50.0	83	45.2	50.0	90	37-150	8	30
1,2-Dibromoethane	1.0 U	45.0	50.0	90	45.9	50.0	92	67-127	2	30
1,2-Dichlorobenzene	1.0 U	46.0	50.0	92	48.9	50.0	98	77-120	6	30
1,2-Dichloroethane	1.0 U	43.7	50.0	87	45.7	50.0	91	68-130	4	30
1,2-Dichloropropane	1.0 U	47.8	50.0	96	48.5	50.0	97	79-124	1	30
1,3-Dichlorobenzene	1.0 U	45.8	50.0	92	49.5	50.0	99	83-121	8	30
1,4-Dichlorobenzene	1.0 U	45.3	50.0	91	50.1	50.0	100	82-120	10	30
1,4-Dioxane	40 U	933	1000	93	988	1000	99	44-154	6	30
2-Butanone (MEK)	5.0 U	47.0	50.0	94	47.8	50.0	96	61-137	2	30
2-Hexanone	5.0 U	48.5	50.0	97	48.9	50.0	98	56-132	<1	30
4-Methyl-2-pentanone	5.0 U	49.3	50.0	99	50.9	50.0	102	60-141	3	30
Acetone	5.4 B	47.8	50.0	85	48.9	50.0	87	35-183	2	30
Benzene	1.0 U	49.4	50.0	99	49.9	50.0	100	76-129	1	30
Bromochloromethane	1.0 U	45.3	50.0	91	45.6	50.0	91	80-122	<1	30
Bromodichloromethane	1.0 U	46.8	50.0	94	49.2	50.0	98	78-133	5	30
Bromoform	1.0 U	47.0	50.0	94	52.0	50.0	104	58-133	10	30
Bromomethane	1.0 U	60.1	50.0	120	56.1	50.0	112	10-184	7	30
Carbon Disulfide	1.0 U	49.1	50.0	98	51.1	50.0	102	59-140	4	30
Carbon Tetrachloride	1.0 U	48.4	50.0	97	50.4	50.0	101	65-135	4	30
Chlorobenzene	1.0 U	48.0	50.0	96	48.1	50.0	96	76-125	<1	30
Chloroethane	1.0 U	44.2	50.0	88	44.1	50.0	88	48-146	<1	30
Chloroform	1.0 U	45.0	50.0	90	45.8	50.0	92	75-130	2	30
Chloromethane	1.0 U	48.2	50.0	96	49.2	50.0	98	55-160	2	30
Cyclohexane	1.0 U	46.3	50.0	93	48.9	50.0	98	52-145	5	30
Dibromochloromethane	1.0 U	47.4	50.0	95	48.3	50.0	97	72-128	2	30
Dichlorodifluoromethane (CFC 12)	1.0 U	50.4	50.0	101	50.1	50.0	100	49-154	<1	30
Dichloromethane	1.0 U	41.7	50.0	83	43.0	50.0	86	73-122	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19
		Date Analyzed:	09/27/19
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name:	MW-7	**Units:**	ug/L
Lab Code:	R1909190-009	**Basis:**	NA
Analysis Method:	8260C		
Prep Method:	EPA 5030C		

		Matrix Spike			Duplicate Matrix Spike					
		RQ1911034-05			RQ1911034-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethylbenzene	1.0 U	49.0	50.0	98	50.5	50.0	101	72-134	3	30
Isopropylbenzene (Cumene)	1.0 U	48.5	50.0	97	52.5	50.0	105	77-128	8	30
Methyl Acetate	2.0 U	41.7	50.0	83	41.9	50.0	84	26-121	<1	30
Methyl tert-Butyl Ether	1.0 U	44.8	50.0	90	45.7	50.0	91	75-119	2	30
Methylcyclohexane	1.0 U	46.5	50.0	93	46.6	50.0	93	45-146	<1	30
Styrene	1.0 U	48.9	50.0	98	48.8	50.0	98	74-136	<1	30
Tetrachloroethene (PCE)	1.0 U	47.1	50.0	94	47.8	50.0	96	72-125	2	30
Toluene	1.0 U	51.1	50.0	102	51.6	50.0	103	79-119	<1	30
Trichloroethene (TCE)	7.3	53.1	50.0	92	57.2	50.0	100	74-122	7	30
Trichlorofluoromethane (CFC 11)	1.0 U	49.2	50.0	98	49.7	50.0	99	71-136	<1	30
Vinyl Chloride	1.0 U	46.5	50.0	93	47.3	50.0	95	74-159	2	30
cis-1,2-Dichloroethene	3.0	50.0	50.0	94	49.8	50.0	94	77-127	<1	30
cis-1,3-Dichloropropene	1.0 U	45.5	50.0	91	46.6	50.0	93	52-134	2	30
m,p-Xylenes	2.0 U	101	100	101	99.7	100	100	80-126	<1	30
o-Xylene	1.0 U	48.4	50.0	97	48.0	50.0	96	79-123	<1	30
trans-1,2-Dichloroethene	1.0 U	45.9	50.0	92	47.0	50.0	94	73-118	2	30
trans-1,3-Dichloropropene	1.0 U	44.4	50.0	89	45.3	50.0	91	71-133	2	30

