

DRAFT REPORT OF FINDINGS

LEAD IN DRINKING WATER SAMPLING ASSESSMENT

**Clayton School District
Clayton, Missouri**

Prepared for:

Mr. Bob Breite
Assistant Director Facility Services
Clayton School District
305 North Gay Avenue
Clayton, MO 63105

October 4, 2016

Prepared by:



Professional Environmental Engineers, Inc.
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PE Project # 007.01.00

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ACRONYMS AND ABBREVIATIONS

CFR	Code of Federal Regulations
HUD	United States Housing and Urban Development
OSHA	Occupational Safety and Health Administration
PE	Professional Environmental Engineers, Inc.
USEPA	United States Environmental Protection Agency
SDWA	Safe Drinking Water Act
LCR	Lead and Copper Rule
PWS	Public Water Systems

1.0 INTRODUCTION

Professional Environmental Engineers, Inc. (PE) was contracted by the Clayton School District to perform a lead in drinking water sampling assessment of drinking water sources throughout the school district buildings and facilities to assess lead concentrations present within the school district drinking water sources. Nine schools and facilities were included in the assessment. All sampling procedures and analytical methods followed the United States Environmental Protection Agency (USEPA) – Safe Drinking Water Act, Lead and Copper Rules recommended sampling guidelines and regulations. Results were compared to the USEPA’s action limit for lead in Public Water Systems (PWS). The following schools and facilities were included within the assessment.

Ralph M. Captain Elementary School

6345 Northwood Avenue
Clayton, Missouri 63105

Glenridge Elementary School

7447 Wellington Way
Clayton, Missouri 63105

Meramec Elementary School

400 South Meramec Avenue
Clayton, Missouri 63105

Wydown Middle School (6-8)

6500 Wydown Boulevard
Clayton, Missouri 63105

Clayton High School (9-12)

#1 Gay Avenue
Clayton, Missouri 63105

The Family Center

301 N. Gay Avenue
Clayton, Missouri 63105

Administration Building

#2 Mark Twain Circle
Clayton, Missouri 63105

Athletic Field House

305 N. Gay Avenue
Clayton, Missouri 63105

Field Maintenance Facility

305 N. Gay Avenue
Clayton, Missouri 63105

Mr. Mike Thierry, Dan Puricelli and Bill Pietroburgo of PE conducted the drinking water sampling assessment and are licensed Lead Risk Assessor’s in the State of Missouri. All sampling was performed on September 1, 7, 8, 9, 13 and 20, 2016. Lead Risk Assessor’s licenses are included in **Appendix A**.

Lead in Drinking Water Sampling Assessment

The Lead in Drinking Water Sampling Assessment was performed to determine if concentrations of lead are present within the schools and facilities drinking water system which are above the USEPA's action limit of 15 parts per billion (ppb) or the equivalent 15 micrograms/liter (ug/l). Clayton School District utilizing a more conservative action limit of 10 ppb for the purposes of this assessment. The scope of work for the sampling assessment is presented below.

1. Review any pertinent building plans and previous studies to understand the current building conditions (age, constructions dates, and mechanical renovations).
2. Develop a sampling plan for each facility to assess drinking water concentrations for lead.
3. Utilize any previous sampling data that can be validated (Missouri – American Water Sampling Data).
4. Develop a sampling plan to select/prioritize drinking water sources, sampling procedures, analytical methods and chain of custody procedures.
5. Analyze samples in accordance to the EPA's Method 200.8 - Determinations of Trace Elements in Waters and Wastes by Inductively Coupled Plasma - Mass Spectrometry.
6. Utilize a certified laboratory in the State of Missouri to perform Drinking Water Analysis.
7. Perform sampling procedures, collection, sampling methodology and laboratory analysis in accordance with the USEPA's Lead and Copper Rule guidelines, recommendations and regulations.
8. Utilize licensed Lead Risk Assessors to conduct all site activities in compliance with all applicable regulations.
9. Provide a comprehensive report of findings detailing the sampling methodology, locations, type of drinking water fountain, evaluation of results and recommendations for any further action.

2.0 REGULATORY SUMMARY

2.1 Lead in Drinking Water

Exposure to lead in drinking water is regulated by the USEPA under the Safe Drinking Water Act (SDWA) and subsequent amendments including the Lead and Copper Rule (LCR) of 1991. The USEPA promulgated these regulations following studies that concluded that lead may have an adverse effect on individuals. The LCR sought to limit the levels of lead in water through improving water treatment centers, determining lead levels for customers who use lead plumbing parts, and eliminating the water source as a source of lead. If the lead levels exceed the "action levels" water suppliers are required to educate their consumers on how to reduce exposure to lead.

The USEPA maintains an action level of 15 ppb of water for schools being serviced by PWS. The following regulations and guidelines are the primary entities that cover lead in drinking water.

- USEPA - Safe Drinking Water Act
- USEPA - Lead and Copper Rule
- The United States Department of Housing and Urban Development Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing – Chapter 5.
- Missouri Department of Health and Senior Services, Division 30—Division of Regulation and Licensure, Chapter 70—Lead Abatement and Assessment Licensing, Training Accreditation

3.0 ASSESSMENT

3.1 Sampling Methodology

Clayton School District receives drinking water from Missouri-American Water (PWS). Water quality reports were reviewed for zip code 63105 to assess sampling and analytical results that service the Clayton Public Schools. Lead in drinking water had a average reported analysis of 2 ppb (90th percentile result). Please see **Appendix E - Missouri American Water, Water Quality Information**.

Sampling Locations

Any outlet for potable water is a potential source of drinking water. Some outlets are regularly used by students and staff for drinking, cooking, or making coffee. Others, like a mop sink in a utility closet, may rarely be used for consumption. The following drinking water sources were prioritized as follows:

High Priority:

- Drinking fountains, both bubbler and water cooler style
- Kitchen sinks
- Classroom combination sinks and drinking fountains
- Home economic rooms sinks
- Teacher's lounge sink, nurse's office sink
- Classroom sinks in special education classrooms
- Any sink known to be or visibly used for consumption (for example, coffee maker or cups are nearby)

Medium Priority:

- Classroom sinks
- Bathroom faucets

Low Priority:

- Utility sinks
- Hot water outlets

Coding System

Each sampling location was recorded on Field Data Sheets and Floor Plans for the individual school/facility. Each sample had specific information recorded and was given a unique sample identification number. Information recorded on the Field Data Sheets included the school name, date, floor, room number, type of water supply, location number, primary draw or flush, first or second sampling, sample number and sample time.

Sampling Procedure

- Determine the high priority drinking water sources to be sampled.
- Water sources must be inactive for at least 6 to 8 hours before testing. (Overnight is best.)
- Utilize sterile sampling gloves and preserved 250 ml plastic sampling containers for the sampling.
- Take a "first draw" 250 ml sample at each source to be sampled. A "first draw" is the water that is the first to come out of the tap after the period of inactivity.
- If elevated concentrations of lead are detected in any "first draw" sample, take an additional "first draw" sample followed by a 30 second "flush" sample from the source(s).

Chain of Custody Procedures

All samples were inventoried, packaged and shipped the same day to a Missouri certified laboratory under strict chain of custody of each sample batch.

3.2 Analytical Procedure

One hundred-thirteen (113) primary (first draw) drinking water samples were collected and ten (10) secondary follow-up first draw and flush samples were analyzed for lead content. Samples were analyzed by Environmental Science Corporation (ESC), 12065 Lebanon Road, Mt. Juliet, TN 37122. All samples were analyzed by EPA Method 200.8, Revision 5.4: Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry. ESC is accredited by the state of Missouri for the analysis of Drinking Water.

The USEPA classifies an action level as 15 ppb or 15 ug/l of lead in water. Clayton School District utilizes a more conservative action limit of 10 ppb. The field data sheets are included in **Appendix B - Field Data Sheets** and analytical reports are included in **Appendix C - Laboratory Analytical Reports**. A copy of ESC's accreditation is included in **Appendix D - Laboratory Accreditations**.

3.3 Detectable Results

Results were reviewed and quality assurance was conducted internally to compare the results to the USEPA and Clayton School District internal action level. Laboratory results were expressed in either micrograms/liter or milligrams/liter and converted into parts per billion. Laboratory results that were below the analytical detections limits were expressed as either U or ND.

U: Not detected at the Reporting Limit (or MDL where applicable).

ND: Not detected at the Reporting Limit (or MDL where applicable).

The following table identifies all results that are above the analytical detection limits. The bold result indicates the result that exceeded the USEPA and Clayton School District action level. The a summary of analytical detections are presented in Table 1, **Summary of Analytical Detections**.

