

Cuba Municipal Waste Disposal Site

ALLEGANY COUNTY, NEW YORK

Periodic Review Report (2024-2025)

NYSDEC Site Number: 902012

Prepared for:

Village of Cuba
17 East Main Street
Cuba, New York 14727



Prepared by:



280 East Broad Street, Suite 170
Rochester, NY 14604

February 2025

Table of Contents

Executive Summary..... 2
1.0 Introduction 3
2.0 Site Overview 3
 2.1 Introduction 3
 2.2 Background 4
3.0 Remedy Performance, Effectiveness, and Protectiveness Evaluation..... 6
4.0 Institutional Control/Engineering Control Compliance 6
5.0 Monitoring Plan Compliance..... 7
6.0 Monitoring Results 8
 6.1 Groundwater Data 8
 6.2 Surface Water Data 9
 6.3 Leachate Indicator Data 9
 6.4 Landfill Gas Monitoring Data 9
 6.5 Site Inspections 9
 6.6 Results Summary 10
7.0 Conclusions and Recommendations 10
 7.1 Compliance with the Site Management Plan..... 10
 7.2 Performance and Effectiveness of the Remedies 10
 7.3 Future Sampling Schedule and Periodic Review Report Submittals 10
 7.4 Recommendations 11

Figures

- Figure 1 – Site Location Map
- Figure 2 – Site Layout
- Figure 3 – Groundwater Sample Analytical Results

Tables

November 2024 Results

- Table 1-1 – Sample Analytical Results: VOCs
- Table 1-2 – Sample Analytical Results: Metals
- Table 1-3 – Sample Analytical Results: Emerging Contaminants (Includes Trend Graphs)

Trend Analysis

- Table 2-1 – Analytical Results Trend: VOCs (Includes Trend Graphs)
- Table 2-2 – Analytical Results Trend: Inorganics (Includes Trend Graphs)
- Table 3-0 – Groundwater Elevations Summary
- Table 4-0 – IC/EC Compliance Summary

Attachments

- Appendix A – Groundwater Sampling Logs
- Appendix B – Photo Pages
- Appendix C – Laboratory Analytical Results
- Appendix D – Site-wide Inspection Form
- Appendix E – IC/EC Certification
- Appendix F – NYSDEC Fill Import Form

Executive Summary

The Cuba Landfill Site (the "Site") is a 39.78-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 relative 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 November 2024. The data indicate that groundwater VOC concentrations have generally decreased since remedy implementation; inorganic concentrations continue to exhibit fluctuations. As indicated by the data, surface water quality does not appear to be impacted by surface water runoff from the Site. Additionally, an off-Site downgradient private supply well sampled during this reporting period does not appear to be impacted by groundwater from the Site.



1.0 Introduction

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, 2024, to January 25, 2025. 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 record of decision (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 39.78-acre former waste disposal facility located in the Town of Cuba, Allegany County, New York. 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. This parcel is not considered part of the definition or boundary of the Site. Off-Site monitoring wells MW-7, 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 – 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).
- Upper Bedrock Groundwater – Predominantly impacted with VOCs in excess of applicable standards. Limited exceedances of SVOCs, pesticides, and metals were detected.
- Surface Water Sediment – One (1) sample from the southwest corner of the property contained phenol, and metals exceeding applicable SCGs. Upgradient and downgradient samples from both tributaries contained similar concentrations of metals.
- Groundwater Springs – Groundwater springs located downgradient and at various off-Site locations contained VOCs, endrin, Aroclor 1260, and metals were detected at concentrations exceeding 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), residual 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 and 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



CUBA LANDFILL PERIODIC REVIEW REPORT REMEDY IMPLEMENTATION CHRONOLOGY	
Significant Action/Event	Date
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)	February 2016
Ninth Inspection/Monitoring Report (October 2016 event, Lu Engineers)	February 2017
Tenth Inspection/Monitoring Report (March 2017 event, Lu Engineers)	February 2018
Eleventh Inspection/Monitoring Report (May 2018 event, Lu Engineers)	February 2019
NYSDEC Emerging Contaminant Sampling Event	August 2018
Twelfth Inspection/Monitoring Report (September 2019 event, Lu Engineers)	February 2020
Thirteenth Inspection/Monitoring Report (October 2020 event, Lu Engineers)	February 2021
Soil Management Plan Update	October 2021
Fourteenth Inspection/Monitoring Report (March 2021 event, Lu Engineers)	February 2022
Fifteenth Inspection/Monitoring Report (April 2022 event, Lu Engineers)	February 2023
Sixteenth Inspection/Monitoring Report (September 2023 event, Lu Engineers)	February 2024
Seventeenth Inspection/Monitoring Report (November 2024 event, Lu Engineers)	February 2025

- (1) Dvirka and Bartilucci Consulting Engineers. 1999. Remedial Investigation Report. Cuba Municipal Waste Disposal Site (Registry No. 9-02-012), Village of Cuba, Allegheny 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, Allegheny 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, Allegheny 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, Allegheny 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. 17 post-remedial sampling events have been conducted in accordance with and as outlined in the SMP from January 2011 to November 2024.

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:

Institutional Controls:

- Land Use Restriction



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

Engineering Controls:

- 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 the attached Table 4-0, which 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 4-0, 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 Program	Frequency*	Matrix	Analysis
Groundwater Monitoring	Annual (rotating quarterly)	Groundwater	EPA Method 8260 VOCs; EPA Method 6010 TAL Metals EPA Method 8270 SIM 1, 4-Dioxane EPA Method 537 PFAS
Surface Water Monitoring	Annual (rotating quarterly)	Surface Water	EPA Method 8260 VOCs; EPA Method 6010 TAL Metals
Private Supply Well (Current Use Unknown)	Annual (rotating quarterly)	Surface Water	EPA Method 8260 VOCs; EPA Method 6010 TAL Metals
Landfill Gas Monitoring	Annual (rotating quarterly)	Organic Vapors	H ₂ S, VOC, CO, LEL O ₂ , 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
 LEL: lower explosive limit, H₂S: hydrogen sulfide, CO: carbon monoxide, O₂: oxygen

Monitoring activities completed during this reporting period included the following:

- Annual groundwater sampling of 11 monitoring wells (refer to Figure 2);
- Annual sampling of four (4) surface water locations;
- 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 November 14 & 15, 2024 using sampling methods and procedures outlined in the SMP. Groundwater quality measurements including elevation (Table 3-0), 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. Groundwater monitoring and purge 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 at one (1) or more sample locations for the reporting period:

Volatile Organics

- trichloroethene (TCE)
- 1,1,1-trichloroethane (1,1,1-TCA)
- 1,1-dichloroethane (1,1-DCA)
- 1,1-dichloroethane (1,1-DCE)
- cis-1,2-dichloroethene (cis-1,2-DCE)
- vinyl chloride
- 1, 4- dioxane

Metals

- iron
- manganese
- chromium
- magnesium
- sodium
- copper
- arsenic

Tabulated groundwater and surface water analytical results from the November 2024 monitoring event are attached as Table Group 1. The following provides a comprehensive summary of findings:

- Sampling at 8354 Jackson Hill Road did not identify VOC exceedances relative to Part 703.5.
- No VOC exceedances were identified at the upgradient well MW-1S, consistent with previous sampling events.
- All VOC exceedances detected at MW-4 decreased relative to the September 2023 sampling event.
- VOC concentrations at MW-7 were slightly lower, but did not significantly change relative to the previous reporting periods.
- VOC concentrations at MW-08 generally decreased during the November 2024 sampling event; concentrations appear to fluctuate seasonally and have not surpassed levels observed in May 2018.
- No VOC exceedances were identified at downgradient well MW-10D, consistent with previous sampling events.
- VOC concentrations at MW-11 increased slightly relative to the September 2023 sampling event, but remain generally consistent with prior sampling events.
- Lu Engineers had previously sampled MW-11 for 1,4-dioxane, PFOAs and PFAS in 2018. As requested by the NYSDEC, MW-11 was re-sampled in April 2022, September 2023 and November 2024, which continue to indicate decreased concentrations of 1,4-dioxane, PFOA and PFAS as compared to 2018 results for this well (Table 1-3).
- No VOC exceedances were identified at the downgradient well MW-12, consistent with



previous sampling events.

- VOC concentrations at MW-13 slightly increased relative to the September 2023 sampling event; concentrations of degradation products generally remain consistent with previous reporting periods.
- Wells MW-1D, MW-2, MW-3, MW-9, and MW-10 were dry and not sampled during this reporting period.
- Iron and manganese exceedances were frequently detected and generally fluctuated relative to previous sampling events.
- In addition to iron and manganese, magnesium and sodium were detected at concentrations exceeding applicable regulatory criteria at MW-12, but at slightly lower concentrations than September 2023. Chromium was identified at concentrations exceeding applicable regulatory criteria at MW-13.

Historical sample analytical results trends and graphs are included as Table Group 2.

6.2 Surface Water Data

Surface water sampling identified iron and magnesium exceedances at SW-3 and SW-4, consistent with previous sampling events (Table 1-2). No VOCs were detected above minimum laboratory quantitation limits in any of the surface water samples (Table 1-1).

6.3 Leachate Indicator Data

Leachate indicators, other than TAL metals, have not been collected since 2014.

6.4 Landfill Gas Monitoring Data

In addition to groundwater monitoring, all landfill vents were screened for VOCs and combustible gases including H₂S, CO, O₂ using a PID and 4 gas meter in November 2024. Refer to Figure 2 for gas vent locations. Detectable PID readings were observed at Vent 12 (3.6 ppm) and Vent 14 (0.6 ppm). No other detections were observed during the Site-wide inspection, as documented in Appendix D.

6.5 Site Inspections

In November 2024, the landfill cap grades and swales were generally observed to be 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. MW-1S and MW-1D upheaval has been repaired as indicated in Appendix B, Site Photographs. It is noted that the elevation or condition of the inner (PVC) casings of these wells did not appear to be affected by the upheaval or subsequent repair work.

Small areas of exposed geotextile on the Site cap was not repaired during this reporting period, but the exposed geotextile in these locations does not appear to suggest a breach or failure of the cover system (See Figure 2). The exposed material is not an integral component of the capping system, rather this material was installed above the cap to facilitate grass growth during the landfill closure process as indicated in the copy of page 1797 from the 2010 Final Engineering Report for this project included in Appendix B. Low spots/potholes in access road will require filling with crushed stone including adjacent to culvert at SW-4 and elsewhere on an on-going, as-needed basis.



An Import Request Form was submitted to NYSDEC on November 19, 2024, which is included as Appendix F. Approval of this form has not yet been received. The material to be imported is intended for occasional minor repairs to the Site roadways and related surfaces that may experience minor erosion from time to time requiring occasional repair on an as-needed basis. Upon approval, this material will be used to complete minor repairs as noted above. Future repairs will continue to be documented in the annual PRR.

A copy of the Site-wide inspection form is included as Appendix D of this report. It is noted that any recommended repairs are considered minor and do not appear to have compromised the effectiveness of Site ECs.

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. Groundwater VOC concentrations have generally continued to decrease over time but have fluctuated since 2011 (Table 2-1). 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 generally demonstrate progress towards attaining the remediation goals set forth in the controlling documents and the Record of Decision.

7.0 Conclusions and Recommendations

7.1 Compliance with the Site Management Plan

The controlling document for the Site is the approved SMP (2021). 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 (Table 3-0).

7.2 Performance and Effectiveness of the Remedies

Overall, the remedy performance monitoring data collected during this reporting period indicates that the remedies implemented for both of the operable units are performing generally as expected, are effective and protective. The landfill cap is serving to reduce groundwater impacts as determined by generally stable and/or declining leachate indicator parameter concentrations. Landfill gas is typical and is 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.

7.3 Future Sampling Schedule and Periodic Review Report Submittals

Based on the analytical data generated during this reporting period, it remains evident that cVOCs, iron, and manganese are the primary contaminants of concern at the Site. Slight increases in concentrations of VOCs and metals in Site monitoring wells are likely related to seasonal fluctuations in groundwater elevations. The general trend of contaminant concentrations continues to suggest that contaminant degradation is occurring. In accordance with the approved SMP for this Site, Lu Engineers will plan to perform the next sampling event during the first quarter of 2025.



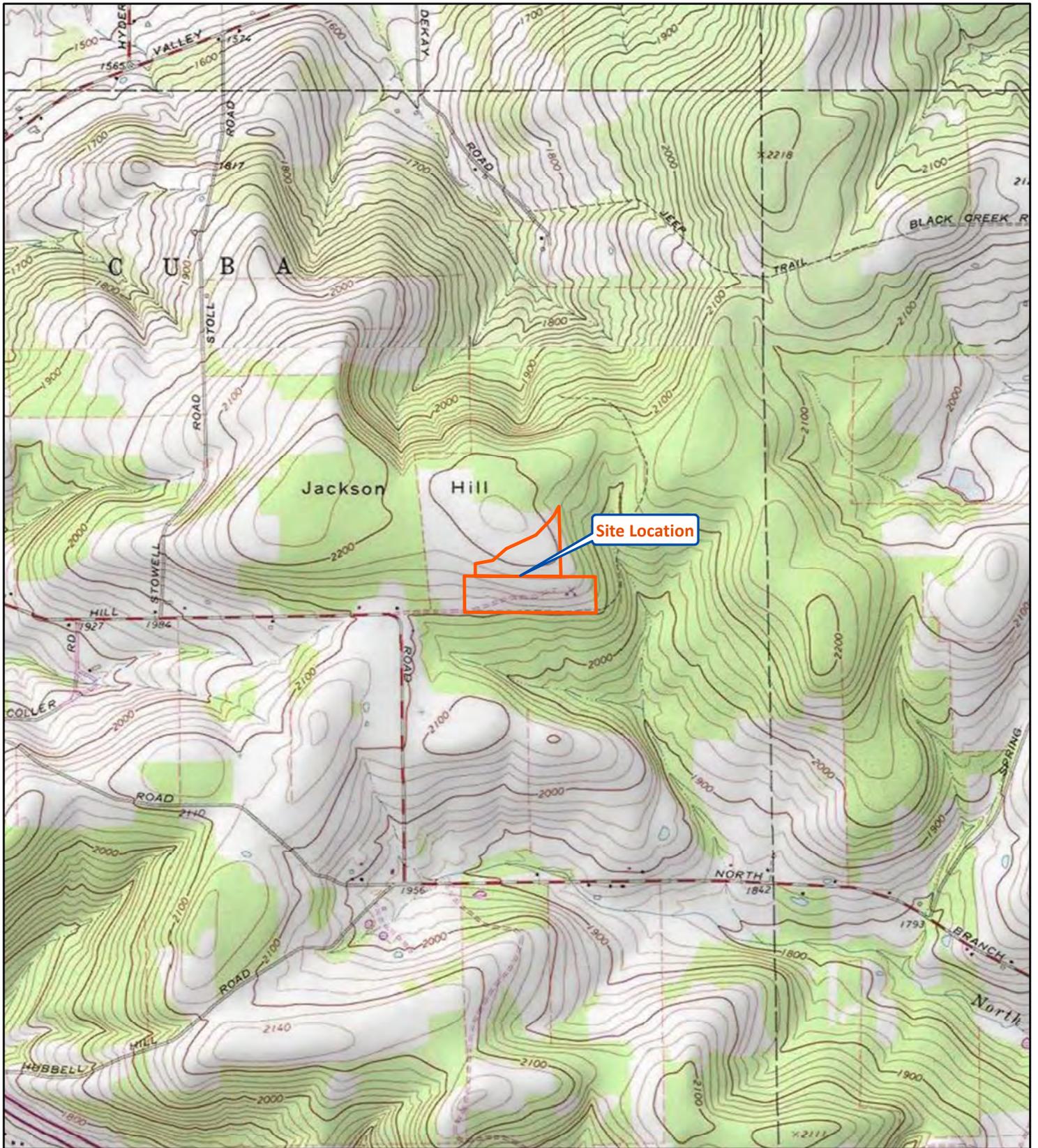
7.4 Recommendations

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 with approval by the NYSDEC.

It is recommended that any minor erosion be repaired by the Village on an ongoing, as-needed basis once NYSDEC approval for material import has been received. The NYSDEC must be provided with seven (7) days advance notice of any repairs to be completed. All repairs must be documented in the PRR prepared for the applicable certifying period.

Due to the sampling and inspection event taking place after the growing season, the status of the willow trees could not be verified, but all appeared to remain in place. To the extent possible, it is recommended that this area be inspected during the next sampling event to determine if there are increased amounts of stressed and/or dead vegetation.





Scale: 1:24,000

Contour Interval: 20 feet

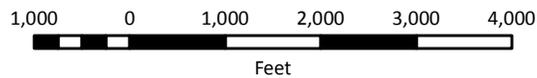


Figure 1. Site Location Plan
 Cuba Landfill Site
 NYSDEC SITE #902012
 Cuba, New York

DATE: February 2019
PROJECT #: 50191-01
DRAWN/CHECKED: BGS/GLA
DATA SOURCE: ESRI Online Basemap

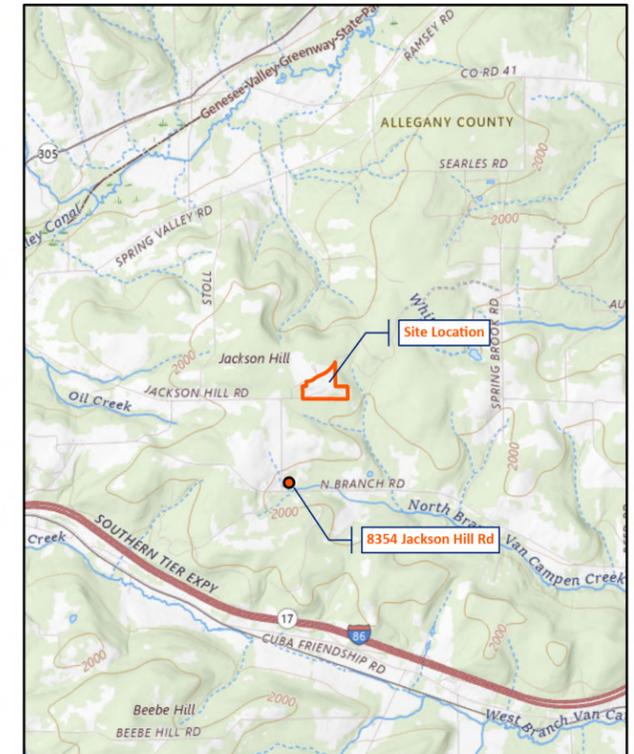
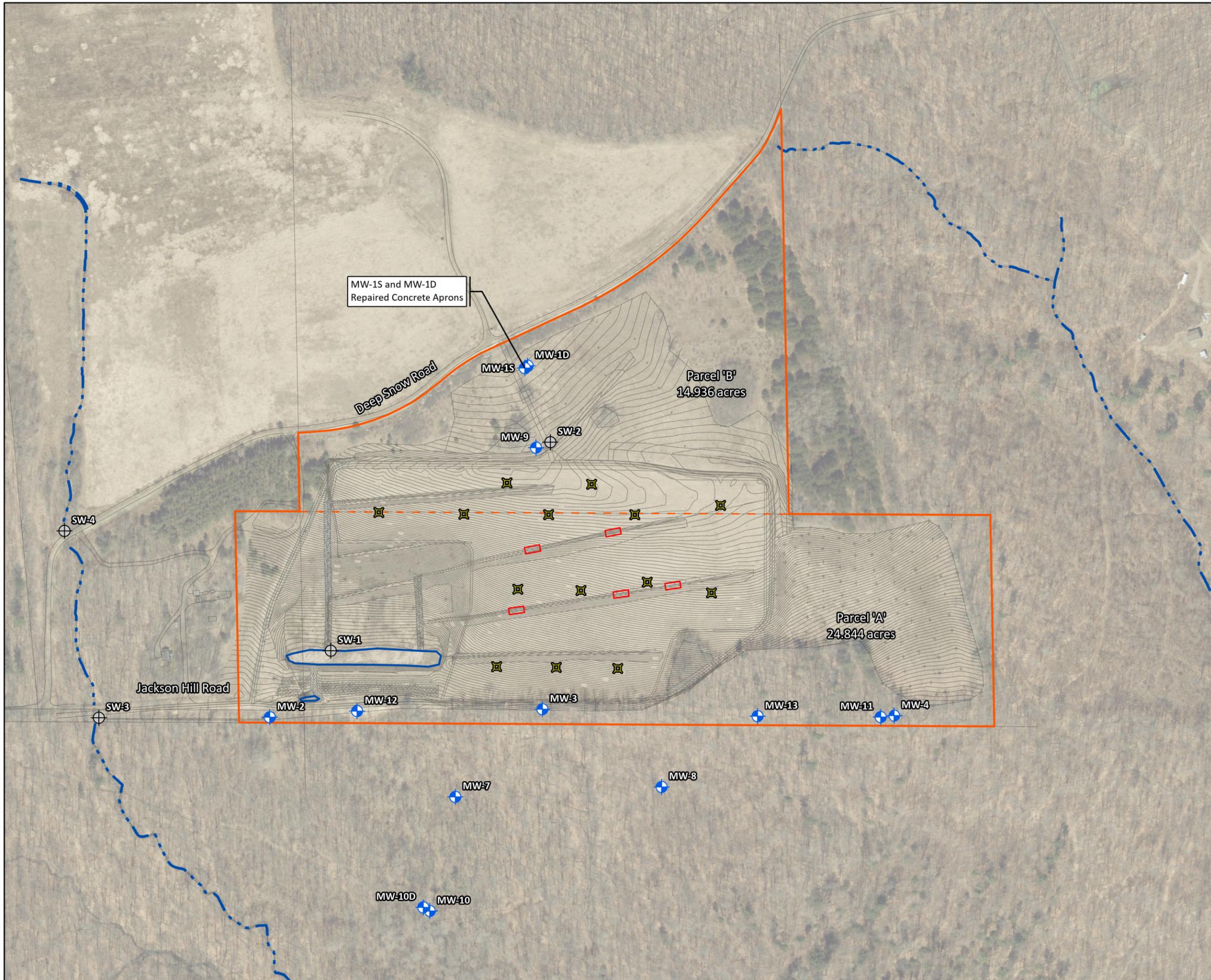


Figure 2:
 Site Plan

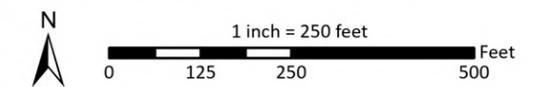
Project:
 Cuba Municipal Waste Disposal Site
 PRR 2025



Location:
 Jackson Hill Road
 Cuba, Allegany County, NY

Legend

- Site Boundary
- - - North Branch, Van Campen Creek
- ◆ Monitoring Wells
- ⊕ Surface Water Sample Locations
- Landfill Gas Vent
- Areas of Exposed Geotextile Material (Approximate)



Drawn/Checked By: MGA/GLA
Lu Project Number: 50191
Date: February 2026
General: 1. Coordinate System: NAD 1983 State Plane NY West FIPS 3103 Feet 2. Scale: 1:3,000 (original document size 11"x17")

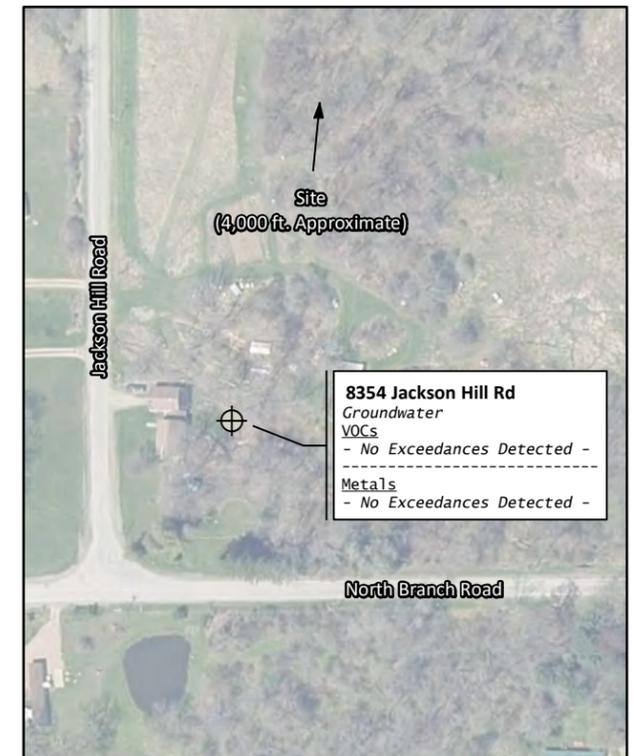
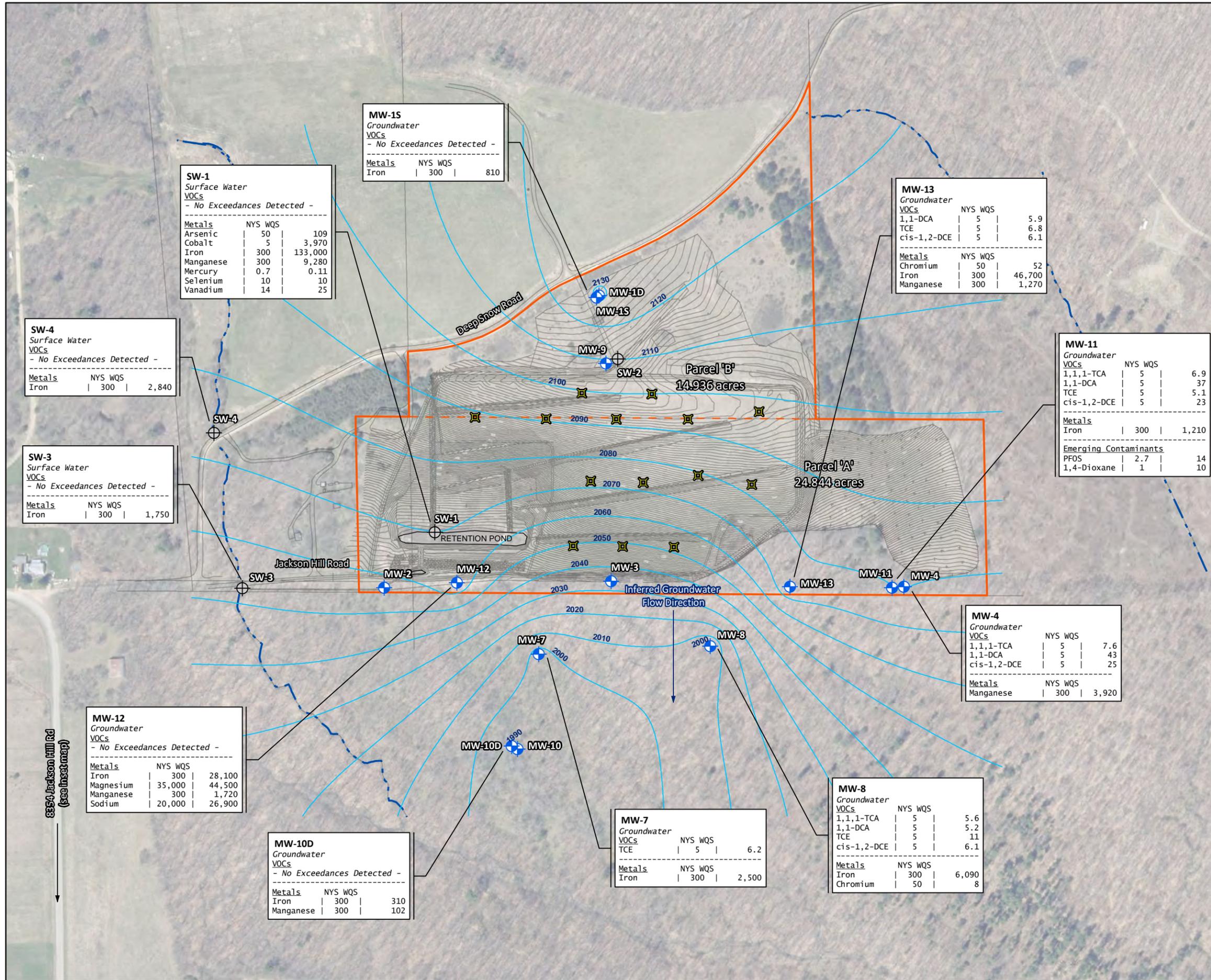


Figure 3:
November 2024 Sample Analytical Results

Project:
Cuba Municipal Waste Disposal Site
PRR 2024-2025



Location:
Jackson Hill Road
Cuba, Allegany County, NY

- Legend**
- Site Boundary
 - Monitoring Wells
 - Surface Water Sample Locations
 - Landfill Gas Vent

Note:
- PFOS results presented in parts per trillion (ppt)

Well ID	Criteria (ug/L)	Sample Concentration (ug/L)
MW-7		
Groundwater		
VOCs	NYS WQS	
TCE	5	7.6
Metals	NYS WQS	
Iron	300	8,060



