



DRINKING WATER SAMPLING REPORT

Crossroads School

45 Cardinal Drive
Westfield, NJ 07091

June 28, 2022
Partner Project No. 22-371858.1



Prepared for

Union County Educational Services Commission

45 Cardinal Drive
Westfield, New Jersey 07090

June 28, 2022

Mr. Eric Larson
Union County Educational Services Commission
45 Cardinal Drive
Westfield, NJ 07090

Subject: Drinking Water Sampling Report
 Union County Educational Services Commission
 Crossroads School
 Westfield, NJ 07091
 Partner Project 21-327918.1

Dear Mr. Larson:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the *Drinking Water Sampling* conducted at the abovementioned address (the "subject property"). This sampling event was performed in general conformance with the scope and limitations as detailed in our fee proposal. This inspection included a site reconnaissance as well as sampling and analysis. An assessment was made, conclusions stated, and recommendations outlined, as required.

We appreciate the opportunity to provide environmental services to the Union County Educational Services Commission. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at (908) 497-8904 or via e-mail at dbracey@partneresi.com.

Sincerely,



Dan Bracey, CSP, CHMM
Senior Project Manager
Industrial Hygiene & Health and Safety Services

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Executive Summary

Partner Engineering and Science, Inc. (Partner) collected drinking water samples for Union County Educational Services Board of Education (Client) at Crossroads School on June 10, 2022. The sampling was conducted at the request of the Client as a follow-up to Partners previous drinking water sampling conducted in April 2022. Samples were collected according to the "New Jersey Department of Education N.J.A.C. 6A:26" requirements for testing of lead in New Jersey Schools and the "USEPA 3Ts for Reducing Lead in Drinking Water in Schools" recommendations, as well as the Safe Drinking Water Act of 1974.

The first sample at each fixture was a "first draw" which was collected directly from the fixture without letting the water run or flush. The second sample was collected after letting the water run (flush) for thirty seconds. This sample evaluates the lead in water from the water purveyor and the pipes outside the building. The samples collected were analyzed by Alpha Analytical Labs located in Mahwah, New Jersey for analysis of lead content using USEPA Method 200.8 for lead in drinking water. The action level for lead has been set at 15 parts per billion (ppb). According to the USEPA, given present technology and resources, this level is the lowest level to which water systems can reasonably be required to control this contaminant should it be present in drinking water.

Sample analysis indicated that measured lead concentrations did exceed the USEPA Action Level of 15 ppb for lead at Crossroads School. Specifically, water from the following outlet had exceedances:

- CR-POE, initial draw, 134.1 ppb

Based on the above referenced sample analytical results, Partner recommends the following actions:

- For the initial point of entry outlet exceeding the USEPA Action Level, this outlet should be labelled as "Do Not Drink – Safe for Handwashing Only".
- A flushing program can be implemented at the point of entry outlet, with either manual or automatic flushing.
- Conduct an investigation into the drinking water outlet of concern and replace any potential lead-leaching fixtures or equipment, such as fixtures and associated piping, that may be contributing to dissolved lead in drinking water.

1.0 INTRODUCTION

1.1 Property Description

Address(s):	Crossroads School– 45 Cardinal Drive
Nature of Use:	School
Walk-Through Inspector:	Angelica Rosaperez
Walk-Through Date:	March 29, 2022
Sampling Conducted By:	Anthony Mercogliano
Sampling Date:	June 10, 2022

1.2 Purpose and Scope

The purpose of this drinking water sampling event was to sample and analyze drinking water for a determination of lead content for comparison with the USEPA Action Level as defined by the National Primary Drinking Water Regulations (NPDWR - 40 CFR Chapter I, Part 141), in addition to the "New Jersey Department of Education N.J.A.C. 6A:26" requirements for testing of lead in New Jersey Schools and the "USEPA 3Ts for Reducing Lead in Drinking Water in Schools". The NPDW set a Maximum Contaminant Level Goal (MCLG) for each listed contaminant, which identifies a level of that contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals. The MCLG for lead has been set at zero (0) ppb. Since lead contamination generally occurs from corrosion of onsite lead pipes, or lead-based solder on fittings and fixtures, it cannot be directly detected or removed by the municipal water system. Instead, the USEPA is requiring municipal water systems to control the corrosiveness of their water if the level of lead at the tap exceeds an Action Level.

The action level for lead has been set at 15 parts per billion (ppb). According to the NPDWR Lead and Copper Rule (LCR), given present technology and resources, this level is the lowest level to which water systems can reasonably be required to control this contaminant should it be present in drinking water.