Table 1
Summary of Analytical Detections

Ralph M. Captain Elementary School

Sample Number	Date	Location	Draw	Results
CAP-01-68-CF-2-P-1	09/07/16	Room 68	First	5.06 ppb
CAP-01-68-CF-3-P-1	09/07/16	Room 68	First	1.77 ppb
CAP-01-66-CF-4-P-1	09/07/16	Room 66	First	0.969 ppb
CAP-01-62-SLC-5-P-1	09/07/16	Room 62	First	0.381 ppb
CAP-01-60-NS-6-P-1	09/07/16	Room 60	First	0.385 ppb

Glenridge Elementary School

Sample Number	Date	Location	Draw	Results
GR-G-2-WC-6-P-1	09/02/16	Room 2	First	2.39 ppb

Meramec Elementary School

Sample Number	Date	Location	Draw	Results
MER-G-Hall (by 004A) - W C-3-P-1	09 /02/16	Hallway near Room 004	First	6.81 ppb
MER-02-203-SLC-8-P-1	09 /02/16	Room 203	First	0.484 ppb

Wydown Middle School

Sample Number	Date	Location	Draw	Results
WY-G-151-KC-2-P-1	09/08/16	Room 151	First	6.76 ppb
WY-G-151-KC-3-P-1	09/08/16	Room 151	First	16.2 ppb
WY-G-151-KC-4-P-1	09/08/16	Room 151	First	1.81 ppb
WY-G-151-KC-5-P-1	09/08/16	Room 151	First	0.338 ppb
WY-G-161-EC-11-P-1	09/08/16	Room 161	First	0.301 ppb
WY-G-105-SLC-14-P-1	09/08/16	Room 105	First	0.966 ppb
WY-G-151-KC-2-P-2	9/20/16	Room 151	Follow up First	0.344 ppb
WY-G-151-KC-3-P-2	9/20/16	Room 151	Follow up First	3.68 ppb
WY-G-151-KC-3A-P-2	9/20/16	Room 151	Flush	0.275 ppb

WY-G-151-KC-4-P-2	9/20/16	Room 151	Follow up First	1.52 ppb
WY-G-151-KC-4A-P-2	9/20/16	Room 151	Flush	0.359 ppb
WY-G-151-KC-5-P-2	9/20/16	Room 151	Follow up First	0.261 ppb

Clayton High School

Sample Number	Date	Location	Draw	Results
CHS-G081-KC-1-P-1	9/09/16	Room 081	First	1.43 ppb
CHS-G081-KC-2-P-1	9/09/16	Room 081	First	0.273 ppb
CHS-G081-KC-3-P-1	9/09/16	Room 081	First	1.93 ppb
CHS-G081-KC-4-P-1	9/09/16	Room 081	First	2.02 ppb
CHS-G-067-SLC-7-P-1	9/09/16	Room 067	First	0.539 ppb
CHS-G-072-WCL-9-P-1	9/09/16	Room 072	First	0.662 ppb
CHS-G-051-NS-10-P-1	9/09/16	Room 051	First	0.327 ppb
CHS-G-Hall 002A-WC-11-P-1	9/09/16	Room 02	First	0.291 ppb
CHS-G-046-EC-16-P-1	9/09/16	Room 046	First	0.441 ppb
CHS-G-046-EC-17-P-1	9/09/16	Room 046	First	0.383 ppb
CHS-G-046-EC-18-P-1	9/09/16	Room 046	First	0.362 ppb
CHS-G-046-EC-19-P-1	9/09/16	Room 046	First	2.03 ppb
CHS-G-046-EC-20-P-1	9/09/16	Room 046	First	0.775 ppb
CHS-G-046-EC-22-P-1	9/09/16	Room 046	First	0.299 ppb
CHS-G-046-EC-23-P-1	9/09/16	Room 046	First	0.308 ppb
CHS-1-114D-KC-25-P-1	9/09/16	Room 114D	First	0.339 ppb
CHS-1-118G-KC-28-P-1	9/09/16	Room 118G	First	2.11 ppb
CHS-1-118E-KC-29-P-1	9/09/16	Room 118E	First	9.84 ppb
CHS-1-126-KC-30-P-1	9/09/16	Room 126	First	0.383 ppb
CHS-1-136A-KC-31-P-1	9/09/16	Room 136A	First	0.42 ppb
CHS-1-105A-KC-32-P-1	9/09/16	Room 105A	First	0.293 ppb
CHS-2-221-KC-35-P-1	9/09/16	Room 221	First	0.535 ppb
CHS-1-Hall 152A-WC-36-P-1	9/09/16	Room152A	First	0.863 ppb
CHS-G-S115-KC-41-P-1	9/13/16	Room S115	First	3.93 ppb
CHS-G-S114-KC-42-P-1	9/13/16	Room S114	First	0.938 ppb

The Family Center

Sample Number	Date	Location	Draw	Results
FC-LL-Kitchen-KCR-2-P-1	09/07/16	Kitchen	First	0.535 ppb
FC-LL-3-CFC-3-P-1	09/07/16	Room 3	First	1.00 ppb
FC-LL-9-CFC-5-P-1	09/07/16	Room 9	First	8.29 ppb
FC-G-113-CFCR-7-P-1	09/07/16	Room 113	First	1.46 ppb
FC-G-114-CFCR-8-P-1	09/07/16	Room 114	First	0.553 ppb

FC-G-105-CFC-11-P-1	09/07/16	Room 105	First	1.17 ppb
FC-LL-9-CFC-5-P-2	09/20/16	Room 9	Follow up First	7.12 ppb
FC-LL-9-CFC-5A-P-1	09/20/16	Room 9	Flush	0.851 ppb

Administration Building

Sample Number	Date	Location	Draw	Results
AD-G-BoardroomA-SLC-3-P-1	09/08/16	Boardroom	First	1.97 ppb
AD-Kitchen-KC-4-P-1	09/08/16	Kitchen	First	0.363 ppb

Athletic Field House

Sample Number	Date	Location	Draw	Results
AFH-G-LunchRm-WC-1-P-1	09/13/16	Lunchroom	First	0.283 ppb

Field Maintenance Facility

Sample Number	Date	Location	Draw	Results
MF-G-Bay1-WC-1-P-1	09/13/16	Bay 1	First	0.346 ppb

4.0 FOLLOW UP TESTING AND SUMMARY AND RECOMMENDATIONS

Wydown Middle School

One sample located within Room 151 (sw corner) exceeded both the USEPA and Clayton School District internal action level. Follow up testing was conducted on September 20, 2016 to further characterize the faucet and conduct a 30 second flush sample of the faucet. In addition, all three other faucets within Room 151 were reevaluated with first draw and flush samples. All eight follow up samples were below the respective action limits.

Sample Number	Date	Location	Draw	Results
WY-G-151-KC-3-P-1	09/08/16	Room 151	First	16.2 ppb
WY-G-151-KC-3-P-2	9/20/16	Room 151	Follow up First	3.68 ppb
WY-G-151-KC-3A-P-2	9/20/16	Room 151	Flush	0.275 ppb

The Family Center

As a precaution – follow up sampling was conducted at the Family Center even though no samples exceeded the USEPA or Clayton School District action level. All follow up samples were below the respective action limits.

Sample Number	Date	Location	Draw	Results
FC-LL-9-CFC-5-P-1	09/07/16	Room 9	First	8.29 ppb
FC-LL-9-CFC-5-P-2	09/20/16	Room 9	Follow up First	7.12 ppb
FC-LL-9-CFC-5A-P-1	09/20/16	Room 9	Flush	0.851 ppb

Recommendation

Of the one hundred twenty three samples collected – one sample exceeded the USEPA and Clayton School District internal action level with follow up testing providing results below the respective action levels. It is recommended that these specific actions and routine maintenance practices be instituted to ensure safe drinking water throughout the School District.

Wydown Middle School

Room 151: Replace all sinks and/or piping servicing Room 151 with lead free pipes and solder. Retest initially and annually for two years until results confirm concentrations are below the respective action levels.

All Schools and Facilities

Routine Practices:

- Clean debris from accessible screens (aerators) frequently. Clean and inspect periodically. *Particular emphasis should be given to all areas and water service lines that have results above 3 ppb.*
- Use only cold water for food and beverage preparation in kitchens and cooking classes.

5.0 REFERENCES

Safe Drinking Water Act

Lead and Copper Rule 40 CFR Part 141 Subpart I

The United States Department of Housing and Urban Development Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing

Missouri Department of Health and Senior Services, Division 30—Division of Regulation and Licensure, Chapter 70—Lead Abatement and Assessment Licensing, Training Accreditation

Missouri – American Water Company

6.0 SIGNATURE AND QUALIFICATIONS

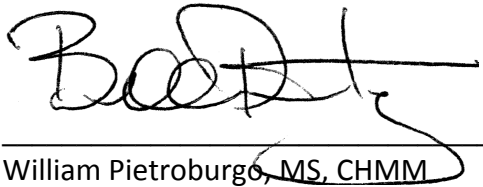
This lead risk assessment was conducted by Mike Thierry, Dan Puricelli and Bill Pietroburgo. All Lead Risk Assessors have specific qualifications based on education, training, licensure and experience to assess this building and property and conduct sampling. The lead in drinking water survey was conducted in conformance with standard industry practices and in compliance with applicable Federal, state and local regulations.