Drawn/Checked By: MGA/GLA
 Lu Project Number: 50191
 Date: February 2025
 General:
 1. Coordinate System: NAD 1983 State Plane NY West FIPS 3103 Feet
 2. Scale: 1:3600 (original document size 11"x17")

[November 2024 Results]

Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Groundwater Sample Analytical Results

Table 1-1: Sample Analytical Results - VOCs ¹			Sample ID:	8354 Jackson	MW-1S	MW-1D	MW-2	MW-3	MW-4	MW-7	MW-8	MW-9	MW-10	MW-10D	MW-11	MW-12	MW-13	SW-01	SW-02	SW-03	SW-04			
Detected Parameters:			Sample Date:	11/15/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/15/2024	11/15/2024	11/14/2024	11/14/2024	11/14/2024	11/15/2024	11/15/2024	11/15/2024	11/15/2024			
			Matrix	Surface Water	Groundwater	Surface Water	Surface Water	Surface Water	Surface Water															
EPA 8260 - VOCs	NYSDEC TOGS 1.1.1		Result		Result		Result		Result		Result		Result		Result		Result		Result		Result			
	Surface Water Standard	Groundwater Standard	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q		
1,1,1-Trichloroethane (TCA)	5.0	5.0	<	ND	<	ND	NS	NS	NS	7.6	3.30	5.60	NS	NS	1.30	6.90	0.20 J	4.60	ND	NS	<	ND		
1,1,2-Tetrachloroethane	0.2	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,1,2-Trichloroethane	1.0	1.0	<	ND	<	ND	NS	NS	NS	0.22 J	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,1-Dichloroethane (1,1-DCA)	5.0	5.0	<	ND	<	ND	NS	NS	NS	43.0	1.40	5.20	NS	NS	0.65 J	37.0	0.29 J	5.90	ND	NS	<	ND		
1,1-Dichloroethane (1,1-DCE)	0.7	5.0	<	ND	<	ND	NS	NS	NS	3.30	0.50 J	0.42 J	NS	NS	0.22 J	2.50	<	ND	0.47 J	ND	NS	<	ND	
1,2,3-Trichlorobenzene	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,2,4-Trichlorobenzene	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,2-Dibromo-3-chloropropane (DBCP)	0.04	0.04	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,2-Dibromoethane	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,2-Dichlorobenzene	3.0	3.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,2-Dichloroethane	0.6	0.6	<	ND	<	ND	NS	NS	NS	0.22 J	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND
1,2-Dichloropropane	1.0	1.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,3-Dichlorobenzene	3.0	3.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
1,4-Dichlorobenzene	3.0	3.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
2-Butanone (MEK)	50	50	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
2-Hexanone	50	50	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
4-Methyl-2-pentanone	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Acetone	50	50	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	6.70	<	ND	<	ND	ND	NS	<	ND
Benzene	1.0	1.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Bromochloromethane	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Bromodichloromethane	50	50	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Bromoform	50	50	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Bromomethane	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Carbon Disulfide	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Carbon Tetrachloride	0.4	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Chlorobenzene	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Chloroethane	5.0	5.0	<	ND	<	ND	NS	NS	NS	0.41 J	<	ND	<	ND	NS	0.46 J	<	ND	<	ND	ND	NS	<	ND
Chloroform	7.0	7.0	<	1.40	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Chloromethane	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Cyclohexane	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Dibromochloromethane	50	50	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Dichlorodifluoromethane (CFC 12)	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Dichloromethane	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Ethylbenzene	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Isopropylbenzene (Cumene)	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Methyl Acetate	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Methyl tert-Butyl Ether	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Methylcyclohexane	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Styrene	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Tetrachloroethene (PCE)	0.7	5.0	<	ND	<	ND	NS	NS	NS	0.44 J	<	ND	<	ND	NS	2.80	<	ND	3.80	ND	NS	<	ND	
Toluene	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Trichloroethene (TCE)	5.0	5.0	<	ND	<	ND	NS	NS	NS	2.20	6.20	11.0	NS	NS	0.73 J	5.10	0.31 J	6.80	ND	NS	<	ND		
Trichlorofluoromethane (CFC 11)	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
Vinyl Chloride	0.3	2.0	<	ND	<	ND	NS	NS	NS	1.10	<	ND	<	ND	NS	0.75 J	<	ND	<	ND	ND	NS	<	ND
cis-1,2-Dichloroethene	5.0	5.0	<	ND	<	ND	NS	NS	NS	25.0	2.90	6.10	NS	NS	0.74 J	23.00	<	ND	6.10	ND	NS	<	ND	
cis-1,3-Dichloropropene	--	--	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
m,p-Xylenes	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
o-Xylene	5.0	5.0	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	
trans-1,2-Dichloroethene	5.0	5.0	<	ND	<	ND	NS	NS	NS	0.24 J	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND
trans-1,3-Dichloropropene	0.4	0.4	<	ND	<	ND	NS	NS	NS	<	ND	<	ND	<	ND	<	ND	<	ND	ND	NS	<	ND	

Notes
-- Results presented in parts per billion (ppb)
1 - Surface Water Class A, A-S, AA, AA-S
2 - Groundwater Class GA
< : Results not detected above minimum laboratory quantitation limit
NS: Well not sampled (dry)
J: Estimated value due to concentration between the MRL and the MDL
Results exceed surface water quality standard/guidance value
Results exceed groundwater quality standard/guidance value

Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Groundwater Sample Analytical Results

Table 1-2: Sample Analytical Results - Metals Detected Parameters:		Sample ID:	8354 Jackson	MW-1S	MW-1D	MW-2	MW-3	MW-4	MW-7	MW-8	MW-9	MW-10	MW-10D	MW-11	MW-12	MW-13	SW-01	SW-02	SW-03	SW-04		
		Sample Date:	11/15/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/15/2024	11/15/2024	11/14/2024	9/15/2023	11/14/2024	11/15/2024	11/15/2024	11/15/2024	11/15/2024	
		Matrix:	Surface Water	Groundwater	Surface Water	Surface Water	Surface Water	Surface Water														
EPA 6010 - Metals	NYSDEC TOGS 1.1.1		Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
	Surface Water Standard	Groundwater Standard																				
Aluminum, Total	--	--	40.0 J		750		NS		NS		NS		390		3,130		6,620		NS		NS	
Antimony, Total	3.0	3.0	< ND		< ND		NS		NS		NS		< ND		< ND		< ND		< ND		NS	
Arsenic, Total	50	25	< ND		< ND		NS		NS		NS		< ND		< ND		8.0 J		16.0		109	
Barium, Total	1,000	1,000	51.0		42		NS		NS		NS		< ND		67.0		62		NS		27.0	
Beryllium, Total	3.0	3.0	< ND		< ND		NS		NS		NS		< ND		< ND		0.20 J		NS		NS	
Cadmium, Total	5.0	5.0	< ND		1.10 J		NS		NS		NS		< ND		0.50 J		< ND		NS		NS	
Calcium, Total	--	--	23,100		31,400		NS		NS		NS		44,700		51,500		NS		NS		NS	
Chromium, Total	50	50	< ND		4.0 J		NS		NS		NS		3.0 J		5.00 J		8.0 J		NS		NS	
Cobalt, Total	5	--	< ND		< ND		NS		NS		NS		1.0 J		< ND		3.0 J		NS		NS	
Copper, Total	200	200	< ND		< ND		NS		NS		NS		< ND		8.0 J		9.0 J		NS		NS	
Iron, Total	300	300	80 J		810		NS		NS		NS		510		2,500		6,090		NS		NS	
Lead, Total	50	25	< ND		< ND		NS		NS		NS		< ND		< ND		< ND		NS		NS	
Magnesium, Total	35,000	35,000	6,800		5,700		NS		NS		NS		11,000		25,400		14,800		NS		NS	
Manganese, Total	300	300	4.0 J		97		NS		NS		NS		3,920		63		67		NS		NS	
Mercury, Total	0.7	0.7	< ND		< ND J		NS		NS		NS		< ND		< ND		< ND		NS		NS	
Nickel, Total	100	100	3.0 J		5.0 J		NS		NS		NS		< ND		10.0 J		16.0 J		NS		NS	
Potassium, Total	--	--	2,600		1,000 J		NS		NS		NS		2,800		2,900		3,800		NS		NS	
Selenium, Total	10	10	< ND		< ND		NS		NS		NS		< ND		< ND		< ND		NS		NS	
Silver, Total	50	50	< ND		< ND		NS		NS		NS		< ND		< ND		< ND		NS		NS	
Sodium, Total	--	20,000	17,000		2,400		NS		NS		NS		3,700		6,800		5,200		NS		NS	
Thallium, Total	0.50	0.50	< ND		< ND		NS		NS		NS		< ND		< ND		< ND		NS		NS	
Vanadium, Total	14.0	--	< ND		0.9 J		NS		NS		NS		< ND		4.0 J		9.0 J		NS		NS	
Zinc, Total	2,000	2,000	12.0 J		7 J		NS		NS		NS		6.00 J		15.0 J		16.0 J		NS		NS	

Notes

- Results presented in parts per billion (ppb)

1 - Surface Water Class A, A-S, AA, AA-S

2 - Groundwater Class GA

< : Results not detected above minimum laboratory quantitation limit

NS: Well not sampled (dry)

J: Estimated value due to concentration between the MRL and the MDL

*: guidance value

	Results exceed surface water quality standard/guidance value
	Results exceed groundwater quality standard/guidance value

Table 1-3: Sample Analytical Results - Emerging Contaminants Detected Parameters:	Sample ID:	MW-11	
	Sample Date:	11/14/24	
	Matrix	Groundwater	
EPA 537 - Perfluorinated Compounds	NYSDEC PFAS Under Part 375	Result	Q
	Groundwater Standard		
Perfluorobutanesulfonic acid (PFBS)	10*	<	ND
Perfluorohexanesulfonic acid (PFHxS)	10*	<	ND
Perfluoroheptanesulfonic acid (PFHpS)	10*	<	ND
Perfluorooctanesulfonic acid (PFOS)	2.7		14.0
Perfluorodecanesulfonic acid	10*	<	ND
Perfluorobutanoic acid (PFBA)	10*	<	ND
Perfluoropentanoic acid (PFPeA)	10*		0.886
Perfluorohexanoic acid (PFHxA)	10*		0.844
Perfluoroheptanoic acid (PFHpA)	10*	<	ND
Perfluorooctanoic acid (PFOA)	6.7		5.45
Perfluorononanoic acid (PFNA)	10*	<	ND
Perfluorodecanoic acid (PFDA)	10*	<	ND
Perfluoroundecanoic acid	10*	<	ND
Perfluorododecanoic acid	10*	<	ND
Perfluorotridecanoic acid	10*	<	ND
Perfluorotetradecanoic acid	10*	<	ND
6:2 Fluorotelomer sulfonate	10*	<	ND
8:2 Fluorotelomer sulfonate	10*	<	ND
Perfluorooctanesulfonate	10*	<	ND
Perfluorooctane sulfonamide	10*	<	ND
N-methyl perfluorooctanesulfonamidoacetic acid	10*	<	ND
N-ethyl perfluorooctanesulfonamidoacetic acid	10*	<	ND
EPA 8270 - SIM-Semi-volatile Organics		Result	Q
1,4-Dioxane	1.0 (ppb)		10.0

Notes:

1- Results presented in parts per trillion (ppt) unless otherwise indicated

*- NYSDEC Guidance Value

< : Results not detected above minimum laboratory quantitation limit

Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.

Results exceed groundwater quality standard/guidance value

[Trend Analysis]

Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
VOC Result Trends

Table 2-1 VOC Result Trends

Detected Parameters	Well ID:		MW-15														MW-1D														
	Timeline:		Post-Remediation														Post-Remediation														
	Date:	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24
NYSDEC TOGS 1.1.1		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Surface Water		Groundwater																													
Acetone	50	50	< ND	< ND	< ND	2.21	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	2.60 J	< ND	< ND	< ND	< ND	< ND	NS	NS
Chloroethane	5.0	5.0	< ND	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
cis-1,2-Dichloroethene	5.0	5.0	< ND	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
1,1-Dichloroethane	5.0	5.0	< ND	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
1,1-Dichloroethene	0.7	5.0	< ND	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
1,1,1-Trichloroethane	5.0	5.0	1.00	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
Tetrachloroethene	0.7	5.0	1.00	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
Trichloroethene	5.0	5.0	< ND	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS
Vinyl Chloride	0.3	2.0	< ND	< ND	< ND	< ND	< ND	< ND	NS	< ND	NS	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS

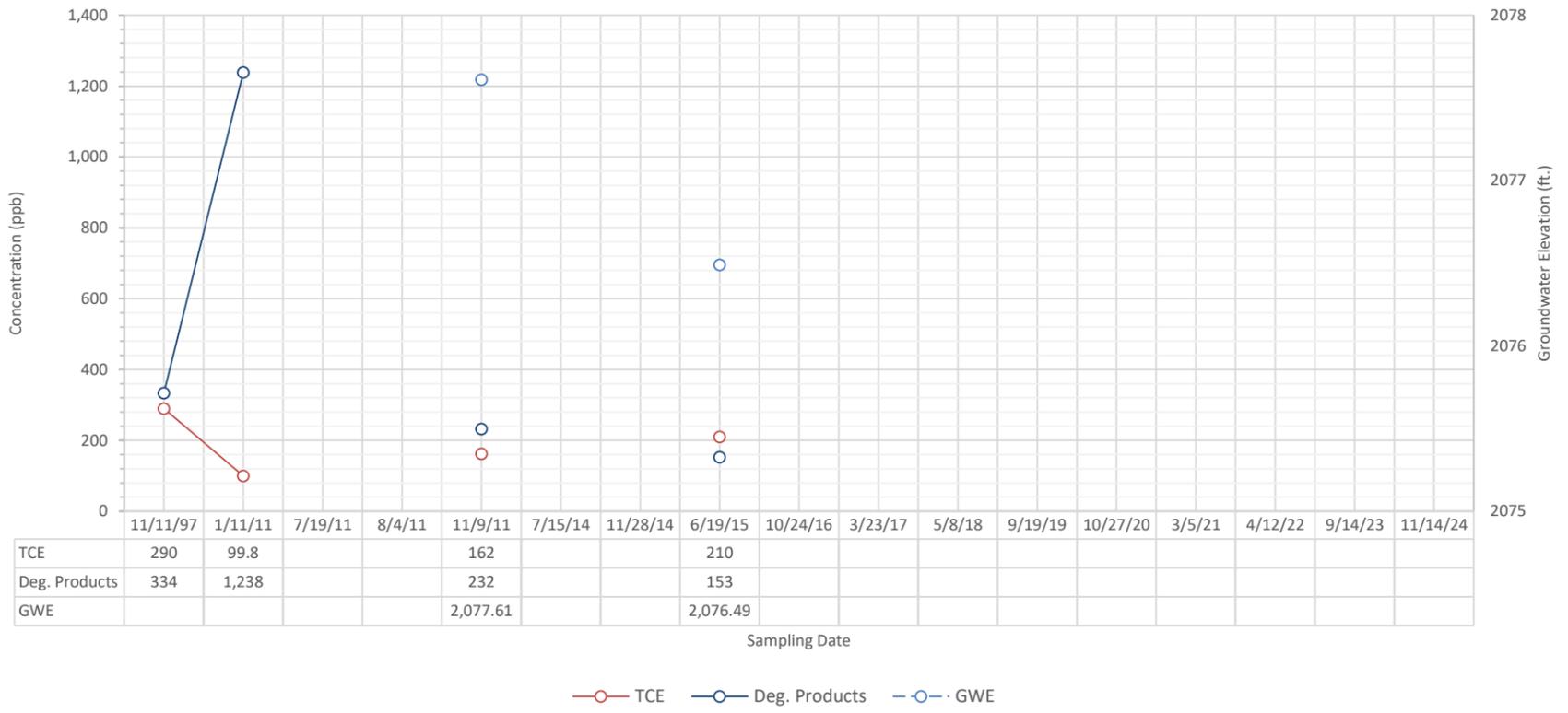
Detected Parameters	Well ID:		MW-2														MW-3															
	Timeline:		Post-Remediation														Post-Remediation															
	Date:	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24	
NYSDEC TOGS 1.1.1		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result		
Surface Water		Groundwater																														
Acetone	50	50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Chloroethane	5.0	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	5.0	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.31	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethane	5.0	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethene	0.7	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1,1-Trichloroethane	5.0	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tetrachloroethene	0.7	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	5.0	5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vinyl Chloride	0.3	2.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	< ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Detected Parameters	Well ID:		MW-4														MW-7															
	Timeline:		Post-Remediation														Post-Remediation															
	Date:	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24	
NYSDEC TOGS 1.1.1		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result		
Surface Water		Groundwater																														
Acetone	50	50	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	7.90 B	< ND	< ND	< ND	< ND	< ND	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	5.4 B	< ND	< ND	< ND	< ND		
Chloroethane	5.0	5.0	< ND	5.62	6.22	2.12	11.0	12.0	< ND	9.60	6.00	6.40	4.40	0.90 J	< ND	1.1	.41 J	NS	NS	< ND	< ND	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	
cis-1,2-Dichloroethene	5.0	5.0	< ND	13.4	10.2	10.1	18.0	21.0	20.0	12.0	10.0	29.0	32.0	14.0	14.0	30.0	6.1	NS	NS	< ND	3.22	< ND	< ND	NS	2.90	2.80	3.00	3.50	3.10	3.30	3.00	2.90
1,1-Dichloroethane	5.0	5.0	100	85.5	84.6	62.7	79.0	68.0	100	38.0	30.0	57.0	77.0	34.0	25.0	63.0	43.0	NS	NS	< ND	1.53	< ND	< ND	NS	1.30 J	1.30 J	1.60	1.80	1.50	1.40	1.50	1.40
1,1-Dichloroethene	0.7	5.0	1.00	3.62	3.95	3.08	6.90	7.70	6.00	3.10	3.30	6.20	7.20	3.40	2.40	5.60	3.30	NS	NS	< ND	0.55	< ND	< ND	NS	0.56	0.62	ND	0.83 J	0.89 J	1.0	0.66 J	50 J
1,1,1-Trichloroethane	5.0	5.0	12.0	30.1	24.5	19.7	24.0	32.0	30.0	12.0	10.0	19.0	17.0	12.0	6.20	19.0	7.6	NS	NS	< ND	5.90	5.63	< ND	NS	4.50	4.40	4.40	4.50	4.10	4.40	3.90	3.30
Tetrachloroethene	0.7	5.0	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	0.46 J	0.68 J	0.33 J	0.33 J	ND	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND
Trichloroethene	5.0	5.0	4.00	14.1	6.22	6.75	< ND	< ND	6.40	5.30	4.30	2.50	2.2	4.30	3.30	3.50	2.20	NS	NS	< ND	6.90	7.55	6.90	7.10	NS	6.40	6.30	7.30	7.10	7.60	6.20	6.90
Vinyl Chloride	0.3	2.0	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	3.6	< ND	1.40	2.40	1.10	NS	NS	< ND	< ND	< ND	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND

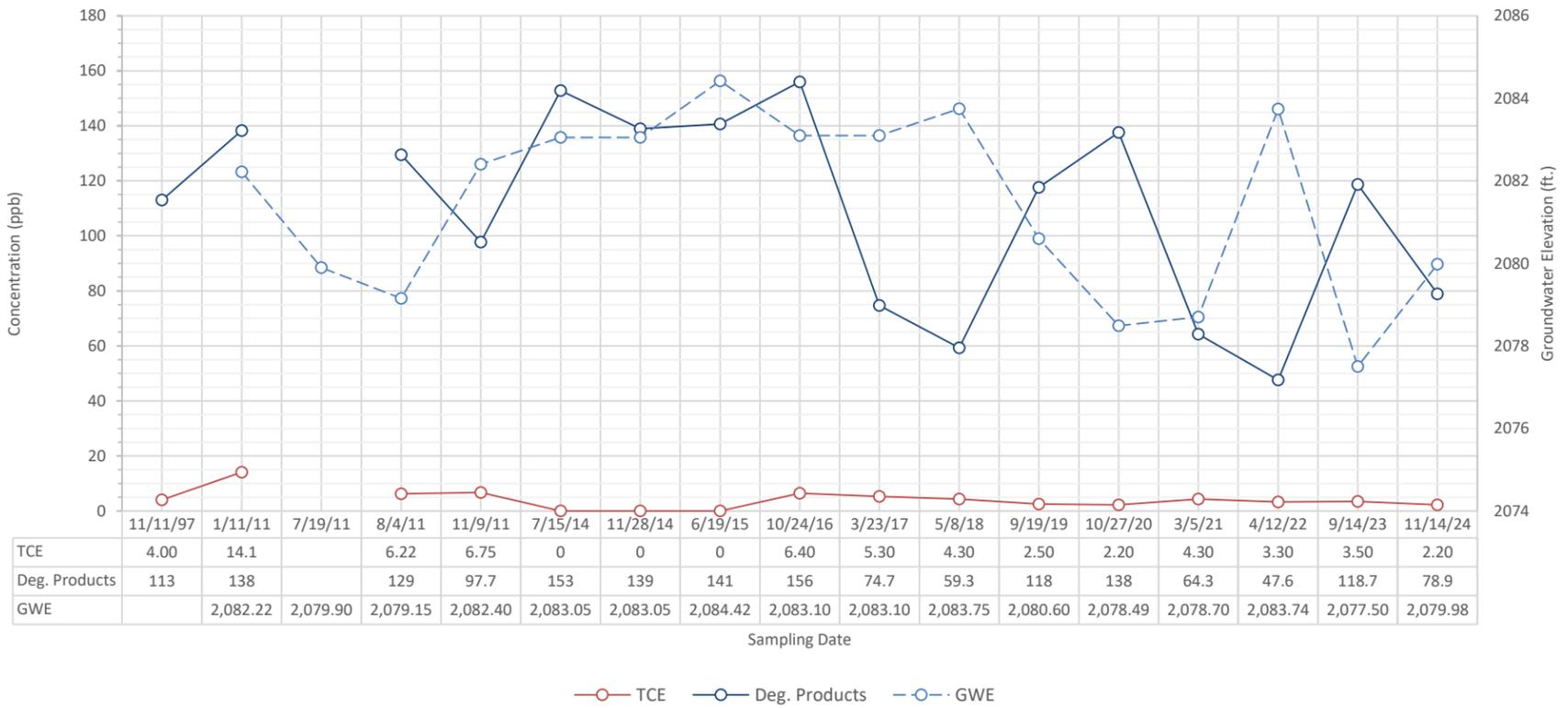
Detected Parameters	Well ID:		MW-8														MW-9														
	Timeline:		Post-Remediation														Post-Remediation														
	Date:	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24	Nov. 1997	Jan. 2011	7/19/11	11/9/11	11/28/14	6/19/15	10/24/16	3/23/17	5/8/18	9/19/19	10/27/20	3/25/21	4/12/22	9/14/23	11/14/24
NYSDEC TOGS 1.1.1		Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	
Surface Water		Groundwater																													
Acetone	50	50	NS	< ND	NS	51.5	NS	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS	8.18	NS	51.5	NS	NS	NS	NS	NS	NS	NS	NS
Chloroethane	5.0	5.0	NS	< ND	NS	< ND	NS	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	< ND	NS	NS	1.30	NS	0.96	NS	NS	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	5.0	5.0	NS	0.59	NS	0.53	NS	5.40	5.40	8.40	12.0	5.50	5.40	7.90	9.70	6.10	6.10	< ND	NS	0.59	NS	0.53	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethane	5.0	5.0	NS	3.48	NS	2.71	NS	5.60	6.00	7.60	8.40	4.70	5.30	7.00	7.50	4.70	5.20	2.00	NS	3.48	NS	2.71	NS	NS	NS	NS	NS	NS	NS	NS	NS
1,1-Dichloroethene	0.7	5.0	NS	< ND	NS	< ND	NS	< ND	0.72	1.30	< ND	0.47 J	0.56 J	0.92 J	0.30 J	.42 J	< ND	NS	< ND	NS	< ND	NS									

Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
VOC Result Trends

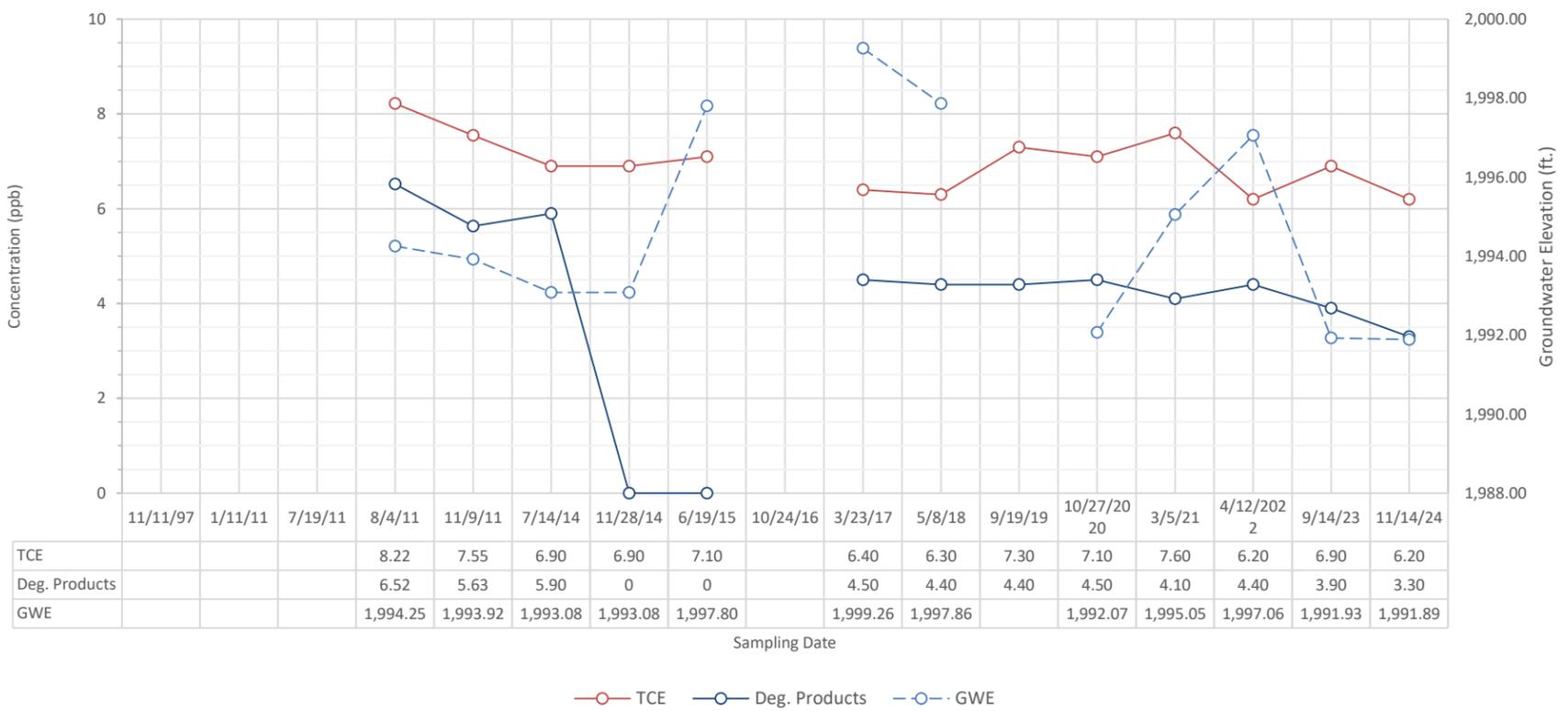
MW-03



MW-04

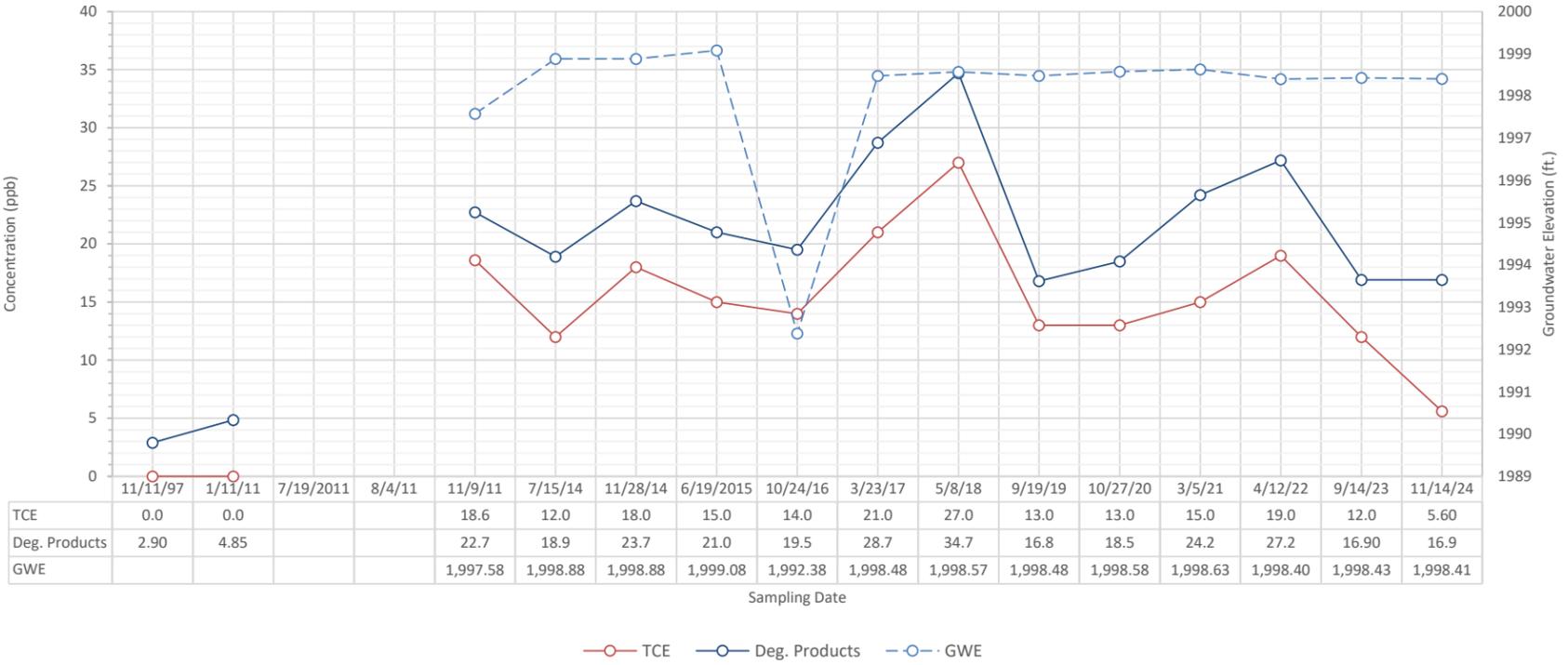


MW-07

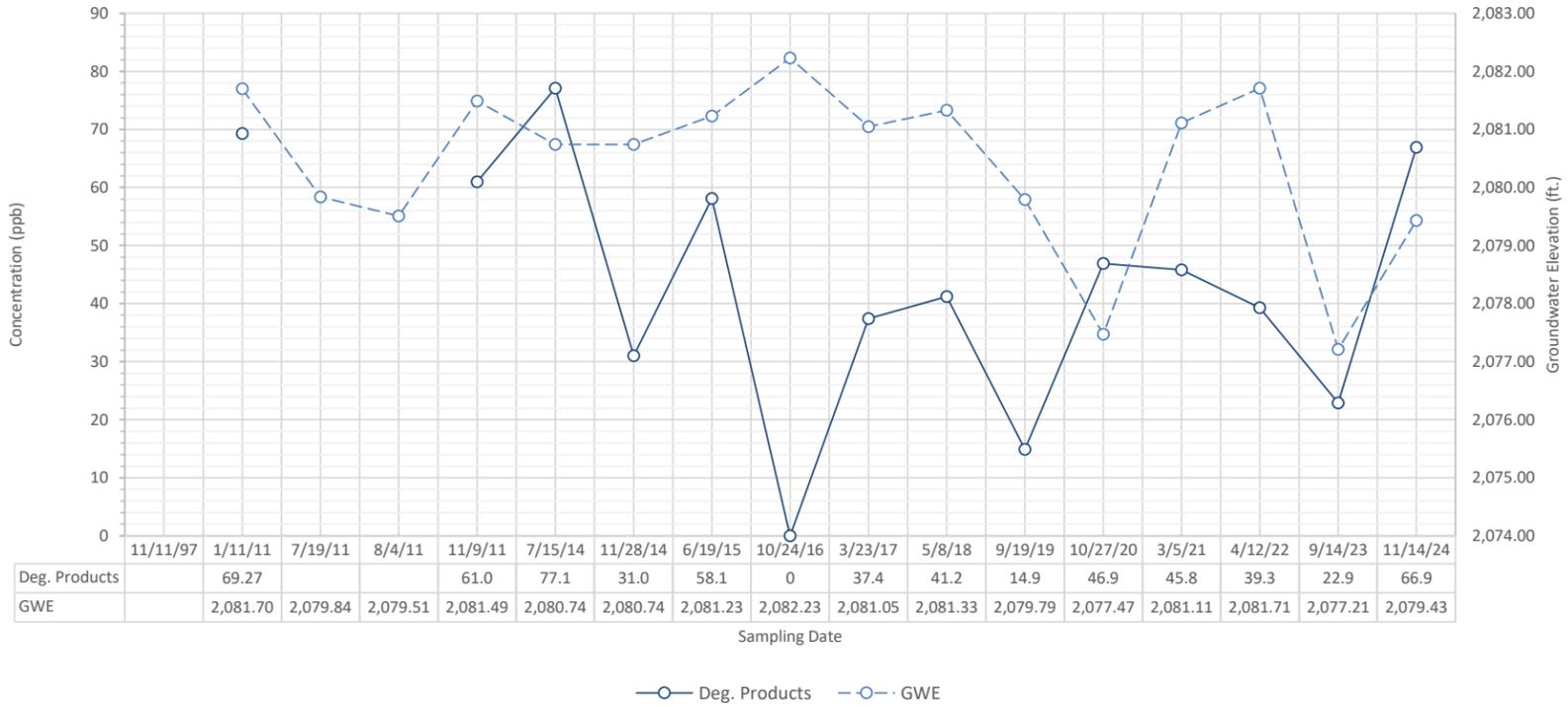


**Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
VOC Result Trends**

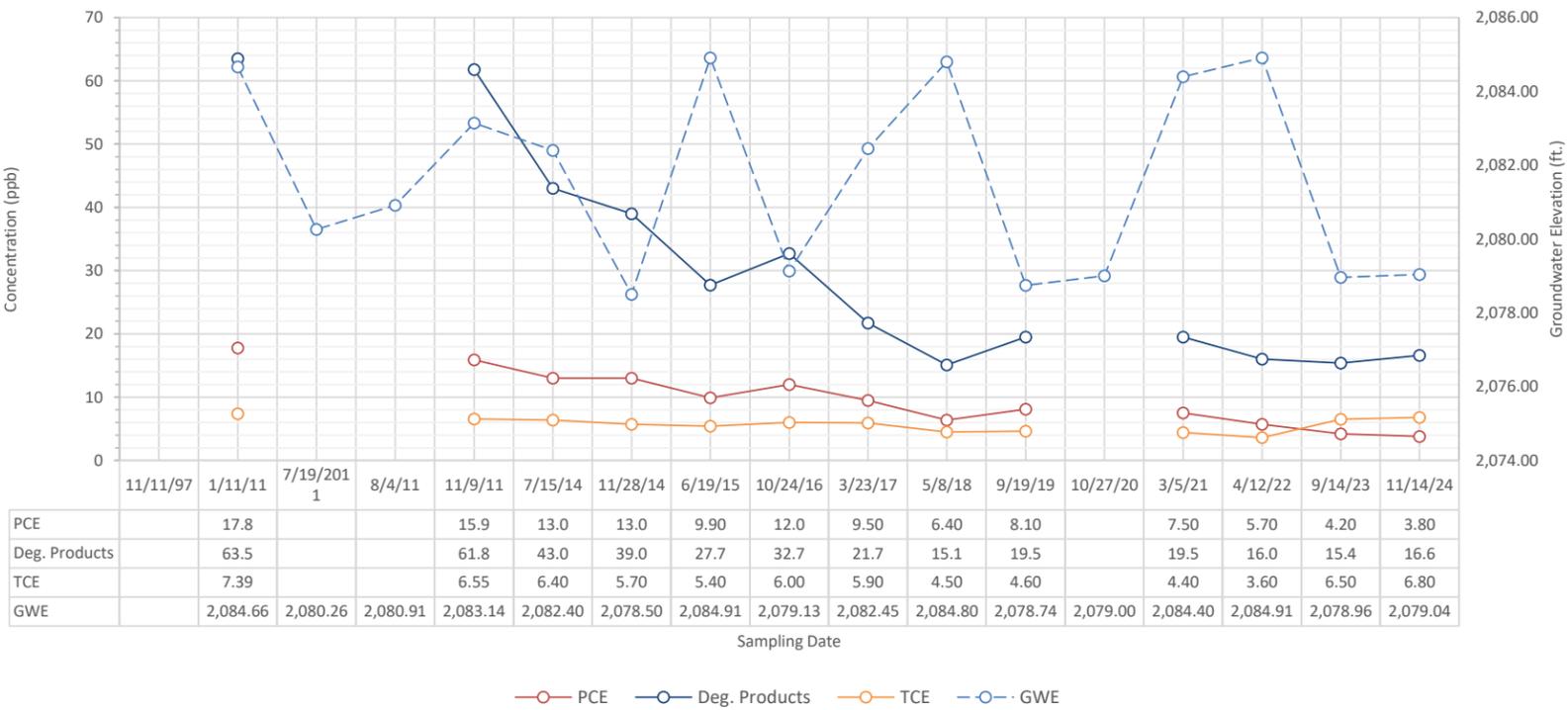
MW-08



MW-11

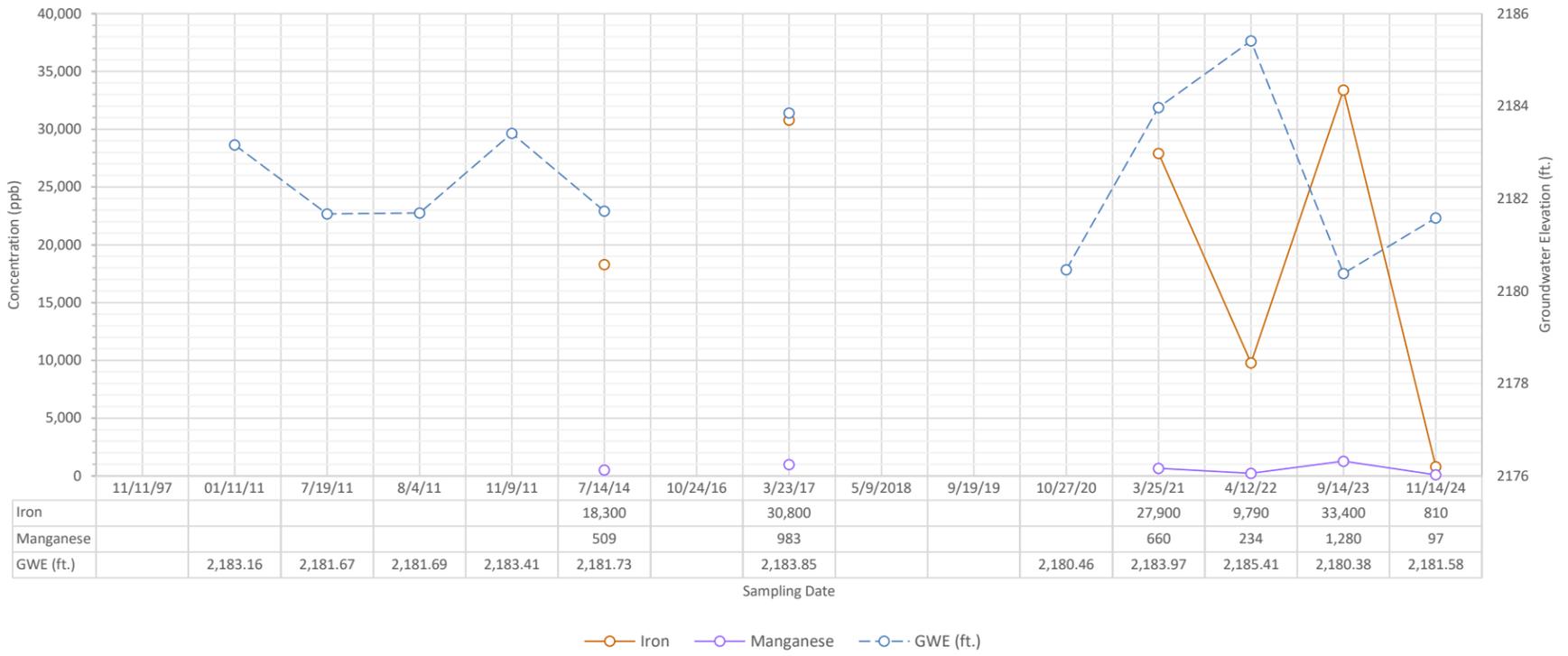


MW-13

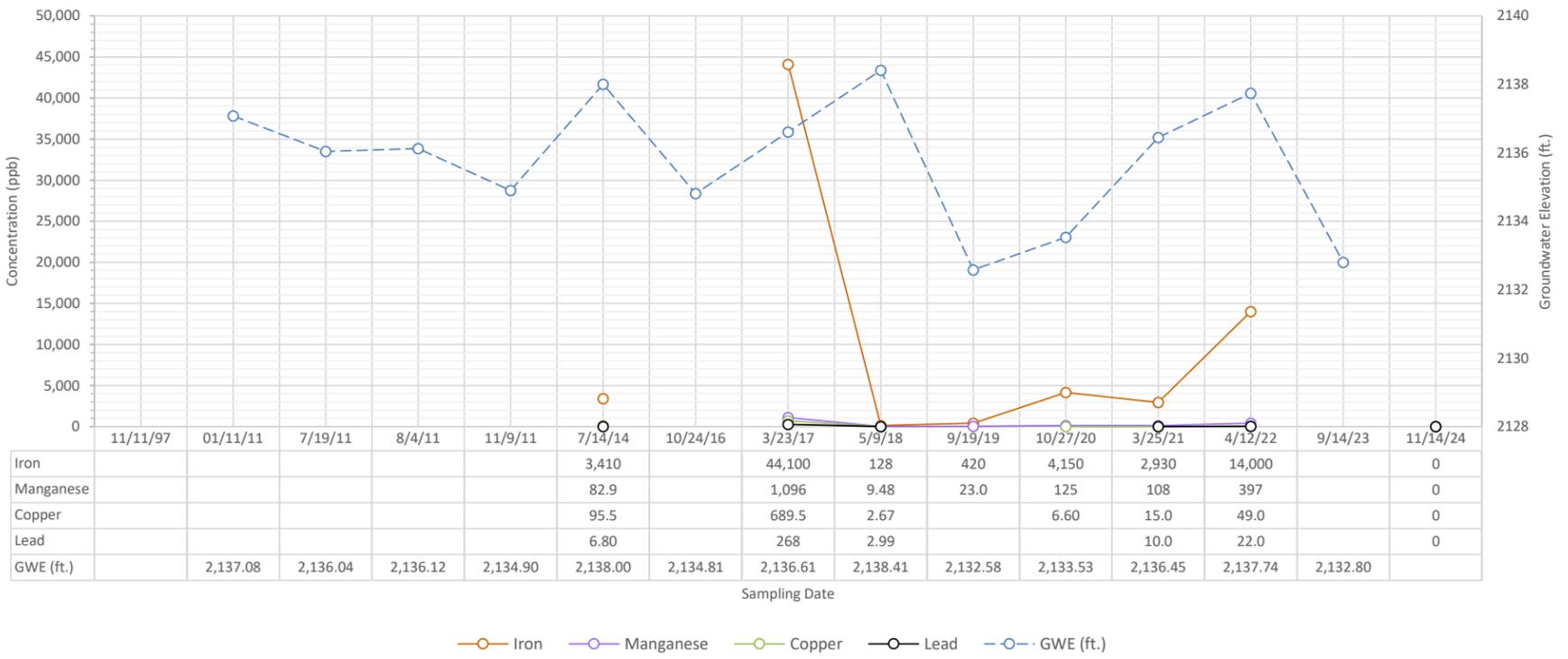


**Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Metals Result Trends**

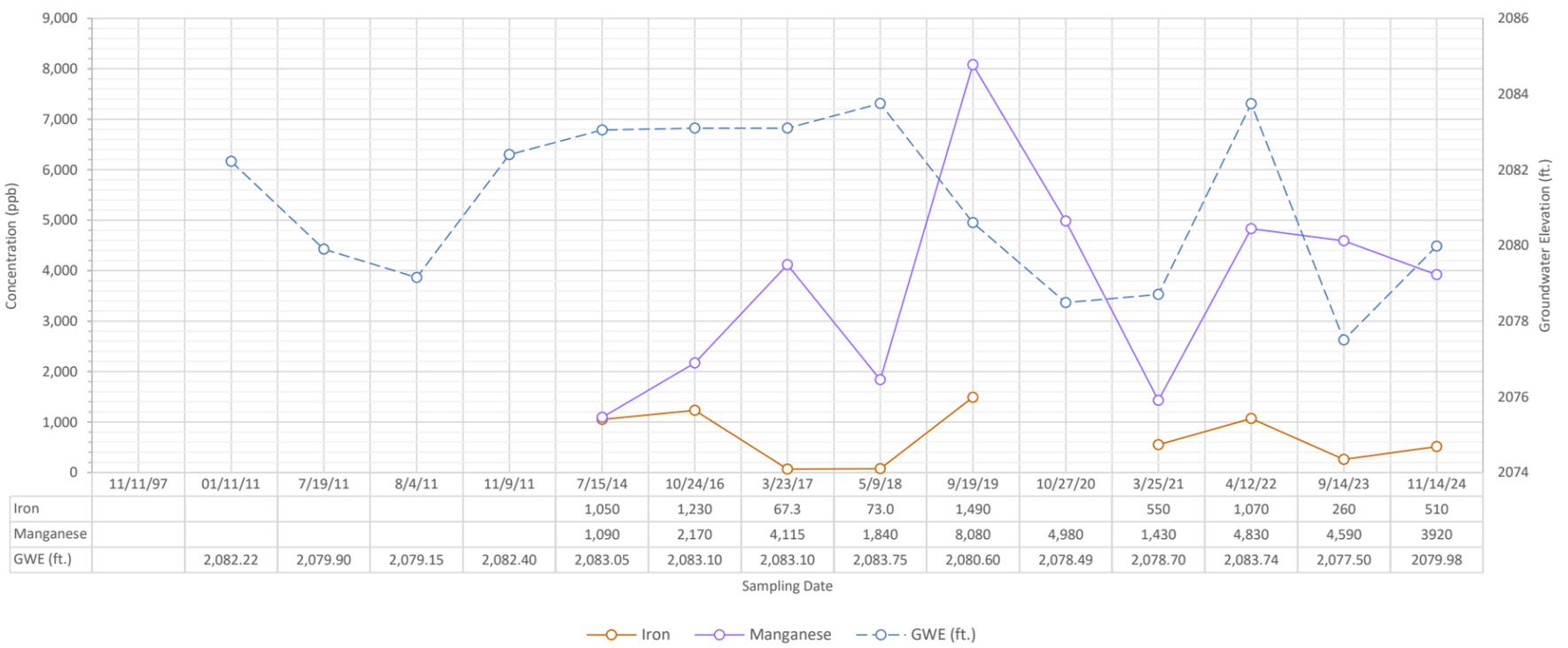
MW-1S



MW-1D

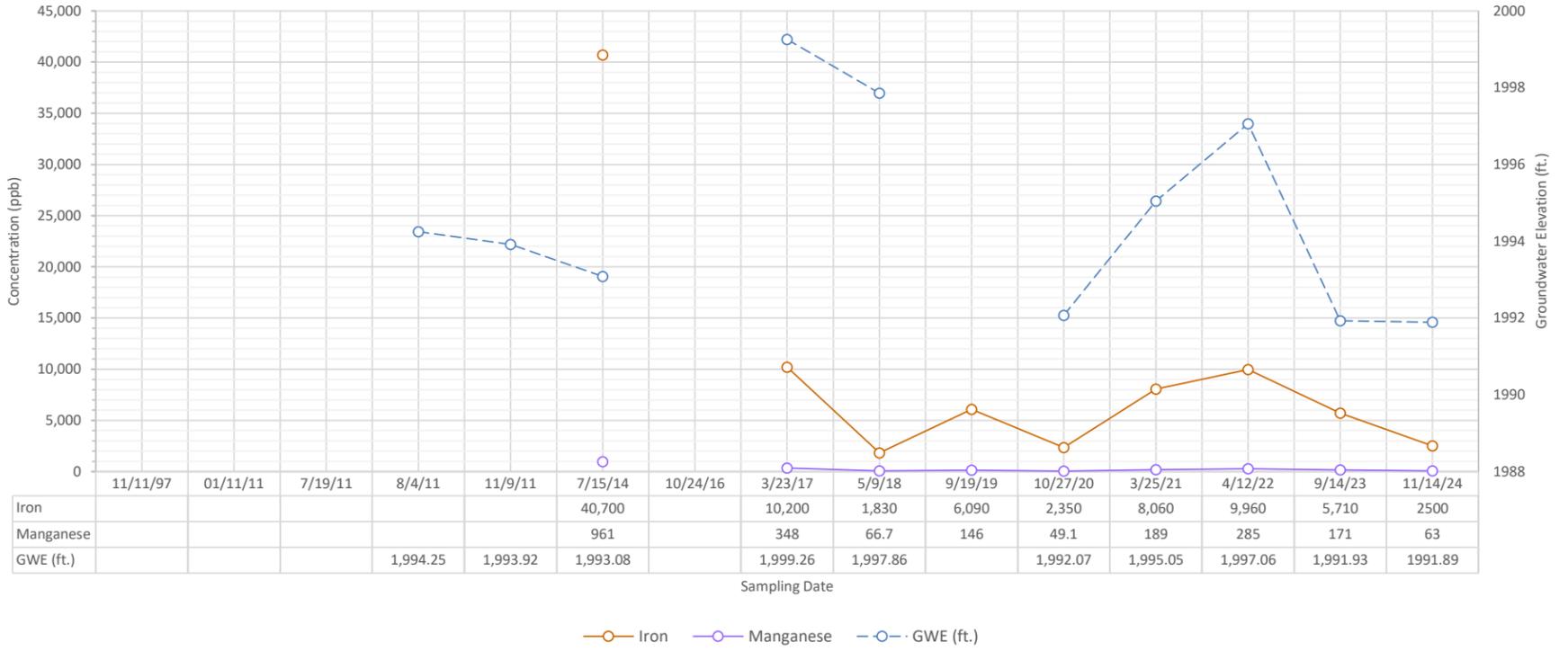


MW-4



**Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Metals Result Trends**

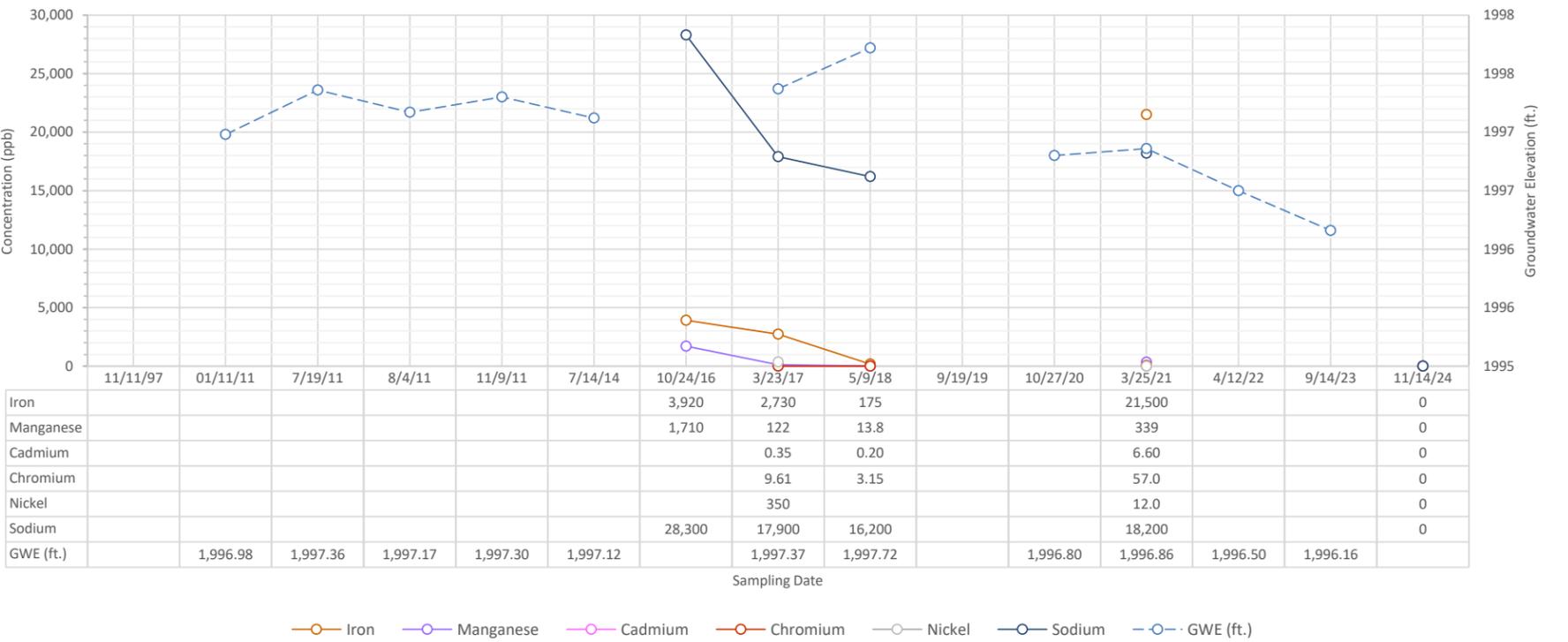
MW-7



MW-8

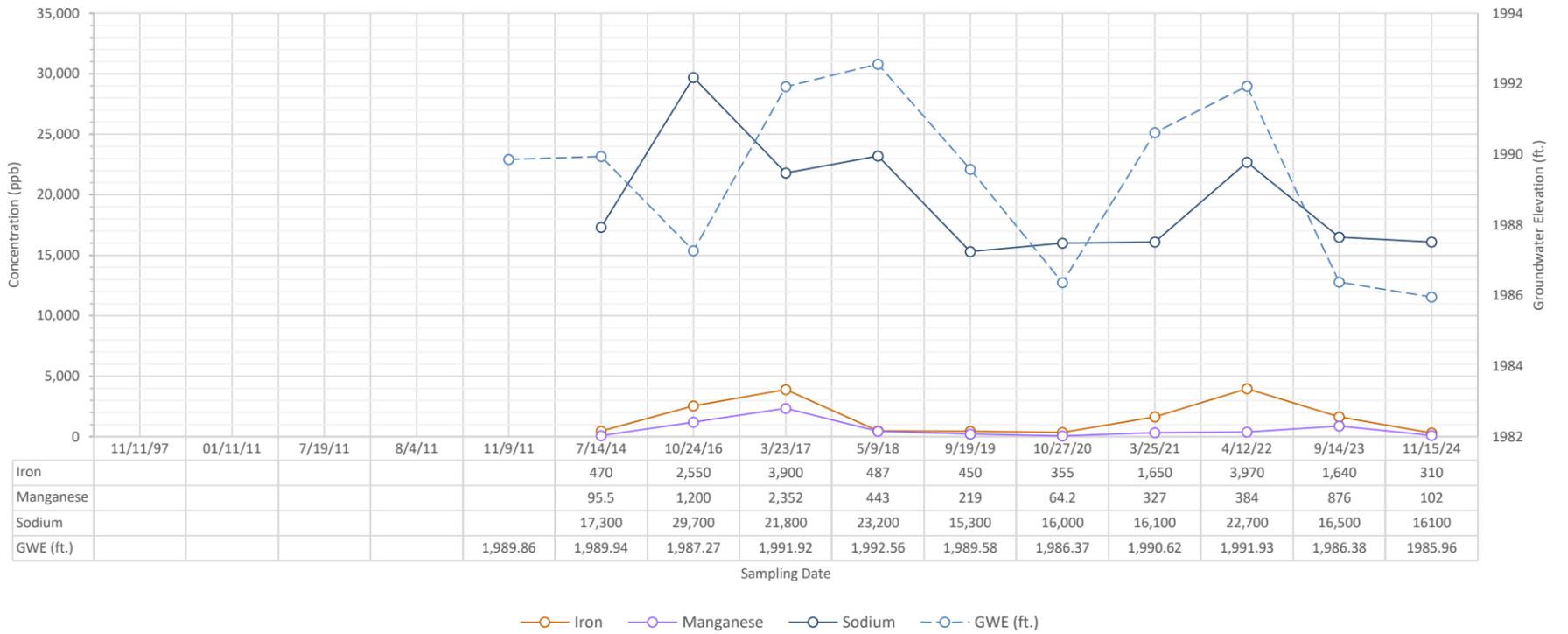


MW-10

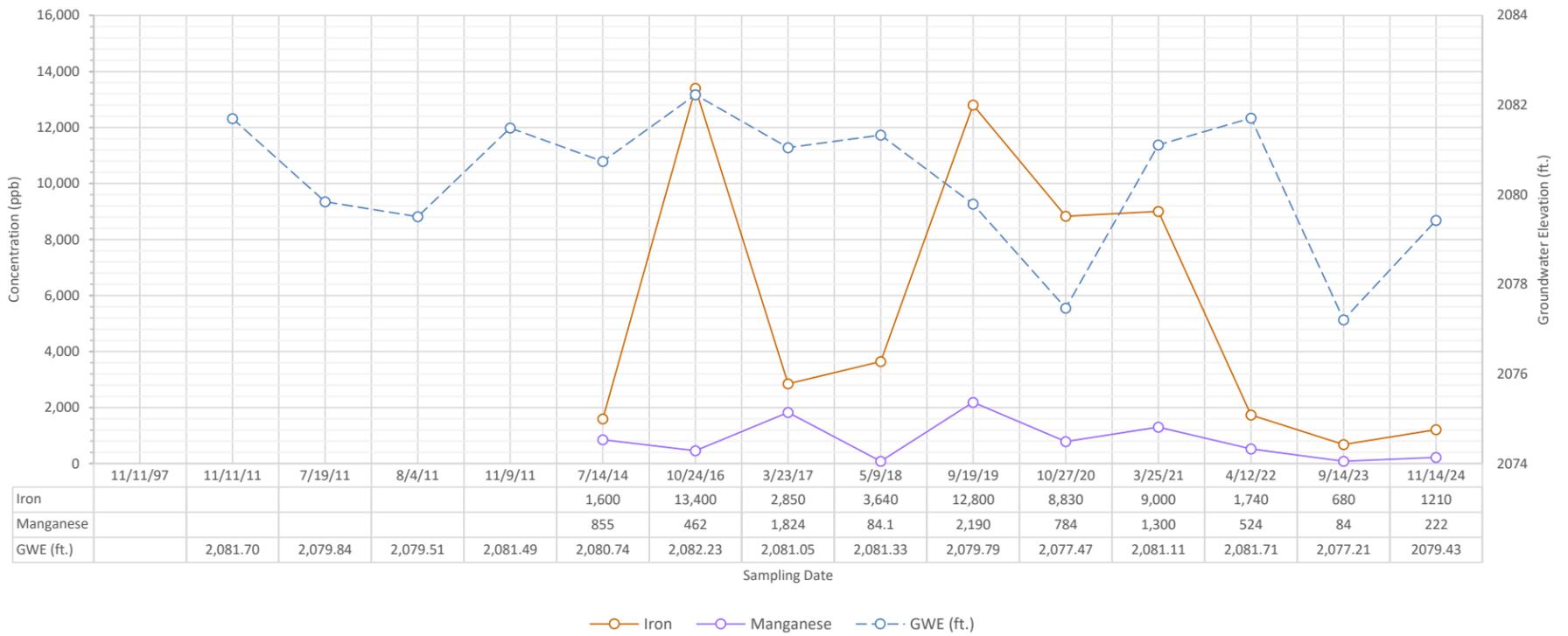


**Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Metals Result Trends**

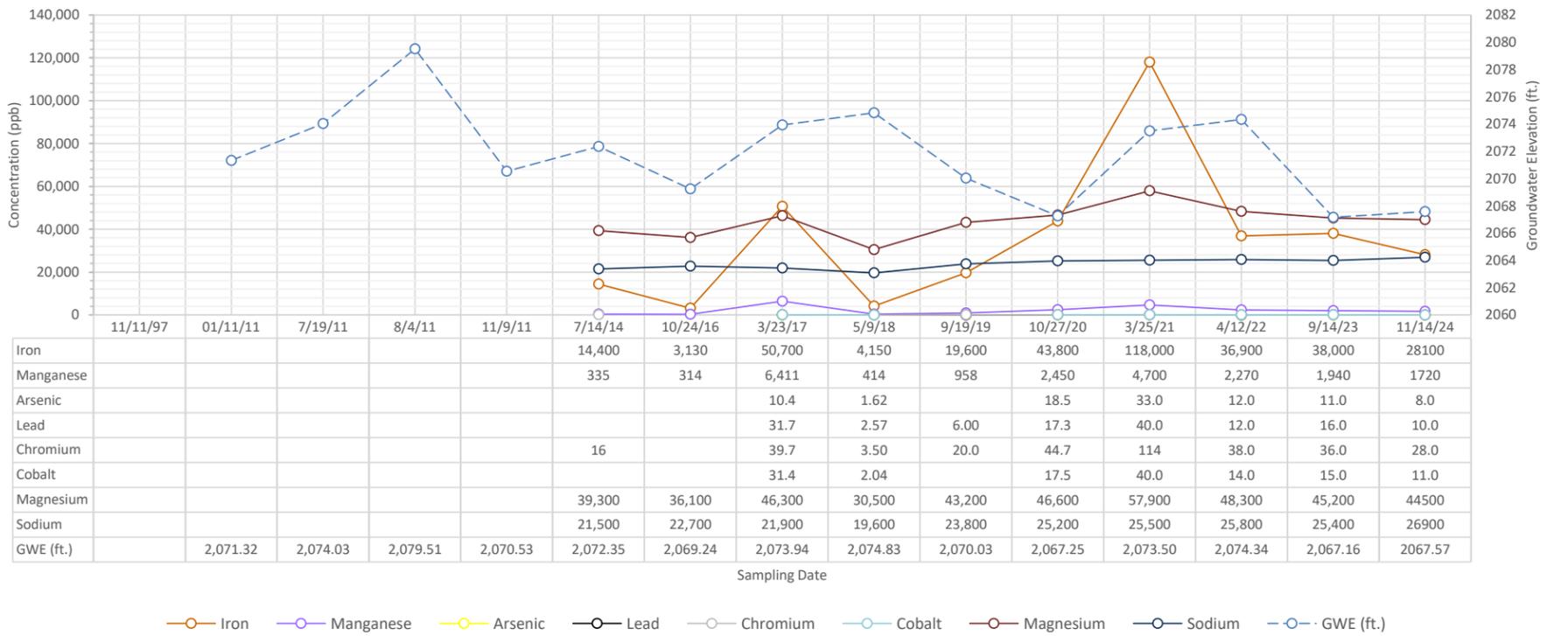
MW-10D



MW-11



MW-12



**Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2022-2023
Metals Result Trends**

MW-13



Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Groundwater Sample Analytical Results

Table 2-3: Emerging Contaminants Result Trends Detected Parameters:	Sample ID:	MW-11	MW-11	MW-11	MW-11				
	Sample Date:	8/7/2018	4/12/2022	9/14/2023	11/14/2024				
	Matrix:	Groundwater	Groundwater	Groundwater	Groundwater				
EPA 537 - Perfluorinated Compounds	NYSDEC PFAS Under Part 375 Groundwater Standard	Result	Q	Result	Q	Result	Q	Result	Q
Perfluorobutanesulfonic acid (PFBS)	10*	0.44	J	0.38	J	<	ND	<	ND
Perfluorohexanesulfonic acid (PFHxS)	10*	<	ND	1.10	J	<	ND	<	ND
Perfluoroheptanesulfonic acid (PFHpS)	10*	0.34	J	<	ND	<	ND	<	ND
Perfluorooctanesulfonic acid (PFOS)	2.7	25.0		7.60			25.0		14.0
Perfluorodecanesulfonic acid	10*	<	ND	<	ND	<	ND	<	ND
Perfluorobutanoic acid (PFBA)	10*	4.40		3.10	J	<	ND	<	ND
Perfluoropentanoic acid (PFPeA)	10*	2.50		1.10		<	ND		0.886
Perfluorohexanoic acid (PFHxA)	10*	1.90		1.20	J	<	ND		0.844
Perfluoroheptanoic acid (PFHpA)	10*	1.30	J	1.20	J	<	ND	<	ND
Perfluorooctanoic acid (PFOA)	6.7	8.20		4.30			9.30		5.45
Perfluorononanoic acid (PFNA)	10*	0.85	J	<	ND	<	ND	<	ND
Perfluorodecanoic acid (PFDA)	10*	<	ND	<	ND	<	ND	<	ND
Perfluoroundecanoic acid	10*	<	ND	<	ND	<	ND	<	ND
Perfluorododecanoic acid	10*	<	ND	<	ND	<	ND	<	ND
Perfluorotridecanoic acid	10*	<	ND	<	ND	<	ND	<	ND
Perfluorotetradecanoic acid	10*	<	ND	<	ND	<	ND	<	ND
6:2 Fluorotelomer sulfonate	10*	<	ND	<	ND	<	ND	<	ND
8:2 Fluorotelomer sulfonate	10*	<	ND	<	ND	<	ND	<	ND
Perfluorooctanesulfonate	10*	<	ND	<	ND	<	ND	<	ND
Perfluorooctane sulfonamide	10*	0.49	J	<	ND	<	ND	<	ND
N-methyl perfluorooctanesulfonamidoacetic acid	10*	<	ND	<	ND	<	ND	<	ND
N-ethyl perfluorooctanesulfonamidoacetic acid	10*	<	ND	<	ND	<	ND	<	ND
EPA 8270 - SIM-Semi-volatile Organics	NYSDEC Under Part 375	Result	Q	Result	Q	Result	Q	Result	Q
1,4-Dioxane	1.0 (ppb)	18.0	E	5.40			4.00		10.0

Notes:

- 1- Results presented in parts per trillion (ppt) unless otherwise indicated
- *- NYSDEC Guidance Value
- < : Results not detected above minimum laboratory quantitation limit
- 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.

Results exceed groundwater quality standard/guidance value

Cuba Municipal Waste Disposal Site (#902012)
Periodic Review Report 2024-2025
Groundwater Elevations Summary

Table 3-0 Groundwater Elevations: November 2024

Well ID	Casing Elevation	Depth to Water	Groundwater Elevation	Well Depth
MW-1S	2210.85	29.27	2181.58	32.31
MW-1D	2210.61	--	--	78.82
MW-2	2099.59	--	--	--
MW-3	2099.59	24.91	2074.68	25.04
MW-4	2103.60	23.62	2079.98	32.30
MW-7	2075.76	83.87	1991.89	99.95
MW-8	2071.58	73.17	1998.41	79.88
MW-9	2201.21	88.55	2112.66	88.59
MW-10	2051.47	--	--	55.40
MW-10D	2051.47	65.51	1985.96	84.43
MW-11	2103.68	24.25	2079.43	32.41
MW-12	2098.24	30.67	2067.57	40.19
MW-13	2106.95	27.91	2079.04	29.7

Notes

Results presented in feet

[IC/EC Compliance]

Cuba Municipal Waste Disposal Site (#902012)
 Periodic Review Report 2023-2024
 Institutional and Engineering Controls Compliance Summary

Table 4-0

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 intrusion 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.

Low Flow Groundwater Sampling Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-3 Field Sample ID MW-3 Sampling Event # __
 Activity Time _____ Sample Time _____ Date 11/14/24

SAMPLING NOTES

Initial Depth to Water DRY feet Measurement Point N Well Diameter 2"
 Final Depth to Water _____ feet Well Depth 24.9 feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged _____ 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 Estimate: _____ gallons

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: Well dry, NA
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	<u>3 x 40 ml</u>	
Metals	<u>1 x 125 ml</u>	

LOCATION NOTES

Well dry

Low Flow Groundwater Sampling Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-1d Field Sample ID MW-1d Sampling Event # __
 Activity Time _____ Sample Time _____ Date 11/14/24

SAMPLING NOTES

Initial Depth to Water DRY feet Measurement Point N Well Diameter 2"
 Final Depth to Water _____ feet Well Depth 78.82 feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged _____ 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 Estimate: _____ gallons

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: N/A
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	
Metals	1 x 125 ml	

LOCATION NOTES

DRY

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-1s Field Sample ID MW-1s Sampling Event # __
 Activity Time 12:10 Sample Time 12:15 Date 11/14/24

SAMPLING NOTES

Initial Depth to Water 29.27 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 32.31 feet Well Depth 32.31 feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged 1.5 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 Estimate: _____ gallons

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
12:15	32.31		8	7.13	7.95	3	.157	116.8	

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

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Well went dry

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-4 Field Sample ID MW-4 Sampling Event # __
 Activity Time 09:30 Sample Time 09:45 Date 11/14/24

SAMPLING NOTES

Initial Depth to Water 23.62 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 32.30 feet Well Depth 32.30 feet Well Integrity:
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged 2.75 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 Estimate: _____ gallons

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
09:36	27.38		7.7	5.89	3.03	-3.0	.287	131.9	1 gal.
09:41	30.05		8.0	5.88	2.62	-3.0	.291	136.1	2 gal.
09:45	32.30		7.7	5.93	3.26	-5.0	.313	140.8	2.75 gal.

Purge Observations: NO turbidity, NO odor, NO sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Well head broken latch
rusted off.

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-7 Field Sample ID MW-7 Sampling Event # __
 Activity Time 13:00 Sample Time 13:50 Date 11/14/24

SAMPLING NOTES

Initial Depth to Water 83.87 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 83.87 feet Well Depth 99.95 feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged 8 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 Estimate: _____ gallons

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
13:09	83.87		7.9	7.16	3.66	608	.426	128.7	2 GAL.
13:25	83.87		8.1	7.37	4.02	4	.432	126.5	4 GAL.
13:40	↓		8.1	7.40	4.28	9	.434	120.7	6 GAL.
13:45	↓		7.5	7.40	4.56	1	.435	116.5	8 GAL.

Purge Observations: Turbid for the first gallon, No odor, No Sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Cleared up about 4 GALLON purged.

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-8 Field Sample ID MW-8 Sampling Event # __
 Activity Time 10:50 Sample Time 11:10 Date 11/14/24

SAMPLING NOTES

Initial Depth to Water 73.17 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 79.88 feet Well Depth 79.88 feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged 1.5 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 Estimate: _____ gallons

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
11:03	77.91		6.7	6.85	9.01	8.0	.278	118.4	1 gal.

Purge Observations: No Turbidity, No odor, No Sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

well went dry at 1.5 gal

Low Flow Groundwater Sampling

Field Record

 Project Name Cuba Landfill Monitoring/Inspection

 Job # 50191-01

 Location ID MW-11

 Field Sample ID MW-11

 Sampling Event # __

 Activity Time 08:37

 Sample Time 08:55

 Date 11/14/24

SAMPLING NOTES

 Initial Depth to Water 24.25 feet

 Measurement Point N

 Well Diameter 2"

 Final Depth to Water 26.07 feet

 Well Depth 32.41 feet

Well Integrity:

Screen Length _____ feet

Pump Intake Depth _____

 Cap

 Total Volume Purged 3.0 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 Estimate: _____ gallons

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
8:50	26.07		7.7	5.49	2.06	16.9	.321	128.1	1 gal.

 Purge Observations: NO turbidity, NO odor, NO SHEEN

 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

 Type of Pump: HDPE Bailer

 Type of Tubing: N/A

 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we

 Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>
PFAS	2 x 250 ml	<input checked="" type="checkbox"/>
1,4 DIOXANE	2 x 250 ml	<input checked="" type="checkbox"/>
MS/MSD	3 x 40 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-13 Field Sample ID MW-13 Sampling Event # __
 Activity Time 10:15 Sample Time 10:20 Date 11/14/24

SAMPLING NOTES

Initial Depth to Water 27.91 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 29.70(DW) feet Well Depth 29.70 feet Well Integrity:
 Screen Length _____ feet Pump Intake Depth _____ Cap
 Total Volume Purged .5 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 Estimate: _____ gallons

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
10:15	29.70		7.8	6.72	8.25	1233	.412	136.6	.5 gal.

Purge Observations: Slightly turbid, no odor, NO sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Low Flow Groundwater Sampling Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID SW-1 Field Sample ID SW-1 Sampling Event #
 Activity Time 11:30 Sample Time 11:35 Date 11/15/24

SAMPLING NOTES

Initial Depth to Water _____ feet Measurement Point _____ Well Diameter _____
 Final Depth to Water _____ feet Well Depth _____ feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap _____
 Total Volume Purged _____ 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 Estimate: _____ gallons

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
1130			7.5	6.91	2.75	7.62	.415	97.6	

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

EQUIPMENT DOCUMENTATION

Type of Pump: Amber JRR
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	✓
Metals	1 x 125 ml	✓

LOCATION NOTES

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID 8354 JACKSON Hill Field Sample ID 8354 JACKSON Hill Sampling Event # __
 Activity Time 12:35 Sample Time 12:40 Date 11/15/24

SAMPLING NOTES

Initial Depth to Water _____ feet Measurement Point N Well Diameter _____
 Final Depth to Water _____ feet Well Depth _____ feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap _____
