



August 16, 2023

Bronaugh R-VI School District
Beth Sandness
527 6th Street
Bronaugh, Missouri 64728

Project: Limited Lead in Drinking Water Testing
Address: 527 6th Street, Bronaugh, Missouri 64728

Ms. Beth Sandness

On July 18, 2023, Kameron O'Donnell of Axiom Service Professionals (ASP), conducted lead in drinking water sampling at the above referenced address. Inspector certification is provided in Appendix A. A total of 6 samples were collected from various potential drinking water outlets including sources used for drinking, cooking, or cleaning of cooking and eating utensils throughout the building.

Drinking Water Standards

The use of lead solder and other lead-containing materials as defined in the EPA Safe Drinking Water Act in connecting household plumbing to public water supplies was prohibited as of 1986. The act established the definition of "lead free" to be less than 8% as a weighted average across wetted surfaces of a pipe, pipe fitting, plumbing fitting, and fixture and 0.2% lead for solder and flux. In 2011, the definition of "lead free" as it applied to wetted surfaces of a pipe, pipe fitting, and plumbing fitting and fixture was reduced from 8% to 0.25% as a weighted average. Many older structures still have lead pipe or lead-soldered plumbing internally, which may substantially increase the lead content of water at the tap. Nationwide regulations controlling the lead content of drinking-water coolers in schools went into effect in 1989.

In 1991, the EPA published the Lead and Copper Rule establishing limits on the amount of lead and copper in drinking water. This regulation can be found under 40 CFR Part 141, Subpart I. Reference: <https://www.epa.gov/dwreginfo/lead-and-copper-rule>

The EPA has set lead in drinking water standards as outlined below.

- For lead, the maximum contaminant level goal (MCLG) is zero. This is the levels determined to be safe by toxicological and biomedical considerations, independent of feasibility. EPA's National Primary Drinking Water Regulations for Lead establish a treatment level of **0.015 mg/L** or **15 ppb** (parts per billion) in municipal drinking water systems.

The Missouri Senate Bill 681 “Get the Lead Out of School Drinking Water Act”, passed in 2022, has set the standard summarized below.

Reference: https://www.senate.mo.gov/22info/BTS_Web/Bill.aspx?SessionType=R&BillID=71259862

- On or before January 1, 2024, each school shall conduct an inventory of all drinking water outlets and all outlets that are used for dispensing water for cooking or for cleaning cooking and eating utensils in each of the school’s buildings. A plan for testing should then be developed, prioritizing early childhood education programs and elementary schools, and made available to the public.
- The bill outlines that beginning in the 2023-2024 school year and for each subsequent school year, each school shall provide drinking water with a lead concentration below five parts per billion (**5 ppb**). Any school with greater than or equal to 5 ppb shall provide results and remediation plans to parents and staff within 7 business days of receiving results.

Drinking Fountain Identification

Drinking fountains throughout the school were visually assessed to determine if they matched those listed by the EPA to be lead-containing. The list of drinking fountains reported by the EPA to contain lead-lined holding tanks or solder joints is presented as Appendix B. Below is a list of drinking fountains within the school that match those reported by the EPA to be lead-containing.

Location	Make	Model #	Serial #
None Matching			

Water Sampling Methods:

Water samples were collected from each selected location as “first draw” and/or “flush”. First draw samples typically represent worst case sample results. A flush sample is typically collected to determine if an elevation is originating beyond the fixture in the fixture supply line or beyond. Samples were deposited into a non-preserved 250-milliliter sterile Nalgene screw top bottle. Immediately following sample collection, the samples were delivered to Keystone Laboratories located at 835 South Saint Paul, Kansas City, Kansas 66105. Upon arrival at the laboratory, samples were preserved through addition of nitric acid.

Keystone Laboratories is accredited through the Missouri Department of Natural Resources for analysis of lead in water.

Below is a summary of the water sampling results as reported in Appendix C by Keystone Laboratories. Results exceeding the applicable drinking water standards are shown in red text.

July 18, 2023 Water Sampling Results:

Sample #	Location	Source Under Test	Test Type	Lead Result (ppb)
527-1-FD	5th/6th Grade - Main Hallway	Drinking Fountain	First Draw	<0.4
527-2-FD	5th/6th Grade - Main Hallway	Bottle Filler	First Draw	<0.4
527-3-FD	5th/6th Grade - Women’s Restroom Left	Sink Tap	First Draw	1
527-4-FD	5th/6th Grade - Women’s Restroom Right	Sink Tap	First Draw	1
527-5-FD	5th/6th Grade - Men’s Restroom Left	Sink Tap	First Draw	8.5
527-6-FD	5th/6th Grade - Men’s Restroom Right	Sink Tap	First Draw	13.6

Photos of the sampling locations are provided in Appendix D. A diagram containing identifiers on the outlets tested is provided in Appendix E.