2.0 METHODOLOGY

Select drinking water samples were collected according to the "New Jersey Department of Education N.J.A.C. 6A:26" requirements for testing of lead in New Jersey Schools and the "USEPA 3Ts for Reducing Lead in Drinking Water in Schools" recommendations, as well as the LCR Monitoring requirements for lead in tap water (40 CFR Part 141, Subpart I, § 141.86(b)). Sampling consisted of collecting a one-liter (L) first draw sample from a drinking water outlet that had been stagnant for at least eight (8) hours in a bottle with an appropriate preservative. Partner made a reasonable effort to determine whether the stagnation preconditions were able to be met prior to conducting sampling. A second-draw sample was collected minutes after the first-draw, in order to determine whether lead was being provided via the service line. Second-draw samples were only analyzed if the first-draw sample exceeded the USEPA Action Level of 15 ppb. Sample bottles were provided by Alpha Analytical Labs located in Mahwah, New Jersey with an appropriate preservative lead in drinking water sampling. After collection, sample bottles were labeled with a unique identifier and transferred under chain of custody to by Alpha Analytical Labs located in Mahwah, New Jersey for analysis by USEPA Method 200.8. The laboratory results and chain of custody are contained in **Appendix A**.

3.0 BACKGROUND

Partner collected a total of sixty (60) drinking water samples from Crossroads in April 2022. A total of thirty-one (31) samples were analyzed. Following collection, samples were sent to Alpha Analytical Inc. in Mahwah, New Jersey for analysis of lead content using USEPA Method 200.8 for lead in drinking water. The results of the analytical data revealed that two (2) samples exceeded the USEPA Action level of 15 ppb for lead.

4.0 ANALYTICAL RESULTS

During the course of this site visit, Partner collected water samples at one location. Partner did not attempt to disassemble mechanical equipment, open plumbing pipe chases, or assess materials within wall voids.

A total of two (2) drinking water samples were collected from Crossroads School on June 10, 2022. A total of one (1) sample was analyzed. The results are listed in Table 1 below.

Table 1 Analytical Results Summary Crossroads School June 10, 2022		
Sample Name	Location	Results (ppb)
CR-POE	Outside Spigot	134.1
CR-POE-F	Outside Spigot	0.5497

NOTES

ND= Not detected. Lead levels not detected at the reporting limit (0.3430 ppb)

1 ppb = 1 ug/L

BOLD = Exceedances above USEPA Action Level 15 ppb

5.0 CONCLUSION

Sample analysis indicated that measured lead concentrations did exceed the USEPA Action Level of 15 ppb for lead at Crossroads School. Specifically, water from the following outlets had exceedances:

- CR-POE, initial draw, 134.1 ppb

6.0 RECOMMENDATIONS

Based on the above referenced sample analytical results, Partner recommends the following actions:

- For the initial point of entry outlet exceeding the USEPA Action Level, this outlet should be labelled as "Do Not Drink – Safe for Handwashing Only".
- A flushing program can be implemented at the point of entry outlet, with either manual or automatic flushing.
- Conduct an investigation into the drinking water outlet of concern and replace any potential lead-leaching fixtures or equipment, such as fixtures and associated piping, that may be contributing to dissolved lead in drinking water.

Additional control technologies may be utilized to reduce lead content in drinking water, including, but not limited to onsite water treatment and filtration. All response actions should be conducted in accordance with industry, local, state, and federal guidelines and/or requirements

In the event the remedial action involves replacing the fixture/associated piping or installing a new fixture, Union County Educational Services Commission should conduct sampling for lead in drinking water to ensure lead levels are below the action level prior to opening the fixture for use. Additionally, sampling of all drinking water outlets must be conducted every third school year beginning with the 2021-2022 school year.

Flushing involves opening suspect taps every morning before the facility opens and letting the water run to remove water that has been standing in the interior pipes and/or the outlets. All flushing should be recorded in a log submitted daily to the head of maintenance/facilities. The faucet should be opened, and the water should run for 30 seconds to one minute, or until cold.

A filtration device, or point-of-use (POU) device can be relatively inexpensive (\$65 to \$250) or expensive (ranging from \$250 to \$500), their effectiveness varies, and they may be vulnerable to vandalism. They also require a maintenance program for regular upkeep to ensure effectiveness. Cartridge filter units need to be replaced periodically to remain effective. NSF International, an independent, third-party certification organization, has a testing program to evaluate the performance of POU devices for lead removal (NSF Standard 53). Before purchasing any device, ask the manufacturer for proof of NSF approval and the Performance Data Sheet, or check by visiting the NSF Web site at:

http://www.nsf.org/business/search_listings/index/asp

Consult NSF Standard 61 (Sections 4, 8 and 9) before buying any replacement products. This standard will provide you with information on plumbing products that are designed to minimize lead leaching. Before you purchase any brass plumbing products, request information regarding compliance with this standard.

7.0 LIMITATIONS

Partner subcontracted with Alpha Analytical who performed the lead analysis. No warranties expressed or implied, are made by Partner or its subcontractor Alpha Analytical or their employees as to the use of any information, apparatus, product, or process disclosed in this report. Every reasonable effort has been made to assure correctness.

State-of-the-art practices have been employed to perform this inspection. No demolition or product research was performed in attempts to reveal material compositions. The services consist of professional opinions and recommendations made in accordance with generally accepted engineering principles/practices. These services are designed to provide an analytical tool to assist the client. Partner and its subcontractors and their employees/representatives bear no responsibility for the actual condition of the structure or safety of this site pertaining to lead and/or lead contamination regardless of the actions taken by the inspection team or the client.