 Total Volume Purged _____ 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 Estimate: _____ gallons

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
<u>12:35</u>			<u>10.9</u>	<u>6.10</u>	<u>3.18</u>	<u>2.89</u>	<u>.251</u>	<u>117.3</u>	

Purge Observations: NO Turbidity, no odor, NO Sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: Amber Jarro
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-10D Field Sample ID MW-10D Sampling Event #
 Activity Time 10:00 Sample Time 10:15 Date 11/15/24

SAMPLING NOTES

Initial Depth to Water 65.51 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 65.09 feet Well Depth 84.43 feet Well Integrity:
 Screen Length feet Pump Intake Depth Cap
 Total Volume Purged 10 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 Estimate: gallons

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
10:07	65.09		8.3	8.16	3.22	-3.0	.416	94.8	2 GAL.
10:21	↓		8.4	7.65	4.09	12	.401	97.8	4 GAL.
10:28			8.5	7.57	2.51	16	.416	95.2	6 GAL.
10:38			8.6	7.54	2.85	17	.414	95.5	8 GAL.
10:45			8.6	7.51	2.44	88	.413	94.2	10 GAL.

Purge Observations: Slightly turbid, no odor, NO SHEEN
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: HDPE bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	<input checked="" type="checkbox"/>
Metals	1 x 125 ml	<input checked="" type="checkbox"/>

LOCATION NOTES

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID MW-12 Field Sample ID MW-12 Sampling Event #
 Activity Time 08:06 Sample Time 08:55 Date 11/15/24

SAMPLING NOTES

Initial Depth to Water 30.67 feet Measurement Point N Well Diameter 2"
 Final Depth to Water 39.10 feet Well Depth 40.19 feet Well Integrity:
 Screen Length feet Pump Intake Depth Cap ✓
 Total Volume Purged 4.5 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 Estimate: gallons

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
8:30	33.65		9.5	7.09	2.29	108	.652	89.9	1.5 GAL.
8:40	36.84		9.2	7.16	1.88	758	.675	88.1	3 GAL.
8:50	39.10		9.0	7.21	2.51	982	.681	90.8	4.5 GAL.

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

EQUIPMENT DOCUMENTATION

Type of Pump: HOPE Bailer
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	✓
Metals	1 x 125 ml	✓

LOCATION NOTES

Low Flow Groundwater Sampling

Field Record

 Project Name Cuba Landfill Monitoring/Inspection

 Job # 50191-01

 Location ID SW-3

 Field Sample ID SW-3

 Sampling Event # __

 Activity Time 11:50

 Sample Time 11:55

 Date 11/15/24

SAMPLING NOTES

Initial Depth to Water _____ feet Measurement Point _____ Well Diameter _____
 Final Depth to Water _____ feet Well Depth _____ feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap _____
 Total Volume Purged _____ 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 Estimate: _____ gallons

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
11:50			6.2	7.14	8.99	17.6	.099	91.7	

Purge Observations: NO Turbidity, NO odor, NO sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: Ambee Jar
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	✓
Metals	1 x 125 ml	✓

LOCATION NOTES

Low Flow Groundwater Sampling

Field Record

Project Name Cuba Landfill Monitoring/Inspection Job # 50191-01
 Location ID SW-4 Field Sample ID SW-4 Sampling Event # __
 Activity Time 12:15 Sample Time 12:20 Date 11/15/24

SAMPLING NOTES

Initial Depth to Water _____ feet Measurement Point _____ Well Diameter _____
 Final Depth to Water _____ feet Well Depth _____ feet Well Integrity: _____
 Screen Length _____ feet Pump Intake Depth _____ Cap _____
 Total Volume Purged _____ 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 Estimate: _____ gallons

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
12:15			6.2	6.74	8.18	24.7	.080	105.3	

Purge Observations: NO Turbidity, No odor, NO Sheen
 Purge Water Containerized: N/A

EQUIPMENT DOCUMENTATION

Type of Pump: Amber JAR
 Type of Tubing: N/A
 Type of Water Quality Meter: YSI Pro Plus; LaMotte 2020we Calibrated: Yes

ANALYTICAL PARAMETERS

Parameter	Volumes	Sample Collected
VOCs	3 x 40 ml	✓
Metals	1 x 125 ml	✓

LOCATION NOTES

ROAD CULVERT EXPOSED
DUE TO ROAD EROSION

Site Photographs

Cuba Municipal Waste Disposal Site #902012



Photo No. 1 Access Road looking west.



Photo No. 2 Access Road looking north.



Photo No. 3 View of the Site looking east.



Photo No. 4 Uplifted of MW-1S repaired.

Site Photographs

Cuba Municipal Waste Disposal Site #902012



Photo No. 5 View of exposed geotextile on top of landfill



Photo No. 6 Uplifted of MW-1D repaired.



Photo No. 7 Access Road Willow tree's condition.



Photo No. 8 Access Road culverts east of SW-1.

Grass visible emerging from geotextile above installed
Site capping system



Grass growing along western side of site



Overlooking landfill from southwest corner

Daily Photograph Log:



December 04, 2024

Service Request No:R2411790

Mr. Greg Andrus
LU Engineers
280 East Broad Street
Suite 170
Rochester, NY 14604

Laboratory Results for: Cuba LF

Dear Mr.Andrus,

Enclosed are the results of the sample(s) submitted to our laboratory November 15, 2024
For your reference, these analyses have been assigned our service request number **R2411790**.

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 7475. You may also contact me via email at Meghan.Pedro@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Meghan Pedro
Project Manager

CC: Michael Andrus

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 LF
Sample Matrix: Water

Service Request: R2411790
Date Received: 11/15/2024

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 level IV requested by the client.

Manual Integrations may have been used in the quantitation of the results in this report. Manual Integrations are readily identified in the raw data on the Quantitation Reports (Organics) by the automatic placement of an "m" next to the sample result. For Ion Chromatography, the manual integrations are identified by the automatic placement of "manipulated" or "manually integrated" in the upper left corner of the chromatogram (Hexavalent Chromium) or "M" by the result in the "Type" column (anions). The reason for the manual integration is noted on the "after" chromatogram, which is found with the original chromatogram and quantitation report. All integrations follow the lab SOP ADM-INT "Manual Integration."

Sample Receipt:

Fourteen water samples were received for analysis at ALS Environmental on 11/15/2024. 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.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Metals:

No significant anomalies were noted with this analysis.

Subcontracted Analytical Parameters:

No significant anomalies were noted with this analysis.

Volatiles by GC/MS:

Method 8260D, 11/25/2024: The upper control limit was exceeded for one or more analytes in the Continuing Calibration Verification (CCV). The field samples analyzed in this sequence did not contain the analyte(s) in question above the Method Reporting Limit (MRL). Since the exceedance equates to a potential high bias, the data quality was not significantly affected and no further corrective action was taken.

Method 8260D, 11/25/2024: 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) above the MRL 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 8260D, 11/26/2024: The upper control criterion was exceeded for one or more analytes in the Laboratory Control Sample (LCS). There were no detections of the analyte(s) above the MRL in the associated field samples. The error associated with elevated recovery equates to a high bias. The sample data is not significantly affected. No further corrective action was appropriate.

Approved by _____

Date 12/03/2024



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
Project: Cuba LF/50191-01

Service Request:R2411790

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
R2411790-001	MW-11	11/14/2024	0855
R2411790-002	MW-04	11/14/2024	0945
R2411790-003	MW-13	11/14/2024	1020
R2411790-004	MW-08	11/14/2024	1110
R2411790-005	MW-07	11/14/2024	1350
R2411790-006	MW-1S	11/14/2024	1215
R2411790-008	MW-12	11/15/2024	0855
R2411790-009	MW-10D	11/15/2024	0855
R2411790-010	SW-1	11/15/2024	0855
R2411790-011	SW-3	11/15/2024	0855
R2411790-012	SW-4	11/15/2024	0855
R2411790-013	8354 Jackson Hill	11/15/2024	0855
R2411790-014	Trip Blank	11/15/2024	0855



Chain of Custody / Analytical Request Form

081409

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 • +1 585 288 5380 • alsglobal.com

SR#: Page 1 of

Report To:		ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER				Preservative												12	0. None	
Company: LU Engineer		Project Name: Cuba				GW WW SW D S L NA	Number of Containers	MS/MSD?	GC/MS VOA - 8260 • 824 • 524 • TCLP	GC/MS SVOA - 8270 • 625 • TCLP	Pesticides - 8081 • 608 • TCLP	PCBs - 8082 • 608	Herbicides - 8151 • TCLP	Metals Total - Select-Below	Metals, Dissolved - Field / In-Lab Filter	TCL VOL	TAL METALS	PFAS	1,4 DIOXANE	1. HCl
Contact: MICHAEL ANDRUS / DEREK WHITEHEAD		Project Number: 50191-01																		2. HNO3
Email: MANDRUS@LUENGINEERS.COM / DWHITEHEAD@LUENGINEERS.COM		ALS Quote #:																		3. H2SO4
Phone: (585) 353-4312		Sample Signature: [Signature]																		4. NAOH
Address: 280 EAST BROAD ST Rochester NY 14604		Email CC: GREGANDRUS@LUENGINEERS.COM MANDRUS@LUENGINEERS.COM																		5. Zn Acet.
		State Samples Collected (Circle or Write): NY, MA, PA, CT, Other:				6. MeOH														
Lab ID (ALS)	Sample Collection Information:			Matrix	Number of Containers	MS/MSD?	GC/MS VOA - 8260 • 824 • 524 • TCLP	GC/MS SVOA - 8270 • 625 • TCLP	Pesticides - 8081 • 608 • TCLP	PCBs - 8082 • 608	Herbicides - 8151 • TCLP	Metals Total - Select-Below	Metals, Dissolved - Field / In-Lab Filter	TCL VOL	TAL METALS	PFAS	1,4 DIOXANE	7. NaHSO4		
	Sample ID:	Date	Time																8. Other	
	MW-11	11-14-24	0855	GN	14	X	X					X	X	X	X	X	X		Notes:	
	MW-04		0945	GN	4	X	X					X	X	X	X	X	X			
	MW-13		1020	GN	4	X	X					X	X	X	X	X	X			
	MW-08		1110	GN	4	X	X					X	X	X	X	X	X			
	MW-07		1350	GN	4	X	X					X	X	X	X	X	X			
	MW-1s		1215	GN	4	X	X					X	X	X	X	X	X			

Special Instructions / Comments:	Turnaround Requirements	Report Requirements	Metals: RCRA 8•PP 13•TAL 23•TCLP•Other (List)
	<input type="checkbox"/> Rush (Surcharges Apply)	<input type="checkbox"/> Tier II/Cat A - Results/QC	VOA/SVOA Report List: TCL • BTEX • TCLP • CP-51/Stars • THM • Other: _____
	Subject to Availability	<input checked="" type="checkbox"/> Tier IV/Cat B - Data	Invoice To: (<input type="checkbox"/> Same as Report To)
	Please check with your PM	Validation Report w/. Data	PO #:
<input checked="" type="checkbox"/> Standard (10 Business Days)	Date Required:	EDD: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Company:
		EDD Type:	Contact:

Relinquished By: [Signature]	Received By: [Signature]	Relinquished By:	Received By:	Relinquished By:	Received By:	Contact:
Signature: DEREK WHITEHEAD	Signature: Abbie Austin					Email:
Printed Name: DEREK WHITEHEAD	Printed Name: Abbie Austin					PO #:
Company: LU ENGINEER	Company: ALS					Company:
Date/Time: 11/15 1440	Date/Time: 11/15/24 1440					Page 6 of 105

R2411790 5
 LU Engineers
 Cuba LF



Chain of Custody / Analytical Request Form

081408

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 • +1 585 288 5380 • alsglobal.com

