



**Environmental
Works, Inc.**

**Macks Creek School R-V District
Lead in Drinking Water
Sampling and Testing Plan**

Prepared For:

Macks Creek School R-V District
245 State Road N
Macks Creek, Camden County, Missouri 65786

Prepared By:

Environmental Works, Inc.
1455 E Chestnut Expressway
Springfield, Missouri 65802

Plan Prepared:

December 22, 2023

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1.0 Purpose

Environmental Works, Inc. (EWI), on behalf of the Macks Creek R-V School District (Macks Creek), has prepared this Lead in Drinking Water Sampling and Testing (LDWST) Plan in response to the Missouri Revised Statutes of Missouri (RSMo) Chapter 160 Section 077 (160.077). This LDWST Plan includes procedures for inventorying and sampling outlets used for drinking water and water dispensed for cooking and cleaning of eating and cooking utensils in each of the school buildings.

This Plan has been prepared to meet the requirements of the RSMo 160.077, the Environmental Protection Agency's (EPA) 3Ts for Reducing Lead in Drinking Water, and the EPA Safe Drinking Water Act (SDWA). The Macks Creek School District has distributed this LDWST Plan to the public through the District website (<https://www.mccreek.k12.mo.us/>). General information on the health effects of lead contamination and additional informational resources for employees and parents of children at each school will be provided upon request.

1.1 Regulatory Schedule Requirements (RSMo 160.077(4))

In accordance with RSMo 160.077, on or before January 1, 2024, each school will:

- Conduct an inventory of all drinking water outlets and all outlets that are used for dispensing water for consumption, cooking, and cleaning of cooking and eating utensils;
- Develop a Plan for testing each outlet inventoried;
- Provide the Plan to the public; and
- Upon request, provide general information on the health effects of lead contamination and additional informational resources for employees and parents of children at each school.

Before August 1, 2024, or on the first day students will be present in the building, whichever is later, each school will:

- Complete sampling in accordance with RSMo 160.077,
- Make all testing results and any lead remediation plans available on the school's website within two weeks of receiving final analytical test results, and
- Remove and replace any drinking water coolers or drinking water outlets that the EPA has determined are not lead-free under the federal Lead Contamination Control Act of 1988.

2.0 School District Description and Contact Information

2.1 School District Information

School District: Macks Creek R-V Schools

School Type: Public

Address: 245 State Road N
Macks Creek, Camden County, Missouri 65786

Phone: (573) 363-5909 (O) and (573) 363-5981 (F)

Email: jphillips@mackscreekpirates.org

Contact: Dr. Joshua Phillips
Superintendent
(573) 363-5909 Ext. 127 (O)

2.2 Buildings

The following table summarizes the schools covered in this LDWST Plan.

Schools	Level	Grade	Address
Macks Creek Preschool	Preschool	Pre-K	245 State Road N Macks Creek, MO 65786
Macks Creek Elementary	Primary	1st – 6th	245 State Road N Macks Creek, MO 65786
Macks Creek Jr. High	Secondary	7th – 8th	245 State Road N Macks Creek, MO 65786
Macks Creek High School	Secondary	9th – 12th	245 State Road N Macks Creek, MO 65786

3.0 Inventory

The School District completed a building and outlet questionnaire, and EWI completed a site visit to gather information such as:

- Date of building construction,
- Year and location of plumbing repairs,
- Location where water enters the building and flow,

- Identification of any known lead lines or plumbing components,
- Location of water pipes and piping material,
- Location of any tanks in the plumbing system,
- Identification of all faucets and fixtures used for drinking water and cooking, and
- Identification of filters, aerators, signs of corrosion, or banned water cooler tanks.

3.1 Outlet Identification and Prioritization

Drinking water and cooking outlets were identified from the questionnaire and site visit in accordance with the Missouri RSMo's 160.077.2 drinking water outlet definition, which includes but may not be limited to:

- a) A water fountain, faucet, or tap that is used or potentially used for drinking or food preparation and
- b) Ice-making and hot drink machines.

