



WATER SAMPLING AND REPORTING SERVICES

**COLUMBIA PUBLIC SCHOOLS
HICKMAN HIGH SCHOOL
1104 NORTH PROVIDENCE ROAD
COLUMBIA, MISSOURI**

Prepared for:
**COLUMBIA PUBLIC SCHOOLS
COLUMBIA, MISSOURI**

Prepared by:
**GEOTECHNOLOGY, LLC, DBA UES
ST. LOUIS, MISSOURI**

Date:
DECEMBER 22, 2024

Project No.:
J044517.01

**SAFETY
TEAMWORK
RESPONSIVENESS
INTEGRITY
VALUE
EXCELLENCE**



December 22, 2024

Mr. David Seamon
District Project Manager
Columbia Public Schools
1818 West Worley Street
Columbia, Missouri 65203

Re: Water Sampling and Reporting Services
Columbia Public Schools
Hickman High School
1104 North Providence Road
Columbia, Missouri
Project No. J044517.01

Dear Mr. Seamon:

In accordance with Columbia Public Schools' (CPS) Request for Proposal No. C-24043, dated October 10, 2023, Geotechnology, LLC, dba UES, is pleased to provide this drinking water sampling report for the referenced project. Our scope of services included flushing and sampling of drinking water from potable water outlets, laboratory analysis of water samples, and a letter report.

SITE AND PROJECT DESCRIPTION

The subject property consists of the existing Columbia Public Schools Hickman High School, located northeast of the intersection of Wilkes Boulevard and North Providence Road in Columbia, Missouri. The purpose of the drinking water sampling was to identify potable water outlets that may require remediation in accordance with the State of Missouri's *Get the Lead out of School Drinking Water Act* (RSMo 160.077).

DRINKING WATER SAMPLING

RSMo 160.077 sets standards for lead concentrations in school drinking water, stating that each Missouri school shall provide drinking water with a lead concentration level below five (5) parts per billion (ppb). This Act requires schools to conduct the inventory, sampling, remediation, and monitoring at all potable drinking water outlets used or potentially used for drinking, food preparation, and cooking or cleaning utensils.

In general conformance with the RSMo 160.077 requirements, and the Environmental Protection Agency's (EPA) *3Ts for Reducing Lead in Drinking Water in Schools and Child Care Facilities* manual, initial water flushing and sampling activities were conducted on April 11 and 12, 2024, by Mr. Brad Lohrum, a Missouri-licensed lead risk assessor. Copies of Mr. Lohrum's training certificate and lead license are included in Appendix A.



An inventory of potable drinking water outlets was provided to UES by CPS. UES personnel sampled the identified outlets utilizing the EPA's "first-draw" methods. The identified outlets were flushed, then allowed to sit undisturbed for a period of 8-18 hours. Following this stagnation period, the first 250 milliliters (ml) of water expelled from the outlets were collected in laboratory-provided containers. A copy of the drinking water sampling forms, which include a list of sample locations, and the times and dates of flushing and sampling activities, is included in Appendix B. Floor plans depicting approximate sample locations are included as Figures 1-3.

Using standard chain-of-custody procedures, the drinking water samples were submitted to Teklab, Inc. of Collinsville, Illinois, an independent, certified Missouri Department of Natural Resources (MDNR) Drinking Water and National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory, for analysis of lead content via EPA Method 200.8: *Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry*.

RESULTS

Laboratory analyses detected the presence of lead at or above 5 ppb in the following samples.

TABLE 1
DRINKING WATER OUTLETS AT OR ABOVE 5 PARTS PER BILLION

Sample Number / Location and Fixture Type	Results
HHS-17 / Concession Hand Wash Sink	5.9 ppb
HHS-18 / Room 144L Water Fountain	7.8 ppb
HHS-27 / Room 109 Northwest Sink	36.5 ppb
HHS-28 / Room 112 Northwest Sink	17.8 ppb
HHS-52 / Room 51 Sink	6.2 ppb
HHS-54 / Room 50 Sink	20.7 ppb
HHS-58 / Room 220-O Sink	6.9 ppb
HHS-64 / Room 209-O Sink	37.3 ppb
HHS-84 / Room 170 Dish Wash Sink	12.3 ppb

UES personnel resampled one client-designated outlet on June 26, 2024 (HHS-18-2). Laboratory analysis of the collected sample did not detect the presence of lead at or above 5 ppb.