SR#: Page 2 of 2

Report To:		ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER				Preservative															
Company: LU ENGINEERS		Project Name: CUBA				Matrix	Number of Containers	MS/MSD?	GC/MS VOA - 8260 • 624 • 524 • TCLP	GC/MS SVOA - 8270 • 625 • TCLP	Pesticides - 8081 • 608 • TCLP	PCBs - 8082 • 608	Herbicides - 8151 • TCLP	Metals Total - Select Below	Metals, Dissolved - Field / In-Lab Filter	TCL VOCs	TAL METALS	PFAS	1,4 DIOXANE	0. None	
Contact: Michael Andrews		Project Number: 50191-01																		1. HCl	
Email: mandrews@luengineers.com		ALS Quote #:																		2. HNO3	
Phone: (585) 353-4312		Sampler's Signature: [Signature]																		3. H2SO4	
Address: 280 EAST BROAD ST SUITE 170 ROCHESTER N.Y. 14604		Email CC: mandrews@luengineers.com																		4. NaOH	
		Email CC: dwhitefield@luengineers.com				5. Zn Acet.															
		State Samples Collected (Circle or Write): NY, MA, PA, CT, Other:				6. MeOH															
Lab ID (ALS)	Sample Collection Information:																		7. NaHSO4		
	Sample ID:	Date	Time																	8. Other	
	MW-12	11-15-24	0855	GM 4			X						X		X	X					
	MW-10 D		1050	GM 7		X							X		X	X					
	SW-1		1135	GM 4									X		X	X					
	SW-3		1155	GM 4									X		X	X					
	SW-4		1220	GM 4									X		X	X					
	8354 JACKSON hill		1240	GM 4									X		X	X					
	TRIP BLANK																				
Special Instructions / Comments:						Turnaround Requirements			Report Requirements			Metals: RCRA 8•PP 13•TAL 23•TCLP•Other (List)									
						<input type="checkbox"/> Rush (Surcharges Apply) *Subject to Availability* *Please Check with your PM* <input checked="" type="checkbox"/> Standard (10 Business Days) Date Required:			<input type="checkbox"/> Tier II/Cat A - Results/QC <input checked="" type="checkbox"/> Tier IV/Cat B - Data Validation Report w/. Data EDD: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No EDD Type:			VOA/SVOA Report List: TCL • BTEX • TCLP • CP-51/Stars • THM • Other: _____ Invoice To: (<input type="checkbox"/> Same as Report To) PO #: Company:									
Signature	Relinquished By: [Signature]	Received By: [Signature]	Relinquished By:	Received By:	Relinquished By:	Received By:	Contact:														
Printed Name	Derek Whitefield	Albie Austin					Email:														
Company	LU ENGINEERS	ALS					Phone:														
Date/Time	11-15 1439	11/15/24 1439					Address:														



R2411790 5
 LU Engineers
 Cuba LF

Cooler Receipt and Preservation Check Form

Project/Client _____ Folder Number _____

Cooler received on 11/15/24 by: AA

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y <input checked="" type="radio"/> N
2	Custody papers properly completed (ink, signed)?	Y <input checked="" type="radio"/> N
3	Did all bottles arrive in good condition (unbroken)?	Y <input checked="" type="radio"/> N
4	Circle: <u>Wet Ice</u> Dry Ice Gel packs present?	Y <input checked="" type="radio"/> N

5a	Did VOA vials have sig* bubbles?	Y <input checked="" type="radio"/> NA
5b	Sig* bubbles: Alk? Y N <input checked="" type="radio"/> Sulfide? Y N <input checked="" type="radio"/>	
6	Where did the bottles originate?	<u>ALS/ROC</u> CLIENT
7	Soil VOA received as: Bulk Encore 5035set: NA	

8. Temperature Readings Date: 11/15/24 Time: 1442 ID: IR#12 IR#11 From: Temp Blank Sample Bottle

Temp (°C)	<u>1.4</u>						
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: SMO by AA on 11/15 at 1457
 5035 samples placed in storage location: _____ by _____ on _____ at _____ within 48 hours of sampling? Y N

Cooler Breakdown/Preservation Check**: Date: 11/18/24 Time: 1450 by: AA

- 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 N/A
- 13. Were dissolved metals filtered in the field? YES NO N/A
- 14. Air Samples: Cassettes / Tubes Intact Y / N with MS Y / N Canisters Pressurized Tedlar® Bags Inflated N/A

pH	Lot of test paper	Reagent	Preserved?		Lot Received	Exp	Sample ID Adjusted	Vol. Added	Lot Added	Final pH
			Yes	No						
≥12		NaOH				<u>3/26</u>				
≤2	<u>220322</u>	HNO ₃	✓		<u>24010872</u>	<u>10/11/24</u>				
≤2		H ₂ SO 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 ₂ S ₂ O ₃ (625, 608, CN), ascorbic (phenol).					
		Na ₂ S ₂ O ₃								
		ZnAcetate	-	-						
		HCl	**	**						

**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: 101424-2AES, 090224-16J, 081924-3AXH,
 Explain all Discrepancies/ Other Comments: 050922-2 ERB1

HPROD	BULK
HTR	FLDT
SUB	HGFB
ALS	LL3541

Labels secondary reviewed by: AA *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

- | | |
|---|--|
| <p>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.</p> <p>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/Aroclors).</p> <p>B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.</p> <p>E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.</p> <p>E Organics- Concentration has exceeded the calibration range for that specific analysis.</p> <p>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.</p> <p>* Indicates that a quality control parameter has exceeded laboratory limits. Under the “Notes” column of the Form I, this qualifier denotes analysis was performed out of Holding Time.</p> <p>H Analysis was performed out of hold time for tests that have an “immediate” hold time criteria.</p> <p># Spike was diluted out.</p> | <p>+ Correlation coefficient for MSA is <0.995.</p> <p>N Inorganics- Matrix spike recovery was outside laboratory limits.</p> <p>N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.</p> <p>S Concentration has been determined using Method of Standard Additions (MSA).</p> <p>W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.</p> <p>P Concentration >40% difference between the two GC columns.</p> <p>C Confirmed by GC/MS</p> <p>Q DoD reports: indicates a pesticide/Aroclor is not confirmed ($\geq 100\%$ Difference between two GC columns).</p> <p>X See Case Narrative for discussion.</p> <p>MRL Method Reporting Limit. Also known as:</p> <p>LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.</p> <p>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).</p> <p>LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.</p> <p>ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.</p> |
|---|--|

Rochester Lab ID # for State Accreditations¹



NELAP States
Florida ID # E87674
New Hampshire ID # 2941
New York ID # 10145
Pennsylvania ID# 68-786
Texas ID#T104704581
Virginia #460167

Non-NELAP States
Connecticut ID #PH0556
Delaware Approved
Maine ID #NY01587
North Carolina #36701
North Carolina #676
Rhode Island LAO00333

¹ Analyses were performed according to our laboratory’s 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. To verify NH accredited analytes, go to <https://www4.des.state.nh.us/CertifiedLabs/Certified-Method.aspx>.

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.

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: LU Engineers
Project: Cuba LF/50191-01

Service Request: R2411790

Sample Name: MW-11
Lab Code: R2411790-001
Sample Matrix: Water

Date Collected: 11/14/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D
8270E SIM

Extracted/Digested By

CDISTEFANO
ECASTROVINCI
KPROCOPIO

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST
KPROCOPIO

Sample Name: MW-04
Lab Code: R2411790-002
Sample Matrix: Water

Date Collected: 11/14/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

Sample Name: MW-13
Lab Code: R2411790-003
Sample Matrix: Water

Date Collected: 11/14/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

Sample Name: MW-08
Lab Code: R2411790-004
Sample Matrix: Water

Date Collected: 11/14/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: LU Engineers
Project: Cuba LF/50191-01

Service Request: R2411790

Sample Name: MW-07
Lab Code: R2411790-005
Sample Matrix: Water

Date Collected: 11/14/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

Sample Name: MW-1S
Lab Code: R2411790-006
Sample Matrix: Water

Date Collected: 11/14/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
FNAEGLER

Sample Name: MW-12
Lab Code: R2411790-008
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

Sample Name: MW-10D
Lab Code: R2411790-009
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: LU Engineers
Project: Cuba LF/50191-01

Service Request: R2411790

Sample Name: SW-1
Lab Code: R2411790-010
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

Sample Name: SW-3
Lab Code: R2411790-011
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
KRUEST

Sample Name: SW-4
Lab Code: R2411790-012
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
FNAEGLER

Sample Name: 8354 Jackson Hill
Lab Code: R2411790-013
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method

6010D
7470A
8260D

Extracted/Digested By

CDISTEFANO
ECASTROVINCI

Analyzed By

NMANSEN
ECASTROVINCI
FNAEGLER

ALS Group USA, Corp.
dba ALS Environmental

Analyst Summary report

Client: LU Engineers
Project: Cuba LF/50191-01

Service Request: R2411790

Sample Name: Trip Blank
Lab Code: R2411790-014
Sample Matrix: Water

Date Collected: 11/15/24
Date Received: 11/15/24

Analysis Method
8260D

Extracted/Digested By

Analyzed By
KRUEST



PREPARATION METHODS

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

INORGANIC

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	200.2
200.8	200.2
6010C or 6010D	3005A/3010A
6020A or 6020B	ILM05.3
9034 Sulfide Acid Soluble	9030B
SM 4500-CN-N-2016 Amenable and Residual Cyanide	SM 4500-CN-G and SM 4500-CN-B,C-2016
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C or 6010D	3050B
6020A or 6020B	3050B
6010C or 6010D TCLP (1311) extract	3005A/3010A
6010C or 6010D SPLP (1312) extract	3005A/3010A
7199	3060A
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.	

ORGANIC

Preparation Methods for Organic methods are listed in the header of the Results pages.

Regarding "Bulk/5035A":

For soil/solid samples submitted in soil jars for Volatiles analysis, the prep method is listed as "Bulk/5035A". The lab follows the closed-system EPA 5035A protocols once the sample is transferred to a sealed vial, but collection in bulk in soil jars does not follow the collection protocols listed in EPA 5035A. In accordance with the NYSDOH technical notice of October 2012, all results or reporting limits <200 ug/kg are to be considered estimated due to potential low bias.



Sample Results

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



Volatile Organic Compounds by GC/MS

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

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-11
Lab Code: R2411790-001

Service Request: R2411790
Date Collected: 11/14/24 08:55
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	6.9	1.0	0.20	1	11/25/24 14:39	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 14:39	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 14:39	
1,1-Dichloroethane (1,1-DCA)	37	1.0	0.20	1	11/25/24 14:39	
1,1-Dichloroethene (1,1-DCE)	2.5	1.0	0.20	1	11/25/24 14:39	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 14:39	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 14:39	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 14:39	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 14:39	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 14:39	
Acetone	5.0 U	5.0	5.0	1	11/25/24 14:39	
Benzene	1.0 U	1.0	0.20	1	11/25/24 14:39	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 14:39	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 14:39	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 14:39	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 14:39	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 14:39	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 14:39	
Chloroethane	0.46 J	1.0	0.23	1	11/25/24 14:39	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 14:39	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 14:39	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 14:39	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 14:39	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 14:39	
Styrene	1.0 U	1.0	0.20	1	11/25/24 14:39	
Tetrachloroethene (PCE)	2.8	1.0	0.21	1	11/25/24 14:39	
Toluene	1.0 U	1.0	0.20	1	11/25/24 14:39	
Trichloroethene (TCE)	5.1	1.0	0.20	1	11/25/24 14:39	
Vinyl Chloride	0.75 J	1.0	0.20	1	11/25/24 14:39	
cis-1,2-Dichloroethene	23	1.0	0.23	1	11/25/24 14:39	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 14:39	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 14:39	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 14:39	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 14:39	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 14:39	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-11
Lab Code: R2411790-001

Service Request: R2411790
Date Collected: 11/14/24 08:55
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	86	85 - 122	11/25/24 14:39	
Dibromofluoromethane	98	80 - 116	11/25/24 14:39	
Toluene-d8	100	87 - 121	11/25/24 14:39	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-04
Lab Code: R2411790-002

Service Request: R2411790
Date Collected: 11/14/24 09:45
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	7.6	1.0	0.20	1	11/25/24 15:02	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 15:02	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 15:02	
1,1-Dichloroethane (1,1-DCA)	43	1.0	0.20	1	11/25/24 15:02	
1,1-Dichloroethene (1,1-DCE)	3.3	1.0	0.20	1	11/25/24 15:02	
1,2-Dichloroethane	0.22 J	1.0	0.20	1	11/25/24 15:02	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 15:02	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 15:02	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 15:02	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 15:02	
Acetone	5.0 U	5.0	5.0	1	11/25/24 15:02	
Benzene	1.0 U	1.0	0.20	1	11/25/24 15:02	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 15:02	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 15:02	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 15:02	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 15:02	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 15:02	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 15:02	
Chloroethane	0.41 J	1.0	0.23	1	11/25/24 15:02	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 15:02	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 15:02	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 15:02	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 15:02	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 15:02	
Styrene	1.0 U	1.0	0.20	1	11/25/24 15:02	
Tetrachloroethene (PCE)	0.44 J	1.0	0.21	1	11/25/24 15:02	
Toluene	1.0 U	1.0	0.20	1	11/25/24 15:02	
Trichloroethene (TCE)	2.2	1.0	0.20	1	11/25/24 15:02	
Vinyl Chloride	1.1	1.0	0.20	1	11/25/24 15:02	
cis-1,2-Dichloroethene	25	1.0	0.23	1	11/25/24 15:02	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 15:02	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 15:02	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 15:02	
trans-1,2-Dichloroethene	0.24 J	1.0	0.20	1	11/25/24 15:02	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 15:02	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/14/24 09:45
Date Received: 11/15/24 14:40

Sample Name: MW-04
Lab Code: R2411790-002

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	85	85 - 122	11/25/24 15:02	
Dibromofluoromethane	97	80 - 116	11/25/24 15:02	
Toluene-d8	98	87 - 121	11/25/24 15:02	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-13
Lab Code: R2411790-003

Service Request: R2411790
Date Collected: 11/14/24 10:20
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	4.6	1.0	0.20	1	11/25/24 15:25	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 15:25	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 15:25	
1,1-Dichloroethane (1,1-DCA)	5.9	1.0	0.20	1	11/25/24 15:25	
1,1-Dichloroethene (1,1-DCE)	0.47 J	1.0	0.20	1	11/25/24 15:25	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 15:25	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 15:25	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 15:25	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 15:25	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 15:25	
Acetone	5.0 U	5.0	5.0	1	11/25/24 15:25	
Benzene	1.0 U	1.0	0.20	1	11/25/24 15:25	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 15:25	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 15:25	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 15:25	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 15:25	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 15:25	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 15:25	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 15:25	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 15:25	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 15:25	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 15:25	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 15:25	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 15:25	
Styrene	1.0 U	1.0	0.20	1	11/25/24 15:25	
Tetrachloroethene (PCE)	3.8	1.0	0.21	1	11/25/24 15:25	
Toluene	1.0 U	1.0	0.20	1	11/25/24 15:25	
Trichloroethene (TCE)	6.8	1.0	0.20	1	11/25/24 15:25	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 15:25	
cis-1,2-Dichloroethene	6.1	1.0	0.23	1	11/25/24 15:25	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 15:25	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 15:25	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 15:25	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 15:25	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 15:25	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/14/24 10:20
Date Received: 11/15/24 14:40

Sample Name: MW-13
Lab Code: R2411790-003

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	85 - 122	11/25/24 15:25	
Dibromofluoromethane	97	80 - 116	11/25/24 15:25	
Toluene-d8	100	87 - 121	11/25/24 15:25	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-08
Lab Code: R2411790-004

Service Request: R2411790
Date Collected: 11/14/24 11:10
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	5.6	1.0	0.20	1	11/25/24 15:48	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 15:48	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 15:48	
1,1-Dichloroethane (1,1-DCA)	5.2	1.0	0.20	1	11/25/24 15:48	
1,1-Dichloroethene (1,1-DCE)	0.42 J	1.0	0.20	1	11/25/24 15:48	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 15:48	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 15:48	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 15:48	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 15:48	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 15:48	
Acetone	5.0 U	5.0	5.0	1	11/25/24 15:48	
Benzene	1.0 U	1.0	0.20	1	11/25/24 15:48	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 15:48	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 15:48	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 15:48	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 15:48	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 15:48	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 15:48	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 15:48	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 15:48	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 15:48	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 15:48	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 15:48	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 15:48	
Styrene	1.0 U	1.0	0.20	1	11/25/24 15:48	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 15:48	
Toluene	1.0 U	1.0	0.20	1	11/25/24 15:48	
Trichloroethene (TCE)	11	1.0	0.20	1	11/25/24 15:48	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 15:48	
cis-1,2-Dichloroethene	6.1	1.0	0.23	1	11/25/24 15:48	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 15:48	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 15:48	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 15:48	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 15:48	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 15:48	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-08
Lab Code: R2411790-004

Service Request: R2411790
Date Collected: 11/14/24 11:10
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	85 - 122	11/25/24 15:48	
Dibromofluoromethane	98	80 - 116	11/25/24 15:48	
Toluene-d8	102	87 - 121	11/25/24 15:48	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-07
Lab Code: R2411790-005

Service Request: R2411790
Date Collected: 11/14/24 13:50
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	3.3	1.0	0.20	1	11/25/24 16:11	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 16:11	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 16:11	
1,1-Dichloroethane (1,1-DCA)	1.4	1.0	0.20	1	11/25/24 16:11	
1,1-Dichloroethene (1,1-DCE)	0.50 J	1.0	0.20	1	11/25/24 16:11	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 16:11	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 16:11	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 16:11	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 16:11	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 16:11	
Acetone	5.0 U	5.0	5.0	1	11/25/24 16:11	
Benzene	1.0 U	1.0	0.20	1	11/25/24 16:11	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 16:11	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 16:11	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 16:11	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 16:11	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 16:11	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 16:11	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 16:11	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 16:11	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 16:11	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 16:11	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 16:11	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 16:11	
Styrene	1.0 U	1.0	0.20	1	11/25/24 16:11	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 16:11	
Toluene	1.0 U	1.0	0.20	1	11/25/24 16:11	
Trichloroethene (TCE)	6.2	1.0	0.20	1	11/25/24 16:11	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 16:11	
cis-1,2-Dichloroethene	2.9	1.0	0.23	1	11/25/24 16:11	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 16:11	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 16:11	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 16:11	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 16:11	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 16:11	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-07
Lab Code: R2411790-005

Service Request: R2411790
Date Collected: 11/14/24 13:50
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85 - 122	11/25/24 16:11	
Dibromofluoromethane	97	80 - 116	11/25/24 16:11	
Toluene-d8	102	87 - 121	11/25/24 16:11	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-1S
Lab Code: R2411790-006

Service Request: R2411790
Date Collected: 11/14/24 12:15
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/26/24 13:31	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/26/24 13:31	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/26/24 13:31	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/26/24 13:31	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/26/24 13:31	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/26/24 13:31	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/26/24 13:31	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/26/24 13:31	
2-Hexanone	5.0 U	5.0	0.20	1	11/26/24 13:31	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/26/24 13:31	
Acetone	5.0 U	5.0	5.0	1	11/26/24 13:31	
Benzene	1.0 U	1.0	0.20	1	11/26/24 13:31	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/26/24 13:31	
Bromoform	1.0 U	1.0	0.25	1	11/26/24 13:31	
Bromomethane	1.0 U	1.0	0.70	1	11/26/24 13:31	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/26/24 13:31	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/26/24 13:31	
Chlorobenzene	1.0 U	1.0	0.20	1	11/26/24 13:31	
Chloroethane	1.0 U	1.0	0.23	1	11/26/24 13:31	
Chloroform	1.0 U	1.0	0.51	1	11/26/24 13:31	
Chloromethane	1.0 U	1.0	0.80	1	11/26/24 13:31	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/26/24 13:31	
Dichloromethane	1.0 U	1.0	0.65	1	11/26/24 13:31	
Ethylbenzene	1.0 U	1.0	0.20	1	11/26/24 13:31	
Styrene	1.0 U	1.0	0.20	1	11/26/24 13:31	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/26/24 13:31	
Toluene	1.0 U	1.0	0.20	1	11/26/24 13:31	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/26/24 13:31	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/26/24 13:31	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/26/24 13:31	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/26/24 13:31	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/26/24 13:31	
o-Xylene	1.0 U	1.0	0.20	1	11/26/24 13:31	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/26/24 13:31	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/26/24 13:31	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/14/24 12:15
Date Received: 11/15/24 14:40

Sample Name: MW-1S
Lab Code: R2411790-006

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	91	85 - 122	11/26/24 13:31	
Dibromofluoromethane	91	80 - 116	11/26/24 13:31	
Toluene-d8	98	87 - 121	11/26/24 13:31	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-12
Lab Code: R2411790-008

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	0.20 J	1.0	0.20	1	11/25/24 16:57	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 16:57	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 16:57	
1,1-Dichloroethane (1,1-DCA)	0.29 J	1.0	0.20	1	11/25/24 16:57	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/25/24 16:57	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 16:57	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 16:57	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 16:57	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 16:57	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 16:57	
Acetone	5.0 U	5.0	5.0	1	11/25/24 16:57	
Benzene	1.0 U	1.0	0.20	1	11/25/24 16:57	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 16:57	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 16:57	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 16:57	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 16:57	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 16:57	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 16:57	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 16:57	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 16:57	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 16:57	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 16:57	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 16:57	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 16:57	
Styrene	1.0 U	1.0	0.20	1	11/25/24 16:57	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 16:57	
Toluene	1.0 U	1.0	0.20	1	11/25/24 16:57	
Trichloroethene (TCE)	0.31 J	1.0	0.20	1	11/25/24 16:57	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 16:57	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/25/24 16:57	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 16:57	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 16:57	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 16:57	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 16:57	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 16:57	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-12
Lab Code: R2411790-008

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	85 - 122	11/25/24 16:57	
Dibromofluoromethane	94	80 - 116	11/25/24 16:57	
Toluene-d8	99	87 - 121	11/25/24 16:57	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: MW-10D
Lab Code: R2411790-009

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.3	1.0	0.20	1	11/25/24 18:52	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 18:52	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 18:52	
1,1-Dichloroethane (1,1-DCA)	0.65 J	1.0	0.20	1	11/25/24 18:52	
1,1-Dichloroethene (1,1-DCE)	0.22 J	1.0	0.20	1	11/25/24 18:52	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 18:52	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 18:52	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 18:52	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 18:52	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 18:52	
Acetone	6.7	5.0	5.0	1	11/25/24 18:52	
Benzene	1.0 U	1.0	0.20	1	11/25/24 18:52	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 18:52	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 18:52	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 18:52	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 18:52	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 18:52	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 18:52	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 18:52	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 18:52	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 18:52	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 18:52	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 18:52	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 18:52	
Styrene	1.0 U	1.0	0.20	1	11/25/24 18:52	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 18:52	
Toluene	1.0 U	1.0	0.20	1	11/25/24 18:52	
Trichloroethene (TCE)	0.73 J	1.0	0.20	1	11/25/24 18:52	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 18:52	
cis-1,2-Dichloroethene	0.74 J	1.0	0.23	1	11/25/24 18:52	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 18:52	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 18:52	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 18:52	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 18:52	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 18:52	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Sample Name: MW-10D
Lab Code: R2411790-009

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	90	85 - 122	11/25/24 18:52	
Dibromofluoromethane	95	80 - 116	11/25/24 18:52	
Toluene-d8	100	87 - 121	11/25/24 18:52	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: SW-1
Lab Code: R2411790-010

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/25/24 17:20	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 17:20	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 17:20	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/25/24 17:20	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/25/24 17:20	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 17:20	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 17:20	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 17:20	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 17:20	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 17:20	
Acetone	5.0 U	5.0	5.0	1	11/25/24 17:20	
Benzene	1.0 U	1.0	0.20	1	11/25/24 17:20	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 17:20	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 17:20	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 17:20	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 17:20	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 17:20	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 17:20	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 17:20	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 17:20	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 17:20	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 17:20	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 17:20	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 17:20	
Styrene	1.0 U	1.0	0.20	1	11/25/24 17:20	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 17:20	
Toluene	1.0 U	1.0	0.20	1	11/25/24 17:20	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/25/24 17:20	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 17:20	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/25/24 17:20	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 17:20	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 17:20	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 17:20	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 17:20	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 17:20	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Sample Name: SW-1
Lab Code: R2411790-010

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	86	85 - 122	11/25/24 17:20	
Dibromofluoromethane	94	80 - 116	11/25/24 17:20	
Toluene-d8	98	87 - 121	11/25/24 17:20	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: SW-3
Lab Code: R2411790-011

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/25/24 17:43	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 17:43	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 17:43	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/25/24 17:43	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/25/24 17:43	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 17:43	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 17:43	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 17:43	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 17:43	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 17:43	
Acetone	5.0 U	5.0	5.0	1	11/25/24 17:43	
Benzene	1.0 U	1.0	0.20	1	11/25/24 17:43	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 17:43	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 17:43	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 17:43	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 17:43	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 17:43	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 17:43	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 17:43	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 17:43	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 17:43	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 17:43	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 17:43	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 17:43	
Styrene	1.0 U	1.0	0.20	1	11/25/24 17:43	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 17:43	
Toluene	1.0 U	1.0	0.20	1	11/25/24 17:43	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/25/24 17:43	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 17:43	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/25/24 17:43	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 17:43	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 17:43	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 17:43	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 17:43	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 17:43	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Sample Name: SW-3
Lab Code: R2411790-011

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	88	85 - 122	11/25/24 17:43	
Dibromofluoromethane	91	80 - 116	11/25/24 17:43	
Toluene-d8	98	87 - 121	11/25/24 17:43	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Sample Name: SW-4
Lab Code: R2411790-012

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/26/24 13:54	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/26/24 13:54	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/26/24 13:54	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/26/24 13:54	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/26/24 13:54	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/26/24 13:54	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/26/24 13:54	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/26/24 13:54	
2-Hexanone	5.0 U	5.0	0.20	1	11/26/24 13:54	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/26/24 13:54	
Acetone	5.0 U	5.0	5.0	1	11/26/24 13:54	
Benzene	1.0 U	1.0	0.20	1	11/26/24 13:54	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/26/24 13:54	
Bromoform	1.0 U	1.0	0.25	1	11/26/24 13:54	
Bromomethane	1.0 U	1.0	0.70	1	11/26/24 13:54	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/26/24 13:54	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/26/24 13:54	
Chlorobenzene	1.0 U	1.0	0.20	1	11/26/24 13:54	
Chloroethane	1.0 U	1.0	0.23	1	11/26/24 13:54	
Chloroform	1.0 U	1.0	0.51	1	11/26/24 13:54	
Chloromethane	1.0 U	1.0	0.80	1	11/26/24 13:54	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/26/24 13:54	
Dichloromethane	1.0 U	1.0	0.65	1	11/26/24 13:54	
Ethylbenzene	1.0 U	1.0	0.20	1	11/26/24 13:54	
Styrene	1.0 U	1.0	0.20	1	11/26/24 13:54	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/26/24 13:54	
Toluene	1.0 U	1.0	0.20	1	11/26/24 13:54	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/26/24 13:54	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/26/24 13:54	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/26/24 13:54	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/26/24 13:54	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/26/24 13:54	
o-Xylene	1.0 U	1.0	0.20	1	11/26/24 13:54	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/26/24 13:54	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/26/24 13:54	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: SW-4
Lab Code: R2411790-012

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85 - 122	11/26/24 13:54	
Dibromofluoromethane	98	80 - 116	11/26/24 13:54	
Toluene-d8	102	87 - 121	11/26/24 13:54	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Sample Name: 8354 Jackson Hill
Lab Code: R2411790-013

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/26/24 14:16	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/26/24 14:16	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/26/24 14:16	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/26/24 14:16	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/26/24 14:16	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/26/24 14:16	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/26/24 14:16	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/26/24 14:16	
2-Hexanone	5.0 U	5.0	0.20	1	11/26/24 14:16	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/26/24 14:16	
Acetone	5.0 U	5.0	5.0	1	11/26/24 14:16	
Benzene	1.0 U	1.0	0.20	1	11/26/24 14:16	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/26/24 14:16	
Bromoform	1.0 U	1.0	0.25	1	11/26/24 14:16	
Bromomethane	1.0 U	1.0	0.70	1	11/26/24 14:16	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/26/24 14:16	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/26/24 14:16	
Chlorobenzene	1.0 U	1.0	0.20	1	11/26/24 14:16	
Chloroethane	1.0 U	1.0	0.23	1	11/26/24 14:16	
Chloroform	1.4	1.0	0.51	1	11/26/24 14:16	
Chloromethane	1.0 U	1.0	0.80	1	11/26/24 14:16	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/26/24 14:16	
Dichloromethane	1.0 U	1.0	0.65	1	11/26/24 14:16	
Ethylbenzene	1.0 U	1.0	0.20	1	11/26/24 14:16	
Styrene	1.0 U	1.0	0.20	1	11/26/24 14:16	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/26/24 14:16	
Toluene	1.0 U	1.0	0.20	1	11/26/24 14:16	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/26/24 14:16	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/26/24 14:16	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/26/24 14:16	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/26/24 14:16	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/26/24 14:16	
o-Xylene	1.0 U	1.0	0.20	1	11/26/24 14:16	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/26/24 14:16	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/26/24 14:16	