Building diagrams are attached in **Appendix A**, detailed information on each building can be found in **Appendix B**, and the outlets identified in the inventory are outlined in **Appendix C**.

4.0 Sampling and Testing

4.1 Initial Sampling and Testing

The outlet inventory and prioritization schedule included in this plan will be used to conduct sampling for the School District. Samples will be collected using proper sampling procedures. The sampler will utilize laboratory prepared 250-milliliter (mL) unpreserved plastic containers to collect outlet water for analysis of lead by Method 200.8. Samples will be labeled, managed under a Chain of Custody, and sent to a certified laboratory for analysis. EWI personnel will collect samples from each identified outlet based on the following criteria:

First Draw Sampling

First draw samples will be immediately collected from the outlet from the first water after the outlet is turned on. Samples will be collected after a stagnation period of at least 8 hours but no greater than 18 hours.

Flush Sampling

Follow-up flush samples will be collected from at least 25% of inventoried drinking water outlets.

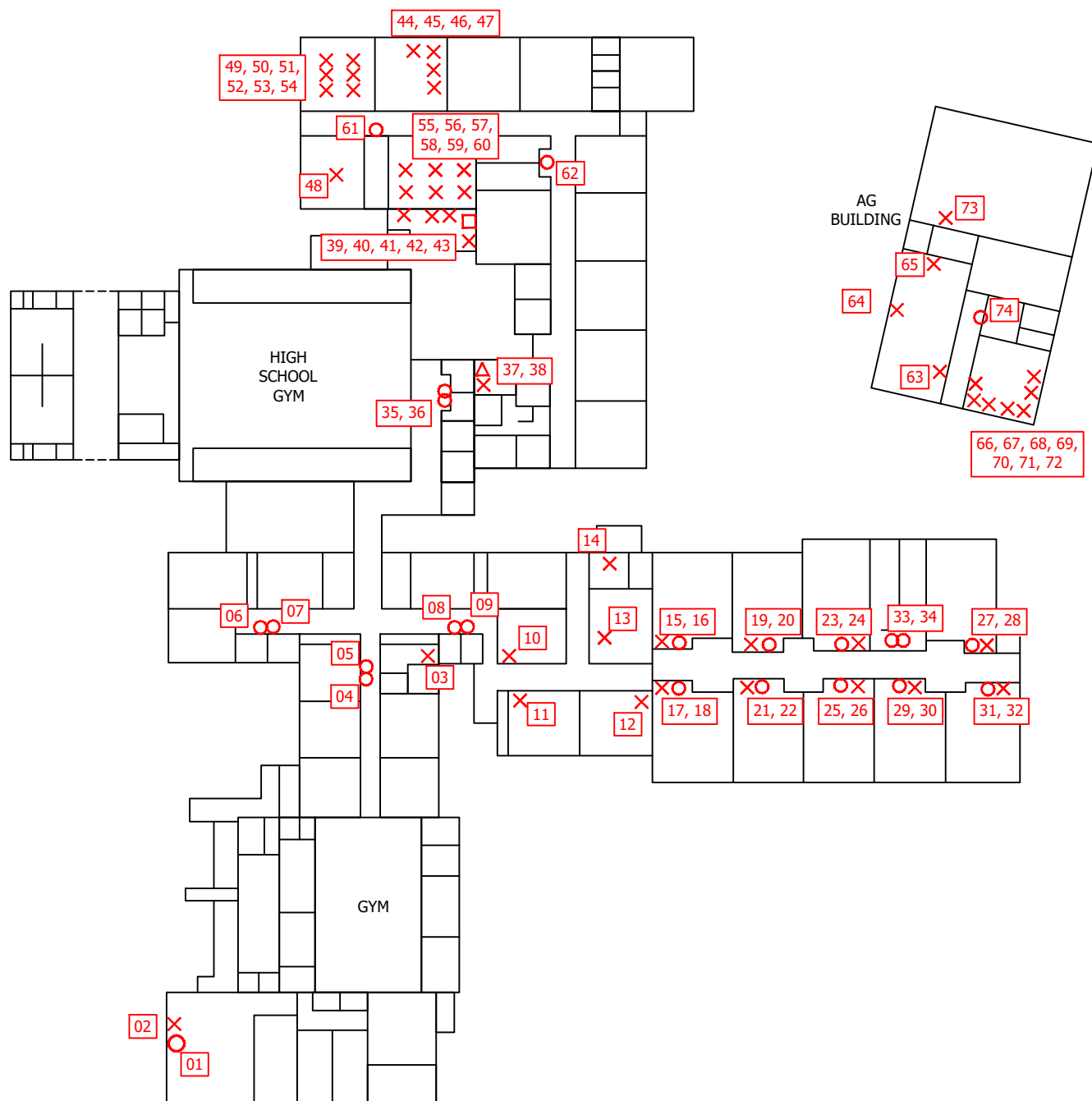
All results will be summarized in a final report, submitted to the Missouri Department of Health and Senior Services, and published on the School District website.

