



COLUMBIA PUBLIC SCHOOLS
COLUMBIA, MO
LEAD AND COPPER MONITORING
SUMMARY REPORT

DATE: JANUARY 6, 2022

FACILITY NAME: DOUGLAS HIGH SCHOOL

A. SAMPLE COLLECTION

- | | |
|--|--------|
| 1. NUMBER OF SAMPLES COLLECTED AT THIS FACILITY | 14 |
| 2. PERCENTAGE OF SAMPLES BELOW COPPER ACTION LIMITS | 100.0% |
| 1. COPPER ACTION LIMIT = 1,300 UG/ | |
| 3. PERCENTAGE OF SAMPLES BELOW LEAD ACTION LIMITS | 100.0% |
| 1. LEAD ACTION LIMIT = 15 UG/L | |
| (The requirement in the USEPA Lead and Copper Rule for public water supplies is 90% passing) | |

B. SAMPLE EXCEEDANCE

- | | |
|--|---|
| 1. NUMBER OF SAMPLES EXCEEDING COPPER ACTION LIMIT | 0 |
| 2. NUMBER OF SAMPLES EXCEEDING LEAD ACTION LIMIT | 0 |

C. CONCLUSION

This facility meets the (recommended) requirements of the United States Environmental Protection Agency (USEPA) and the published Lead and Copper Rule (LCR) of 1991 (reference: 40 CFR Part 141 Subpart I). Public Run Water Suppliers must comply with the USEPA law and the LCR. Columbia Water & Light is the publicly run water utility that serves this school.

Initially failed tests were resampled using the first flush method and tested for verification. Should the laboratory analysis reveal results that exceed the LCR action limits, you can utilize the recommendations within the LCR to address those specific locations. They include but are not limited to: flushing prior to use (make it a practice to run the water at each tap before use), repairing and/or replacing fixtures and/or piping and by not using the water for consumption. All are recommended by the Lead and Copper Rule.

Although the Lead and Copper Rule may not directly apply to Columbia Public Schools and each of its schools or support buildings that are part of the 2020 City of Columbia Water Quality Assessment Report; it is a common practice for experts in the field and members of the known industry to use the standard as a guideline for water assessment studies.

Prepared By:

Joshua D. Lehmen, PE



September 29, 2021

Josh Lehmen
Engineering Surveys & Services
1113 Fay Street
Columbia, MO 65201

RE: L14571

Dear Josh Lehmen:

Please find enclosed the analytical results for the **14** sample(s) the laboratory received on **8/16/21 3:40 pm** and logged in under work order **EH04410**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Erin Lane
Project Manager





SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order EH04410

YES	Samples received within temperature compliance when applicable
NO	COC present upon sample receipt
YES	COC completed & legible
NO	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers received undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
NO	Current PDC COC submitted
YES	Case narrative provided



Case Narrative

8/16/21 - COC and ESS Sample Sheet were not received with samples.



ANALYTICAL RESULTS

Sample: EH04410-01
Name: 1. KITCHEN FAUCET WEST WALL
Alias: DHS-KF-1

Sampled: 08/11/21 05:40
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Total Metals - PIA, Copper, and Lead.

Sample: EH04410-02
Name: 2. ROOM 115 - CLASSROOM FAUCET
Alias: DHS-115-CF-1

Sampled: 08/11/21 05:40
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Total Metals - PIA, Copper, and Lead.

Sample: EH04410-03
Name: 3. HALL BY ROOM 115 - ELECTRIC WATER COOLER
Alias: DHS-H115-EWC-1

Sampled: 08/11/21 05:40
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Total Metals - PIA, Copper, and Lead.

Sample: EH04410-04
Name: 4. ROOM 134 - CLASSROOM FAUCET
Alias: DHS-134-CF-2

Sampled: 08/11/21 05:45
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Total Metals - PIA, Copper, and Lead.



ANALYTICAL RESULTS

Sample: EH04410-06
Name: 6. ROOM 213 - ELECTRIC WATER COOLER
Alias: DHS-213-EWC-3

Sampled: 08/11/21 05:51
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Copper and Lead under Total Metals - PIA.

Sample: EH04410-07
Name: 7. ROOM 218 - NURSE STATION FAUCET
Alias: DHS-218-NSF-1

Sampled: 08/11/21 05:58
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Copper and Lead under Total Metals - PIA.

Sample: EH04410-08
Name: 8. ROOM 241 - KITCHEN FAUCET SOUTH WALL
Alias: DHS-241-KF-2

Sampled: 08/11/21 05:55
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Copper and Lead under Total Metals - PIA.