ALS Group USA, Corp.
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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: 8354 Jackson Hill
Lab Code: R2411790-013

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85 - 122	11/26/24 14:16	
Dibromofluoromethane	99	80 - 116	11/26/24 14:16	
Toluene-d8	105	87 - 121	11/26/24 14:16	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: Trip Blank
Lab Code: R2411790-014

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/25/24 13:53	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 13:53	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 13:53	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/25/24 13:53	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/25/24 13:53	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 13:53	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 13:53	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 13:53	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 13:53	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 13:53	
Acetone	5.0 U	5.0	5.0	1	11/25/24 13:53	
Benzene	1.0 U	1.0	0.20	1	11/25/24 13:53	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 13:53	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 13:53	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 13:53	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 13:53	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 13:53	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 13:53	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 13:53	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 13:53	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 13:53	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 13:53	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 13:53	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 13:53	
Styrene	1.0 U	1.0	0.20	1	11/25/24 13:53	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 13:53	
Toluene	1.0 U	1.0	0.20	1	11/25/24 13:53	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/25/24 13:53	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 13:53	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/25/24 13:53	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 13:53	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 13:53	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 13:53	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 13:53	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 13:53	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: Trip Blank
Lab Code: R2411790-014

Service Request: R2411790
Date Collected: 11/15/24 08:55
Date Received: 11/15/24 14:40
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	87	85 - 122	11/25/24 13:53	
Dibromofluoromethane	94	80 - 116	11/25/24 13:53	
Toluene-d8	100	87 - 121	11/25/24 13:53	



Semivolatile Organic Compounds by GC/MS

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/14/24 08:55
Date Received: 11/15/24 14:40

Sample Name: MW-11
Lab Code: R2411790-001

Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270E SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	10	0.040	1	11/21/24 19:50	11/21/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tetrahydrofuran-d8 (SUR)	83	64 - 124	11/21/24 19:50	



Metals

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Form 1

Inorganic Analysis Data Sheet

Metals by EPA 6010D, Mercury by EPA
7470A

Workorder

R2411790

Client

LU Engineers

Project

Cuba LF

12/03/2024

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Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-11	Collected	Received	Matrix	Prep Method
R2411790-001	11/14/24 0855	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	1710		ug/L	30	100	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/25/24 17:54	R-ICP-AES-07_862379	448601
P	Barium, Total	27		ug/L	3	20	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Calcium, Total	49500		ug/L	300	1000	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Chromium, Total	2	J	ug/L	2	10	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Iron, Total	1210		ug/L	70	100	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Magnesium, Total	11400		ug/L	30	1000	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Manganese, Total	222		ug/L	4	10	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:39	R-CVAA-03_861748	448430
P	Nickel, Total	8	J	ug/L	3	40	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Potassium, Total	2800		ug/L	400	2000	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Sodium, Total	4000		ug/L	300	1000	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Vanadium, Total	3	J	ug/L	0.7	50	1	11/22/24 18:36	R-ICP-AES-07_862219	448601
P	Zinc, Total	3	J	ug/L	3	20	1	11/22/24 18:36	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-04	Collected	Received	Matrix	Prep Method
R2411790-002	11/14/24 0945	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	390		ug/L	30	100	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Barium, Total	50		ug/L	3	20	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Calcium, Total	44700		ug/L	300	1000	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Chromium, Total	3	J	ug/L	2	10	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Cobalt, Total	1	J	ug/L	0.9	50	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Iron, Total	510		ug/L	70	100	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Magnesium, Total	11000		ug/L	30	1000	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Manganese, Total	3920		ug/L	4	10	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:41	R-CVAA-03_861748	448430
P	Nickel, Total	8	J	ug/L	3	40	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Potassium, Total	2800		ug/L	400	2000	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Sodium, Total	3700		ug/L	300	1000	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Vanadium, Total	50	U	ug/L	0.7	50	1	11/22/24 18:39	R-ICP-AES-07_862219	448601
P	Zinc, Total	6	J	ug/L	3	20	1	11/22/24 18:39	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-13	Collected	Received	Matrix	Prep Method
R2411790-003	11/14/24 1020	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	37000		ug/L	30	100	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Arsenic, Total	16		ug/L	6	10	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Barium, Total	254		ug/L	3	20	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Beryllium, Total	1.2	J	ug/L	0.2	3.0	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Cadmium, Total	1.1	J	ug/L	0.4	5.0	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Calcium, Total	79700		ug/L	300	1000	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Chromium, Total	52		ug/L	2	10	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Cobalt, Total	17	J	ug/L	0.9	50	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Copper, Total	26		ug/L	4	20	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Iron, Total	46700		ug/L	70	100	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Lead, Total	11	J	ug/L	4	50	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Magnesium, Total	17100		ug/L	30	1000	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Manganese, Total	1270		ug/L	4	10	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:44	R-CVAA-03_861748	448430
P	Nickel, Total	78		ug/L	3	40	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Potassium, Total	13000		ug/L	400	2000	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Sodium, Total	4800		ug/L	300	1000	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Vanadium, Total	49	J	ug/L	0.7	50	1	11/22/24 18:42	R-ICP-AES-07_862219	448601
P	Zinc, Total	107		ug/L	3	20	1	11/22/24 18:42	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-08	Collected	Received	Matrix	Prep Method
R2411790-004	11/14/24 1110	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	6620		ug/L	30	100	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Barium, Total	62		ug/L	3	20	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Beryllium, Total	0.2	J	ug/L	0.2	3.0	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Calcium, Total	35500		ug/L	300	1000	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Chromium, Total	8	J	ug/L	2	10	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Cobalt, Total	3	J	ug/L	0.9	50	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Copper, Total	9	J	ug/L	4	20	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Iron, Total	6090		ug/L	70	100	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Magnesium, Total	14800		ug/L	30	1000	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Manganese, Total	67		ug/L	4	10	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:46	R-CVAA-03_861748	448430
P	Nickel, Total	16	J	ug/L	3	40	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Potassium, Total	3800		ug/L	400	2000	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Sodium, Total	5200		ug/L	300	1000	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Vanadium, Total	9	J	ug/L	0.7	50	1	11/22/24 18:45	R-ICP-AES-07_862219	448601
P	Zinc, Total	16	J	ug/L	3	20	1	11/22/24 18:45	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-07	Collected	Received	Matrix	Prep Method
R2411790-005	11/14/24 1350	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	3130		ug/L	30	100	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Barium, Total	67		ug/L	3	20	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Cadmium, Total	0.5	J	ug/L	0.4	5.0	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Calcium, Total	51500		ug/L	300	1000	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Chromium, Total	5	J	ug/L	2	10	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Copper, Total	8	J	ug/L	4	20	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Iron, Total	2500		ug/L	70	100	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Magnesium, Total	25400		ug/L	30	1000	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Manganese, Total	63		ug/L	4	10	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:49	R-CVAA-03_861748	448430
P	Nickel, Total	10	J	ug/L	3	40	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Potassium, Total	2900		ug/L	400	2000	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Sodium, Total	6800		ug/L	300	1000	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Vanadium, Total	4	J	ug/L	0.7	50	1	11/22/24 18:49	R-ICP-AES-07_862219	448601
P	Zinc, Total	15	J	ug/L	3	20	1	11/22/24 18:49	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-1S	Collected	Received	Matrix	Prep Method
R2411790-006	11/14/24 1215	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	750		ug/L	30	100	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Barium, Total	42		ug/L	3	20	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Cadmium, Total	1.1	J	ug/L	0.4	5.0	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Calcium, Total	31400		ug/L	300	1000	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Chromium, Total	4	J	ug/L	2	10	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Iron, Total	810		ug/L	70	100	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Magnesium, Total	5700		ug/L	30	1000	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Manganese, Total	97		ug/L	4	10	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:51	R-CVAA-03_861748	448430
P	Nickel, Total	5	J	ug/L	3	40	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Potassium, Total	1000	J	ug/L	400	2000	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Sodium, Total	2400		ug/L	300	1000	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Vanadium, Total	0.9	J	ug/L	0.7	50	1	11/22/24 18:52	R-ICP-AES-07_862219	448601
P	Zinc, Total	7	J	ug/L	3	20	1	11/22/24 18:52	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-12	Collected	Received	Matrix	Prep Method
R2411790-008	11/15/24 0855	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	23700		ug/L	30	100	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Arsenic, Total	8	J	ug/L	6	10	1	11/25/24 17:57	R-ICP-AES-07_862379	448601
P	Barium, Total	136		ug/L	3	20	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Beryllium, Total	0.6	J	ug/L	0.2	3.0	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Cadmium, Total	0.6	J	ug/L	0.4	5.0	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Calcium, Total	86200		ug/L	300	1000	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Chromium, Total	28		ug/L	2	10	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Cobalt, Total	11	J	ug/L	0.9	50	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Copper, Total	13	J	ug/L	4	20	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Iron, Total	28100		ug/L	70	100	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Lead, Total	10	J	ug/L	4	50	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Magnesium, Total	44500		ug/L	30	1000	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Manganese, Total	1720		ug/L	4	10	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:54	R-CVAA-03_861748	448430
P	Nickel, Total	50		ug/L	3	40	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Potassium, Total	12700		ug/L	400	2000	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Sodium, Total	26900		ug/L	300	1000	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Vanadium, Total	32	J	ug/L	0.7	50	1	11/22/24 18:55	R-ICP-AES-07_862219	448601
P	Zinc, Total	61		ug/L	3	20	1	11/22/24 18:55	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

MW-10D	Collected	Received	Matrix	Prep Method
R2411790-009	11/15/24 0855	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	340		ug/L	30	100	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Barium, Total	62		ug/L	3	20	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Calcium, Total	59200		ug/L	300	1000	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Chromium, Total	10	U	ug/L	2	10	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Iron, Total	310		ug/L	70	100	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Magnesium, Total	21100		ug/L	30	1000	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Manganese, Total	102		ug/L	4	10	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 13:02	R-CVAA-03_861748	448430
P	Nickel, Total	5	J	ug/L	3	40	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Potassium, Total	2400		ug/L	400	2000	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Sodium, Total	16100		ug/L	300	1000	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Vanadium, Total	50	U	ug/L	0.7	50	1	11/22/24 18:58	R-ICP-AES-07_862219	448601
P	Zinc, Total	41		ug/L	3	20	1	11/22/24 18:58	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

SW-1	Collected	Received	Matrix	Prep Method
R2411790-010	11/15/24 0855	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	10900		ug/L	30	100	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Arsenic, Total	109		ug/L	6	10	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Barium, Total	283		ug/L	3	20	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Beryllium, Total	0.6	J	ug/L	0.2	3.0	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Cadmium, Total	3.2	J	ug/L	0.4	5.0	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Calcium, Total	82900		ug/L	300	1000	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Chromium, Total	14		ug/L	2	10	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Cobalt, Total	46	J	ug/L	0.9	50	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Copper, Total	19	J	ug/L	4	20	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Iron, Total	133000		ug/L	310	500	5	11/22/24 20:13	R-ICP-AES-07_862219	448601
P	Lead, Total	15	J	ug/L	4	50	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Magnesium, Total	16000		ug/L	30	1000	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Manganese, Total	9280		ug/L	4	10	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.11	J	ug/L	0.08	0.20	1	11/20/24 13:09	R-CVAA-03_861748	448430
P	Nickel, Total	39	J	ug/L	3	40	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Potassium, Total	4200		ug/L	400	2000	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	J	ug/L	7	10	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Sodium, Total	12100		ug/L	300	1000	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Vanadium, Total	25	J	ug/L	0.7	50	1	11/22/24 19:08	R-ICP-AES-07_862219	448601
P	Zinc, Total	76		ug/L	3	20	1	11/22/24 19:08	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

SW-3	Collected	Received	Matrix	Prep Method
R2411790-011	11/15/24 0855	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	2390		ug/L	30	100	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Barium, Total	24		ug/L	3	20	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Calcium, Total	8400		ug/L	300	1000	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Chromium, Total	3	J	ug/L	2	10	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Iron, Total	1750		ug/L	70	100	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Magnesium, Total	1900		ug/L	30	1000	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Manganese, Total	71		ug/L	4	10	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 13:12	R-CVAA-03_861748	448430
P	Nickel, Total	6	J	ug/L	3	40	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Potassium, Total	4200		ug/L	400	2000	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Sodium, Total	3400		ug/L	300	1000	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Vanadium, Total	4	J	ug/L	0.7	50	1	11/22/24 19:11	R-ICP-AES-07_862219	448601
P	Zinc, Total	4	J	ug/L	3	20	1	11/22/24 19:11	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

SW-4	Collected	Received	Matrix	Prep Method
R2411790-012	11/15/24 0855	11/15/24 1440	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	3810		ug/L	30	100	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Barium, Total	31		ug/L	3	20	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Calcium, Total	7800		ug/L	300	1000	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Chromium, Total	4	J	ug/L	2	10	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Cobalt, Total	1	J	ug/L	0.9	50	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Iron, Total	2840		ug/L	70	100	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Magnesium, Total	2100		ug/L	30	1000	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Manganese, Total	55		ug/L	4	10	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 13:14	R-CVAA-03_861748	448430
P	Nickel, Total	8	J	ug/L	3	40	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Potassium, Total	3400		ug/L	400	2000	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Sodium, Total	5300		ug/L	300	1000	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Vanadium, Total	6	J	ug/L	0.7	50	1	11/22/24 19:14	R-ICP-AES-07_862219	448601
P	Zinc, Total	7	J	ug/L	3	20	1	11/22/24 19:14	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

8354 Jackson Hill		Collected	Received	Matrix	Prep Method					
R2411790-013		11/15/24 0855	11/15/24 1440	Water	3005A/3010A					
MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	40	J	ug/L	30	100	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Barium, Total	51		ug/L	3	20	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Calcium, Total	23100		ug/L	300	1000	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Chromium, Total	10	U	ug/L	2	10	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Iron, Total	80	J	ug/L	70	100	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Magnesium, Total	6800		ug/L	30	1000	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Manganese, Total	4	J	ug/L	4	10	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 13:17	R-CVAA-03_861748	448430
P	Nickel, Total	3	J	ug/L	3	40	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Potassium, Total	2600		ug/L	400	2000	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Sodium, Total	17000		ug/L	300	1000	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Vanadium, Total	50	U	ug/L	0.7	50	1	11/22/24 19:18	R-ICP-AES-07_862219	448601
P	Zinc, Total	12	J	ug/L	3	20	1	11/22/24 19:18	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



Form 1 - Inorganic Analysis Data Sheet

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P),Mercury by EPA 7470A (CV)

Method Blank	Matrix	Prep Method
R2411790-MB	Water	3005A/3010A

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
P	Aluminum, Total	100	U	ug/L	30	100	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Antimony, Total	60	U	ug/L	27	60	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Arsenic, Total	10	U	ug/L	6	10	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Barium, Total	20	U	ug/L	3	20	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Beryllium, Total	3.0	U	ug/L	0.2	3.0	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Cadmium, Total	5.0	U	ug/L	0.4	5.0	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Calcium, Total	1000	U	ug/L	300	1000	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Chromium, Total	10	U	ug/L	2	10	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Cobalt, Total	50	U	ug/L	0.9	50	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Copper, Total	20	U	ug/L	4	20	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Iron, Total	100	U	ug/L	70	100	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Lead, Total	50	U	ug/L	4	50	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Magnesium, Total	1000	U	ug/L	30	1000	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Manganese, Total	10	U	ug/L	4	10	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Nickel, Total	40	U	ug/L	3	40	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Potassium, Total	2000	U	ug/L	400	2000	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Selenium, Total	10	U	ug/L	7	10	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Silver, Total	10	U	ug/L	0.6	10	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Sodium, Total	1000	U	ug/L	300	1000	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Thallium, Total	10	U	ug/L	8	10	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Vanadium, Total	50	U	ug/L	0.7	50	1	11/22/24 18:29	R-ICP-AES-07_862219	448601
P	Zinc, Total	20	U	ug/L	3	20	1	11/22/24 18:29	R-ICP-AES-07_862219	448601

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS

MC	Analyte	Result	Q	Units	DL	LOQ	DF	Analysis Date	Run ID	PrepBatch
CV	Mercury, Total	0.20	U	ug/L	0.08	0.20	1	11/20/24 12:08	R-CVAA-03_861748	448430

MC - Method Class CV - Cold Vapor/AA P - ICP/AES MS - ICP/MS



QC Summary Forms

ALS Environmental—Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
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Volatile Organic Compounds by GC/MS

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

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790

SURROGATE RECOVERY SUMMARY
Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Extraction Method: EPA 5030C

Sample Name	Lab Code	4-Bromofluorobenzene	Dibromofluoromethane	Toluene-d8
		85 - 122	80 - 116	87 - 121
MW-11	R2411790-001	86	98	100
MW-04	R2411790-002	85	97	98
MW-13	R2411790-003	87	97	100
MW-08	R2411790-004	88	98	102
MW-07	R2411790-005	91	97	102
MW-1S	R2411790-006	91	91	98
MW-12	R2411790-008	88	94	99
MW-10D	R2411790-009	90	95	100
SW-1	R2411790-010	86	94	98
SW-3	R2411790-011	88	91	98
SW-4	R2411790-012	94	98	102
8354 Jackson Hill	R2411790-013	98	99	105
Trip Blank	R2411790-014	87	94	100
Lab Control Sample	RQ2415142-02	96	103	101
Method Blank	RQ2415142-03	86	96	100
MW-10D MS	RQ2415142-04	99	102	101
MW-10D DMS	RQ2415142-05	97	101	97
Lab Control Sample	RQ2415216-02	100	99	104
Method Blank	RQ2415216-03	94	94	102

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24
Date Received: 11/15/24
Date Analyzed: 11/25/24
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MW-10D
Lab Code: R2411790-009
Analysis Method: 8260D
Prep Method: EPA 5030C

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike RQ2415142-04			Duplicate Matrix Spike RQ2415142-05			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
1,1,1-Trichloroethane (TCA)	1.3	52.2	50.0	102	55.4	50.0	108	74-127	6	30
1,1,2,2-Tetrachloroethane	1.0 U	44.7	50.0	89	46.3	50.0	93	72-122	4	30
1,1,2-Trichloroethane	1.0 U	48.8	50.0	98	49.5	50.0	99	82-121	1	30
1,1-Dichloroethane (1,1-DCA)	0.65 J	54.3	50.0	107	56.7	50.0	112	74-132	4	30
1,1-Dichloroethene (1,1-DCE)	0.22 J	52.8	50.0	105	53.9	50.0	107	71-118	2	30
1,2-Dichloroethane	1.0 U	49.4	50.0	99	50.9	50.0	102	68-130	3	30
1,2-Dichloropropane	1.0 U	50.0	50.0	100	50.6	50.0	101	79-124	1	30
2-Butanone (MEK)	5.0 U	42.0	50.0	84	43.8	50.0	88	61-137	4	30
2-Hexanone	5.0 U	44.2	50.0	88	46.8	50.0	94	56-132	6	30
4-Methyl-2-pentanone	5.0 U	46.9	50.0	94	49.8	50.0	100	60-141	6	30
Acetone	6.7	46.3	50.0	79	47.0	50.0	81	35-183	2	30
Benzene	1.0 U	49.2	50.0	98	49.7	50.0	99	76-129	<1	30
Bromodichloromethane	1.0 U	51.2	50.0	102	53.4	50.0	107	78-133	4	30
Bromoform	1.0 U	49.6	50.0	99	53.6	50.0	107	58-133	8	30
Bromomethane	1.0 U	71.7	50.0	143	73.3	50.0	147	10-184	2	30
Carbon Disulfide	1.0 U	41.3	50.0	83	48.3	50.0	97	59-140	16	30
Carbon Tetrachloride	1.0 U	51.6	50.0	103	52.6	50.0	105	65-135	2	30
Chlorobenzene	1.0 U	47.0	50.0	94	48.2	50.0	96	76-125	3	30
Chloroethane	1.0 U	49.8	50.0	100	51.0	50.0	102	48-146	2	30
Chloroform	1.0 U	51.7	50.0	103	53.2	50.0	106	75-130	3	30
Chloromethane	1.0 U	66.7	50.0	133	69.2	50.0	138	55-160	4	30
Dibromochloromethane	1.0 U	48.0	50.0	96	51.5	50.0	103	72-128	7	30
Dichloromethane	1.0 U	47.3	50.0	95	50.0	50.0	100	73-122	6	30
Ethylbenzene	1.0 U	50.2	50.0	100	50.5	50.0	101	72-134	<1	30
Styrene	1.0 U	52.3	50.0	105	54.1	50.0	108	74-136	3	30
Tetrachloroethene (PCE)	1.0 U	47.6	50.0	95	49.1	50.0	98	72-125	3	30
Toluene	1.0 U	49.2	50.0	98	50.1	50.0	100	79-119	2	30
Trichloroethene (TCE)	0.73 J	50.9	50.0	100	52.0	50.0	103	74-122	2	30
Vinyl Chloride	1.0 U	61.1	50.0	122	64.3	50.0	129	74-159	5	30
cis-1,2-Dichloroethene	0.74 J	57.6	50.0	114	59.2	50.0	117	77-127	3	30
cis-1,3-Dichloropropene	1.0 U	47.9	50.0	96	50.1	50.0	100	52-134	5	30
m,p-Xylenes	2.0 U	99.5	100	100	102	100	102	80-126	2	30
o-Xylene	1.0 U	48.1	50.0	96	49.6	50.0	99	79-123	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.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/15/24
Date Received: 11/15/24
Date Analyzed: 11/25/24
Date Extracted: NA

Duplicate Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MW-10D
Lab Code: R2411790-009
Analysis Method: 8260D
Prep Method: EPA 5030C

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Matrix Spike RQ2415142-04			Duplicate Matrix Spike RQ2415142-05			% Rec Limits	RPD	RPD Limit
		Result	Spike Amount	% Rec	Result	Spike Amount	% Rec			
trans-1,2-Dichloroethene	1.0 U	49.8	50.0	100	50.8	50.0	102	73-118	2	30
trans-1,3-Dichloropropene	1.0 U	47.4	50.0	95	50.1	50.0	100	71-133	6	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.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2415142-03

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/25/24 13:21	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/25/24 13:21	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/25/24 13:21	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/25/24 13:21	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/25/24 13:21	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/25/24 13:21	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/25/24 13:21	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/25/24 13:21	
2-Hexanone	5.0 U	5.0	0.20	1	11/25/24 13:21	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/25/24 13:21	
Acetone	5.0 U	5.0	5.0	1	11/25/24 13:21	
Benzene	1.0 U	1.0	0.20	1	11/25/24 13:21	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/25/24 13:21	
Bromoform	1.0 U	1.0	0.25	1	11/25/24 13:21	
Bromomethane	1.0 U	1.0	0.70	1	11/25/24 13:21	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/25/24 13:21	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/25/24 13:21	
Chlorobenzene	1.0 U	1.0	0.20	1	11/25/24 13:21	
Chloroethane	1.0 U	1.0	0.23	1	11/25/24 13:21	
Chloroform	1.0 U	1.0	0.51	1	11/25/24 13:21	
Chloromethane	1.0 U	1.0	0.80	1	11/25/24 13:21	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/25/24 13:21	
Dichloromethane	1.0 U	1.0	0.65	1	11/25/24 13:21	
Ethylbenzene	1.0 U	1.0	0.20	1	11/25/24 13:21	
Styrene	1.0 U	1.0	0.20	1	11/25/24 13:21	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/25/24 13:21	
Toluene	1.0 U	1.0	0.20	1	11/25/24 13:21	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/25/24 13:21	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/25/24 13:21	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/25/24 13:21	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/25/24 13:21	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/25/24 13:21	
o-Xylene	1.0 U	1.0	0.20	1	11/25/24 13:21	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/25/24 13:21	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/25/24 13:21	

ALS Group USA, Corp.
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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: RQ2415142-03

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	86	85 - 122	11/25/24 13:21	
Dibromofluoromethane	96	80 - 116	11/25/24 13:21	
Toluene-d8	100	87 - 121	11/25/24 13:21	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Sample Name: Method Blank
Lab Code: RQ2415216-03

Service Request: R2411790
Date Collected: NA
Date Received: NA

Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Q
1,1,1-Trichloroethane (TCA)	1.0 U	1.0	0.20	1	11/26/24 11:15	
1,1,2,2-Tetrachloroethane	1.0 U	1.0	0.20	1	11/26/24 11:15	
1,1,2-Trichloroethane	1.0 U	1.0	0.20	1	11/26/24 11:15	
1,1-Dichloroethane (1,1-DCA)	1.0 U	1.0	0.20	1	11/26/24 11:15	
1,1-Dichloroethene (1,1-DCE)	1.0 U	1.0	0.20	1	11/26/24 11:15	
1,2-Dichloroethane	1.0 U	1.0	0.20	1	11/26/24 11:15	
1,2-Dichloropropane	1.0 U	1.0	0.20	1	11/26/24 11:15	
2-Butanone (MEK)	5.0 U	5.0	0.78	1	11/26/24 11:15	
2-Hexanone	5.0 U	5.0	0.20	1	11/26/24 11:15	
4-Methyl-2-pentanone	5.0 U	5.0	0.20	1	11/26/24 11:15	
Acetone	5.0 U	5.0	5.0	1	11/26/24 11:15	
Benzene	1.0 U	1.0	0.20	1	11/26/24 11:15	
Bromodichloromethane	1.0 U	1.0	0.20	1	11/26/24 11:15	
Bromoform	1.0 U	1.0	0.25	1	11/26/24 11:15	
Bromomethane	1.0 U	1.0	0.70	1	11/26/24 11:15	
Carbon Disulfide	1.0 U	1.0	0.42	1	11/26/24 11:15	
Carbon Tetrachloride	1.0 U	1.0	0.34	1	11/26/24 11:15	
Chlorobenzene	1.0 U	1.0	0.20	1	11/26/24 11:15	
Chloroethane	1.0 U	1.0	0.23	1	11/26/24 11:15	
Chloroform	1.0 U	1.0	0.51	1	11/26/24 11:15	
Chloromethane	1.0 U	1.0	0.80	1	11/26/24 11:15	
Dibromochloromethane	1.0 U	1.0	0.20	1	11/26/24 11:15	
Dichloromethane	1.0 U	1.0	0.65	1	11/26/24 11:15	
Ethylbenzene	1.0 U	1.0	0.20	1	11/26/24 11:15	
Styrene	1.0 U	1.0	0.20	1	11/26/24 11:15	
Tetrachloroethene (PCE)	1.0 U	1.0	0.21	1	11/26/24 11:15	
Toluene	1.0 U	1.0	0.20	1	11/26/24 11:15	
Trichloroethene (TCE)	1.0 U	1.0	0.20	1	11/26/24 11:15	
Vinyl Chloride	1.0 U	1.0	0.20	1	11/26/24 11:15	
cis-1,2-Dichloroethene	1.0 U	1.0	0.23	1	11/26/24 11:15	
cis-1,3-Dichloropropene	1.0 U	1.0	0.20	1	11/26/24 11:15	
m,p-Xylenes	2.0 U	2.0	0.53	1	11/26/24 11:15	
o-Xylene	1.0 U	1.0	0.20	1	11/26/24 11:15	
trans-1,2-Dichloroethene	1.0 U	1.0	0.20	1	11/26/24 11:15	
trans-1,3-Dichloropropene	1.0 U	1.0	0.23	1	11/26/24 11:15	

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: RQ2415216-03

Service Request: R2411790
Date Collected: NA
Date Received: NA
Units: ug/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analysis Method: 8260D
Prep Method: EPA 5030C

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	94	85 - 122	11/26/24 11:15	
Dibromofluoromethane	94	80 - 116	11/26/24 11:15	
Toluene-d8	102	87 - 121	11/26/24 11:15	

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QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Analyzed: 11/25/24