UES will not be able to represent that the site contains no lead-bearing water outlets beyond those detected or observed by UES during flushing and sampling activities. Copies of the drinking water analytical results are included in Appendix C.



RECOMMENDATIONS

Our recommendations are summarized below:

- It is our understanding that the outlets identified in Table 1 that have not been retested have either been removed, marked as non-potable, or have otherwise been taken out of service. Should these fixtures be put back into service following remediation activities, or if replacement fixtures are to be put into service, further sampling and testing should be conducted.

* * * * *

The following attachments are included in and complete this report:

- | | |
|------------|---|
| Figure 1 | - Drinking Water Sample Locations – Basement |
| Figure 2 | - Drinking Water Sample Locations – First Floor |
| Figure 3 | - Drinking Water Sample Locations – Second Floor |
| Appendix A | - Certificate and License of Environmental Professional |
| Appendix B | - Drinking Water Sampling Forms |
| Appendix C | - Drinking Water Laboratory Data Sheets |
| Appendix D | - Limitations of Report |

* * * * *

We appreciate the opportunity to provide our professional environmental consulting services to Columbia Public Schools on this project. If you have any questions or comments, please contact me at (314) 997-7440.

Very truly yours,

UES

Bradley J. Lohrum
Project Manager

BJL/MSR:bjl/jsj



APPENDIX A

CERTIFICATE AND LICENSE OF ENVIRONMENTAL PROFESSIONAL



APPENDIX B

DRINKING WATER SAMPLING FORMS



APPENDIX C

DRINKING WATER LABORATORY DATA SHEETS

May 16, 2024

Brad Lohrum
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

Illinois	100226
Illinois	1004652024-2
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: J044517.01

WorkOrder: 24041267

Dear Brad Lohrum:

TEKLAB, INC received 60 samples on 4/15/2024 12:37:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Patrick Riley
Project Manager
(618)344-1004 ex 44
patrickriley@teklabinc.com

Report Contents

Client:

Work Order:

Client Project:

Report Date:

This reporting package includes the following:

Cover Letter	1
Report Contents	2
Definitions	3
Case Narrative	5
Accreditations	6
Laboratory Results	7
Receiving Check List	9
Chain of Custody	Appended

Definitions

Client:

Work Order:

Client Project:

Report Date:

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

NC Data is not acceptable for compliance purposes

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Definitions

Client:

Work Order:

Client Project:

Report Date:

Qualifiers

- | | |
|---|--|
| # - Unknown hydrocarbon | B - Analyte detected in associated Method Blank |
| C - RL shown is a Client Requested Quantitation Limit | E - Value above quantitation range |
| H - Holding times exceeded | I - Associated internal standard was outside method criteria |
| J - Analyte detected below quantitation limits | M - Manual Integration used to determine area response |
| ND - Not Detected at the Reporting Limit | R - RPD outside accepted recovery limits |
| S - Spike Recovery outside recovery limits | T - TIC(Tentatively identified compound) |
| X - Value exceeds Maximum Contaminant Level | |

Case Narrative

Client:

Work Order:

Client Project:

Report Date:

Cooler Receipt Temp:

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email EHurley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415

Phone (217) 698-1004

Fax (217) 698-1005

Email KKlostermann@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515

Phone (630) 324-6855

Fax

Email arenner@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214

Phone (913) 541-1998

Fax (913) 541-1998

Email jhriley@teklabinc.com

Accreditations

Client:
Client Project:

Work Order:
Report Date:

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2025	Collinsville
Illinois	IEPA	1004652024-2	NELAP	4/30/2025	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2025	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2024	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2024	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2024	Collinsville
Arkansas	ADEQ	88-0966		3/14/2025	Collinsville
Illinois	IDPH	17584		5/31/2025	Collinsville
Iowa	IDNR	430		6/1/2024	Collinsville
Kentucky	UST	0073		1/31/2025	Collinsville
Mississippi	MSDH			4/30/2025	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville
Missouri	MDNR	00930		10/31/2026	Collinsville

Laboratory Results

Client:
 Client Project:
 Matrix: !

