

**LEAD IN WATER TEST REPORT  
Maupin Elementary School  
308 Deschutes Avenue  
Maupin, Oregon 97037**

**EIS Job No. 2021033. Maupin Elementary School LIW report**

**Prepared For:**

**C/O Ryan Wraught, Superintendent  
South Wasco County SD 1  
699 4<sup>th</sup> Street  
Maupin, Oregon 97037**

**Prepared By:**

**Environmental Inspection Services  
11981 Fargo Road  
Aurora, Oregon 97002  
cell # (503) 680-6398  
EMAIL: [charles\\_a\\_spear@yahoo.com](mailto:charles_a_spear@yahoo.com)**

*Charles A. Spear*

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**Charles A. Spear, Partner  
Environmental Professional**

**June 8, 2021**



**ENVIRONMENTAL INSPECTION SERVICES**



**APPENDIX 1.0**  
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June 8, 2021

EIS Job No.2021033.Maupin Elementary School LIW report

C/O Ryan Wraught, Superintendent  
South Wasco County SD 1  
699 4<sup>th</sup> Street  
Maupin, Oregon 97037

Reference: Lead in water testing of the Maupin Elementary  
School Building located at 308 Deschutes Avenue  
in Maupin, Oregon 97037

Dear Mr. Ryan Wraught;

Environmental Inspection Services conducted a comprehensive lead in water test episode at the subject Maupin Elementary School Building located at 308 Deschutes Avenue in Maupin, Oregon on Friday, May 14, 2021. A total of twenty-one (21) discreet water samples (No.s 30-50) were collected from the points of consumption throughout the subject Maupin Elementary School Building to include cold water faucets positioned throughout the entire building. **The lead action level of ten (10) percent tap water samples collected was not exceeded during this May, 2021 lead in water testing episode according requirements stated in OAR 333-061-0030. No sample analytical test results of the twenty-one(21)total samples were at or exceeded the EPA Action Limit of 15 parts per billion (ppb). No additional lead in water testing is recommended at the subject building at this time.**

The EPA Maximum Contaminant Limit (MCL) for lead in Public drinking water Systems is 15 parts per billion (ppb). The EPA action limit of 15 parts per billion (ppb) was utilized as the action limit for the purposes of this water sampling and testing episode. Plastic and sterile 250 ml. bottles were utilized for the drinking water sample collection.

All water samples were shipped to an ORELAP certified laboratory known as Alexin Analytical Laboratory located at 13035 S.W. Pacific Highway in Tigard, Oregon. The samples were received by Alexin on Monday, May 17, 2021; reported to EIS on Friday, June 4, 2021; and issued laboratory work order No. 1137018 (Alexin accreditation No. OR100013). The sample concentrations varied between None detected (ND) to one (1) sample analytical test result of 13 parts per billion (ppb).



The actual location of the tested fountains and faucets are noted in the attached floor plan. The analytical test results are summarized in this letter. The sample analytical test results are summarized as follows;

SAMPLE NO.	LOCATION	ANALYTICAL RESULT
22251108-030NF21A	MGS - office	6 ppb
22251108-031BF21A	sickroom - bathroom	4 ppb
22251108-032WB21A	teachers room hall	ND
22251108-033CF21A	second grade faucet	6 ppb
22251108-034CF21A	head start faucet	7 ppb
22251108-035CF21A	third grade faucet	4 ppb
22251108-036CF21A	computer lab faucet	10 ppb
22251108-037CF21A	kindergarten - faucet	4 ppb
22251108-038CF21A	first grade - faucet	3 ppb
22251108-039BF21A	boys room - closet	2 ppb
22251108-040BF21A	teachers bathroom	2 ppb
22251108-041BF21A	girls RR	3 ppb
22251108-042BF21A	GIRLS RR	3 ppb
22251108-043CF21A	support room faucet	ND
22251108-044CF21A	4th/5th faucet	2 ppb
22251108-045CF21A	5th/6th grade faucet	2 ppb
22251108-046CF21A	RISE ROOM	1 ppb
22251108-047WB21A	GYM - HALL	ND
22251108-048BF21A	GIRLS RR	7 ppb
22251108-049BF21A	BOYS RR FAUCET	9 ppb
22251108-050CF21A	STAFF RM	13 ppb

A unique sample location code was assigned for each drinking water outlet sample. The attached alpha numeric sequence code was assigned for each sample.

Example - The sampling code for sample No. 50 is as follows:  
2251108-050CF21A

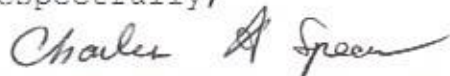
First eight digits - School district and building code  
No. 050 - Sample number 50  
CF - classroom faucet  
21A - year 21 and first round of testing - A

**No above listed fixtures exceeded 15 ppb and no LIW concerns were noted at this time.**

In the opinion of EIS, no additional lead in water testing is required the subject school at this time based on these analytical test results.

Thank you for this opportunity to be of service. If there are questions concerning the lead in water analytical test results contact the South Wasco School district at 1-541-395-2645.