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ2415142-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	8260D	17.9	20.0	89	75-125
1,1,2,2-Tetrachloroethane	8260D	18.7	20.0	94	78-126
1,1,2-Trichloroethane	8260D	18.6	20.0	93	82-121
1,1-Dichloroethane (1,1-DCA)	8260D	19.4	20.0	97	80-124
1,1-Dichloroethene (1,1-DCE)	8260D	18.8	20.0	94	71-118
1,2-Dichloroethane	8260D	19.4	20.0	97	71-127
1,2-Dichloropropane	8260D	18.2	20.0	91	80-119
2-Butanone (MEK)	8260D	16.7	20.0	83	61-137
2-Hexanone	8260D	16.1	20.0	81	63-124
4-Methyl-2-pentanone	8260D	16.5	20.0	83	66-124
Acetone	8260D	15.5	20.0	78	40-161
Benzene	8260D	18.0	20.0	90	79-119
Bromodichloromethane	8260D	19.2	20.0	96	81-123
Bromoform	8260D	21.6	20.0	108	65-146
Bromomethane	8260D	27.2	20.0	136	42-166
Carbon Disulfide	8260D	14.7	20.0	74	66-128
Carbon Tetrachloride	8260D	18.1	20.0	90	70-127
Chlorobenzene	8260D	18.2	20.0	91	80-121
Chloroethane	8260D	17.9	20.0	89	62-131
Chloroform	8260D	18.8	20.0	94	79-120
Chloromethane	8260D	25.6	20.0	128	61-143
Dibromochloromethane	8260D	20.0	20.0	100	72-128
Dichloromethane	8260D	18.9	20.0	94	73-122
Ethylbenzene	8260D	18.3	20.0	92	76-120
Styrene	8260D	19.4	20.0	97	80-124
Tetrachloroethene (PCE)	8260D	18.2	20.0	91	72-125
Toluene	8260D	18.2	20.0	91	79-119
Trichloroethene (TCE)	8260D	18.2	20.0	91	74-122
Vinyl Chloride	8260D	22.9	20.0	115	74-159
cis-1,2-Dichloroethene	8260D	20.9	20.0	104	80-121
cis-1,3-Dichloropropene	8260D	17.7	20.0	89	77-122
m,p-Xylenes	8260D	37.3	40.0	93	80-126
o-Xylene	8260D	18.2	20.0	91	79-123

ALS Group USA, Corp.
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QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Analyzed: 11/25/24

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ2415142-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
trans-1,2-Dichloroethene	8260D	17.9	20.0	89	73-118
trans-1,3-Dichloropropene	8260D	18.2	20.0	91	71-133

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QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Analyzed: 11/26/24

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ2415216-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
1,1,1-Trichloroethane (TCA)	8260D	21.3	20.0	106	75-125
1,1,2,2-Tetrachloroethane	8260D	18.3	20.0	91	78-126
1,1,2-Trichloroethane	8260D	19.6	20.0	98	82-121
1,1-Dichloroethane (1,1-DCA)	8260D	24.4	20.0	122	80-124
1,1-Dichloroethene (1,1-DCE)	8260D	23.0	20.0	115	71-118
1,2-Dichloroethane	8260D	22.9	20.0	114	71-127
1,2-Dichloropropane	8260D	21.5	20.0	108	80-119
2-Butanone (MEK)	8260D	20.3	20.0	101	61-137
2-Hexanone	8260D	17.1	20.0	85	63-124
4-Methyl-2-pentanone	8260D	19.6	20.0	98	66-124
Acetone	8260D	15.5	20.0	78	40-161
Benzene	8260D	21.6	20.0	108	79-119
Bromodichloromethane	8260D	20.1	20.0	100	81-123
Bromoform	8260D	17.2	20.0	86	65-146
Bromomethane	8260D	23.5	20.0	117	42-166
Carbon Disulfide	8260D	19.4	20.0	97	66-128
Carbon Tetrachloride	8260D	19.6	20.0	98	70-127
Chlorobenzene	8260D	20.1	20.0	100	80-121
Chloroethane	8260D	19.9	20.0	100	62-131
Chloroform	8260D	22.4	20.0	112	79-120
Chloromethane	8260D	29.6	20.0	148 *	61-143
Dibromochloromethane	8260D	18.0	20.0	90	72-128
Dichloromethane	8260D	23.5	20.0	117	73-122
Ethylbenzene	8260D	20.5	20.0	102	76-120
Styrene	8260D	20.3	20.0	102	80-124
Tetrachloroethene (PCE)	8260D	21.5	20.0	107	72-125
Toluene	8260D	21.2	20.0	106	79-119
Trichloroethene (TCE)	8260D	20.7	20.0	104	74-122
Vinyl Chloride	8260D	25.3	20.0	127	74-159
cis-1,2-Dichloroethene	8260D	24.1	20.0	120	80-121
cis-1,3-Dichloropropene	8260D	20.9	20.0	104	77-122
m,p-Xylenes	8260D	42.0	40.0	105	80-126
o-Xylene	8260D	20.8	20.0	104	79-123

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QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Analyzed: 11/26/24

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Units:ug/L
Basis:NA

Lab Control Sample
RQ2415216-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
trans-1,2-Dichloroethene	8260D	21.0	20.0	105	73-118
trans-1,3-Dichloropropene	8260D	20.6	20.0	103	71-133



Semivolatile Organic Compounds by GC/MS

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Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790

SURROGATE RECOVERY SUMMARY
1,4-Dioxane by GC/MS

Analysis Method: 8270E SIM
Extraction Method: EPA 3535A

Sample Name	Lab Code	Tetrahydrofuran-d8 (SUR)
		64 - 124
MW-11	R2411790-001	83
Method Blank	RQ2414981-01	80
Lab Control Sample	RQ2414981-02	75
Duplicate Lab Control Sample	RQ2414981-03	82
MW-11 MS	RQ2414981-04	84
MW-11 DMS	RQ2414981-05	80

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QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Collected: 11/14/24
Date Received: 11/15/24
Date Analyzed: 11/21/24
Date Extracted: 11/21/24

Duplicate Matrix Spike Summary
1,4-Dioxane by GC/MS

Sample Name: MW-11
Lab Code: R2411790-001
Analysis Method: 8270E SIM
Prep Method: EPA 3535A

Units: ug/L
Basis: NA

Analyte Name	Sample Result	Result	Matrix Spike RQ2414981-04		Duplicate Matrix Spike RQ2414981-05		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	10	18.4	10.0	82	17.8	10.0	76	33-146	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.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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Analytical Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water
Sample Name: Method Blank
Lab Code: RQ2414981-01

Service Request: R2411790
Date Collected: NA
Date Received: NA
Units: ug/L
Basis: NA

1,4-Dioxane by GC/MS

Analysis Method: 8270E SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	0.040 U	0.040	1	11/21/24 18:05	11/21/24	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Tetrahydrofuran-d8 (SUR)	80	64 - 124	11/21/24 18:05	

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QA/QC Report

Client: LU Engineers
Project: Cuba LF/50191-01
Sample Matrix: Water

Service Request: R2411790
Date Analyzed: 11/21/24

Duplicate Lab Control Sample Summary
1,4-Dioxane by GC/MS

Units:ug/L
Basis:NA

Analyte Name	Analytical Method	Result	Lab Control Sample		Duplicate Lab Control Sample		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
1,4-Dioxane	8270E SIM	8.08	10.0	81	8.02	10.0	80	58-124	<1	30



Metals

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Form 3

Blanks

Mercury by EPA 7470A, Metals by EPA
6010D

Workorder

R2411790

Client

LU Engineers

Project

Cuba LF

12/03/2024

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Form 3 - Blanks

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Mercury by EPA 7470A

R-CVAA-03_861748			ICB		CCB									
			11/20/24		11/20/24		11/20/24		11/20/24		11/20/24		11/20/24	
Run Date			10:33		11:35		12:06		12:34		12:59		13:25	
Run Time			10:33		11:35		12:06		12:34		12:59		13:25	
Units			ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Analyte	DL	LOQ	Result	Q										
Mercury	0.08	0.20	0.08	U										

Q - Result Flag * - Result Outside Limits



Form 3 - Blanks

Client LU Engineers

Project Cuba LF

Workorder

R2411790

Metals by EPA 6010D (P)

R-ICP-AES-07_862219			ICB		CCB		CCB		CCB		CCB	
			11/22/24		11/22/24		11/22/24		11/22/24		11/22/24	
Run Date			15:54		18:26		19:05		19:43		20:22	
Run Time			ug/L		ug/L		ug/L		ug/L		ug/L	
Units												
Analyte	DL	LOQ	Result	Q								
Aluminum	30	100	30	U								
Antimony	27	60	27	U								
Arsenic	6	10	6	U	6	U	6	U	6	U	6	U
Barium	3	20	3	U	3	U	3	U	3	U	3	U
Beryllium	0.2	3.0	0.2	U								
Cadmium	0.4	5.0	0.4	U								
Calcium	300	1000	300	U								
Chromium	2	10	2	U	2	U	2	U	2	U	2	U
Cobalt	0.9	50	0.9	U								
Copper	4	20	4	U	4	U	4	U	4	U	4	U
Iron	70	100	70	U								
Lead	4	50	4	U	4	U	4	U	4	U	4	U
Magnesium	30	1000	30	U								
Manganese	4	10	4	U	4	U	4	U	4	U	4	U
Nickel	3	40	3	U	3	U	3	U	3	U	3	U
Potassium	400	2000	400	U								
Selenium	7	10	7	U	7	U	7	U	7	U	7	U
Silver	0.6	10	0.6	U								
Sodium	300	1000	300	U								
Thallium	8	10	8	U	8	U	8	U	8	U	8	U
Vanadium	0.7	50	0.7	U								
Zinc	3	20	3	U	3	U	3	U	3	U	3	U



Form 3 - Blanks

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R2411790

Metals by EPA 6010D (P)

R-ICP-AES-07_862379			ICB	CCB	CCB	CCB	CCB	CCB		
Run Date			11/25/24	11/25/24	11/25/24	11/25/24	11/25/24	11/25/24		
Run Time			15:48	17:32	18:09	18:46	19:23	19:59		
Units			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		
Analyte	DL	LOQ	Result	Q	Result	Q	Result	Q	Result	Q
Arsenic	6	10	6	U	6	U	6	U	6	U

R-ICP-AES-07_862379			CCB	
Run Date			11/25/24	
Run Time			20:12	
Units			ug/L	
Analyte	DL	LOQ	Result	Q
Arsenic	6	10	6	U



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Form 5A

Matrix Spike Sample Recovery

Mercury by EPA 7470A

Workorder

R2411790

Client

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Form 5A - Matrix Spike Sample Recovery

Client LU Engineers

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Project Cuba LF

R2411790

Mercury by EPA 7470A

RunID

R-CVAA-03-861748

MW-10D (R2411790-009)				R2411790-009MS				R2411790-009DMS							
Sample Matrix		Water		Analysis Batch		861748		Run Date		11/20/24		Run Date		11/20/24	
Result Units		ug/L		Prep Batch		448430		Run Time		13:04		Run Time		13:07	
Prep Method		Method		Prep Date		11/19/2024		Prep Amt		25 mL		Prep Amt		25 mL	
Analyte	%R Limits	DF	Sample Result	MS Result	Spike Added	%R	Q	MSD Result	Spike Added	%R	Q	RPD Limit	RPD	Q	
Mercury, Total	75-125	1	0.20 U	1.11	1.00	111		1.10	1.00	110		20	0.5		

RPD Relative Percent Difference

%R %Recovery

Q %R or RPD Flag

NC Not Calculated

DF Dilution Factor

MS\D Matrix Spike \Duplicate

OOL Out of Limits

***** %R or RPD OOL

NS Not Spiked

Amt weight or volume



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Form 7

Laboratory Control Sample

Metals by EPA 6010D,Mercury by EPA
7470A

Workorder

R2411790

Client

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Cuba LF

12/03/2024

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Form 7 - Laboratory Control Sample

Client LU Engineers

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Project Cuba LF

R2411790

Mercury by EPA 7470A

RunID

R-CVAA-03-861748

R-CVAA-03_861748			R2411790-LCS		
Spike Matrix Water	Analysis Batch ug/L		Run Date 11/20/24		
Result Units 11/19/24	Prep Batch 861748		Run Time 12:11		
Prep Method Method	Prep Date 448430		Prep Amt 25 mL		
Analyte	%Recovery Limits	Spike Added	LCS Result	%R	Q
Mercury	80-120	1.00	1.09	109	



Form 7 - Laboratory Control Sample

Client LU Engineers

Workorder

Project Cuba LF

R2411790

Metals by EPA 6010D (P)

RunID

R-ICP-AES-07-862219

R-ICP-AES-07_862219			R2411790-LCS		
Spike Matrix Water	Analysis Batch ug/L		Run Date 11/22/24		
Result Units 11/21/24	Prep Batch 862219		Run Time 18:32		
Prep Method EPA 3005A/3010A	Prep Date 448601		Prep Amt 50 mL		
Analyte	%Recovery Limits	Spike Added	LCS Result	%R	Q
Aluminum	80-120	2000	2020	101	
Antimony	80-120	500	506	101	
Arsenic	80-120	40	40.0	100	
Barium	80-120	2000	1970	98	
Beryllium	80-120	50.0	50.9	102	
Cadmium	80-120	50.0	50.9	102	
Calcium	80-120	2000	1940	97	
Chromium	80-120	200	200	100	
Cobalt	80-120	500	505	101	
Copper	80-120	250	256	102	
Iron	80-120	1000	1030	103	
Lead	80-120	500	515	103	
Magnesium	80-120	2000	1970	99	
Manganese	80-120	500	488	98	
Nickel	80-120	500	519	104	
Potassium	80-120	20000	19600	98	
Selenium	80-120	1010	1000	99	
Silver	80-120	50	51.5	103	
Sodium	80-120	20000	20900	104	
Thallium	80-120	2000	1930	96	
Vanadium	80-120	500	501	100	
Zinc	80-120	500	525	105	



Subcontracted Analytical Parameters

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Technical Report

prepared for:

ALS Environmental
1565 Jefferson Road
Rochester NY, 14623
Attention: Meghan Pedro

Report Date: 11/27/2024
Client Project ID: R2411790
York Project (SDG) No.: 24K1389

Stratford, CT Laboratory IDs:
NY:10854, NJ: CT005, PA: 68-0440, CT: PH-0723



Richmond Hill, NY Laboratory IDs:
NY:12058, NJ: NY037, CT: PH-0721, NH: 2097,
EPA: NY01600

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ClientServices@yorklab.com

Report Date: 11/27/2024
Client Project ID: R2411790
York Project (SDG) No.: 24K1389

ALS Environmental
1565 Jefferson Road
Rochester NY, 14623
Attention: Meghan Pedro

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on November 19, 2024 and listed below. The project was identified as your project: **R2411790**.

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Sample and Analysis Qualifiers section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the Sample and Data Qualifiers Relating to This Work Order section of this report and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

<u>York Sample ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
24K1389-01	MW-11	Water	11/14/2024	11/19/2024

General Notes for York Project (SDG) No.: 24K1389

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All analyses conducted met method or Laboratory SOP requirements. See the Sample and Data Qualifiers Section for further information.
6. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
7. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.
8. Analyses conducted at York Analytical Laboratories, Inc. Stratford, CT are indicated by NY Cert. No. 10854, NJ Cert No. CT005, PA Cert No. 68-04440, CT Cert No. PH-0723; those conducted at York Analytical Laboratories, Inc., Richmond Hill, NY are indicated by NY Cert. No. 12058, NJ Cert No. NY037, CT Cert No. PH-0721, NH Cert No. 2097, EPA Cert No. NY01600.

Approved By: 

Cassie L. Mosher
Laboratory Manager

Date: 11/27/2024





Sample Information

Client Sample ID: MW-11

York Sample ID: 24K1389-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
24K1389	R2411790	Water	November 14, 2024 8:55 am	11/19/2024

PFAS, EPA 1633 Target List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 1633 Prep

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		ng/L	0.872	3.29	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
307-24-4	Perfluorohexanoic acid (PFHxA)	0.844	J	ng/L	0.650	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		ng/L	1.32	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		ng/L	1.26	3.40	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
335-67-1	Perfluorooctanoic acid (PFOA)	5.45		ng/L	0.780	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14.0		ng/L	1.52	3.45	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
375-95-1	Perfluorononanoic acid (PFNA)	ND		ng/L	0.965	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
335-76-2	Perfluorodecanoic acid (PFDA)	ND		ng/L	1.39	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		ng/L	2.10	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		ng/L	1.63	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
72629-94-8	Perfluorotridecanoic acid (PFTrDA)	ND		ng/L	1.37	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
376-06-7	* Perfluorotetradecanoic acid (PFTA)	ND		ng/L	1.28	3.71	1	EPA 1633 Draft 3 Certifications: NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
2355-31-9	N-MeFOSAA	ND		ng/L	1.47	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
2991-50-6	N-EtFOSAA	ND		ng/L	1.91	3.71	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
2706-90-3	Perfluoropentanoic acid (PFPeA)	0.886	J	ng/L	0.427	7.42	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
754-91-6	* Perfluoro-1-octanesulfonamide (FOSA)	ND		ng/L	1.63	3.71	1	EPA 1633 Draft 3 Certifications: NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
375-92-8	* Perfluoro-1-heptanesulfonic acid (PFHpS)	ND		ng/L	1.69	3.54	1	EPA 1633 Draft 3 Certifications: NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
335-77-3	* Perfluoro-1-decanesulfonic acid (PFDS)	ND		ng/L	2.45	3.58	1	EPA 1633 Draft 3 Certifications: NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND		ng/L	13.9	14.1	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND		ng/L	3.80	14.3	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
375-22-4	Perfluoro-n-butanoic acid (PFBA)	ND		ng/L	0.612	14.8	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
113507-82-7	Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND		ng/L	0.928	6.61	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058	11/25/2024 11:38	11/27/2024 01:21	AM



Sample Information

Client Sample ID: MW-11

York Sample ID: 24K1389-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1389

R2411790

Water

November 14, 2024 8:55 am

11/19/2024

PFAS, EPA 1633 Target List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 1633 Prep

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
151772-58-6	Perfluoro-3,6-dioxahexanoic acid (NFDHA)	ND		ng/L	3.97	7.42	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058	11/25/2024 11:38	11/27/2024 01:21	AM
377-73-1	Perfluoro-4-oxapentanoic acid (PFMPA)	ND		ng/L	0.464	7.42	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058	11/25/2024 11:38	11/27/2024 01:21	AM
863090-89-5	Perfluoro-5-oxahexanoic acid (PFMBA)	ND		ng/L	0.687	7.42	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058	11/25/2024 11:38	11/27/2024 01:21	AM
2706-91-4	Perfluoro-1-pentanesulfonate (PFPeS)	ND		ng/L	1.41	3.49	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
757124-72-4	1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND		ng/L	3.32	13.9	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
13252-13-6	HFPO-DA (Gen-X)	ND		ng/L	5.99	14.8	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
763051-92-9	11CL-PF3OUdS	ND		ng/L	2.56	14.0	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
756426-58-1	9CL-PF3ONS	ND		ng/L	1.30	13.9	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
919005-14-4	ADONA	ND		ng/L	0.984	14.0	1	EPA 1633 Draft 3 Certifications: NELAC-NY12058,NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
79780-39-5	* Perfluorododecanesulfonic acid (PFDoS)	ND		ng/L	1.73	3.60	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
68259-12-1	* Perfluoro-1-nonanesulfonic acid (PFNS)	ND		ng/L	1.60	3.56	1	EPA 1633 Draft 3 Certifications: NJDEP-NY037	11/25/2024 11:38	11/27/2024 01:21	AM
356-02-5	* 3-Perfluoropropyl propanoic acid (FPrPA)	ND		ng/L	3.77	9.28	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
914637-49-3	* 3-Perfluoropentyl propanoic acid (FPePA)	ND		ng/L	13.6	46.4	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
812-70-4	* 3-Perfluoroheptyl propanoic acid (FHpPA)	ND		ng/L	17.6	46.4	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
24448-09-7	* N-MeFOSE	ND		ng/L	7.41	37.1	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
31506-32-8	* N-MeFOSA	ND		ng/L	2.93	3.71	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
1691-99-2	* N-EtFOSE	ND		ng/L	7.41	37.1	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM
4151-50-2	* N-EtFOSA	ND		ng/L	3.34	3.71	1	EPA 1633 Draft 3 Certifications:	11/25/2024 11:38	11/27/2024 01:21	AM

	Surrogate Recoveries	Result	Acceptance Range
M3PFBS	Surrogate: M3PFBS	110 %	25-150
13C5PFHXA	Surrogate: M5PFHxA	121 %	25-150
13C4PFHPA	Surrogate: M4PFHPA	115 %	25-150
13C3PFHXS	Surrogate: M3PFHxS	120 %	25-150
13C8PFOA	Surrogate: Perfluoro-n-[13C8]octanoic acid (M8PFOA)	113 %	25-150
13C6PFDA	Surrogate: M6PFDA	97.9 %	25-150
13C7PFUNA	Surrogate: M7PFUDA	102 %	25-150



Sample Information

Client Sample ID: MW-11

York Sample ID: 24K1389-01

York Project (SDG) No.

Client Project ID

Matrix

Collection Date/Time

Date Received

24K1389

R2411790

Water

November 14, 2024 8:55 am

11/19/2024

PFAS, EPA 1633 Target List

Log-in Notes:

Sample Notes:

Sample Prepared by Method: EPA 1633 Prep

CAS No.	Parameter	Result	Flag	Units	Reported to LOD/MDL	LOQ	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
960315-52-0	Surrogate: Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)	113 %			25-150						
13C2PFTEDA	Surrogate: M2PFTeDA	155 %	PFSu-H		10-150						
13C4PFBA	Surrogate: Perfluoro-n-[13C4]butanoic acid (MPFBA)	56.0 %			25-150						
13C8PFOS	Surrogate: Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)	106 %			25-150						
13C5PFPEA	Surrogate: Perfluoro-n-[13C5]pentanoic acid (M5PFPeA)	107 %			25-150						
13C8FOSA	Surrogate: Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)	114 %			10-150						
D3-NMEFOSAA	Surrogate: d3-N-MeFOSAA	116 %			25-150						
D5-NETFOSAA	Surrogate: d5-N-EtFOSAA	125 %			25-150						
M2-6:2FTS	Surrogate: M2-6:2 FTS	193 %			25-200						
M2-8:2FTS	Surrogate: M2-8:2 FTS	148 %			25-200						
13C9PFNA	Surrogate: M9PFNA	118 %			25-150						
M2-4:2FTS	Surrogate: M2-4:2 FTS	158 %	PFSu-H		25-150						
936109-37-4	Surrogate: d-N-MeFOSA	132 %			25-150						
936109-40-9	Surrogate: d-N-EtFOSA	122 %			25-150						
M3HFPO-DA	Surrogate: M3HFPO-DA	128 %			25-150						
D9-NETPFOSA	Surrogate: d9-N-EtFOSE	88.7 %			25-150						
D7-NMEPFOSA	Surrogate: d7-N-MeFOSE	83.7 %			25-150						



Analytical Batch Summary

Batch ID: BK41691

Preparation Method: EPA 1633 Prep

Prepared By: SAB

YORK Sample ID	Client Sample ID	Preparation Date
24K1389-01	MW-11	11/25/24
BK41691-BLK1	Blank	11/25/24
BK41691-BS1	LCS	11/25/24
BK41691-BS2	LCS	11/25/24



PFAS Target compounds by LC/MS-MS - Quality Control Data
York Analytical Laboratories, Inc. - Stratford

Analyte	Result	Reporting	Units	Spike Level	Source*	%REC	Limits	Flag	RPD	Limit	Flag
		Limit			Result	%REC			RPD		

Batch BK41691 - EPA 1633 Prep

Blank (BK41691-BLK1)

Prepared: 11/25/2024 Analyzed: 11/26/2024

Perfluorobutanesulfonic acid (PFBS)	ND	1.77	ng/L								
Perfluorohexanoic acid (PFHxA)	ND	2.00	"								
Perfluoroheptanoic acid (PFHpA)	ND	2.00	"								
Perfluorohexanesulfonic acid (PFHxS)	ND	1.83	"								
Perfluorooctanoic acid (PFOA)	ND	2.00	"								
Perfluorooctanesulfonic acid (PFOS)	ND	1.86	"								
Perfluorononanoic acid (PFNA)	ND	2.00	"								
Perfluorodecanoic acid (PFDA)	ND	2.00	"								
Perfluoroundecanoic acid (PFUnA)	ND	2.00	"								
Perfluorododecanoic acid (PFDoA)	ND	2.00	"								
Perfluorotridecanoic acid (PFTrDA)	ND	2.00	"								
Perfluorotetradecanoic acid (PFTA)	ND	2.00	"								
N-MeFOSAA	ND	2.00	"								
N-EtFOSAA	ND	2.00	"								
Perfluoropentanoic acid (PFPeA)	ND	4.00	"								
Perfluoro-1-octanesulfonamide (FOSA)	ND	2.00	"								
Perfluoro-1-heptanesulfonic acid (PFHpS)	ND	1.91	"								
Perfluoro-1-decanesulfonic acid (PFDS)	ND	1.93	"								
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	ND	7.60	"								
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	ND	7.68	"								
Perfluoro-n-butanoic acid (PFBA)	ND	8.00	"								
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	3.56	"								
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	4.00	"								
Perfluoro-4-oxapentanoic acid (PFMPA)	ND	4.00	"								
Perfluoro-5-oxahexanoic acid (PFMBA)	ND	4.00	"								
Perfluoro-1-pentanesulfonate (PFPeS)	ND	1.88	"								
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	ND	7.50	"								
HFPO-DA (Gen-X)	ND	8.00	"								
11CL-PF3OUdS	ND	7.56	"								
9CL-PF3ONS	ND	7.48	"								
ADONA	ND	7.56	"								
Perfluorododecanesulfonic acid (PFDoS)	ND	1.94	"								
Perfluoro-1-nonanesulfonic acid (PFNS)	ND	1.92	"								
3-Perfluoropropyl propanoic acid (FPrPA)	ND	5.00	"								
3-Perfluoropentyl propanoic acid (FPePA)	ND	25.0	"								
3-Perfluoroheptyl propanoic acid (FHpPA)	ND	25.0	"								
N-MeFOSE	ND	20.0	"								
N-MeFOSA	ND	2.00	"								
N-EtFOSE	ND	20.0	"								
N-EtFOSA	ND	2.00	"								
Surrogate: M3PFBS	32.0		"	23.3		138	25-150				
Surrogate: M5PFHxA	34.2		"	25.0		137	25-150				
Surrogate: M4PFHpA	29.1		"	25.0		117	25-150				
Surrogate: M3PFHxS	33.5		"	23.7		142	25-150				
Surrogate: Perfluoro-n-[13C8]octanoic acid (M8PFOA)	35.3		"	25.0		141	25-150				
Surrogate: M6PFDA	14.8		"	12.5		118	25-150				



PFAS Target compounds by LC/MS-MS - Quality Control Data
York Analytical Laboratories, Inc. - Stratford

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
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Batch BK41691 - EPA 1633 Prep

Blank (BK41691-BLK1)

Prepared: 11/25/2024 Analyzed: 11/26/2024

Surrogate: M7PFUdA	16.6		ng/L	12.5		133	25-150				
Surrogate: Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)	19.7		"	12.5		158	25-150				
Surrogate: M2PFTeDA	22.0		"	12.5		176	10-150				
Surrogate: Perfluoro-n-[13C4]butanoic acid (MPFBA)	4.06		"	100		4.06	25-150				
Surrogate: Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)	30.7		"	24.0		128	25-150				
Surrogate: Perfluoro-n-[13C5]pentanoic acid (M5PFPeA)	43.5		"	50.0		87.0	25-150				
Surrogate: Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)	35.0		"	25.0		140	10-150				
Surrogate: d3-N-MeFOSAA	64.1		"	50.0		128	25-150				
Surrogate: d5-N-EtFOSAA	67.9		"	50.0		136	25-150				
Surrogate: M2-6:2 FTS	110		"	47.6		232	25-200				
Surrogate: M2-8:2 FTS	84.5		"	48.0		176	25-200				
Surrogate: M9PFNA	14.7		"	12.5		118	25-150				
Surrogate: M2-4:2 FTS	101		"	46.9		214	25-150				
Surrogate: d-N-MeFOSA	38.0		"	25.0		152	25-150				
Surrogate: d-N-EtFOSA	37.2		"	25.0		149	25-150				
Surrogate: M3HFPO-DA	156		"	100		156	25-150				
Surrogate: d9-N-EtFOSE	210		"	250		84.1	25-150				
Surrogate: d7-N-MeFOSE	224		"	250		89.6	25-150				

LCS (BK41691-BS1)