Sample: EH04410-09
Name: 9. ROOM 241 - KITCHEN FAUCET NORTH WALL
Alias: DHS-241-KF-3

Sampled: 08/11/21 05:55
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Rows for Copper and Lead under Total Metals - PIA.



ANALYTICAL RESULTS

Sample: EH04410-10
Name: 10. ROOM 244 - TEACHER'S LOUNGE FAUCET
Alias: DHS-244-TLF-1

Sampled: 08/11/21 05:56
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Includes Total Metals - PIA section with rows for Copper and Lead.

Sample: EH04410-11
Name: 11. ROOM 311 - CLASSROOM FAUCET
Alias: DHS-311-CF-3

Sampled: 08/11/21 05:59
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Includes Total Metals - PIA section with rows for Copper and Lead.

Sample: EH04410-12
Name: 12. ROOM 322 - CLASSROOM FAUCET NORTH WALL
Alias: DHS-322-CF-4

Sampled: 08/11/21 06:05
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Includes Total Metals - PIA section with rows for Copper and Lead.

Sample: EH04410-13
Name: 13. ROOM 322 - CLASSROOM FAUCET DESK SINKS
Alias: DHS-322-CF-5

Sampled: 08/11/21 06:05
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Table with 10 columns: Parameter, Result, Unit, Qualifier, Prepared, Dilution, MRL, Analyzed, Analyst, Method. Includes Total Metals - PIA section with rows for Copper and Lead.



ANALYTICAL RESULTS

Sample: EH04410-14
Name: 14. ROOM 322 - CLASSROOM FAUCET EAST WALL
Alias: DHS-322-CF-6

Sampled: 08/11/21 06:05
Received: 08/16/21 15:40
Matrix: Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
<u>Total Metals - PIA</u>									
Copper	460	ug/L		08/26/21 13:01	5	3.0	08/26/21 15:38	TJJ	EPA 200.8 REV 5.4
Lead	35	ug/L		08/26/21 13:01	5	1.0	08/26/21 15:38	TJJ	EPA 200.8 REV 5.4



NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050

TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615

TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230

Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553

Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)

Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807

USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042

TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389

TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080

Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050

Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

- Q1 Matrix Spike failed % recovery acceptance limits. The associated blank spike recovery was acceptable.
- R Matrix Spike/Matrix Spike Duplicate Failed %Relative Percent Difference criterion.



Certified by: Erin Lane, Project Manager



REGULATORY PROGRAM (CIRCLE):
MORBCA
CCDD

NPDES
RCRA
TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD
STATE WHERE SAMPLE COLLECTED MO

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

1 CLIENT Engineering Surveys & Services ADDRESS 1113 Fay Street CITY STATE ZIP Columbia, MO CONTACT PERSON Josh Lehmen		PROJECT LOCATION Columbia, MO E-MAIL jlehmen@ess-inc.com		PURCHASE ORDER # L14571 PHONE NUMBER 573-449-2646 SAMPLER (PLEASE PRINT) Josh Lehmen SAMPLER'S SIGNATURE		DATE SHIPPED MATRIX TYPES: WWC-WASTEWATER DW-DRINKING WATER GW-GROUND WATER MS-NON AQUEOUS SOLID LQ-LIQUID LG-LEACHATE SOL-SOLID		ANALYSIS REQUESTED 3 Coper and Lead Standard		(FOR LAB USE ONLY) 4 LOGIN # _____ LOGGED BY: _____ CLIENT: _____ PROJECT: _____ PROJ. MGR.: _____ CUSTODY SEAL #: _____ REMARKS	
2 SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT) Douglas High School		DATE COLLECTED 8-11-21	TIME COLLECTED SAMPLE TYPE GRAB	COMP X	MATRIX TYPE BOTTLE COUNT PRES CODE PROVIDED	CHEMICAL PRESERVATION CODES: 1 - HCL 2 - H2SO4 3 - HNO3 4 - NAOH 5 - NAZS2O3 6 - UNPRESERVED 7 - OTHER		COMMENTS: (FOR LAB USE ONLY) 8 SAMPLE TEMPERATURE UPON RECEIPT _____ °C CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N SAMPLE(S) RECEIVED ON ICE Y OR N SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____			
5 TURNAROUND TIME REQUESTED (PLEASE CIRCLE) (RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE) NORMAL RUSH RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE EMAIL IF DIFFERENT FROM ABOVE: _____ PHONE # IF DIFFERENT FROM ABOVE: _____		DATE COLLECTED 8-13-21 TIME COLLECTED DATE TIME RECEIVED BY: (SIGNATURE) RECEIVED BY: (SIGNATURE) RECEIVED BY: (SIGNATURE)		DATE RESULTS NEEDED RECEIVED BY: (SIGNATURE)		I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample performance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may <u>NOT</u> be acceptable to report to all regulatory authorities.		PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____			