4.2 Subsequent Sampling and Testing

If initial testing finds lead above 5 ppb, the School District will implement remedial measures, then test and sample 25% of remediated drinking water outlets by first draw and follow-up flush sampling annually.

If initial testing does not find a drinking water source with a lead concentration above 5 ppb, Macks Creek R-V School District will complete testing and sampling every five years.

APPENDIX A – Building Diagrams



NORTH



LEGEND

- X SINKS
- FOUNTAINS
- DISH WASHER
- △ ICE MACHINE

CHECKED BY:
T. FINN

E.W.I. # 234328
DRAWN BY: CRR
Feb. 12, 2024

NOT TO SCALE



BUILDING DIAGRAM

MACKS CREEK R-V SCHOOLS
MACKS CREEK, CAMDEN COUNTY, MISSOURI

FIGURE

1

APPENDIX B – Building Summary

School District: Macks Creek R-V
 Person Completing Questionnaire: Thaddaeus Finn

Date: 12/21/2023
 Title: Associate Scientist

Building	Address	Original Construction Date	Outlet Count	Any Building Maps/Drawings		Any Building Additions?			Who Provides Water to the Building?
				Yes/No	Electronic/ Hard Copy (see note below)	Yes/No	Year of Addition	What Was Added?	
Macks Creek Elementary	245 State Road N, Macks Creek MO 65786								
Title 1/Special Education Hall		1927	0	Yes	Hard Copy	No	N/A	N/A	N/A
Auxiliary Gym		1936	0	Yes	Hard Copy	No	N/A	N/A	PWSD #1
Pre-School/District Office		1948	2	Yes	Hard Copy	No	N/A	N/A	PWSD #1
5/6 Grade Wing		1956	7	Yes	Hard Copy	No	N/A	N/A	PWSD #1
Elementary Offices/4th Grade		2000	5	Yes	Hard Copy	No	N/A	N/A	PWSD #1
K-2 Wing		2016	20	Yes	Hard Copy	No	N/A	N/A	PWSD #1
High School Area									
Main Gym/Cafeteria/Lobby		1970	9	Yes	Hard Copy	No	N/A	N/A	PWSD #1
High School		1996	19	Yes	Hard Copy	No	N/A	N/A	PWSD #1
Vo-Ag Building		2002	12	Yes	Hard Copy	No	N/A	N/A	PWSD #1
^^ Enter New line above ^^									

Total Outlets 74

APPENDIX C – Outlet Inventory

TABLE 1
Summary of Outlet Inventory
Macks Creek School District: Macks Creek Schools