Dan Puricelli
Lead Risk Assessor

10-4-16

Date



William Pietroburgo, MS, CHMM
Project Principal

10-4-16

Date



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16 November 2016
Project No. 007.01.006

Mr. Bob Breite
Assistant Director Facility Services
Clayton School District
305 North Gay Avenue
Clayton, MO 63105

**Re: Lead in Drinking Water Assessment – Follow up Testing
Clayton School District, Clayton, Missouri 63105**

Dear Mr. Breite:

Professional Environmental Engineers, Inc. (PE) was contracted by the Clayton School District to perform a lead in drinking water follow up testing within selected school district buildings and facilities to further assess lead concentrations present within the school district drinking water sources. All nine schools and facilities were included within the initial sampling assessment conducted in September 2016 and conveyed in the report dated October 25, 2016. Six schools and facilities are included within the follow up sampling addressed within the report. All sampling procedures and analytical methods followed the United States Environmental Protection Agency (USEPA) – Safe Drinking Water Act, Lead and Copper Rules recommended sampling guidelines and regulations as outlined in the October 25 report. Results were compared to the USEPA's action limit for lead in Public Water Systems (PWS) and Clayton School District internal action levels.

Mr. Dan Puricelli of PE conducted the drinking water sampling and is a licensed Lead Risk Assessor's in the State of Missouri. All follow up testing was performed on October 28, 2016. The Lead Risk Assessors license is included in **Appendix A**.

The following schools and facilities were included within the follow up testing.

Ralph M. Captain Elementary School
6345 Northwood Avenue
Clayton, Missouri 63105

Wydown Middle School (6-8)
6500 Wydown Boulevard
Clayton, Missouri 63105

Meramec Elementary School
400 South Meramec Avenue
Clayton, Missouri 63105

The Family Center
301 N. Gay Avenue
Clayton, Missouri 63105



Clayton High School (9-12)

#1 Gay Avenue
Clayton, Missouri 63105

Athletic Field House

305 N. Gay Avenue
Clayton, Missouri 63105

Analytical Procedure

Six (6) primary first draw drinking water samples and six (6) flush samples were collected at the same locations and were analyzed for lead content. Samples were analyzed by Environmental Science Corporation (ESC), 12065 Lebanon Road, Mt. Juliet, TN 37122. All samples were analyzed by EPA Method 200.8, Revision 5.4: Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma – Mass Spectrometry. ESC is accredited by the state of Missouri for the analysis of Drinking Water.

The USEPA classifies an action level as 15 parts per billion (ppb) or 15 micrograms/liter of lead in water. Clayton School District utilizes a more conservative action limit of 10 ppb. Analytical reports are included in **Appendix B - Laboratory Analytical Reports**. A copy of ESC's accreditation is included in **Appendix C -Laboratory Accreditations**.

Follow up samples were collected from schools or facilities that had detectable concentrations approaching action limits or were not able to be sampled during the original sampling in September 2016. First draw samples were collected and followed by a 30 second "flush" sample from the sources. Results were reviewed and quality assurance was conducted internally to compare the results to the USEPA and Clayton School District internal action levels. Laboratory results were expressed in micrograms/liter and converted into ppb. Laboratory results that were below the analytical detection limits were expressed as U (not detected at the reporting limit).

The following table identifies all results from the follow up testing conducted on October 28, 2016. No results exceeded the USEPA and Clayton School District action levels. The results are presented below:

Ralph M. Captain Elementary School

Sample Number	Date	Location	Draw	Results
CAP-1-68-CFC-3-P-1	10/28/16	Room 68	First	4.66 ppm
CAP-1-68-CFC-4-F-1	10/28/16	Room 68	Flush	1.19 ppm

Wydown Middle School

Sample Number	Date	Location	Draw	Results
WY-1-151-KC-1-P-1	10/28/16	Room 151	First	5.46 ppm
WY-1-151-KC-2-F-1	10/28/16	Room 151	Flush	0.384 ppm



Meramec Elementary School

Sample Number	Date	Location	Draw	Results
MER-G-HALL600A-WC-5-P-1	10/28/16	Hall by Rm 600A	First	U
MER-G-HALL600A-WC-6-F-1	10/28/16	Hall by Rm 600A	Flush	U

The Family Center

Sample Number	Date	Location	Draw	Results
FC-G-9-CFC-9-P-1	10/28/16	Room 9	First	1.04 ppm
FC-G-9-CFC-10-F-1	10/28/16	Room 9	Flush	U

Clayton High School

Sample Number	Date	Location	Draw	Results
CHS-1-118E-SLC-7-P-1	10/28/16	Room 118E	First	0.475 ppm
CHS-1-118E-SLC-8-F-1	10/28/16	Room 118E	Flush	U

Athletic Field House

Sample Number	Date	Location	Draw	Results
AFS-1-HALL TRAINING- WCL-11-P-1	10/28/16	Hallway Training	First	U
AFS-1-HALL TRAINING- WCL-12-F-1	10/28/16	Hallway Training	Flush	U

U: Not detected at the reporting limit.

Conclusions:

Results within the Report of Findings - Lead in Drinking Water Sampling Assessment dated October 25, 2016 and the associated follow up testing contained within this report indicate that the overall concentrations of lead in drinking water within the Clayton School District are well below the USEPA's action limit of 15 ppb as well as the Clayton's internal action level of 10 ppb. Based upon the sampling and evaluation of the results - no further action is required by law in accordance with the Safe Drinking Water Act, Lead and Copper Rules.

In addition, the school district have taken affirmative steps to replace older drinking water fountains/sources, perform regular maintenance, clean aerators and screens and is scheduled to perform regular testing and monitoring of the drinking water concentrations throughout the school district.

It is our professional opinion based upon the evaluation of the results that the school district is in compliance with Safe Drinking Water Act, maintains very good drinking water



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quality and performs excellent preventative maintenance on drinking water sources throughout the district.

Precautionary Measures and Recommendations

1. Continue to monitor Wydown Middle School (Room 151 – Kitchen Faucet) and Ralph M. Captain Elementary School (Room 68 – Classroom Faucet). Both of these areas are not drinking water fountains and are significantly less the 10 ppb action level – however it is recommended that they be tested and routine maintenance be performed on an annual basis to ensure safe drinking water levels.
2. Routine Maintenance Practices:
 - Clean debris from accessible screens (aerators) frequently. Clean and inspect periodically. Particular emphasis should be given to all areas and water service lines that have results above 3 ppb.
 - Use only cold water for food and beverage preparation in kitchens and cooking classes.
 - Continue to monitor and perform regular testing of the drinking water throughout the school district on an annual basis to document and assess lead concentrations.

Thank you for your confidence in Professional Environmental Engineers. If you need additional assistance, please call me at 314-531-0060.

Respectfully Submitted

PROFESSIONAL ENVIRONMENTAL ENGINEERS, INC.

William Pietroburo, MS, CHMM
Project Manager

APPENDICES

APPENDIX A Lead Risk Assessors Licenses
APPENDIX B Laboratory Analytical Reports
APPENDIX C Laboratory Accreditations



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APPENDIX A
Lead Risk Assessors Licenses

**STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES**

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

DANIEL PURICELLI

The person, firm or corporation whose name appears on this certificate has fulfilled the requirements for licensure as set forth in the Missouri Revised Statutes 701.300-701.338, as long as not suspended or revoked, and is hereby authorized to engage in the activity listed below.

Lead Risk Assessor
Category of License

Issuance Date: 3/2/2015
Expiration Date: 3/2/2017
License Number: 090302-300002303



A handwritten signature in black ink, appearing to read "Gail Vasterling".

Gail Vasterling
Director
Department of Health and Senior Services

Lead Licensing Program, PO Box 570, Jefferson City, MO 65102



**Missouri Department of Health
and Senior Services**



Lead Occupation License - ID Badge
License Number: 090302-300002303

Lead Risk Assessor

**DANIEL
PURICELLI**

Expiration Date: 03/02/2017



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APPENDIX B
Laboratory Analytical Reports

October 31, 2016

Professional Environmental Engineers Inc

Sample Delivery Group: L869261
Samples Received: 10/29/2016
Project Number: 00701006
Description: Clayton School District
Site: MERAMEC SCHOOL
Report To: Bill Pietroburgo
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1	
²Tc: Table of Contents	2	
³Ss: Sample Summary	3	
⁴Cn: Case Narrative	4	
⁵Sr: Sample Results	5	
MER-G-HALL600A-WC-5-P-1 L869261-01	5	
MER-G-HALL600A-WC-6-F-1 L869261-02	6	
⁶Qc: Quality Control Summary	7	
Metals (ICPMS) by Method 200.8	7	
⁷Gl: Glossary of Terms	8	
⁸Al: Accreditations & Locations	9	
⁹Sc: Chain of Custody	10	

SAMPLE SUMMARY



MER-G-HALL600A-WC-5-P-1 L869261-01 DW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:43	JDG

Collected by	Collected date/time	Received date/time
	10/28/16 05:20	10/29/16 09:00

¹ Cp

² Tc

³ Ss

MER-G-HALL600A-WC-6-F-1 L869261-02 DW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:46	JDG

Collected by	Collected date/time	Received date/time
	10/28/16 05:22	10/29/16 09:00

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	U		0.260	1.00	1	10/31/2016 02:43	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	U		0.260	1.00	1	10/31/2016 02:46	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3174490-1 10/31/16 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead	U		0.260	1.00

¹Cp

²Tc

³Ss

⁴Cn

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174490-3 10/31/16 02:12 • (LCSD) R3174490-4 10/31/16 02:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lead	50.0	48.5	48.1	97	96	85-115			1	20

⁵Sr

⁶Qc

L869259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869259-01 10/31/16 02:18 • (MS) R3174490-5 10/31/16 02:21 • (MSD) R3174490-6 10/31/16 02:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead	50.0	5.46	53.6	53.2	96	95	1	70-130			1	20