Location:	Douglas High School
Sample Date:	8/11/2021
Sample Time:	Various
Sampled By:	Josh Lehmen and Kyle Vidusic

Sample No.	Coding System	Description	Sample Collected
1	DHS-KF-1	Kitchen Faucet West Wall	yes
2	DHS-115-CF-1	Room 115 - Classroom Faucet	yes
3	DHS-H115-EWC-1	Hall by Room 115 - Electric Water Cooler	yes
4	DHS-134-CF-2	Room 134 - Classroom Faucet	yes
5	DHS-H134-EWC-2	Hall by Room 134 - Electric Water Cooler	yes
6	DHS-213-EWC-3	Room 213 - Electric Water Cooler	yes
7	DHS-218-NSF-1	Room 218 - Nurse Station Faucet	yes
8	DHS-241-KF-2	Room 241 - Kitchen Faucet South Wall	yes
9	DHS-241-KF-3	Room 241 - Kitchen Faucet North Wall	yes
10	DHS-244-TLF-1	Room 244 - Teacher's Lounge Faucet	yes
11	DHS-311-CF-3	Room 311 - Classroom Faucet	yes
12	DHS-322-CF-4	Room 322 - Classroom Faucet North Wall	yes
13	DHS-322-CF-5	Room 322 - Classroom Faucet Desk Sinks	yes
14	DHS-322-CF-6	Room 322 - Classroom Faucet East Wall	yes
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"First Flush" Resampling

ANALYTICAL RESULTS

Sample: EL04058-67
Name: 5. Hall by Room 134 - Electric Water Cooler - Off
Alias: DHS-H134-EWC-2

Sampled: 12/17/21 06:45
Received: 12/20/21 15:10
Matrix: Drinking Water - Grab

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Total Metals - PIA									
Copper	320	ug/L		01/06/22 09:26	1	3.0	01/06/22 12:20	KMC	EPA 200.8 REV 5.4
Lead	< 1.0	ug/L		01/06/22 09:26	1	1.0	01/06/22 12:20	KMC	EPA 200.8 REV 5.4

Sample: EL04058-68
Name: 12. Room 322 - Classroom Faucet North Wall
Alias: DHS-322-CF-4

Sampled: 12/17/21 06:45
Received: 12/20/21 15:10
Matrix: Drinking Water - Grab

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Total Metals - PIA									
Copper	290	ug/L		01/06/22 09:26	1	3.0	01/06/22 12:22	KMC	EPA 200.8 REV 5.4
Lead	4.0	ug/L		01/06/22 09:26	1	1.0	01/06/22 12:22	KMC	EPA 200.8 REV 5.4

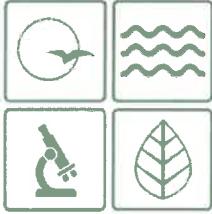


ANALYTICAL RESULTS

Sample: EL04058-69
Name: 14. Room 322 - Classroom Faucet East Wall
Alias: DHS-322-CF-6

Sampled: 12/17/21 06:48
Received: 12/20/21 15:10
Matrix: Drinking Water - Grab

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
<u>Total Metals - PIA</u>									
Copper	150	ug/L		01/06/22 09:26	1	3.0	01/06/22 12:23	KMC	EPA 200.8 REV 5.4
Lead	3.3	ug/L		01/06/22 09:26	1	1.0	01/06/22 12:23	KMC	EPA 200.8 REV 5.4



Missouri Department of dnr.mo.gov

NATURAL RESOURCES

Michael L. Parson, Governor

Dru Buntin, Director

January 6, 2022

Mr. Michael Travis
Corporate Director of Quality Assurance
Pace Analytical Services, LLC – Peoria, Illinois (Lab #870)
2231 West Altorfer Drive
Peoria, IL 61615-1807

Dear Mr. Travis:

The Missouri Department of Natural Resources has received your notification that PDC Laboratories, LLC was purchased by Pace Analytical Services, LLC effective December 13, 2021 and that the new laboratory name is Pace Analytical Services, LLC – Peoria, Illinois. The Department has also received a copy of the new Environmental Laboratory Accreditation granted by the State of Illinois with your new laboratory name. Therefore, the Department hereby reciprocally certifies Pace Analytical Services, LLC – Peoria, Illinois under the provisions of the Missouri Safe Drinking Water Regulations to perform chemical analyses for public water systems in the State of Missouri.