Prepared: 11/25/2024 Analyzed: 11/26/2024

Perfluorobutanesulfonic acid (PFBS)	40.1	1.77	ng/L	35.4		113	50-150				
Perfluorohexanoic acid (PFHxA)	40.7	2.00	"	40.0		102	50-150				
Perfluoroheptanoic acid (PFHpA)	49.7	2.00	"	40.0		124	50-150				
Perfluorohexanesulfonic acid (PFHxS)	45.7	1.83	"	36.6		125	50-150				
Perfluorooctanoic acid (PFOA)	44.9	2.00	"	40.0		112	50-150				
Perfluorooctanesulfonic acid (PFOS)	45.0	1.86	"	37.2		121	50-150				
Perfluorononanoic acid (PFNA)	45.5	2.00	"	40.0		114	50-150				
Perfluorodecanoic acid (PFDA)	54.2	2.00	"	40.0		135	50-150				
Perfluoroundecanoic acid (PFUnA)	48.5	2.00	"	40.0		121	50-150				
Perfluorododecanoic acid (PFDoA)	44.2	2.00	"	40.0		110	50-150				
Perfluorotridecanoic acid (PFTrDA)	44.3	2.00	"	40.0		111	50-150				
Perfluorotetradecanoic acid (PFTA)	43.5	2.00	"	40.0		109	50-150				
N-MeFOSAA	40.8	2.00	"	40.0		102	50-150				
N-EtFOSAA	49.1	2.00	"	40.0		123	50-150				
Perfluoropentanoic acid (PFPeA)	87.0	4.00	"	80.0		109	50-150				
Perfluoro-1-octanesulfonamide (FOSA)	52.3	2.00	"	40.0		131	50-150				
Perfluoro-1-heptanesulfonic acid (PFHpS)	46.5	1.91	"	38.2		122	50-150				
Perfluoro-1-decanesulfonic acid (PFDS)	46.3	1.93	"	38.6		120	50-150				
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	151	7.60	"	152		99.2	50-150				
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	164	7.68	"	154		106	50-150				
Perfluoro-n-butanoic acid (PFBA)	153	8.00	"	160		95.6	50-150				
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	76.2	3.56	"	71.2		107	50-150				
Perfluoro-3,6-dioxahexanoic acid (NFDHA)	95.4	4.00	"	80.0		119	50-150				
Perfluoro-4-oxapentanoic acid (PFMPA)	16.2	4.00	"	80.0		20.2	50-150	Low Bias			
Perfluoro-5-oxahexanoic acid (PFMBA)	114	4.00	"	80.0		143	50-150				



PFAS Target compounds by LC/MS-MS - Quality Control Data

York Analytical Laboratories, Inc. - Stratford

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK41691 - EPA 1633 Prep											
LCS (BK41691-BS1)											
Prepared: 11/25/2024 Analyzed: 11/26/2024											
Perfluoro-1-pentanesulfonate (PFPeS)	44.3	1.88	ng/L	37.6		118	50-150				
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	168	7.50	"	150		112	50-150				
HFPO-DA (Gen-X)	84.5	8.00	"	80.0		106	50-150				
11CL-PF3OUdS	73.3	7.56	"	75.6		97.0	50-150				
9CL-PF3ONS	80.1	7.48	"	74.8		107	50-150				
ADONA	77.4	7.56	"	75.6		102	50-150				
Perfluorododecanesulfonic acid (PFDoS)	40.9	1.94	"	38.8		106	50-150				
Perfluoro-1-nonanesulfonic acid (PFNS)	52.6	1.92	"	38.4		137	50-150				
3-Perfluoropropyl propanoic acid (FPrPA)	99.3	5.00	"	160		62.1	50-150				
3-Perfluoropentyl propanoic acid (FPePA)	795	25.0	"	800		99.4	50-150				
3-Perfluoroheptyl propanoic acid (FHpPA)	828	25.0	"	800		104	50-150				
N-MeFOSE	427	20.0	"	400		107	50-150				
N-MeFOSA	44.6	2.00	"	40.0		112	50-150				
N-EtFOSE	384	20.0	"	400		96.1	50-150				
N-EtFOSA	42.1	2.00	"	40.0		105	50-150				
Surrogate: M3PFBS	29.2		"	23.3		125	25-150				
Surrogate: M5PFHxA	34.0		"	25.0		136	25-150				
Surrogate: M4PFHpA	33.3		"	25.0		133	25-150				
Surrogate: M3PFHxS	31.1		"	23.7		131	25-150				
Surrogate: Perfluoro-n-[13C8]octanoic acid (M8PFOA)	29.7		"	25.0		119	25-150				
Surrogate: M6PFDA	13.1		"	12.5		105	25-150				
Surrogate: M7PFUdA	16.2		"	12.5		130	25-150				
Surrogate: Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)	18.6		"	12.5		149	25-150				
Surrogate: M2PFTeDA	21.6		"	12.5		173	10-150				
Surrogate: Perfluoro-n-[13C4]butanoic acid (MPFBA)	4.43		"	100		4.43	25-150				
Surrogate: Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)	29.5		"	23.9		123	25-150				
Surrogate: Perfluoro-n-[13C5]pentanoic acid (M5PFPeA)	44.5		"	50.0		89.0	25-150				
Surrogate: Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)	33.2		"	25.0		133	10-150				
Surrogate: d3-N-MeFOSAA	70.5		"	50.0		141	25-150				
Surrogate: d5-N-EtFOSAA	66.3		"	50.0		133	25-150				
Surrogate: M2-6:2 FTS	108		"	47.5		227	25-200				
Surrogate: M2-8:2 FTS	86.5		"	48.0		180	25-200				
Surrogate: M9PFNA	18.3		"	12.5		147	25-150				
Surrogate: M2-4:2 FTS	85.7		"	46.9		183	25-150				
Surrogate: d-N-MeFOSA	39.8		"	25.0		159	25-150				
Surrogate: d-N-EtFOSA	40.3		"	25.0		161	25-150				
Surrogate: M3HFPO-DA	147		"	100		147	25-150				
Surrogate: d9-N-EtFOSE	223		"	250		89.2	25-150				
Surrogate: d7-N-MeFOSE	219		"	250		87.7	25-150				



PFAS Target compounds by LC/MS-MS - Quality Control Data

York Analytical Laboratories, Inc. - Stratford

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
Batch BK41691 - EPA 1633 Prep											
LCS (BK41691-BS2)											
Prepared: 11/25/2024 Analyzed: 11/26/2024											
Perfluorobutanesulfonic acid (PFBS)	3.89	1.77	ng/L	3.54		110	50-150				
Perfluorohexanoic acid (PFHxA)	4.00	2.00	"	4.00		100	50-150				
Perfluoroheptanoic acid (PFHpA)	4.66	2.00	"	4.00		117	50-150				
Perfluorohexanesulfonic acid (PFHxS)	3.89	1.83	"	3.66		106	50-150				
Perfluorooctanoic acid (PFOA)	3.64	2.00	"	4.00		91.1	50-150				
Perfluorooctanesulfonic acid (PFOS)	4.29	1.86	"	3.72		115	50-150				
Perfluorononanoic acid (PFNA)	4.18	2.00	"	4.00		105	50-150				
Perfluorodecanoic acid (PFDA)	4.19	2.00	"	4.00		105	50-150				
Perfluoroundecanoic acid (PFUnA)	4.40	2.00	"	4.00		110	50-150				
Perfluorododecanoic acid (PFDoA)	4.79	2.00	"	4.00		120	50-150				
Perfluorotridecanoic acid (PFTrDA)	4.39	2.00	"	4.00		110	50-150				
Perfluorotetradecanoic acid (PFTA)	4.34	2.00	"	4.00		108	50-150				
N-MeFOSAA	3.85	2.00	"	4.00		96.2	50-150				
N-EtFOSAA	4.13	2.00	"	4.00		103	50-150				
Perfluoropentanoic acid (PFPeA)	8.06	4.00	"	8.00		101	50-150				
Perfluoro-1-octanesulfonamide (FOSA)	4.52	2.00	"	4.00		113	50-150				
Perfluoro-1-heptanesulfonic acid (PFHpS)	3.98	1.91	"	3.82		104	50-150				
Perfluoro-1-decanesulfonic acid (PFDS)	4.17	1.93	"	3.86		108	50-150				
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	14.4	7.60	"	15.2		94.9	50-150				
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	16.3	7.68	"	15.4		106	50-150				
Perfluoro-n-butanoic acid (PFBA)	13.2	8.00	"	16.0		82.4	50-150				
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	7.17	3.56	"	7.12		101	50-150				
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	6.00	4.00	"	8.00		75.0	50-150				
Perfluoro-4-oxapentanoic acid (PFMPA)	1.72	4.00	"	8.00		21.5	50-150	Low Bias			
Perfluoro-5-oxahexanoic acid (PFMBA)	9.95	4.00	"	8.00		124	50-150				
Perfluoro-1-pentanesulfonate (PFPeS)	3.39	1.88	"	3.76		90.3	50-150				
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	16.0	7.50	"	15.0		107	50-150				
HFPO-DA (Gen-X)	8.41	8.00	"	8.00		105	50-150				
11CL-PF3OUdS	7.68	7.56	"	7.56		102	50-150				
9CL-PF3ONS	7.61	7.48	"	7.48		102	50-150				
ADONA	7.78	7.56	"	7.56		103	50-150				
Perfluorododecanesulfonic acid (PFDoS)	4.34	1.94	"	3.88		112	50-150				
Perfluoro-1-nonanesulfonic acid (PFNS)	5.22	1.92	"	3.84		136	50-150				
3-Perfluoropropyl propanoic acid (FPPrPA)	10.4	5.00	"	16.0		65.0	50-150				
3-Perfluoropentyl propanoic acid (FPePA)	76.0	25.0	"	80.0		95.0	50-150				
3-Perfluoroheptyl propanoic acid (FHpPA)	79.8	25.0	"	80.0		99.8	50-150				
N-MeFOSE	41.2	20.0	"	40.0		103	50-150				
N-MeFOSA	4.04	2.00	"	4.00		101	50-150				
N-EtFOSE	38.0	20.0	"	40.0		95.1	50-150				
N-EtFOSA	4.23	2.00	"	4.00		106	50-150				
Surrogate: M3PFBS	26.6		"	23.3		114	25-150				
Surrogate: M5PFHxA	27.8		"	25.0		111	25-150				
Surrogate: M4PFHpA	30.0		"	25.0		120	25-150				
Surrogate: M3PFHxS	29.0		"	23.7		122	25-150				
Surrogate: Perfluoro-n-[13C8]octanoic acid (M8PFOA)	29.3		"	25.0		117	25-150				
Surrogate: M6PFDA	12.2		"	12.5		97.8	25-150				
Surrogate: M7PFUdA	15.0		"	12.5		120	25-150				



PFAS Target compounds by LC/MS-MS - Quality Control Data
York Analytical Laboratories, Inc. - Stratford

Analyte	Result	Reporting Limit	Units	Spike Level	Source* Result	%REC	%REC Limits	Flag	RPD	RPD Limit	Flag
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Batch BK41691 - EPA 1633 Prep

LCS (BK41691-BS2)

Prepared: 11/25/2024 Analyzed: 11/26/2024

Surrogate: Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)	14.9		ng/L	12.5		119	25-150				
Surrogate: M2PFTeDA	20.2		"	12.5		161	10-150				
Surrogate: Perfluoro-n-[13C4]butanoic acid (MPFBA)	5.19		"	100		5.19	25-150				
Surrogate: Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)	25.5		"	23.9		107	25-150				
Surrogate: Perfluoro-n-[13C5]pentanoic acid (M5PFPeA)	42.3		"	50.0		84.5	25-150				
Surrogate: Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)	28.5		"	25.0		114	10-150				
Surrogate: d3-N-MeFOSAA	58.7		"	50.0		117	25-150				
Surrogate: d5-N-EtFOSAA	58.7		"	50.0		117	25-150				
Surrogate: M2-6:2 FTS	99.1		"	47.5		208	25-200				
Surrogate: M2-8:2 FTS	75.5		"	48.0		157	25-200				
Surrogate: M9PFNA	13.8		"	12.5		110	25-150				
Surrogate: M2-4:2 FTS	86.5		"	46.9		185	25-150				
Surrogate: d-N-MeFOSA	31.5		"	25.0		126	25-150				
Surrogate: d-N-EtFOSA	33.7		"	25.0		135	25-150				
Surrogate: M3HFPO-DA	120		"	100		120	25-150				
Surrogate: d9-N-EtFOSE	206		"	250		82.2	25-150				
Surrogate: d7-N-MeFOSE	209		"	250		83.7	25-150				





Sample and Data Qualifiers Relating to This Work Order

- PFSu-H The isotopically labeled surrogate recovered above lab control limits due to a matrix effect. Isotope Dilution was applied.
- J Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL/LOD) or in the case of a TIC, the result is an estimated concentration.

Definitions and Other Explanations

- * Analyte is not certified or the state of the samples origination does not offer certification for the Analyte.
- ND NOT DETECTED - the analyte is not detected at the Reported to level (LOQ/RL or LOD/MDL)
- RL REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
- LOQ LIMIT OF QUANTITATION - the minimum concentration of a target analyte that can be reported within a specified degree of confidence. This is the lowest point in an analyte calibration curve that has been subjected to all steps of the processing/analysis and verified to meet defined criteria. This is based upon NELAC 2009 Standards and applies to all analyses.
- LOD LIMIT OF DETECTION - a verified estimate of the minimum concentration of a substance in a given matrix that an analytical process can reliably detect. This is based upon NELAC 2009 Standards and applies to all analyses conducted under the auspices of EPA SW-846.
- MDL METHOD DETECTION LIMIT - a statistically derived estimate of the minimum amount of a substance an analytical system can reliably detect with a 99% confidence that the concentration of the substance is greater than zero. This is based upon 40 CFR Part 136 Appendix B and applies only to EPA 600 and 200 series methods.
- Reported to This indicates that the data for a particular analysis is reported to either the LOD/MDL, or the LOQ/RL. In cases where the "Reported to" is located above the LOD/MDL, any value between this and the LOQ represents an estimated value which is "J" flagged accordingly. This applies to volatile and semi-volatile target compounds only.
- NR Not reported
- RPD Relative Percent Difference
- Wet The data has been reported on an as-received (wet weight) basis
- Low Bias Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
- High Bias High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
- Non-Dir. Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

If EPA SW-846 method 8270 is included herein it is noted that the target compound N-nitrosodiphenylamine (NDPA) decomposes in the gas chromatographic inlet and cannot be separated from diphenylamine (DPA). These results could actually represent 100% DPA, 100% NDPA or some combination of the two. For this reason, York reports the combined result for n-nitrosodiphenylamine and diphenylamine for either of these compounds as a combined concentration as Diphenylamine.

If Total PCBs are detected and the target aroclors reported are "Not detected", the Total PCB value is reported due to the presence of either or both Aroclors 1262 and 1268 which are non-target aroclors for some regulatory lists.

2-chloroethylvinyl ether readily breaks down under acidic conditions. Samples that are acid preserved, including standards will exhibit breakdown. The data user should take note.

Certification for pH is no longer offered by NYDOH ELAP.

Semi-Volatile and Volatile analyses are reported down to the LOD/MDL, with values between the LOD/MDL and the LOQ being "J" flagged as estimated results.

For analyses by EPA SW-846-8270D, the Limit of Quantitation (LOQ) reported for benzidine is based upon the lowest standard used for calibration and is not a verified LOQ due to this compound's propensity for oxidative losses during extraction/concentration procedures and non-reproducible chromatographic performance.



ALS Environmental Chain of Custody

1565 Jefferson Rd, Building 300 • Rochester, NY 14623 • 585-288-5380 • FAX 585-288-8475

ALS Contact: Meghan Pedro

24K1389

Project Number: R2411790
Project Manager: Meghan Pedro
QAP: LAB QAP

Lab Code	Sample ID	# of Cont.	Matrix	Sample		Lab ID	PFAS 1633final
				Date	Time		
R2411790-001	MW-11	4	Water	11/14/24	0855	York RichmondHill	X

Special Instructions/Comments	Turnaround Requirements	Report Requirements	Invoice Information
<p>H - Test is On Hold P - Test is Authorized for Prep Only</p>	<p><u> </u> RUSH (Surcharges Apply) PLEASE CIRCLE WORK DAYS 1 2 3 4 5 <u> </u> STANDARD Requested FAX Date: _____ Requested Report Date: 11/29/24</p>	<p>I. Results Only <u> </u> II. Results + QC Summaries <u> </u> III. Results + QC and Calibration Summaries <u> </u> IV. Data Validation Report with Raw Data PQL/MDL/1 <u> </u> N <u> </u> EDD <u> </u> Y <u> </u> 29ms 5 mar</p>	<p>PO# 58R2411790 Bill to</p>

Relinquished By:  Received By: 11/19/24 9:50 2.7 Airbill Number: _____

SITE-WIDE INSPECTION FORM

Cuba Landfill Site
Town of Cuba, Allegany County

NAME OF INSPECTOR: Michael ANDRUS / DEREK Whitfield

COMPANY OF INSPECTOR: LU Engineer

DATE OF INSPECTION: 11/14/24

CURRENT USE OF SITE: CLOSED LANDFILL

EVIDENCE OF VANDALISM (wells, vents, protective cover damage):

N/A

EVIDENCE OF COVER SYSTEM INTRUSION (ruts, burrows, excavations):

N/A

EVIDENCE OF PENETRATIONS (poles, posts, stakes):

N/A

EVIDENCE OF HUMAN ENCROACHMENT (trash, fire pits, tire/footprints):

N/A

GENERAL SITE CONDITION (gates, access road, culverts):

GATE and Wells are locked. ACCESS ROAD needs potholes filled on MAIN ACCESS ROAD. CULVERTS #4 EXPOSED NEEDS GRAVEL FOR COVER

EVIDENCE OF EROSION, SETTLEMENT RUTTING, POTHoles, SLIPPAGE:

yes

EVIDENCE OF STRESSED VEGETATION OR BARE SPOTS: ~~##~~ ~~##~~
A Few dead willow tree and one tree LEANING over

EVIDENCE OF DAMAGE TO WELLS/VENTS: N/A

EVIDENCE OF COVER SYSTEM SUBSIDENCE NEAR WELLS/VENTS:

MW-1D and MW-1S uplifted repaired

EVIDENCE OF WILDLIFE INTRUSION (nests, burrows, wasp nests):

N/A

EVIDENCE OF SPILLED LIQUIDS (well tampering/vent blowout):

N/A

GAS VENTS: Unusual conditions- belching, whistling, excessive gas production:

N/A

MONITORING WELLS: Well covers in place and secure:

COVER Latch rusted and broken.

yes (well MW-4)

EVIDENCE OF DRAINAGE ISSUES (i.e., blockage due to sedimentation, ponding):

N/A

EVIDENCE OF SWALE OVERFLOW (i.e., stormwater pathway strays from swales):

N/A



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: 39.780			
Reporting Period: January 25, 2024 to January 25, 2025			
		YES	NO
1.	Is the information above correct?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.	Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Box 2	
		YES	NO
6.	Is the current site use consistent with the use(s) listed below? Closed Landfill	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.	Are all ICs in place and functioning as designed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.			
A Corrective Measures Work Plan must be submitted along with this form to address these issues.			
_____ Signature of Owner, Remedial Party or Designated Representative		_____ Date	

Description of Institutional Controls

<u>Parcel</u>	<u>Owner</u>	<u>Institutional Control</u>
155.00-1-6.15	Village of Cuba	Site Management Plan Ground Water Use Restriction Soil Management Plan Landuse Restriction Surface Water Use Restriction Monitoring Plan

A revised Site Management Plan (SMP) was approved in March 2022 to manage remaining contamination at the Site in perpetuity or until extinguishment of the Environmental Notice in accordance with ECL Article 71, Title 36.

A Declaration of Covenants and Restrictions (DCR) has been filed on the two entire parcels (~40 acres) that provides an enforceable legal instrument to ensure compliance with the SMP and all ECs and ICs placed on the Site. The DCR was filed with Allegany County in October 2011, and recorded on 10/11/11 as Instrument No.2011-50956.

Because there is remaining contamination at this site, Engineering Controls (ECs) and Institutional Controls (ICs) have been implemented to protect public health and the environment for future use. The Controlled Property has the following Engineering Controls:

1. An engineered landfill cap;
2. Fourteen passive gas vents were installed within the landfill cap boundaries;
3. Four drainage swales were included in the landfill cap design to promote efficient drainage over the cap;
4. One hundred sixty eight willow trees were planted south of the retention pond to mitigate potential leachate seepage south of the site;
5. To minimize the potential of vehicular traffic, 8-ft chain link fence gates were installed at the entrances of the property on Deep Snow Road, one to the southwest of the site and one to the north of the site. Gates have been secured with locks to minimize the potential for trespassing;
6. An access road to control access to the contaminated area;and
7. Sentinel wells for long-term monitoring of site groundwater.

A series of ICs are required to implement, maintain and monitor these ECs. The DCR requires compliance with these ICs, to ensure that:

- All ECs must be operated and maintained as specified in the SMP;and
- All ECs on the Site must be inspected and certified at a frequency and in a manner defined in the SMP; and
- Groundwater, soil vapor, and other environmental or public health monitoring must be performed as defined in the SMP; and
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP; and
- An exclusion against any uses other than for a landfill;and
- On-site environmental monitoring devices, including but not limited to, groundwater monitoring wells and

passive soil gas vents, must be protected and replaced as necessary to ensure continued functioning in the manner specified in the SMP.

In addition, the DCR places the following restrictions on the entire property:

- The property may only be used for its current use as a landfill.
- The property may not be used for a higher level of use without additional remediation and amendment of the DCR, as approved by the NYSDEC.
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP.
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use.
- The potential for vapor intrusion must be evaluated for any buildings developed in the area, and any potential impacts that are identified must be monitored or mitigated.
- Vegetable gardens and farming on the property are prohibited.
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the controlled property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP.

NYSDEC retains the right to access such controlled property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil
- Prevent exposure to contaminants volatilizing from contaminated soil
- Prevent exposure to onsite groundwater
- Prevent the migration of LNAPL from the small impacted area of the landfill and the release of LNAPL contaminants into groundwater.

155.00-1-7

VILLAGE OF CUBA

Soil Management Plan

Monitoring Plan

Ground Water Use Restriction

Landuse Restriction

Surface Water Use Restriction

Site Management Plan

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Because there is remaining contamination at this site, Engineering Controls (ECs) and Institutional Controls (ICs) have been implemented to protect public health and the environment for future use. The Controlled Property has the following Engineering Controls:

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3. Four drainage swales were included in the landfill cap design to promote efficient drainage over the cap;
4. One hundred sixty eight willow trees were planted south of the retention pond to mitigate potential leachate seepage south of the site;

5. To minimize the potential of vehicular traffic, 8-ft chain link fence gates were installed at the entrances of the property on Deep Snow Road, one to the southwest of the site and one to the north of the site. Gates have been secured with locks to minimize the potential for trespassing;

6. An access road to control access to the contaminated area;and

7. Sentinel wells for long-term monitoring of site groundwater.

A series of ICs are required to implement, maintain and monitor these ECs. The DCR requires compliance with these ICs, to ensure that:

- All ECs must be operated and maintained as specified in the SMP;and
- All ECs on the Site must be inspected and certified at a frequency and in a manner defined in the SMP; and
- Groundwater, soil vapor, and other environmental or public health monitoring must be performed as defined in the SMP; and
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP; and
- An exclusion against any uses other than for a landfill;and
- On-site environmental monitoring devices, including but not limited to, groundwater monitoring wells and passive soil gas vents, must be protected and replaced as necessary to ensure continued functioning in the manner specified in the SMP.

In addition, the DCR places the following restrictions on the entire property:

- The property may only be used for its current use as a landfill.
- The property may not be used for a higher level of use without additional remediation and amendment of the DCR, as approved by the NYSDEC.
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP.
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use.
- The potential for vapor intrusion must be evaluated for any buildings developed in the area, and any potential impacts that are identified must be monitored or mitigated.
- Vegetable gardens and farming on the property are prohibited.
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the controlled property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP.

NYSDEC retains the right to access such controlled property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

These EC/ICs are designed to:

- Prevent ingestion/direct contact with contaminated soil
- Prevent exposure to contaminants volatilizing from contaminated soil
- Prevent exposure to onsite groundwater
- Prevent the migration of LNAPL from the small impacted area of the landfill and the release of LNAPL contaminants into groundwater.

Box 4

Description of Engineering Controls

Parcel
155.00-1-6.15

Engineering Control

Cover System
Subsurface Barriers
Fencing/Access Control

155.00-1-7

Subsurface Barriers
Cover System
Fencing/Access Control

Box 5

Periodic Review Report (PRR) Certification Statements

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

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

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

YES NO

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

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

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

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

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

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

YES NO

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

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

Signature of Owner, Remedial Party or Designated Representative

Date

**IC CERTIFICATIONS
SITE NO. 902012**

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

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

I Gregory L. Andrus, P.G. at 280 East Broad Street, Suite 170 Rochester, NY 14604,
print name print business address

am certifying as Owner's Representative (Owner or Remedial Party)

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



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

2/22/25

Date

EC CERTIFICATIONS

Box 7

Professional Engineer Signature

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

I, Michael E. Hanscom at Lu Engineers, 280 East Broad St, Rochester, N.Y. 14604
print name print business address

am certifying as a Professional Engineer for the Village of Cuba, New York (Owner)
(Owner or Remedial Party)



Michael E. Hanscom
Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp
(Required for PE)

2/22/2024
Date



NEW YORK STATE
DEPARTMENT OF
ENVIRONMENTAL
CONSERVATION



Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Commercial or Industrial Use

Have Ecological Resources been identified? no

Is this soil originating from the site? no

How many cubic yards of soil will be imported/reused? 0-120

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? yes

Does it contain less than 10%, by weight, material that passes a size 100 sieve? yes

Is this virgin material from a permitted mine or quarry? yes

Is this material recycled concrete or brick from a DEC registered processing facility?no

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

The material meets requirements of DER-10 section 5.4(e)5.NYDOT Item 304.14 Subbase Course Type 2 or 304.15, Subbase Course Optional Type. See sample04-24-1987-01 material test .04-24-1987-01 see attachment below

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

Revised April 2023

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5): The material planned for import is a virgin crushed rock from a NYSDOT- approved source. The material meets requirements of DER-10 section 5.4 (e)5. See sample04-24-1987-01 material test .04-24-1987-01 see attachment below

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source: Village of Cuba DPW

Location where fill was obtained: New Enterprise Alfred Station Plant 38, Mine #30-00804

Identification of any state or local approvals as a fill source: NYSDOT Source #6-49G

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request: Alfred Plant 38 spec sheet , CME lab Report from Alfred station Source #6-49G

Revised April 2023

The information provided on this form is accurate and complete.



Signature Date

Kris Krzos

Print Name

The Village of Cuba ,NY

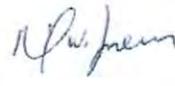
Firm

Material Test Report

Report ID: MAT:04-24-1987-01
Issue No: 1
This issue replaces all previous issues of this report

Client: New Enterprise Stone & Lime Co., Inc **CC:** Paul Juda
Project: 17330 - New Enterprise Stone & Lime
Location: Williamsville, NY

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Submitted By: Niel W. Zuern, Vice President of Quality
Date of Issue: 7/15/2024

Sample Details

Sample ID: 04-24-1987-01
Date Sampled: 6/21/2024
Source: NESL Alfred 6-49G
Material: NYSDOT 304.15 Subbase
Sampling Method: Sampled per ASTM D75
Location: NESL 6-49G Stockpile

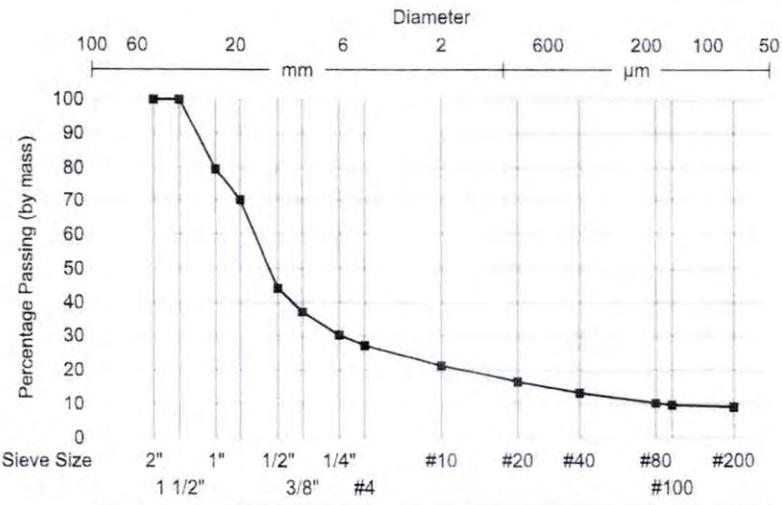
Other Test Results

Description	Method	Result	Limits
Cu	ASTM D2487	94.07	
Cc		13.74	
Procedure	ASTM C117	B	

Particle Size Distribution

ASTM C136

Drying By: None
Date Tested: 6/25/2024
Tested By: Austin Glasier



Sieve Size	% Passing	Limits
2in	100	
1 1/2in	100	
1in	80	
3/4in	70	
1/2in	44	
3/8in	37	
1/4in	30	
No.4	27	
No.10	21	
No.20	16	
No.40	13	
No.80	10	
No.100	10	
No.200	9.0	

COBBLES	GRAVEL (73%)		SAND (18%)			SILT/CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	
0%	29.9%	42.9%	5.9%	8.1%	4.2%	9%

Comments

N/A