⁷Gl

⁸Al

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

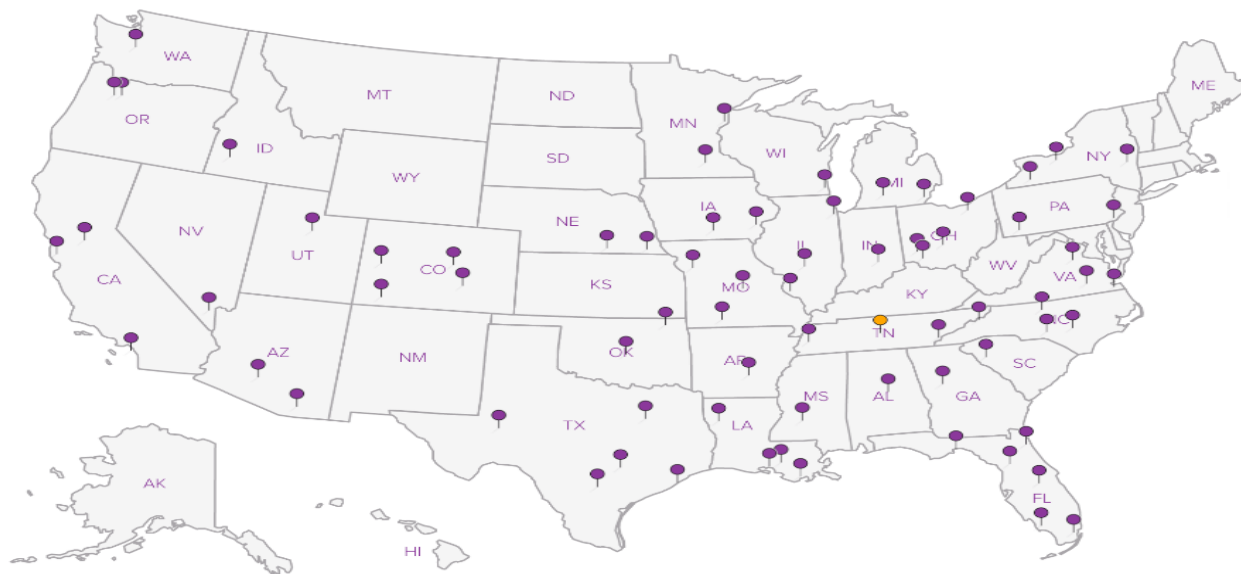
Third Party & Federal Accreditations



A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable


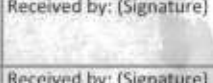

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Professional Environmental Engineers Inc 500 So. Ewing Bld.B Suite E St Louis, MO 63103		Billing Information & Quote Number: Accounts Payable 500 So. Ewing Bld.B Suite E St Louis, MO 63103		Analysis / Container / Preservative										Chain of Custody Page ___ of ___											
		Report to: Project Manager Bill		Email To: bpietroburgo@pe-engrs.com		Lead - 200.8 250mlHDPE-HNO3										 YOUR LAB OF CHOICE 12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859									
Project Description: Clayton School District		City/State Collected: Clayton, MO		L# L869261 G003												Acctnum: PROEN Template: T117259 Prelogin: P574153 TSR: 206 - Jeff Carr PB:									
Phone: 314-531-0060 Fax: 314-531-0068		Client Project # 007.01.006		Lab Project #												Shipped Via: FedEX Ground									
Collected by (print): Daniel Poricelli		Site/Facility ID # Meramec School		P.O. #												Rem./Contaminant Sample # (lab only)									
Collected by (signature): 		Rush? (Lab MUST Be Notified) Same Day200% <input checked="" type="checkbox"/> Next Day100% Two Day50% Three Day25%		Date Results Needed 11/1/16 11/1/16 24hr												Email? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes FAX? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes									
Immediately Packed on Ice <input checked="" type="checkbox"/> N <input type="checkbox"/> Y				No. of Cntrs																					
Sample ID		Comp/Grab		Matrix *												Depth		Date		Time					
MER-G-Hall600A-WC-S-P-1				DW																5:20AM		1 X			
MER-G-Hall600A-WC-G-F-1				DW																5:22AM		1 X		02	
				DW																		1 X			
				DW								1 X													
				DW								1 X													
				DW								1 X													
				DW								1 X													
				DW								1 X													
				DW								1 X													

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks:				pH _____ Temp _____		Hold #	
Relinquished by: (Signature) 				Date: 10/25/16		Received by: (Signature) 	
Relinquished by: (Signature)				Date:		Received by: (Signature)	
Relinquished by: (Signature)				Date:		Received for lab by: (Signature) 	
Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____				Temp: 3.1 °C		Bottles Received: 2	
Condition: (lab use only)				COC Seal Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA		pH Checked: C2	
Date: 10-29-16				Time: 9:00		NCF:	



Cooler Receipt Form			
Client:	PROEN	SDG#	L869261
Cooler Received/Opened On:	10/29/16	Temperature Upon Receipt:	3.1 °c
Received By: Rickey Mosley			
Signature: <i>Rickey Mosley</i>			
Receipt Check List			
	Yes	No	N/A
Were custody seals on outside of cooler and intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were custody papers properly filled out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were correct bottles used for the analyses requested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent in each bottle?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If applicable, was an observable VOA headspace present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non Conformance Generated. (If yes see attached NCF)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

October 31, 2016

Professional Environmental Engineers Inc

Sample Delivery Group: L869260
Samples Received: 10/29/2016
Project Number: 00701006
Description: Clayton School District
Site: CAPTAIN ELEMENTARY
Report To: Bill Pietroburgo
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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CAP-1-68-CFC-3-P-1 L869260-01	5	
CAP-1-68-CFC-4-F-1 L869260-02	6	
⁶Qc: Quality Control Summary	7	
Metals (ICPMS) by Method 200.8	7	
⁷Gl: Glossary of Terms	8	
⁸Al: Accreditations & Locations	9	
⁹Sc: Chain of Custody	10	

SAMPLE SUMMARY



CAP-1-68-CFC-3-P-1 L869260-01 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:10
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:37	JDG

¹ Cp

² Tc

³ Ss

CAP-1-68-CFC-4-F-1 L869260-02 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:11
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:40	JDG

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	4.66		0.260	1.00	1	10/31/2016 02:37	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	1.19		0.260	1.00	1	10/31/2016 02:40	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3174490-1 10/31/16 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead	U		0.260	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174490-3 10/31/16 02:12 • (LCSD) R3174490-4 10/31/16 02:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lead	50.0	48.5	48.1	97	96	85-115			1	20

⁷Gl

⁸Al

L869259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869259-01 10/31/16 02:18 • (MS) R3174490-5 10/31/16 02:21 • (MSD) R3174490-6 10/31/16 02:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead	50.0	5.46	53.6	53.2	96	95	1	70-130			1	20

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

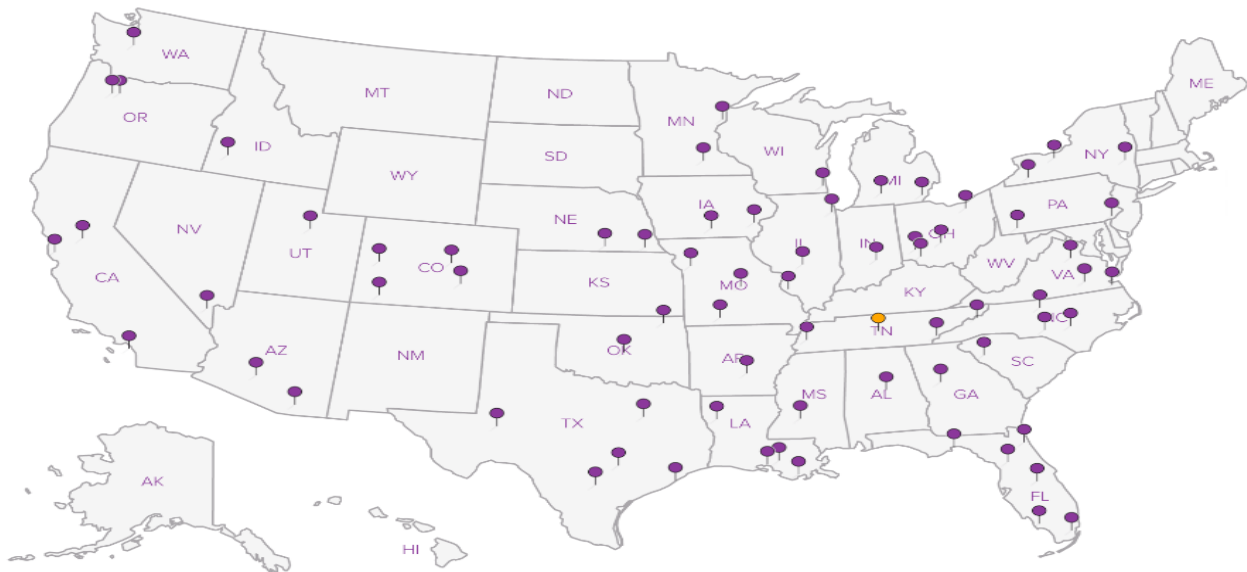
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