Work Order:
 Report Date:

Sample ID	Client Sample ID	Certification	Qual	RL	Result	Units	DF	Date Analyzed	Date Collected
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EPA 600 4.1.4, 200.8 R5.4, METALS BY ICPMS (TOTAL)
 Lead

!					9.8				
"					1.5				
"					< 1.0				
"					< 1.0				
"					< 1.0				
"					< 1.0				
"					< 1.0				
"					< 1.0				
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"					< 1.0				
"					< 1.0				
"					5.9				
"					7.8				
"					< 1.0				
"					< 1.0				
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"					< 1.0				
"					< 1.0				
"					< 1.0				
"					< 1.0				
"					36.5				
"					17.8				
"					4.7				
"					3.9				
"					< 1.0				
"					2.9				
"					2.7				
"					2.2				
"					< 1.0				
"					< 1.0				
"					2.3				
"					2.0				
"					< 1.0				
"					4.9				
"					1.6				
"					1.1				
"					< 1.0				
"					2.0				
"					< 1.0				
"					< 1.0				

Laboratory Results

Client:

Work Order:

Client Project:

Report Date:

Matrix: !

Sample ID	Client Sample ID	Certification	Qual	RL	Result	Units	DF	Date Analyzed	Date Collected
EPA 600 4.1.4, 200.8 R5.4, METALS BY ICPMS (TOTAL)									
Lead									

< 1.0

< 1.0

< 1.0

1.6

1.1

6.2

2.4

20.7

1.1

< 1.0

< 1.0

6.9

Receiving Check List

Client:
Client Project:

Work Order:
Report Date:

Carrier:
Completed by:
On:

Amber Dilallo

Received By:
Reviewed by:
On:

Ellie Hopkins

Pages to follow:

! " # \$ % & \$! # % %

- | | | | | |
|---|--|------------------------------|--|----------------------------------|
| Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> | Temp °C N/A |
| Type of thermal preservation? | None <input checked="" type="checkbox"/> | Ice <input type="checkbox"/> | Blue Ice <input type="checkbox"/> | Dry Ice <input type="checkbox"/> |
| Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Reported field parameters measured: | Field <input type="checkbox"/> | Lab <input type="checkbox"/> | NA <input checked="" type="checkbox"/> | |
| Container/Temp Blank temperature in compliance? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

- | | | | |
|---|---|-----------------------------|---|
| Water – at least one vial per sample has zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | No VOA vials <input checked="" type="checkbox"/> |
| Water - TOX containers have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | No TOX containers <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| NPDES/CWA TCN interferences checked/treated in the field? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Any No responses must be detailed below or on the COC.

Samples were checked for turbidity and then preserved with nitric acid upon arrival in the laboratory. - amberdilallo - 4/15/2024 2:13:24 PM

May 15, 2024

Brad Lohrum
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

Illinois	100226
Illinois	1004652024-2
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: J044517.01

WorkOrder: 24041268

Dear Brad Lohrum:

TEKLAB, INC received 33 samples on 4/15/2024 12:37:00 PM for the analysis presented in the following report.