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Metals

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Analytical Report

Client:		**Service Request:**	RQ1910911
Project:		**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	RQ1910911-01		

Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum, Total	6010C	100	U	ug/L	100	1	09/30/19 20:19	NA	
Chromium, Total	6010C	10	U	ug/L	10	1	09/30/19 20:19	NA	
Magnesium, Total	6010C	1000	U	ug/L	1000	1	09/30/19 20:19	NA	
Zinc, Total	6010C	20	U	ug/L	20	1	09/30/19 20:19	NA	

Client: LU Engineers
Project: Cuba Landfill/50191
Sample Matrix: Water

Service Request:R1909190
Date Collected:09/19/19
Date Received:09/20/19
Date Analyzed:9/30/19

Duplicate Matrix Spike Summary
Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Sample Name: MW-7
Lab Code: R1909190-009

Units:ug/L
Basis:NA

			Matrix Spike RQ1910911-03			Duplicate Matrix Spike RQ1910911-04					
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Aluminum, Total	6010C	6400	6430	2000	1	7140	2000	37	75-125	11	20
Antimony, Total	6010C	60 U	434	500	87	467	500	93	75-125	7	20
Arsenic, Total	6010C	10 U	42	40	106	42	40	106	75-125	<1	20
Barium, Total	6010C	87	1970	2000	94	2140	2000	102	75-125	8	20
Beryllium, Total	6010C	3.0 U	46.0	50.0	92	50.1	50.0	100	75-125	9	20
Cadmium, Total	6010C	5.0 U	48.1	50.0	96	50.7	50.0	101	75-125	5	20
Calcium, Total	6010C	48900	46900	2000	-101	50900	2000	100	75-125	8	20
Chromium, Total	6010C	10 U	190	200	95	208	200	104	75-125	9	20
Cobalt, Total	6010C	50 U	460	500	92	501	500	100	75-125	8	20
Copper, Total	6010C	20 U	233	250	93	254	250	102	75-125	9	20
Iron, Total	6010C	6090	6010	1000	-8	6450	1000	36	75-125	7	20
Lead, Total	6010C	3 J	486	500	97	512	500	102	75-125	5	20
Magnesium, Total	6010C	25200	24400	2000	-40	26500	2000	65	75-125	8	20
Manganese, Total	6010C	146	586	500	88	636	500	98	75-125	8	20
Nickel, Total	6010C	40 U	439	500	88	478	500	96	75-125	8	20
Potassium, Total	6010C	3600	21200	20000	88	22500	20000	94	75-125	6	20
Selenium, Total	6010C	10 U	1020	1010	101	1080	1010	107	75-125	5	20
Silver, Total	6010C	10 U	49	50	99	50	50	100	75-125	2	20
Sodium, Total	6010C	6300	24300	20000	90	25800	20000	98	75-125	6	20
Thallium, Total	6010C	10 U	1890	2000	95	1970	2000	98	75-125	4	20
Vanadium, Total	6010C	50 U	467	500	93	506	500	101	75-125	8	20
Zinc, Total	6010C	20 U	468	500	94	507	500	101	75-125	8	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	LU Engineers	**Service Request:**	R1909190
Project:	Cuba Landfill/50191	**Date Collected:**	09/19/19
Sample Matrix:	Water	**Date Received:**	09/20/19
		Date Analyzed:	09/27/19
		Date Extracted:	NA

Duplicate Matrix Spike Summary
Mercury, Total in Liquid Waste (Manual Cold-Vapor Technique)

Sample Name:	MW-7	**Units:**	ug/L
Lab Code:	R1909190-009	**Basis:**	NA
Analysis Method:	7470A		
Prep Method:	Method		

		Matrix Spike RQ1910952-05			Duplicate Matrix Spike RQ1910952-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Mercury, Total	0.20 U	1.07	1.00	107	1.05	1.00	105	75-125	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: **Service Request:** RQ1910911
Project: **Date Analyzed:** 09/30/19
Sample Matrix: Water

Lab Control Sample Summary
Aluminum, Total, by Inductively Coupled Plasma-Atomic Emission Spectrometry