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Professional Environmental Engineers Inc

500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Report to:
Project Manager *Bill Pietroburgo*

Billing Information & Quote Number:

Accounts Payable
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Email To: *bpietroburgo@pe-engrs.com*

Project Description: *Clayton School District*

City/State Collected: *Clayton MO*

Phone: **314-531-0060**
Fax: **314-531-0068**

Client Project #
007.01.006

Lab Project #

Collected by (print):
Daniel Poricelli

Site/Facility ID #
Captain Elementary

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Date Results Needed
11/1/16 24hr

Email? No Yes
FAX? No Yes

No. of Cntrs

Immediately Packed on Ice Y N

Lead - 200.8 250mIHDPE-HNO3

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# *L869260*
G002

Acctnum: **PROEN**

Template: **T117259**

Prelogin: **P574153**

TSR: **206 - Jeff Carr**

PB:

Shipped Via: **FedEX Ground**

Rem./Contaminant Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs															
<i>CAP-1-68-CFC-3-P-1</i>		<i>DW</i>		<i>10/28/16</i>	<i>5:10 AM</i>	<i>1</i>	<i>X</i>														<i>-01</i>
<i>CAP-1-68-CFC-4-F-1</i>		<i>DW</i>		<i>10/28/16</i>	<i>5:11 AM</i>	<i>1</i>	<i>X</i>														<i>02</i>
		<i>DW</i>				<i>1</i>	<i>X</i>														
		<i>DW</i>				<i>1</i>	<i>X</i>														
		<i>DW</i>				<i>1</i>	<i>X</i>														
		<i>DW</i>				<i>1</i>	<i>X</i>														
		<i>DW</i>				<i>1</i>	<i>X</i>														
		<i>DW</i>				<i>1</i>	<i>X</i>														
		<i>DW</i>				<i>1</i>	<i>X</i>														

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other _____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Hold # _____

Relinquished by: (Signature)
[Signature]

Date: *10/28/16*

Time: _____ Received by: (Signature)

Samples returned via: UPS
 FedEx Courier _____

Condition: (lab use only) *a*

Relinquished by: (Signature)

Date: _____

Time: _____ Received by: (Signature)

Temp: *3.1* °C Bottles Received: *2*

COC Seal Intact: Y N NA

Relinquished by: (Signature)

Date: _____

Time: _____ Received for lab by: (Signature)

Date: *10-29-16* Time: *9:00*

pH Checked: *CC* NCF: _____



Cooler Receipt Form

Client:	PROEN	SDG#	L869260
Cooler Received/Opened On:	10/29/16	Temperature Upon Receipt:	3.1 °C

Received By: Rickey Mosley

Signature: *Rickey Mosley*

Receipt Check List				Yes	No	N/A
Were custody seals on outside of cooler and intact?	<input checked="" type="checkbox"/>					
Were custody papers properly filled out?	<input checked="" type="checkbox"/>					
Did all bottles arrive in good condition?	<input checked="" type="checkbox"/>					
Were correct bottles used for the analyses requested?	<input checked="" type="checkbox"/>					
Was sufficient amount of sample sent in each bottle?	<input checked="" type="checkbox"/>					
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	<input checked="" type="checkbox"/>					
If applicable, was an observable VOA headspace present?						<input checked="" type="checkbox"/>
Non Conformance Generated. (If yes see attached NCF)						

Professional Environmental Engineers Inc

Sample Delivery Group: L869259
Samples Received: 10/29/2016
Project Number: 007.01.006
Description: Clayton School District
Site: WYDOWN MIDDLE SCHOOL
Report To: Bill Pietroburgo
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Entire Report Reviewed By:












Jeff Carr

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



¹Cp: Cover Page	1	
²Tc: Table of Contents	2	
³Ss: Sample Summary	3	
⁴Cn: Case Narrative	4	
⁵Sr: Sample Results	5	
WY-1-151-KC-1-P-1 L869259-01	5	
WY-1-151-KC-2-F-1 L869259-02	6	
⁶Qc: Quality Control Summary	7	
Metals (ICPMS) by Method 200.8	7	
⁷Gl: Glossary of Terms	8	
⁸Al: Accreditations & Locations	9	
⁹Sc: Chain of Custody	10	

SAMPLE SUMMARY



WY-1-151-KC-1-P-1 L869259-01 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:00
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:18	JDG

¹ Cp

² Tc

³ Ss

WY-1-151-KC-2-F-1 L869259-02 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:01
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:34	JDG

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	5.46		0.260	1.00	1	10/31/2016 02:18	WG922067

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	0.384	J	0.260	1.00	1	10/31/2016 02:34	WG922067

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc



Method Blank (MB)

(MB) R3174490-1 10/31/16 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead	U		0.260	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174490-3 10/31/16 02:12 • (LCSD) R3174490-4 10/31/16 02:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lead	50.0	48.5	48.1	97	96	85-115			1	20

⁷Gl

⁸Al

L869259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869259-01 10/31/16 02:18 • (MS) R3174490-5 10/31/16 02:21 • (MSD) R3174490-6 10/31/16 02:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead	50.0	5.46	53.6	53.2	96	95	1	70-130			1	20

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
-----------	-------------

J	The identification of the analyte is acceptable; the reported value is an estimate.
---	---

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.



State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

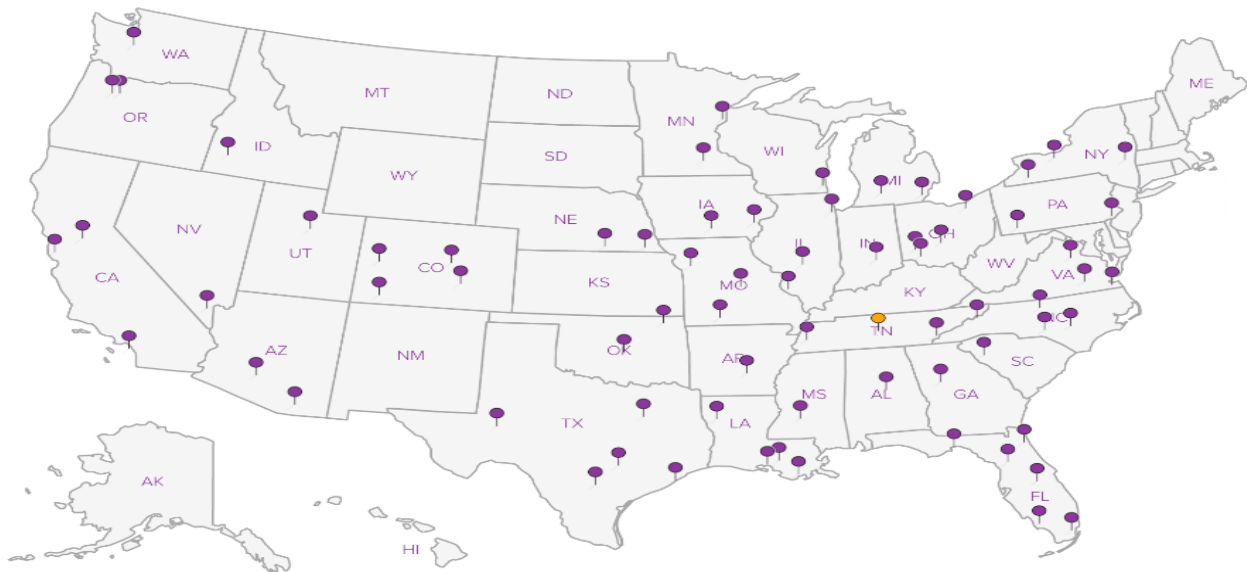
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



Professional Environmental Engineers Inc

Billing Information & Quote Number:

Accounts Payable
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Report to:
Project Manager *Bill Pietroborgo*

Email To: *bpietroborgo@pe-engrs.com*

Project Description: *Clayton School District*

City/State Collected: *clayton, MO*

Phone: **314-531-0060**
Fax: **314-531-0068**

Client Project #
007-01-006

Lab Project #

Collected by (print):
Daniel Poricelli

Site/Facility ID #
Wydown Middle School

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
Same Day200%
 Next Day100%
Two Day50%
Three Day25%

Date Results Needed
11-16 24hr
Email? No Yes
FAX? No Yes

Immediately Packed on Ice N Y

No. of Cntrs

Lead - 200.8 250mlHDPE-HNO3

Analysis / Container / Preservative

Chain of Custody Page of



YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L # *L869259*

G001

Acctnum: **PROEN**
Template: **T117259**
Prelogin: **P574153**
TSR: **206 - Jeff Carr**

PB:
Shipped Via: **FedEX Ground**

Rem./Contaminant Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs															
<i>WY-1-151-KC-1P-1</i>		DW		<i>10/28/16</i>	<i>5:00AM</i>	1	X														<i>-01</i>
<i>WY-1-151-KC-2-F-1</i>		DW		<i>10/28/16</i>	<i>5:01AM</i>	1	X														<i>02</i>
		DW				1	X														
		DW				1	X														
		DW				1	X														
		DW				1	X														
		DW				1	X														
		DW				1	X														
		DW				1	X														

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other _____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Hold # _____