Short-Term Control Measures

- Per the State of Missouri Senate Bills Nos. 681 & 662, a remediation plan should be developed and executed.
- Take immediate steps to prevent use from the failed source(s).
- Shut-off problem outlets
- Post “Not for Drinking/Cooking” at Problem Outlets. If initial sample results from an outlet(s) exceed the remediation trigger level, but are not routinely used for human ingestion (e.g., handwashing), clear signage can be posted to notify people that the outlet is not to be used for drinking or cooking until the problem is resolved.
- Consider performing follow-up flush testing in order to attempt to identify what component within the system is the source of the elevated lead concentration. This testing will assist to pinpoint where lead is getting into drinking water (i.e., fixtures versus interior plumbing) so that appropriate corrective measures can be taken.
- Shut-off or disconnection of problem outlets can provide a permanent solution. If the outlet is frequently used, this likely is not a practical long-term solution.
- Provide point-of-use (POU) filters at problem taps. Filters need routine maintenance (e.g., cartridge filter units need to be replaced periodically) to remain effective.

Permanent Control Measures

- Per the State of Missouri Senate Bills Nos. 681 & 662, a remediation plan should be developed and executed.
- Replacement of Problem Outlets and any identified upstream plumbing components (e.g., valves, leaded solder) to permanently address the problem. EPA's revised March 2015 guidance, How to Identify Lead-Free Certification Marks for Drinking Water System & Plumbing Products, can be a useful resource selecting leadfree plumbing.
- Provide point-of-use filters (POU) at problem taps as a long-term or permanent control measure. When doing this, facilities should be sure to create maintenance schedules and identify a point of contact to be in charge of making sure they are properly maintained.
- Reconfigure Plumbing. Ongoing renovation of school or childcare buildings may provide an opportunity to modify the plumbing system to redirect water supplied for drinking or cooking to bypass sources of lead contamination. Before undertaking such an alternative, be certain that you have properly identified all of the sources of lead contamination in drinking water.
- Remove and replace any drinking water coolers or drinking water outlets that the United States Environmental Protection Agency has determined are not lead-free under the federal Lead Contamination Control Act of 1988, as amended; except the school shall not be required to replace those drinking water outlets or water coolers that tested in accordance with state regulations and have been determined to be dispensing drinking water with a lead concentration less than five (5) part per billion (ppb); however, such drinking water outlet or water cooler shall be subject to all testing requirements and shall not be excluded from testing under subsection 10 of the Missouri Senate Bills Nos. 681 & 662, Section 160.077.
- Consider filtration of incoming water at the point of entry (POE) to the building.

Required Communication

- Contact staff and parents via written notification within seven (7) business days after receiving the test result.
- The notification shall include at least:
 - The test results and a summary that explains such results;
 - A description of any remedial steps taken; and
 - A description of general health effects of lead contamination and community specific resources; and
- Provide bottled water if there is not enough water to meet the drinking water needs of the students, teachers, and staff.
- Submit such annual testing results to the Missouri Department of Health and Senior Services (DHSS).
- Before August 1, 2024, or the first day on which students will be present in the building, whichever is later, and annually thereafter, each school shall conduct testing for lead by first-draw and follow-up flush samples of a random sampling of at least twenty-five percent (25%) of remediated drinking water outlets until all remediated sources have been tested as recommended by the 2018 version of the United States Environmental Protection Agency's "Training, Testing, and Taking Action" program. The testing shall be conducted and the results analyzed for both types of tests by an entity or entities approved by the department.
- Any measures taken to remediate any elevated lead levels identified must be recorded and documented.

General Recommendations

- Retesting of all potential cooking and drinking water sources is required five (5) years from previous testing completed.
- If the condition changes or significant alterations to existing plumbing is undertaken, consider performing additional lead in drinking water sampling.
- Ensure that the plumbing system is not used as an electrical ground.
- If equipment is added that could affect water pH, alkalinity, or hardness, consider performing lead in drinking water sampling.

Any work resulting from this report should be conducted in accordance with the EPA Safe Drinking Water Act, Missouri SB 681 & 662, HUD Lead Regulations 24 CFR 35, EPA Lead Regulations 40 CFR 745, and Consumer Product Safety Commission document #5056.

If you have any questions concerning this report, please contact me at 816-678-7894.

Sincerely,



Jeff Hurst
Axiom Service Professionals LLC
jeffh@axiomservicepros.com

Limitations Drinking Water Testing

The presence or absence of lead and copper (if collected) in drinking water applies only to the test locations on the date of the field visit and it should be understood that conditions may change due to deterioration, pH, alkalinity, hardness, use levels, or maintenance. The results noted within this report were accurate at the time of the evaluation and in no way reflect the conditions at the property before or after the date of the evaluation. No other environmental concerns or conditions were addressed during this evaluation.