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Patrick Riley
Project Manager
(618)344-1004 ex 44
patrickriley@teklabinc.com

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IDPH IL Dept. of Public Health

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TNTC Too numerous to count (> 200 CFU)

Definitions

Client:

Work Order:

Client Project:

Report Date:

Qualifiers

- # - Unknown hydrocarbon
 - C - RL shown is a Client Requested Quantitation Limit
 - H - Holding times exceeded
 - J - Analyte detected below quantitation limits
 - ND - Not Detected at the Reporting Limit
 - S - Spike Recovery outside recovery limits
 - X - Value exceeds Maximum Contaminant Level
 - B - Analyte detected in associated Method Blank
 - E - Value above quantitation range
 - I - Associated internal standard was outside method criteria
 - M - Manual Integration used to determine area response
 - R - RPD outside accepted recovery limits
 - T - TIC(Tentatively identified compound)
-

Case Narrative

Client:

Work Order:

Client Project:

Report Date:

Cooler Receipt Temp:

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email EHurley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415

Phone (217) 698-1004

Fax (217) 698-1005

Email KKlostermann@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515

Phone (630) 324-6855

Fax

Email arenner@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214

Phone (913) 541-1998

Fax (913) 541-1998

Email jhriley@teklabinc.com

Accreditations

Client:
Client Project:

Work Order:
Report Date:

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2025	Collinsville
Illinois	IEPA	1004652024-2	NELAP	4/30/2025	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2025	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2024	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2024	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2024	Collinsville
Arkansas	ADEQ	88-0966		3/14/2025	Collinsville
Illinois	IDPH	17584		5/31/2025	Collinsville
Iowa	IDNR	430		6/1/2024	Collinsville
Kentucky	UST	0073		1/31/2025	Collinsville
Mississippi	MSDH			4/30/2025	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville
Missouri	MDNR	00930		10/31/2026	Collinsville

Laboratory Results

Client:

Work Order:

Client Project:

Report Date:

Matrix: !"

Sample ID	Client Sample ID	Certification	Qual	RL	Result	Units	DF	Date Analyzed	Date Collected
EPA 600 4.1.4, 200.8 R5.4, METALS BY ICPMS (TOTAL)									
Lead									

1.4

3.8

< 1.0

2.6

4.8

37.3

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

3.5

2.2

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

< 1.0

12.3

< 1.0

< 1.0

3.2

< 1.0

< 1.0

< 1.0

4.1

Receiving Check List

Client:
Client Project:

Work Order:
Report Date:

Carrier:
Completed by:
On:

Amber Dilallo

Received By:
Reviewed by:
On:

Ellie Hopkins

Pages to follow: ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~ ¡ ¢ £ ¤ ¥ ¦ § ¨ © ª « ¬ ® ¯ ° ± ² ³ ´ µ ¶ · ¸ ¹ º » ¼ ½ ¾ ¿

- | | | | | |
|---|--|------------------------------|--|----------------------------------|
| Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> | Temp °C N/A |
| Type of thermal preservation? | None <input checked="" type="checkbox"/> | Ice <input type="checkbox"/> | Blue Ice <input type="checkbox"/> | Dry Ice <input type="checkbox"/> |
| Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Reported field parameters measured: | Field <input type="checkbox"/> | Lab <input type="checkbox"/> | NA <input checked="" type="checkbox"/> | |
| Container/Temp Blank temperature in compliance? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |

When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.

- | | | | |
|---|---|-----------------------------|---|
| Water – at least one vial per sample has zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | No VOA vials <input checked="" type="checkbox"/> |
| Water - TOX containers have zero headspace? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | No TOX containers <input checked="" type="checkbox"/> |
| Water - pH acceptable upon receipt? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/> |
| NPDES/CWA TCN interferences checked/treated in the field? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/> |

Any No responses must be detailed below or on the COC.

Samples were checked for turbidity and then preserved with nitric acid upon arrival in the laboratory. - amberdilallo - 4/15/2024 2:19:40 PM

July 11, 2024

Brad Lohrum
Geotechnology, Inc.
11816 Lackland Road
St. Louis, MO 63146
TEL: (314) 997-7440
FAX: (314) 997-2067

Illinois	100226
Illinois	1004652024-2
Kansas	E-10374
Louisiana	05002
Louisiana	05003
Oklahoma	9978

RE: J044517.01

WorkOrder: 24062353

Dear Brad Lohrum:

TEKLAB, INC received 57 samples on 6/28/2024 3:50:00 PM for the analysis presented in the following report.