8.0 SIGNATURES OF PROFESSIONALS

Partner performed lead-in-drinking water sampling at the Union County Educational Services Board of Education properties, Union County, New Jersey in general conformance with the scope and limitations of the protocol stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

Prepared By:

Partner Engineering and Science, Inc.



Angelica Rosaperez
Assistant Project Manager

Reviewed by:



Dan Bracey, CSP, CHMM
Senior Project Manager

APPENDIX A: LABORATORY ANALYSIS AND CHAIN OF CUSTODY



ANALYTICAL REPORT

Lab Number:	L2231200
Client:	Partner Engineering & Science, Inc. 611 Industrial Way West Eatontown, NJ 07724
ATTN:	Angelica Rosaperez
Phone:	(732) 380-1200
Project Name:	CROSSROADS SCHOOL-ROUND 2
Project Number:	22-371858.1
Report Date:	06/27/22

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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



Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2231200-01	CR-POE	DW	WESTFIELD	06/10/22 06:10	06/13/22
L2231200-02	CR-POE-F	DW	WESTFIELD	06/10/22 06:11	06/13/22

Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

Case Narrative

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

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

Case Narrative (continued)

Report Submission

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

Total Metals

L2231200-01: The sample has a detection that exceeds the Maximum Contaminant Level (MCL).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 06/27/22

METALS

Project Name: CROSSROADS SCHOOL-ROUND 2**Lab Number:** L2231200**Project Number:** 22-371858.1**Report Date:** 06/27/22**SAMPLE RESULTS**

Lab ID: L2231200-01

Date Collected: 06/10/22 06:10

Client ID: CR-POE

Date Received: 06/13/22

Sample Location: WESTFIELD

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	134.1		ug/l	1.000	0.3430	1	06/15/22 12:22	06/15/22 21:06	EPA 3005A	3,200.8	WP



Project Name: CROSSROADS SCHOOL-ROUND 2**Lab Number:** L2231200**Project Number:** 22-371858.1**Report Date:** 06/27/22**SAMPLE RESULTS**

Lab ID: L2231200-02

Date Collected: 06/10/22 06:11

Client ID: CR-POE-F

Date Received: 06/13/22

Sample Location: WESTFIELD

Field Prep: Not Specified

Sample Depth:

Matrix: Dw

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	0.5497	J	ug/l	1.000	0.3430	1	06/21/22 19:45	06/24/22 16:44	EPA 3005A	3,200.8	SV



Project Name: CROSSROADS SCHOOL-ROUND 2

Lab Number: L2231200

Project Number: 22-371858.1

Report Date: 06/27/22

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1650865-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/22 12:22	06/15/22 20:50	3,200.8	WP

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 02 Batch: WG1653085-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/21/22 19:45	06/24/22 16:13	3,200.8	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1650865-2								
Lead, Total	96		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 02 Batch: WG1653085-2								
Lead, Total	99		-		85-115	-		

Matrix Spike Analysis

Batch Quality Control

Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1650865-3 QC Sample: L2231200-01 Client ID: CR-POE												
Lead, Total	134.1	530	638.0	95		-	-		70-130	-		20
Total Metals - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1653085-3 QC Sample: L2231200-02 Client ID: CR-POE-F												
Lead, Total	0.5497J	530	534.1	101		-	-		70-130	-		20

Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Duplicate Analysis

Batch Quality Control

Lab Number: L2231200
Report Date: 06/27/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1650865-4 QC Sample: L2231200-01 Client ID: CR-POE						
Lead, Total	134.1	128.0	ug/l	5		20
Total Metals - Mansfield Lab Associated sample(s): 02 QC Batch ID: WG1653085-4 QC Sample: L2231200-02 Client ID: CR-POE-F						
Lead, Total	0.5497J	0.6009J	ug/l	NC		20

Project Name: CROSSROADS SCHOOL-ROUND 2**Lab Number:** L2231200**Project Number:** 22-371858.1**Report Date:** 06/27/22**Sample Receipt and Container Information**

Were project specific reporting limits specified?

NO

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

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2231200-01A	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-2008T-PPB(180)
L2231200-02A	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-2008T-PPB(180)

Project Name: CROSSROADS SCHOOL-ROUND 2**Lab Number:** L2231200**Project Number:** 22-371858.1**Report Date:** 06/27/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

Footnotes

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

Terms

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

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

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

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

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

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

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

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

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

Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- F** - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers



Project Name: CROSSROADS SCHOOL-ROUND 2
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Data Qualifiers

Identified Compounds (TICs).

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- V** - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)
- Z** - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers



Project Name: CROSSROADS SCHOOL-ROUND 2
Project Number: 22-371858.1

Lab Number: L2231200
Report Date: 06/27/22

REFERENCES

- 3 Methods for the Determination of Metals in Environmental Samples, Supplement I. EPA/600/R-94/111. May 1994.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D/8270E: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS

EPA 8082A: NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

EPA 624.1: Volatile Halocarbons & Aromatics,

EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water

EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

EPA 522, EPA 537.1.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