Appendix A Certifications

STATE OF MISSOURI
DEPARTMENT OF HEALTH AND SENIOR SERVICES

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Kameron G. O'Donnell

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 Inspector
Category of License

Issuance Date: **4/13/2022**
Expiration Date: **4/13/2024**
License Number: **220413-300006264**



Paula F. Nickelson

Paula F. Nickelson
Acting Director
Department of Health and Senior Services

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

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

LEAD OCCUPATION LICENSE REGISTRATION

Issued to:

Jeffrey A. Hurst

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: **8/1/2022**
Expiration Date: **8/1/2024**
License Number: **000801-200166567**



Missouri Department of Health
and Senior Services

Lead Occupation License - ID Badge

License Number:

000801-200166567

Lead Risk Assessor

**Jeffrey
Hurst**

Expiration Date: **8/1/2024**

Paula F. Nickelson
Acting Director

Department of Health and Senior Services

Columbia City, MO 65102

Appendix B
EPA Listed Lead Containing Drinking Fountains

Table C-1
Water Coolers With Other Lead Components

EBCO Manufacturing

- All pressure bubbler water coolers with shipping dates from 1962 through 1977 have a bubbler valve containing lead. The units contain a single, 50-50 tin-lead solder joint on the bubbler valve. Model numbers for coolers in this category are not available.
- The following models of pressure bubbler coolers produced from 1978 through 1981 contain one 50-50 tin-lead solder joint each.

CP3	DP15W	DPM8	7P	13P	DPM8H	DP15M	DP3R	DP8A
DP16M	DP5S	C10E	PX-10	DP7S	DP13SM	DP7M	DP7MH	DP7WD
WTC10	DP13M-60	DP14M	CP10-50	CP5	CP5M	DP15MW	DP3R	DP14S
DP20-50	DP7SM	DP10X	DP13A	DP13A-50	EP10F	DP5M	DP10F	CP3H
CP3-50	DP13M	DP3RH	DP5F	CP3M	EP5F	13PL	DP8AH	DP13S
CP10	DP20	DP12N	DP7WM	DP14A-50/60				

Halsey Taylor

- Lead solder was used in these models of water coolers manufactured between 1978 and the last week of 1987:

WMA-1	SCWT/SCWT-A	SWA-1	DC/DHC-1
S3/5/10D	BFC-4F/7F/4FS/7FS	S300/500/100D	

- The following coolers manufactured for Haws Drinking Faucet Company (Haws) by Halsey Taylor from November 1984 through December 18, 1987 are not lead-free because they contain 2 tin-lead solder joints. The model designations for these units are as follows:

HC8WT	HC14F	HC6W	HWC7D	HC8WTH	HC14FH	HC8W	HC2F	HC14WT
HC14FL	HC14W	HC2FH	HC14WTH	HC8FL	HC4F	HCSF	HC14WL	HCBF7D
HC4FH	HC10F	HC16WT	HCBF7HO	HC8F	HC8FH	HC4W	HWC7	

Table C-2
Halsey Taylor Water Coolers With Lead-Lined Tanks

- The following six model numbers have one or more units in the model series with lead-lined tanks:

WM8A WT8A GC10ACR GC10A GC5A RWM13A

- The following models and serial numbers contain lead-lined tanks:

WM14A Serial No. 843034	WM14A Serial No. 843006	WT11A Serial No. 222650
WT21A Serial No. 64309550	WT21A Serial No. 64309542	LL14A Serial No. 64346908

Appendix C
Laboratory Analytical Report



Keystone Laboratories - Newton
 CERTIFICATE OF ANALYSIS
 1GG2735

AXIOM Service Professionals

Project Name: Lead Analysis

Jeff Hurst
 PO Box 47166
 Kansas City, MO 64188

Project / PO Number: Bronaugh - 5th/6th Grade - 527 /
 Received: 07/28/2023
 Reported: 08/14/2023

Analytical Testing Parameters

Client Sample ID:	527-1-FD	Collected By:	O'Donnell, Kameron
Sample Matrix:	Drink Wtr	Collection Date:	07/18/2023 10:09
Lab Sample ID:	1GG2735-01		

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
200.8								
Lead, total	<0.4	0.4	ppb	2		08/11/23 1606	08/12/23 2317	RVV

Client Sample ID:	527-2-FD	Collected By:	O'Donnell, Kameron
Sample Matrix:	Drink Wtr	Collection Date:	07/18/2023 10:09
Lab Sample ID:	1GG2735-02		

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
200.8								
Lead, total	<0.4	0.4	ppb	2		08/11/23 1606	08/12/23 2321	RVV