Relinquished by (Signature) <i>[Signature]</i>	Date: <i>10/28/16</i>	Time:	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>[Signature]</i>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <i>3.1</i> °C Bottles Received: <i>2</i>	COC Seal Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: <i>10-29-16</i> Time: <i>9:00</i>	pH Checked: <i>CC</i> NCF: _____



Cooler Receipt Form					
Client:	PROEN	SDG#	L869259		
Cooler Received/Opened On:	10/29 /16	Temperature Upon Receipt:	3.1 °c		
Received By: Rickey Mosley					
Signature: <i>Rickey Mosley</i>					
Receipt Check List			Yes	No	N/A
Were custody seals on outside of cooler and intact?			✓		
Were custody papers properly filled out?			✓		
Did all bottles arrive in good condition?			✓		
Were correct bottles used for the analyses requested?			✓		
Was sufficient amount of sample sent in each bottle?			✓		
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			✓		
If applicable, was an observable VOA headspace present?					✓
Non Conformance Generated. (If yes see attached NCF)					

October 31, 2016

Professional Environmental Engineers Inc

Sample Delivery Group: L869263
Samples Received: 10/29/2016
Project Number: 00701006
Description: Clayton School District
Site: FAMILY CENTER
Report To: Bill Pietroburgo
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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¹Cp: Cover Page	1	¹Cp
²Tc: Table of Contents	2	²Tc
³Ss: Sample Summary	3	³Ss
⁴Cn: Case Narrative	4	⁴Cn
⁵Sr: Sample Results	5	⁵Sr
FC-G-9-CFC-9-P-1 L869263-01	5	
FC-G-9-CFC-10-F-1 L869263-02	6	
⁶Qc: Quality Control Summary	7	⁶Qc
Metals (ICPMS) by Method 200.8	7	
⁷Gl: Glossary of Terms	8	⁷Gl
⁸Al: Accreditations & Locations	9	⁸Al
⁹Sc: Chain of Custody	10	⁹Sc

SAMPLE SUMMARY



FC-G-9-CFC-9-P-1 L869263-01 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:45
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:55	JDG

¹ Cp

² Tc

³ Ss

FC-G-9-CFC-10-F-1 L869263-02 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:46
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:59	JDG

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

- ¹ Cp
- ² Tc
- ³ Ss
- ⁴ Cn
- ⁵ Sr
- ⁶ Qc
- ⁷ Gl
- ⁸ Al
- ⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	1.04		0.260	1.00	1	10/31/2016 02:55	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	U		0.260	1.00	1	10/31/2016 02:59	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3174490-1 10/31/16 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead	U		0.260	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174490-3 10/31/16 02:12 • (LCSD) R3174490-4 10/31/16 02:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lead	50.0	48.5	48.1	97	96	85-115			1	20

⁷Gl

⁸Al

L869259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869259-01 10/31/16 02:18 • (MS) R3174490-5 10/31/16 02:21 • (MSD) R3174490-6 10/31/16 02:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead	50.0	5.46	53.6	53.2	96	95	1	70-130			1	20

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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1
Cp

2
Tc

3
Ss

4
Cn

5
Sr

6
Qc

7
Gl

8
Al

9
Sc

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

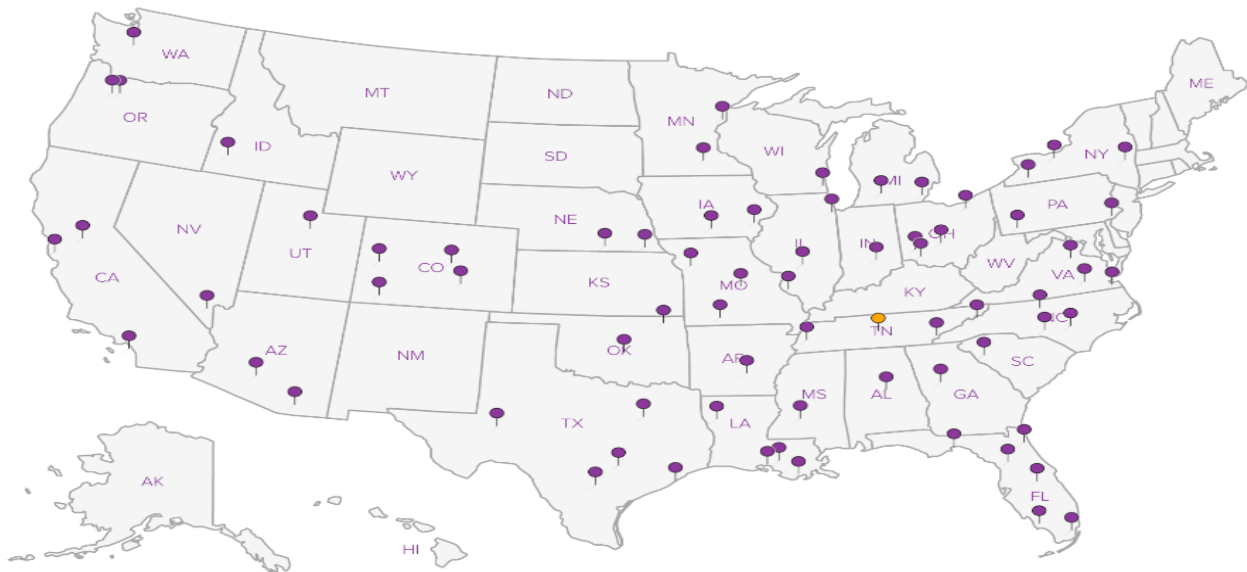
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

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Professional Environmental Engineers Inc500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Billing Information & Quote Number:

Accounts Payable
500 So. Ewing Bld.B Suite E
St Louis, MO 63103Report to:
Project Manager *Bill Pietroborgo*Email To: *bpietroborgo@pe-engrs.com*Project Description: *Clayton School District*City/State Collected: *Clayton MO*Phone: **314-531-0060**
Fax: **314-531-0068**Client Project #
607.01.006

Lab Project #

Collected by (print):
*Daniel Puricelli*Site/Facility ID #
Family Center

P.O. #

Collected by (signature):
*[Signature]***Rush?** (Lab MUST Be Notified)Date Results Needed
*11/1/16 24hr*Immediately Packed on Ice N YSame Day 200%
 Next Day 100%
Two Day 50%
Three Day 25%Email? No Yes
FAX? No YesNo. of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative										Rem./Contaminant	Sample # (lab only)					
<i>FC-G-9-CFC-9-P-1</i>		<i>DW</i>		<i>10/28/16</i>	<i>5:45AM</i>	<i>1</i>	X																<i>-01</i>
<i>FC-G-9-CFC-10-F-1</i>		<i>DW</i>		<i>10/28/16</i>	<i>5:46AM</i>	<i>1</i>	X																<i>02</i>
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																
		<i>DW</i>				<i>1</i>	X																

Lead - 200.8 250mlHDPE-HNO3 L2

Chain of Custody Page ____ of ____



YOUR LAB OF CHOICE


12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859


L# *L869263*
G005Acctnum: **PROEN**
Template: **T117259**
Prelogin: **P574153**
TSR: **206 - Jeff Carr**
PB:Shipped Via: **FedEX Ground*** Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other _____

Remarks:

pH _____ Temp _____
Flow _____ Other _____
Hold # _____

Relinquished by: (Signature) <i>[Signature]</i>	Date: <i>10/28/16</i>	Time: _____	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only)
Relinquished by: (Signature)	Date: _____	Time: _____	Received by: (Signature)	Temp: <i>31</i> °C Bottles Received: <i>2</i>	COC Seal Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Relinquished by: (Signature)	Date: _____	Time: _____	Received for lab by: (Signature) <i>[Signature]</i>	Date: <i>10-29-16</i> Time: <i>900</i>	pH Checked: <i>02</i> NCF: _____





Cooler Receipt Form

Client:	PROEN	SDG#	LB69263		
Cooler Received/Opened On:	10/29 /16	Temperature Upon Receipt:	5.1 °C		
Received By:	Rickey Mosley				
Signature:	<i>Rickey Mosley</i>				
Receipt Check List			Yes	No	N/A
Were custody seals on outside of cooler and intact?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were custody papers properly filled out?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive in good condition?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were correct bottles used for the analyses requested?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent in each bottle?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If applicable, was an observable VOA headspace present?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non Conformance Generated. (If yes see attached NCF)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

October 31, 2016

Professional Environmental Engineers Inc

Sample Delivery Group: L869262
Samples Received: 10/29/2016
Project Number: 00701006
Description: Clayton School District
Site: CLAYTON HIGH SCHOOL
Report To: Bill Pietroburgo
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Entire Report Reviewed By:












Jeff Carr

Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SAMPLE SUMMARY



CHS-1-118E-SLC-7-P-1 L869262-01 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:33
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:49	JDG

¹ Cp

² Tc

³ Ss

CHS-1-118E-SLC-8-F-1 L869262-02 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 05:34
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922067	1	10/29/16 14:09	10/31/16 02:52	JDG

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	0.475	J	0.260	1.00	1	10/31/2016 02:49	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	U		0.260	1.00	1	10/31/2016 02:52	WG922067

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3174490-1 10/31/16 02:06

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead	U		0.260	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174490-3 10/31/16 02:12 • (LCSD) R3174490-4 10/31/16 02:15

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lead	50.0	48.5	48.1	97	96	85-115			1	20

⁷Gl

⁸Al

L869259-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L869259-01 10/31/16 02:18 • (MS) R3174490-5 10/31/16 02:21 • (MSD) R3174490-6 10/31/16 02:24

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead	50.0	5.46	53.6	53.2	96	95	1	70-130			1	20

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.