Samples are analyzed on an as received basis unless otherwise requested and documented. The sample results contained in this report relate only to the requested analytes of interest as directed on the chain of custody. NELAP accredited fields of testing are indicated by the letters NELAP under the Certification column. Unless otherwise documented within this report, Teklab Inc. analyzes samples utilizing the most current methods in compliance with 40CFR. All tests are performed in the Collinsville, IL laboratory unless otherwise noted in the Case Narrative.

All quality control criteria applicable to the test methods employed for this project have been satisfactorily met and are in accordance with NELAP except where noted. The following report shall not be reproduced, except in full, without the written approval of Teklab, Inc.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Patrick Riley
Project Manager
(618)344-1004 ex 44
patrickriley@teklabinc.com

Report Contents

Client:

Work Order:

Client Project:

Report Date:

This reporting package includes the following:

Cover Letter	1
Report Contents	2
Definitions	3
Case Narrative	5
Accreditations	6
Laboratory Results	7
Receiving Check List	9
Chain of Custody	Appended

Definitions

Client:

Work Order:

Client Project:

Report Date:

Abbr Definition

* Analytes on report marked with an asterisk are not NELAP accredited

CCV Continuing calibration verification is a check of a standard to determine the state of calibration of an instrument between recalibration.

CRQL A Client Requested Quantitation Limit is a reporting limit that varies according to customer request. The CRQL may not be less than the MDL.

DF Dilution factor is the dilution performed during analysis only and does not take into account any dilutions made during sample preparation. The reported result is final and includes all dilution factors.

DNI Did not ignite

DUP Laboratory duplicate is a replicate aliquot prepared under the same laboratory conditions and independently analyzed to obtain a measure of precision.

ICV Initial calibration verification is a check of a standard to determine the state of calibration of an instrument before sample analysis is initiated.

IDPH IL Dept. of Public Health

LCS Laboratory control sample is a sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes and analyzed exactly like a sample to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

LCSD Laboratory control sample duplicate is a replicate laboratory control sample that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MBLK Method blank is a sample of a matrix similar to the batch of associated sample (when available) that is free from the analytes of interest and is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedures, and in which no target analytes or interferences should present at concentrations that impact the analytical results for sample analyses.

MDL "The method detection limit is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results."

MS Matrix spike is an aliquot of matrix fortified (spiked) with known quantities of specific analytes that is subjected to the entire analytical procedures in order to determine the effect of the matrix on an approved test method's recovery system. The acceptable recovery range is listed in the QC Package (provided upon request).

MSD Matrix spike duplicate means a replicate matrix spike that is prepared and analyzed in order to determine the precision of the approved test method. The acceptable recovery range is listed in the QC Package (provided upon request).

MW Molecular weight

NC Data is not acceptable for compliance purposes

ND Not Detected at the Reporting Limit

NELAP NELAP Accredited

PQL Practical quantitation limit means the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operation conditions.

RL The reporting limit the lowest level that the data is displayed in the final report. The reporting limit may vary according to customer request or sample dilution. The reporting limit may not be less than the MDL.

RPD Relative percent difference is a calculated difference between two recoveries (ie. MS/MSD). The acceptable recovery limit is listed in the QC Package (provided upon request).

SPK The spike is a known mass of target analyte added to a blank sample or sub-sample; used to determine recovery deficiency or for other quality control purposes.

Surr Surrogates are compounds which are similar to the analytes of interest in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

TIC Tentatively identified compound: Analytes tentatively identified in the sample by using a library search. Only results not in the calibration standard will be reported as tentatively identified compounds. Results for tentatively identified compounds that are not present in the calibration standard, but are assigned a specific chemical name based upon the library search, are calculated using total peak areas from reconstructed ion chromatograms and a response factor of one. The nearest Internal Standard is used for the calculation. The results of any TICs must be considered estimated, and are flagged with a "T". If the estimated result is above the calibration range it is flagged "ET"

TNTC Too numerous to count (> 200 CFU)

Definitions

Client:

Work Order:

Client Project:

Report Date:

Qualifiers

- # - Unknown hydrocarbon
 - C - RL shown is a Client Requested Quantitation Limit
 - H - Holding times exceeded
 - J - Analyte detected below quantitation limits
 - ND - Not Detected at the Reporting Limit
 - S - Spike Recovery outside recovery limits
 - X - Value exceeds Maximum Contaminant Level
 - B - Analyte detected in associated Method Blank
 - E - Value above quantitation range
 - I - Associated internal standard was outside method criteria
 - M - Manual Integration used to determine area response
 - R - RPD outside accepted recovery limits
 - T - TIC(Tentatively identified compound)
-

Case Narrative

Client:

Work Order:

Client Project:

Report Date:

Cooler Receipt Temp:

Locations

Collinsville

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email jhriley@teklabinc.com

Collinsville Air

Address 5445 Horseshoe Lake Road
Collinsville, IL 62234-7425

Phone (618) 344-1004

Fax (618) 344-1005

Email EHurley@teklabinc.com

Springfield

Address 3920 Pintail Dr
Springfield, IL 62711-9415

Phone (217) 698-1004

Fax (217) 698-1005

Email KKlostermann@teklabinc.com

Chicago

Address 1319 Butterfield Rd.
Downers Grove, IL 60515

Phone (630) 324-6855

Fax

Email arenner@teklabinc.com

Kansas City

Address 8421 Nieman Road
Lenexa, KS 66214

Phone (913) 541-1998

Fax (913) 541-1998

Email jhriley@teklabinc.com

Accreditations

Client:
Client Project:

Work Order:
Report Date:

State	Dept	Cert #	NELAP	Exp Date	Lab
Illinois	IEPA	100226	NELAP	1/31/2025	Collinsville
Illinois	IEPA	1004652024-2	NELAP	4/30/2025	Collinsville
Kansas	KDHE	E-10374	NELAP	4/30/2025	Collinsville
Louisiana	LDEQ	05002	NELAP	6/30/2025	Collinsville
Louisiana	LDEQ	05003	NELAP	6/30/2025	Collinsville
Oklahoma	ODEQ	9978	NELAP	8/31/2024	Collinsville
Arkansas	ADEQ	88-0966		3/14/2025	Collinsville
Illinois	IDPH	17584		5/31/2025	Collinsville
Iowa	IDNR	430		6/1/2026	Collinsville
Kentucky	UST	0073		1/31/2025	Collinsville
Mississippi	MSDH			4/30/2025	Collinsville
Missouri	MDNR	930		1/31/2025	Collinsville
Missouri	MDNR	00930		10/31/2026	Collinsville

Laboratory Results

Client:
 Client Project:
 Matrix: !

Work Order:
 Report Date:

Sample ID	Client Sample ID	Certification	Qual	RL	Result	Units	DF	Date Analyzed	Date Collected
EPA 600 4.1.4, 200.8 R5.4, METALS BY ICPMS (TOTAL)									
Lead									

					4.6				
					3.5				
					7.5				
	!				3.3				
					8.7				
					6.9				
					7.4				
					1.9				
!	"				< 1.0				
	"				< 1.0				
	"				2.2				
	#\$				1.3				
	#\$				1.6				
	%				< 1.0				
	\$#				< 1.0			!	
	\$#				< 1.0				
	& !				1.3				
	&				< 1.0				
!	&				< 1.0			!	
	#\$				12.4			!	
	#\$				1.9			!	!
	#\$				3.6			!	
	#\$				< 1.0			!	
	#\$				< 1.0			!	
					< 1.0			!	
					3.7			!	
	& #				< 1.0				
	& #				< 1.0			!	
!	# &				13.2			!	
	\$				4.6				
					2.1				
	,				< 1.0				!
	%				6.4				!
					2.7				!
	(< 1.0				!
	(< 1.0				!
	(1.1				!
	(< 1.0				
!	(< 1.0				
	(!				< 1.0				
	(< 1.0			!	
	(< 1.0				
	(< 1.0				
	(!				5.6			!	
	\$				17.7				!
	\$				< 1.0				
	\$				17.6				
	\$				4.3				

Laboratory Results

Client:

Work Order:

Client Project:

Report Date:

Matrix: !