Map ID	Outlet Type	Location	Sample Type	Initial Sample Date	Lead Results	Notes
					200.8 Method ug/L (ppb)	
1	Sink Faucet - in classroom	Pre-K Room				
2	Water drinking fountain	Pre-K Room				
3	Sink Faucet - in classroom	Room 211				
4	Water drinking fountain	By Room 202				
5	Bottle Filler	By Room 202				
6	Water drinking fountain	5th Grade Wing				
7	Bottle Filler	5th Grade Wing				
8	Water drinking fountain	6th Grade Wing				
9	Bottle Filler	6th Grade Wing				
10	Sink Faucet - in classroom	Nurse's Office				
11	Sink Faucet - in classroom	Elementary Offices/4th Grade Hall				
12	Sink Faucet - in classroom	Elementary Offices/4th Grade Hall				
13	Sink Faucet - in classroom	Elementary Offices/4th Grade Hall				
14	Sink Faucet - in classroom	Elementary Offices/4th Grade Hall				
15	Sink Fountain - in classroom	231				
16	Sink Faucet - in classroom	231				
17	Sink Fountain - in classroom	232				
18	Sink Faucet - in classroom	232				
19	Sink Fountain - in classroom	233				
20	Sink Faucet - in classroom	233				
21	Sink Fountain - in classroom	234				
22	Sink Faucet - in classroom	234				
23	Sink Fountain - in classroom	235				
24	Sink Faucet - in classroom	235				
25	Sink Fountain - in classroom	236				
26	Sink Faucet - in classroom	236				
27	Sink Fountain - in classroom	237				
28	Sink Faucet - in classroom	237				
29	Sink Fountain - in classroom	238				
30	Sink Faucet - in classroom	238				
31	Sink Fountain - in classroom	240				
32	Water drinking fountain	240				
33	Water drinking fountain	K-2 Wing				
34	Water drinking fountain	K-2 Wing				
35	Bottle Filler	Main Lobby				
36	Sink faucet - Breakroom	High School				
37	Ice Maker - Breakroom	High School				
38	Bottle Filler	Cafeteria				
39	Sink Faucet - Kitchen	Kitchen				
40	Sink Faucet - Kitchen	Kitchen				
41	Sink Faucet - Kitchen	Kitchen				
42	Dish Spray Head	Kitchen				
43	Dishwashing Machine	Kitchen				
44	Sink Faucet - in classroom	108				
45	Sink Faucet - in classroom	108				
46	Sink Faucet - in classroom	108				
47	Sink Faucet - in classroom	108				
48	Sink Faucet - in classroom	107				
49	Sink Faucet - in classroom	106				
50	Sink Faucet - in classroom	106				
51	Sink Faucet - in classroom	106				
52	Sink Faucet - in classroom	106				
53	Sink Faucet - in classroom	106				
54	Sink Faucet - in classroom	106				
55	Sink Faucet - in classroom	105				
56	Sink Faucet - in classroom	105				
57	Sink Faucet - in classroom	105				
58	Sink Faucet - in classroom	105				
59	Sink Faucet - in classroom	105				
60	Sink Faucet - in classroom	105				
61	Bottle Filler	High School				
62	Bottle Filler	High School				

63	Sink Faucet - in classroom	Vo-Ag Art Room				
64	Sink Faucet - in classroom	Vo-Ag Art Room				
65	Sink Faucet - in classroom	Vo-Ag Art Room				
66	Sink Faucet - in classroom	Vo-Ag Science Room				
67	Sink Faucet - in classroom	Vo-Ag Science Room				
68	Sink Faucet - in classroom	Vo-Ag Science Room				
69	Sink Faucet - in classroom	Vo-Ag Science Room				
70	Sink Faucet - in classroom	Vo-Ag Science Room				
71	Sink Faucet - in classroom	Vo-Ag Science Room				
72	Sink Faucet - in classroom	Vo-Ag Science Room				
73	Sink Faucet - in classroom	Vo-Ag Workshop				
74	Bottle Filler	Vo-Ag Building				
^^ Enter New Line Above ^^						
74						