State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey–NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

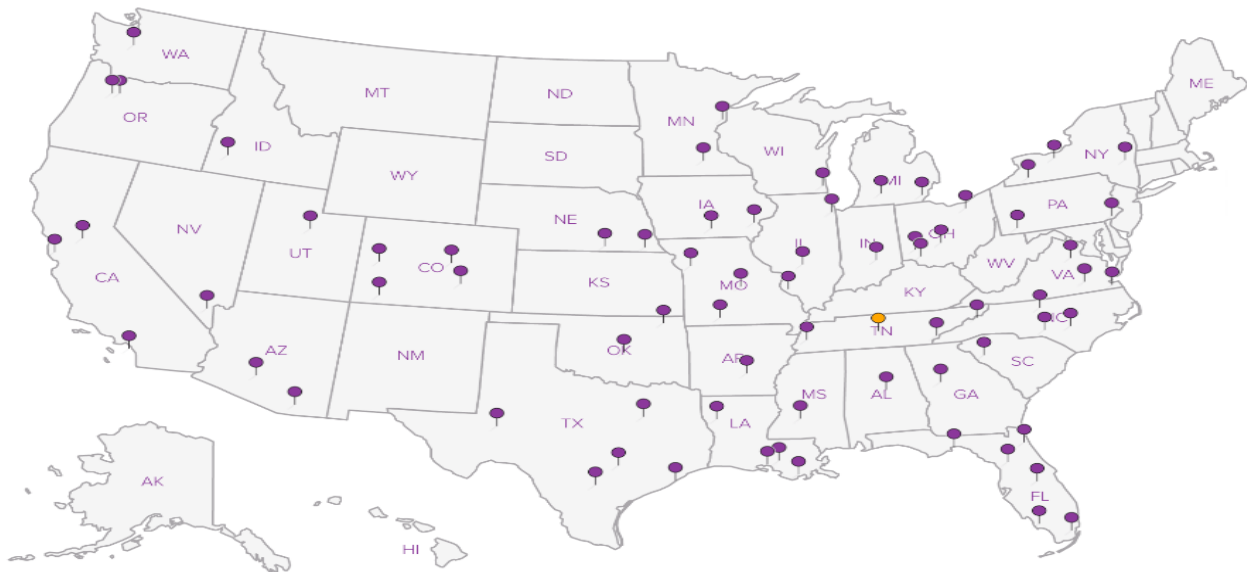
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**



¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Professional Environmental Engineers Inc

500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Report to:
Project Manager *Bill Pietroburgo*

Billing Information & Quote Number:

Accounts Payable
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Email To:
bpietroburgo@peengrs.com

Project Description: *Clayton School District*

City/State Collected: *clayton mo*

Phone: **314-531-0060**
Fax: **314-531-0068**

Client Project #
007.01.006

Lab Project #

Collected by (print):
Daniel Puricelli

Site/Facility ID #
Clayton High School

P.O. #

Collected by (signature):
[Signature]

Rush? (Lab MUST Be Notified)
 Same Day200%
 Next Day100%
 Two Day50%
 Three Day25%

Date Results Needed
11/1/16 24hr

Email? No Yes
FAX? No Yes

Immediately Packed on Ice N Y

No. of Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Analysis / Container / Preservative
<i>CHS-1-118E-SLC-7-P-1</i>		<i>DW</i>		<i>10/28/16</i>	<i>5:23 AM</i>	<i>1</i>	<i>X</i>
<i>CHS-1-118E-SLC-8-P-1</i>		<i>DW</i>		<i>10/28/16</i>	<i>5:34 AM</i>	<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>
		<i>DW</i>				<i>1</i>	<i>X</i>

V2
Lead - 200.8 250mlHDPE-HNO3

Chain of Custody Page ___ of ___



YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# *L869262*
G004

Acctnum: **PROEN**
Template: **T117259**
Prelogin: **P574153**
TSR: **206 - Jeff Carr**
PB:
Shipped Via: **FedEX Ground**

Rem./Contaminant	Sample # (lab only)
	<i>-01</i>
	<i>02</i>

* Matrix: **SS** - Soil **GW** - Groundwater **WW** - WasteWater **DW** - Drinking Water **OT** - Other _____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature) <i>[Signature]</i>	Date: <i>10/28/16</i>	Time:	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>[Signature]</i>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: <i>3.1</i> °C Bottles Received: <i>2</i>	COC Seal Intact: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: <i>10-29-16</i> Time: <i>qw</i>	pH Checked: <i>L2</i> NCF:



Cooler Receipt Form					
Client:	PROEN	SDG#	L869262		
Cooler Received/Opened On:	10/29/16	Temperature Upon Receipt:	3.1 °C		
Received By: Rickey Mosley					
Signature: <i>Rickey Mosley</i>					
Receipt Check List			Yes	No	N/A
Were custody seals on outside of cooler and intact?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were custody papers properly filled out?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive in good condition?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were correct bottles used for the analyses requested?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent in each bottle?			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If applicable, was an observable VOA headspace present?			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non Conformance Generated. (If yes see attached NCF)			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Professional Environmental Engineers Inc

Sample Delivery Group: L869264
Samples Received: 10/29/2016
Project Number: 00701006
Description: Clayton School District
Site: ATHLETIC FIELD HOUSE
Report To: Bill Pietroburgo
500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Entire Report Reviewed By:



Jeff Carr

Technical Service Representative

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State of Missouri
Department of Natural Resources

Certificate of Approval
for Chemical Laboratory Service

This is to certify that

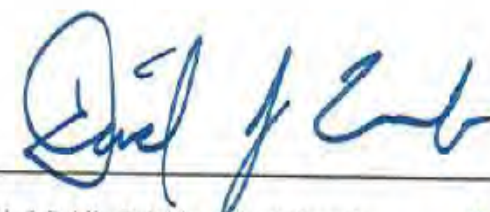
Environmental Science Corporation

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.

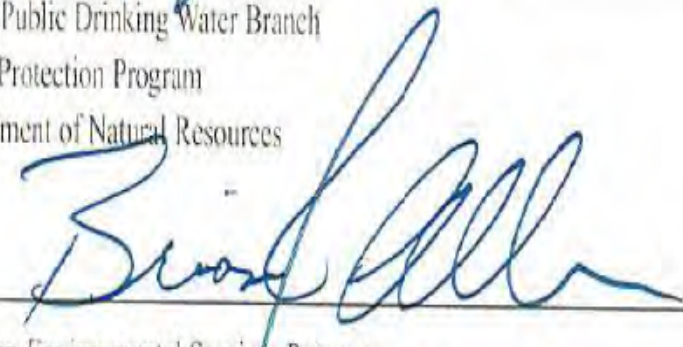
Certification No. 340

Date Issued September 16, 2016

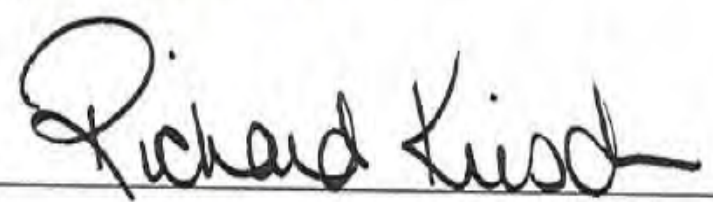
Expiration Date June 16, 2019



Chief, Public Drinking Water Branch
Water Protection Program
Department of Natural Resources



Director, Environmental Services Program
Department of Natural Resources



Evaluation Officer, Environmental Services Program
Department of Natural Resources



¹Cp: Cover Page	1
²Tc: Table of Contents	2
³Ss: Sample Summary	3
⁴Cn: Case Narrative	4
⁵Sr: Sample Results	5
AFS-1-HALLTRAINING-WCL-11-P-1 L869264-01	5
AFS-1-HALLTRAINING-WCL-12-F-1 L869264-02	6
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Metals (ICPMS) by Method 200.8	7
⁷Gl: Glossary of Terms	8
⁸Al: Accreditations & Locations	9
⁹Sc: Chain of Custody	10



SAMPLE SUMMARY



AFS-1-HALLTRAINING-WCL-11-P-1 L869264-01 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 00:00
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922070	1	10/29/16 14:13	10/30/16 21:26	VSS

¹ Cp

² Tc

³ Ss

AFS-1-HALLTRAINING-WCL-12-F-1 L869264-02 DW

Collected by Daniel Puricelli
 Collected date/time 10/28/16 00:00
 Received date/time 10/29/16 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Metals (ICPMS) by Method 200.8	WG922070	1	10/29/16 14:13	10/30/16 21:30	VSS

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Jeff Carr
Technical Service Representative

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Collected date/time: 10/28/16 00:00

L869264

Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	U		0.260	1.00	1	10/30/2016 21:26	WG922070

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Metals (ICPMS) by Method 200.8

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Lead	U		0.260	1.00	1	10/30/2016 21:30	WG922070

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3174474-1 10/30/16 20:41

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Lead	U		0.260	1.00

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3174474-3 10/30/16 20:48 • (LCSD) R3174474-4 10/30/16 20:51

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Lead	50.0	48.9	47.6	98	95	85-115			3	20

⁷Gl

⁸Al

L868682-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L868682-01 10/30/16 20:54 • (MS) R3174474-5 10/30/16 20:57 • (MSD) R3174474-6 10/30/16 21:01

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Lead	50.0	3.72	53.7	54.2	100	101	1	70-130			1	20

⁹Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Rec.	Recovery.