Sample ID	Client Sample ID	Certification	Qual	RL	Result	Units	DF	Date Analyzed	Date Collected
EPA 600 4.1.4, 200.8 R5.4, METALS BY ICPMS (TOTAL)									
Lead									

8.8

5.9

< 1.0

< 1.0

1.1

< 1.0

1.3

3.0

2.8

Receiving Check List

Client:
Client Project:

Work Order:
Report Date:

Carrier: !
Completed by:
On:
" Paul Schultz

Received By:
Reviewed by:
On:
" Ellie Hopkins

Pages to follow:	#	\$	%	& ' (\$	%	%				
Shipping container/cooler in good condition?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Not Present	<input type="checkbox"/>	Temp °C	NA
Type of thermal preservation?				None	<input checked="" type="checkbox"/>	Ice	<input type="checkbox"/>	Blue Ice	<input type="checkbox"/>	Dry Ice	<input type="checkbox"/>
Chain of custody present?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
Chain of custody signed when relinquished and received?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
Chain of custody agrees with sample labels?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
Samples in proper container/bottle?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
Sample containers intact?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
Sufficient sample volume for indicated test?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
All samples received within holding time?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
Reported field parameters measured:				Field	<input type="checkbox"/>	Lab	<input type="checkbox"/>	NA	<input checked="" type="checkbox"/>		
Container/Temp Blank temperature in compliance?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>				
<i>When thermal preservation is required, samples are compliant with a temperature between 0.1°C - 6.0°C, or when samples are received on ice the same day as collected.</i>											
Water – at least one vial per sample has zero headspace?				Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No VOA vials	<input checked="" type="checkbox"/>		
Water - TOX containers have zero headspace?				Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	No TOX containers	<input checked="" type="checkbox"/>		
Water - pH acceptable upon receipt?				Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	NA	<input type="checkbox"/>		
NPDES/CWA TCN interferences checked/treated in the field?				Yes	<input type="checkbox"/>	No	<input type="checkbox"/>	NA	<input checked="" type="checkbox"/>		

Any No responses must be detailed below or on the COC.

Samples were checked for turbidity and then preserved with nitric acid upon arrival in the laboratory. - pschultz - 6/28/2024 4:49:24 PM

██████████



APPENDIX D

LIMITATIONS OF REPORT

ENVIRONMENTAL SAMPLING LIMITATIONS OF REPORT

1. The Report has been prepared on behalf of and for the exclusive use of the addressee, solely for use in documenting specific sample results. This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of UES.
2. The sampling was performed in accordance with generally accepted practices of other consultants undertaking similar projects at the same time and in the same geographical area, and UES endeavored to observe that degree of care and skill ordinarily exercised by other consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the project. UES does not and cannot represent that the site contains no hazardous waste or material, or other latent condition beyond that observed by UES.
3. In the event that information is developed relative to environmental or hazardous waste or material issues at the site and not contained in this report, such information shall be brought to UES' attention. UES will evaluate such information and, based on this evaluation, may modify the conclusions stated in this Report.
4. The conclusions and recommendations contained in this Report are based in part upon the data obtained from a limited number of water samples. The identified presence of contaminated water is limited to the extent that they could be identified by instrumentation and sampling and testing. There is a potential for contaminated water above the indicated concentrations to occur elsewhere on the site. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, and/or if changes are made in regulations, it will be necessary to reevaluate the conclusions and recommendations of this report.
5. If quantitative laboratory testing was performed as part of the assessment by an outside laboratory, UES has relied upon the data provided, and has not conducted an independent evaluation of the reliability to these data.
6. Chemical analyses have been performed for specific parameters during the course of this sampling as described in the text. Do not assume that a given analyte is not present at the site simply because it was not present at the test locations. The analyte may exist on the site where tests were not performed. In addition, it should be noted that additional chemical constituents not tested for during the sampling could be present in water at the site.