Enclosed please find a certificate of approval and a certified parameter list for your laboratory. The certified parameter list references the parameters and methods of analysis that the Department has approved. Your certification will expire on June 30, 2022, and is contingent upon no changes of the approved methods or equipment and maintenance of certification from the primary certification authority.

Thank you for your efforts to comply with Missouri's laboratory certification requirements. Should there be any changes to your Illinois certification status, please notify this office within 30 days. Direct any notifications or inquiries related to the approval to Lauren Ferland of my staff, who may be reached at P.O. Box 176, Jefferson City, MO 65102, or by telephone at 573-526-0135.

Sincerely,

WATER PROTECTION PROGRAM

David J. Lamb
Public Drinking Water Branch Chief

DJL/lf

Enclosures

c: Mr. Richard Kirsch, Environmental Services Program



MISSOURI DEPARTMENT OF NATURAL RESOURCES

DRINKING WATER LABORATORY

CERTIFIED PARAMETER LIST

This is to certify that

Pace Analytical Services, LLC
- Peoria, Illinois

located at

2231 West Altorfer Drive, Peoria, Illinois 61615-1807

has been approved to perform the indicated procedures on drinking water under the Missouri Public Drinking Water Regulations (10 CSR 60-5.020). Specific method numbers or references are included in parenthesis when appropriate.

INORGANIC

SM 4500F-C

Fluoride

EPA 245.1

Mercury

SM 4500NO3-F

Nitrate, Nitrite

EPA 300.0

Fluoride, Nitrate, Nitrite

EPA 200.7

Barium, Beryllium, Cadmium,
Chromium, Copper, Nickel

EPA 335.4

Total cyanide

EPA 200.8

Antimony, Arsenic, Barium, Beryllium,
Cadmium, Chromium, Copper, Lead,
Mercury, Nickel, Selenium, Thallium

EPA 353.2

Nitrate, Nitrite, Total Nitrate and Nitrite

ORGANIC

EPA 504.1

Dibromochloropropane (DBCP), Ethylene dibromide (EDB)

EPA 515.3

2,4-D, Dalapon, Dinoseb, Pentachlorophenol, Picloram, 2,4,5-TP (Silvex)

EPA 524.2

Benzene, Carbon tetrachloride, Monochlorobenzene, o-Dichlorobenzene, para-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, cis-1-2-Dichloroethylene, trans-1-2-Dichloroethylene, Dichloromethane, 1,2-Dichloropropane, Ethylbenzene, Styrene, Tetrachloroethylene, Toluene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, Trichloroethylene, Vinyl Chloride, Xylenes (total), Bromodichloromethane, Bromoform, Chloroform, Dibromochloromethane, Total THMs

EPA 525.2

Alachlor, Atrazine, Chlordane, Di(2-ethylhexyl)adipate, Di(2-ethylhexyl)phthalate, Endrin, Heptachlor, Heptachlor Epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Simazine, Toxaphene, PCBs (as Arochlors, qualitative, screening)

EPA 531.1

Carbofuran, Oxamyl (Vydate)

EPA 547

Glyphosate

EPA 548.1

Endothall

EPA 549.2

Diquat

EPA 550

Benzo(a)pyrene

EPA 552.2

Dibromoacetic acid, Dichloroacetic acid, Monobromoacetic acid, Monochloroacetic acid, Trichloroacetic acid

Pace Analytical Services, LLC – Peoria, Illinois

Expiration Date: June 30, 2022

Missouri Certificate No.: 870

Original Certifying State: Illinois

State of Missouri
Department of Natural Resources

Certificate of Approval
for Chemical Laboratory Service

This is to certify that

Pace Analytical Services, LLC – Peoria, Illinois

is hereby approved to perform the analysis of drinking water as specified on the
Certified Parameter List, which must accompany this certificate to be valid.

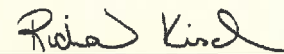
Certification Number 870

Date Issued January 6, 2022

Expiration Date June 30, 2022



Laboratory Certification Authority, Public Drinking Water Branch
Missouri Department of Natural Resources



Certification Program Manager, Environmental Services Program
Missouri Department of Natural Resources