Qualifier	Description
-----------	-------------

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.

¹
Cp

²
Tc

³
Ss

⁴
Cn

⁵
Sr

⁶
Qc

⁷
Gl

⁸
Al

⁹
Sc



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California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina ¹	DW21704
Florida	E87487	North Carolina ²	41
Georgia	NELAP	North Dakota	R-140
Georgia ¹	923	Ohio–VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky ¹	90010	South Dakota	n/a
Kentucky ²	16	Tennessee ¹⁴	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

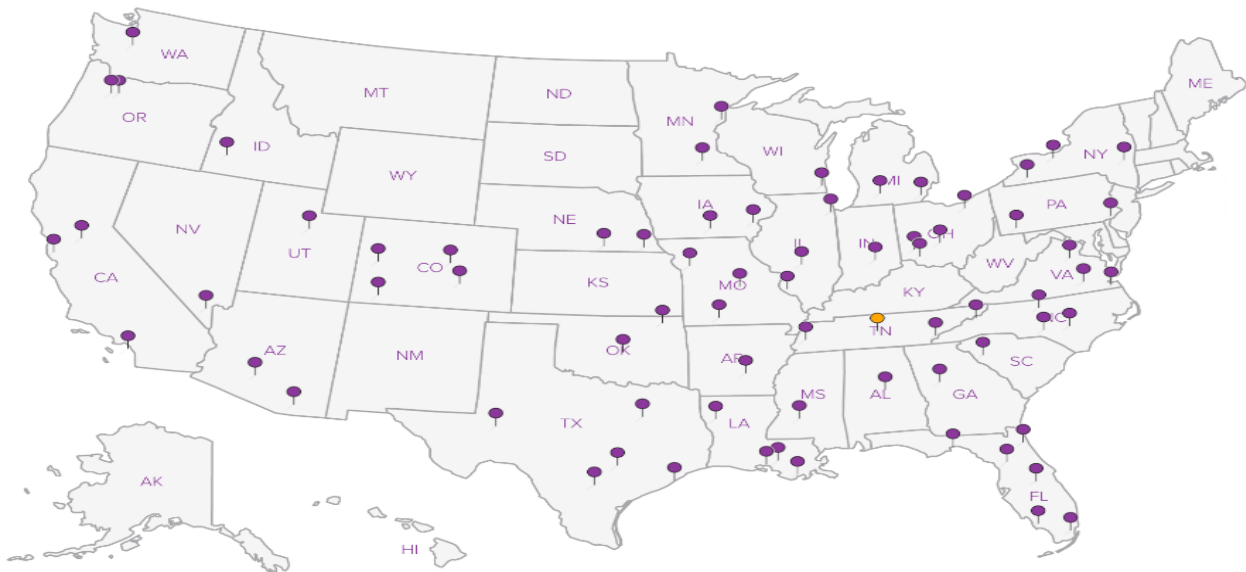
Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

Our Locations

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Professional Environmental Engineers Inc

500 So. Ewing Bld.B Suite E
St Louis, MO 63103

Report to: **Project Manager Bill Pietroborgo**
Email To: **bpictroborgo@pe-engrs.com**

Project Description: **Clayton School District**
City/State Collected: **Clayton MO**

Phone: **314-531-0060** Client Project # **007.01.006**
Fax: **314-531-0068** Lab Project #

Collected by (print): **Daniel Purzell** Site/Facility ID # **Athletic Field House** P.O. #

Collected by (signature): *[Signature]* **Rush? (Lab MUST Be Notified)**
Date Results Needed **11/1/16 24hr**
Immediately Packed on Ice **N X Y**
Same Day200%
 Next Day100%
Two Day50%
Three Day25%
Email? No Yes
FAX? No Yes

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
AFS-1-Hall Training-WCL-11-P-1		DW		10/28/16		1 X
AFS-1-Hall Training-WCL-12-F-1		DW		10/28/16		1 X
		DW				1 X
		DW				1 X
		DW				1 X
		DW				1 X
		DW				1 X
		DW				1 X
		DW				1 X
		DW				1 X

Lead - 200 8 250m/HDPE-HNO3 L2

Analysis / Container / Preservative

Chain of Custody Page ___ of ___



ESC
L.A.B S.C.I.E.N.C.E.S

YOUR LAB OF CHOICE

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



L# **L869264**
G006

Acctnum: **PROEN**
Template: **T117259**
Prelogin: **P574153**
TSR: 206 - Jeff Carr
PB:
Shipped Via: **FedEX Ground**

Rem./Contaminant	Sample # (lab only)
	-01
	02

* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature) <i>[Signature]</i>	Date: 10/28/16	Time:	Received by: (Signature) <i>[Signature]</i>	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/> _____	Condition: (lab use only) <i>[Signature]</i>
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.1 °C Bottles Received: 2	COC Seal Intact: Y N NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>[Signature]</i>	Date: 10-29-16 Time: 9:00	pH Checked: L2 NCF:



Cooler Receipt Form

Client:	PROEN	SDG#	L869264
Cooler Received/Opened On:	10/29/16	Temperature Upon Receipt:	3.1 °C
Received By: Rickey Mosley			
Signature: <i>Rickey Mosley</i>			

Receipt Check List	Yes	No	N/A
Were custody seals on outside of cooler and intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were custody papers properly filled out?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did all bottles arrive in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were correct bottles used for the analyses requested?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Was sufficient amount of sample sent in each bottle?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were all applicable sample containers correctly preserved and checked for preservation? (Any not in accepted range noted on COC)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If applicable, was an observable VOA headspace present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Non Conformance Generated. (If yes see attached NCF)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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500 S. Ewing, Suite E
St. Louis, MO 63103
(314) 531-0060
Fax (314) 531-0068
Peengrs@pe-engrs.com

APPENDIX C
Laboratory Accreditations

State of Missouri
Department of Natural Resources

Certificate of Approval
for Chemical Laboratory Service

This is to certify that

Environmental Science Corporation

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 No. 340
Date Issued September 16, 2016
Expiration Date June 16, 2019



Chief, Public Drinking Water Branch
Water Protection Program
Department of Natural Resources



Director, Environmental Services Program
Department of Natural Resources



Evaluation Officer, Environmental Services Program
Department of Natural Resources

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DRINKING WATER LABORATORY
CERTIFIED PARAMETER LIST

This is to certify that

Environmental Science Corporation

located at

12065 Lebanon Road, Mount Juliet, Tennessee

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.

METALS

EPA 200.7 – Aluminum, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Magnesium, Manganese, Nickel, Potassium, Silica, Silver, Sodium, Zinc; *EPA 200.8* – Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Nickel, Selenium, Silver, Thallium, Uranium, Zinc; *EPA 245.1* – Mercury

INORGANIC NONMETALLIC CONSTITUENTS

SM4110B – Chloride, Fluoride, Nitrate, Nitrite, Sulfate; *EPA 300.0* – Bromide, Chloride, Fluoride, Nitrate, Nitrite, Sulfate; *SM4500-CN-E* – Cyanide; *SM4500-NO3-F* – Nitrate + Nitrite Total; *F SM4500-P E* – Ortho-Phosphate; *EPA 130.1* – Hydrogen Ion (pH); *EPA 150.1* – Hydrogen Ion (pH); *SM4500-H-B* – Hydrogen Ion (pH); *EPA 314.0* – Perchlorate; *EPA 335.4* – Cyanide; *EPA 353.2* – Nitrate-Nitrite Total; *EPA 365.1* – Ortho-Phosphate

ORGANIC COMPOUNDS

EPA 504.1 – 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB); *EPA 507* – Atrazine, Alachlor (LASSO), Simazine; *EPA 524.2* – 1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethylene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,4-Dichlorobenzene, Benzene, Dichloromethane, Carbon tetrachloride, Chlorobenzene, cis-1,2-Dichloroethylene, Ethylbenzene, Styrene, Tetrachloroethylene, Toluene, Total Trihalomethanes, trans-1,2-Dichloroethylene, Trichloroethylene (TCE), Vinyl Chloride, Xylenes (total); *EPA 552.2* – Bromoacetic acid, Chloroacetic acid, Dichloroacetic acid, Trichloroacetic acid, Dibromoacetic acid

PHYSICAL & AGGREGATE PROPERTIES

SM2320B – Alkalinity; *SM2330B* – Corrosivity by Langlier Index; *SM2340B* – Hardness by Aggressive Index; *SM2540C* – Total Dissolved Solids (TDS); *SM2130B* – Turbidity

AGGREGATE ORGANIC CONSTITUENTS

SM5310C – Dissolved Organic Carbon (DOC), Total Organic Carbon (TOC); *SM5910B* – UV-254; *SM5540C* – MBAS (Foaming Agents)

Expiration Date: June 16, 2019

Missouri Certificate No.: 340

Original Certifying State: Tennessee