Units:ug/L
Basis:NA

Lab Control Sample
RQ1910911-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum, Total	6010C	1870	2000	93	80-120
Chromium, Total	6010C	207	200	104	80-120
Magnesium, Total	6010C	1990	2000	99	80-120
Zinc, Total	6010C	507	500	101	80-120

SITE-WIDE INSPECTION FORM

Cuba Landfill Site
Town of Cuba, Allegany County

NAME OF INSPECTOR: Leanna McLane

COMPANY OF INSPECTOR: Lu Engineers

DATE OF INSPECTION: 9/19/2019

CURRENT USE OF SITE: Closed Landfill

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):

GENERAL SITE CONDITION (gates, access road, culverts): Good, gates are secure/locked; lumber on both sides of the entrance. Access road is in good condition and cap generally appears to be in good condition with the exception pooling at the base of the cap at the southern edge of site, and of minor exposed geotextile material; this exposed material does not appear to spreading between sampling/inspection events

EVIDENCE OF EROSION, SETTLEMENT RUTTING, POTHOLES, SLIPPAGE:
Erosion control material (geotextile) exposed on hill directly adjacent to the access road (Refer to photographs)

EVIDENCE OF STRESSED VEGETATION OR BARE SPOTS: The easternmost portion of the willow trees adjacent to the detention pond appeared to be recovering, when compared to be unhealthy and/or dead state of the treets in the previous sampling period

EVIDENCE OF DAMAGE TO WELLS/VENTS: MW-1S is upheaved approximately 1.0 feet (Refer to photographs). The protective caps from the landfill vents have fallen out (refer to photographs).

EVIDENCE OF COVER SYSTEM SUBSIDENCE 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 production:
None; protective vent caps have fallen out

MONITORING WELLS: Well covers in place and secure: Yes

EVIDENCE OF DRAINAGE ISSUES (i.e., blockage due to sedimentation, ponding):
None

EVIDENCE OF SWALE OVERFLOW (i.e., stormwater pathway strays from swales):
None

EVIDENCE OF WILLOW TREE MORTALITY:
It appears that approximately 30% of the willow trees (eastern-most) are unhealthy and/or dead (Refer to photographs).

EVIDENCE OF PHYTOREMEDIATION FAILURE (i.e., excessive leachate on access road south of willow trees):
There was a small amount of standing water along the access road adjacent to the willow trees

All 14 gas vents were screened; no readings were detected.

LANDFILL/GAS VENT MONITORING DATA

Gas Vent	Explosivity	PID Reading (PID)

Enclosure 2

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

Site Details **Box 1**

Site No. 902012

Site Name Cuba Municipal Waste Disposal

Site Address: Jackson Hill Road Zip Code: 14727
City/Town: Cuba
County: Allegany
Site Acreage: 38.900

Reporting Period: January 25, ~~2018~~ 2019 to January 25, ~~2019~~ 2020

	YES	NO
1. Is the information above correct?	✓	
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		✓
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		✓
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		✓
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?		✓

Box 2

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

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

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

Signature of Owner, Remedial Party or Designated Representative Date

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 9
270 Michigan Avenue, Buffalo, NY 14203-2915
P: (716) 851-7220 | F: (716) 851-7226
www.dec.ny.gov

June 5, 2018

Village of Cuba
Honorable Michele Miller, Mayor
17 East Main Street
Cuba, NY 14727

RE: Request for sampling of Emerging Contaminants
Cuba Municipal Waste Disposal, Cuba
Allegany County, Site No.: 902012

Dear Mayor Miller (as Owner):

The New York State Department of Environmental Conservation (DEC) is undertaking a Statewide evaluation of remediation sites to better understand the risk posed to New Yorkers by 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS). PFAS have historically not been evaluated at remediation sites, and 1,4-dioxane has not been evaluated at the levels that are now thought to represent a health concern. This initiative is being undertaken as a result of these "emerging contaminants" having been found in a number of drinking water supplies in New York. Accordingly, the DEC is requiring that you test site groundwater for these chemicals. To accommodate this requirement, a select number of existing monitoring wells, representative of the potential of the above-referenced site to be a source of these emerging contaminants, must be sampled. DEC recommends that at least one of these wells should be upgradient of the site.

The attached guidance provides information on the analytical methods and reporting requirements. A second guidance document describes special precautions that need to be considered when sampling for PFAS.

Please prepare a draft letter work plan that identifies the wells proposed for sampling, brief description of the sampling methods, and anticipated sampling date within the next 60 days. If you wish to discuss the scope of the requested water testing, please contact me at 716-851-7220 or david.szymanski@dec.ny.gov.