Client Sample ID:	527-3-FD	Collected By:	O'Donnell, Kameron
Sample Matrix:	Drink Wtr	Collection Date:	07/18/2023 10:10
Lab Sample ID:	1GG2735-03		

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
200.8								
Lead, total	1.0	0.4	ppb	2		08/11/23 1606	08/12/23 2325	RVV

Client Sample ID:	527-4-FD	Collected By:	O'Donnell, Kameron
Sample Matrix:	Drink Wtr	Collection Date:	07/18/2023 10:11
Lab Sample ID:	1GG2735-04		

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
200.8								
Lead, total	1.0	0.4	ppb	2		08/11/23 1606	08/12/23 2329	RVV

Client Sample ID:	527-5-FD	Collected By:	O'Donnell, Kameron
Sample Matrix:	Drink Wtr	Collection Date:	07/18/2023 10:13
Lab Sample ID:	1GG2735-05		

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
200.8								
Lead, total	8.5	0.4	ppb	2		08/11/23 1606	08/12/23 2333	RVV



Keystone Laboratories - Newton

CERTIFICATE OF ANALYSIS

1GG2735

Client Sample ID:	527-6-FD	Collected By:	O'Donnell, Kameron
Sample Matrix:	Drink Wtr	Collection Date:	07/18/2023 10:13
Lab Sample ID:	1GG2735-06		

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
200.8								
Lead, total	13.6	0.4	ppb	2		08/11/23 1606	08/12/23 2338	RVV

Definitions

RL: Reporting Limit

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <<https://www.microbac.com/standard-terms-conditions>>.

Reviewed and Approved By:

Sue Thompson
Client Services Manager
sthompson@keystonelabs.com
08/14/23 13:58

Keystone
LABORATORIES
A Microbac Company

600 E. 17th St. S
Newton, IA 50208
Phone: 641-792-8451

3012 Ansborough Ave
Waterloo, IA 50701
Phone: 319-235-4440



835 S St. Paul
Kansas City, KS 66105
Phone: 913-321-7856

205 E Van Buren St
Centerville, IA 52544
Phone: 641-437-7023

PRINT OR TYPE INFO BELOW:	SAMPLER: _____	REPORT TO:	NAME: Jeff Hurst	BILL TO:	NAME: Jeff Hurst
	SITE NAME: 5th/6th Grade		CO. NAME: _____		CO. NAME: _____
	ADDRESS: 527 6th Street		ADDRESS: PO Box 47166		ADDRESS: PO Box 47166
	CITY/ST/ZIP: Bronaugh, Missouri 64728		CITY/ST/ZIP: Kansas City, Missouri 64188		CITY/ST/ZIP: Kansas City, Missouri 64188
	PHONE: 913-837-6034		PHONE: 816-678-7894		PHONE: 816-678-7894
		EMAIL: jeffh@axiomservicepros.com	EMAIL: jeffh@axiomservicepros.com	EMAIL: jeffh@axiomservicepros.com	

CLIENT SAMPLE #	DATE	TIME		# OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED										LAB USE ONLY		
							Lead											Wk Order #	Short Hold:
527-1-FD	7/18/2023	10:09	5th/6th Grade - Drinking Fountain - Main Hallway	1	Water	Grab	X											1667735	
527-2-FD	7/18/2023	10:09	5th/6th Grade - Bottle Filler - Main Hallway	1	Water	Grab	X												
527-3-FD	7/18/2023	10:10	5th/6th Grade - Sink Tap - Women's Restroom Left	1	Water	Grab	X												
527-4-FD	7/18/2023	10:11	5th/6th Grade - Sink Tap - Women's Restroom Right	1	Water	Grab	X												
527-5-FD	7/18/2023	10:13	5th/6th Grade - Sink Tap - Men's Restroom Left	1	Water	Grab	X												
527-6-FD	7/18/2023	10:13	5th/6th Grade - Sink Tap - Men's Restroom Right	1	Water	Grab	X												

Relinquished by: (Signature) <i>Van Oort</i>	Date: 7/29/23		Received by: (Signature)	Date:		Remarks:
	Time:			Time:		
Relinquished by: (Signature)	Date:		Received by: (Signature)	Date:		
	Time:			Time:		



1 G G 2 7 3 5

AXIOM Service Professionals

PM: Sue Thompson

Appendix D Photo Log



527-1 - 5th/6th Grade - Main Hallway



527-2 - 5th/6th Grade - Main Hallway



527-3 - 5th/6th Grade - Women's Restroom Left



527-4 - 5th/6th Grade - Women's Restroom Right



527-5 - 5th/6th Grade - Men's Restroom Left



527-6 - 5th/6th Grade - Men's Restroom Right

Appendix E

Source Identification Diagram