Sincerely,

David Szymanski
Environmental Program Specialist -1
Region 9 Div. of Environmental Remediation

Ec: Chad Staniszewski – NYSDEC
Greg Andrus – Lu Engineers

attachments

Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol

Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.

The procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate and polypropylene. Equipment blanks should be generated at least daily. Additional materials may be acceptable if pre-approved by NYSDEC. Requests to use alternate equipment should include clean equipment blanks. **NOTE: Grunfos pumps and bladder pumps are known to contain PFC materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFC materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials must be avoided. Many food and drink packaging materials and "plumbers thread seal tape" contain PFCs.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 500 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at 4 ± 2° Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.

Groundwater Sampling for Emerging Contaminants

April 2018

Issue: NYSDEC has committed to analyzing representative groundwater samples at remediation sites for emerging contaminants (1,4-dioxane and PFAS) as described in the below guidance.

Implementation

NYSDEC project managers will be contacting site owners to schedule sampling for these chemicals. Only groundwater sampling is required. The number of samples required will be similar to the number of samples where "full TAL/TCL sampling" would typically be required in a remedial investigation. If sampling is not feasible (e.g., the site no longer has any monitoring wells in place), sampling may be waived on a site-specific basis after first considering potential sources of these chemicals and whether there are water supplies nearby.

Upon a new site being brought into any program (i.e., SSF, BCP), PFAS and 1,4-dioxane will be incorporated into the investigation of groundwater as part of the standard "full TAL/TCL" sampling. Until an SCO is established for PFAS, soil samples do not need to be analyzed for PFAS unless groundwater contamination is detected. Separate guidance will be developed to address sites where emerging contaminants are found in the groundwater. The analysis currently performed for SVOCs in soil is adequate for evaluation of 1,4-dioxane, which already has an established SCO.

Analysis and Reporting

Labs should provide a full category B deliverable, and a DUSR should be prepared by a data validator, and the electronic data submission should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html ,

The work plan should explicitly describe analysis and reporting requirements.

PFAS sample analysis: Currently, ELAP does not offer certification for PFAS compounds in matrices other than finished drinking water. However, laboratories analyzing environmental samples (ex. soil, sediments, and groundwater) are required, by DER, to hold ELAP certification for PFOA and PFOS in drinking water by EPA Method 537 or ISO 25101.

Modified EPA Method 537 is the preferred method to use for groundwater samples due to the ability to achieve 2 ng/L (ppt) detection limits. If contract labs or work plans submitted by responsible parties indicate that they are not able to achieve similar reporting limits, the project manager should discuss this with a DER chemist. Note: Reporting limits for PFOA and PFOS should not exceed 2 ng/L.

PFAS sample reporting: DER has developed a PFAS target analyte list (below) with the intent of achieving reporting consistency between labs for commonly reportable analytes. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. This list may be updated in the future as new information is learned and as labs develop new capabilities. If lab and/or matrix specific issues are encountered for any particular compounds, the NYSDEC project manager will make case-by-case decisions as to whether particular analytes may be temporarily or permanently discontinued from analysis for each site. Any technical lab issues should be brought to the attention of a NYSDEC chemist.

Some sampling using this full PFAS target analyte list is needed to understand the nature of contamination. It may also be critical to differentiate PFAS compounds associated with a site from other

sources of these chemicals. Like routine refinements to parameter lists based on investigative findings, the full PFAS target analyte list may not be needed for all sampling intended to define the extent of contamination. Project managers may approve a shorter analyte list (e.g., just the UCMR3 list) for some reporting on a case by case basis.

1,4-Dioxane Analysis and Reporting: The method detection limit (MDL) for 1,4-dioxane should be no higher than 0.28 µg/l (ppb). ELAP offers certification for both EPA Methods 8260 and 8270. In order to get the appropriate detection limits, the lab would need to run either of these methods in "selective ion monitoring" (SIM) mode. DER is advising the use of method 8270, since this method provides a more robust extraction procedure, uses a larger sample volume, and is less vulnerable to interference from chlorinated solvents (we acknowledge that 8260 has been shown to have a higher recovery in some studies).

Full PFAS Target Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	**Perfluorobutanesulfonic acid**	**PFBS**	**375-73-5**
	Perfluorohexanesulfonic acid	**PFHxS**	**355-46-4**
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	**PFOS**	**1763-23-1**
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	**PFHpA**	**375-85-9**
	Perfluorooctanoic acid	**PFOA**	**335-67-1**
	Perfluorononanoic acid	**PFNA**	**375-95-1**
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

Bold entries depict the 6 original UCMR3 chemicals