Respectfully,



Charles A. Spear, Partner  
Environmental Inspection Services

**APPENDIX 1.0**  
**LEAD ANALYTICAL TEST RESULTS**





**Professional  
Laboratory  
Services**

**ANALYSIS REPORT**

Reported: 06/04/2021  
 Received: 05/17/2021  
 Sampled By: Charles Spear  
 Work Order: 1137018

13035 SW Pacific Hwy  
 Tigard, OR 97223  
 Tel.: (503) 639-9311 Fax: (503) 684-1588

**C** Environmental Inspection Services  
**L** Attn: Charles Spear  
**I** 11981 Fargo Rd  
**E** Aurora OR, 97002  
**N** Phone: (503) 680-6398  
**T**

**Project:** E/S  
 Project #: 2021033  
 Sample Type: Grab  
 PO #: 2021033

Sampling Location: MGS - Maupin Elementary

**Lab Number**

Lab Number	Code	Method	Result	Units	MRL	EPA MCL*	Analysis Date/ Time
1137018-01	Sample Name: 22251108 - 030NF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	6	ppb	1	15 ppb	06/03/21 16:05
1137018-02	Sample Name: 22251108 - 031BF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	4	ppb	1	15 ppb	06/03/21 16:05
1137018-03	Sample Name: 22251108 - 032WB21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	ND	ppb	1	15 ppb	06/03/21 16:05
1137018-04	Sample Name: 22251108 - 033CF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	6	ppb	1	15 ppb	06/03/21 16:05
1137018-05	Sample Name: 22251108 - 034CF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	7	ppb	1	15 ppb	06/03/21 16:05
1137018-06	Sample Name: 22251108 - 035CF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	4	ppb	1	15 ppb	06/03/21 16:05
1137018-07	Sample Name: 22251108 - 036CF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	10	ppb	1	15 ppb	06/03/21 16:05
1137018-08	Sample Name: 22251108 - 037CF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	4	ppb	1	15 ppb	06/03/21 16:05
1137018-09	Sample Name: 22251108 - 038CF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	3	ppb	1	15 ppb	06/03/21 16:05
1137018-10	Sample Name: 22251108 - 039BF21A		Sample Composition: Raw Single		Matrix: Drinking Water		
	Sampled: 5/14/21 12:00						
+Lead	1030	EPA 200.9	2	ppb	1	15 ppb	06/03/21 16:05



# ANALYSIS REPORT



**Professional  
Laboratory  
Services**

Reported: 06/04/2021  
Received: 05/17/2021  
Sampled By: Charles Spear  
Work Order: 1137018

13035 SW Pacific Hwy  
Tigard, OR 97223  
Tel.: (503) 639-9311 Fax: (503) 684-1588

**C** Environmental Inspection Services  
**L** Attn: Charles Spear  
**I** 11981 Fargo Rd  
**E** Aurora OR, 97002  
**N** Phone: (503) 680-6398  
**T**

**Project:** E/S  
Project # : 2021033  
Sample Type : Grab  
PO # : 2021033

Sampling Location: MGS - Maupin Elementary

## Lab Number

Lab Number	Code	Method	Result	Units	MRL	EPA MCL*	Analysis Date/ Time
1137018-11	Sample Name: 22251108 - 040BF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	2	ppb	1	15 ppb	06/03/21 16:05
1137018-12	Sample Name: 22251108 - 041BF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	3	ppb	1	15 ppb	06/03/21 16:05
1137018-13	Sample Name: 22251108 - 042BF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	3	ppb	1	15 ppb	06/03/21 16:05
1137018-14	Sample Name: 22251108 - 043CF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	ND	ppb	1	15 ppb	06/03/21 16:05
1137018-15	Sample Name: 22251108 - 044CF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	2	ppb	1	15 ppb	06/03/21 16:05
1137018-16	Sample Name: 22251108 - 045CF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	2	ppb	1	15 ppb	06/03/21 16:05
1137018-17	Sample Name: 22251108 - 046CF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	1	ppb	1	15 ppb	06/03/21 16:05
1137018-18	Sample Name: 22251108 - 047WB21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	ND	ppb	1	15 ppb	06/03/21 16:05
1137018-19	Sample Name: 22251108 - 048BF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	7	ppb	1	15 ppb	06/03/21 16:05
1137018-20	Sample Name: 22251108 - 049BF21A		Matrix: Drinking Water				
	Sampled: 5/14/21 12:15 Sample Composition: Raw Single						
+Lead	1030	EPA 200.9	9	ppb	1	15 ppb	06/03/21 16:05





**Professional  
Laboratory  
Services**

**ANALYSIS REPORT**

13035 SW Pacific Hwy  
Tigard, OR 97223  
Tel.: (503) 639-9311 Fax: (503) 684-1588

Reported: 06/04/2021  
Received: 05/17/2021  
Sampled By: Charles Spear  
Work Order: 1137018

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**Environmental Inspection Services**

Attn: Charles Spear  
11981 Fargo Rd  
Aurora OR, 97002  
Phone: (503) 680-6398

**Project:** E/S  
Project # : 2021033  
Sample Type : Grab  
PO # : 2021033

Sampling Location: MGS - Maupin Elementary

**Lab Number**

	Code	Method	Result	Units	MRL	EPA MCL*	Analysis Date/ Time
<b>1137018-21</b>	<b>Sample Name:</b> 22251108 - 050CF21A						<b>Matrix:</b> Drinking Water
	<b>Sampled:</b> 5/14/21 12:30						<b>Sample Composition:</b> Raw Single
+Lead	1030	EPA 200.9	13	ppb	1	15 ppb	06/03/21 16:05

ND = None detected at the MRL    MRL = Minimum Reporting Limit    MCL = Maximum Contamination Limit

†All procedures for this analysis are in accordance with NELAP standards.

\* The EPA MCL for Lead in Public Drinking Water Systems is 15 ppb; this is a maximum contamination level for lead in samples, this is not an acceptance level for health based exposure.

**Note:** Please make sure to send your results to the appropriate agency; Alexin Analytical does not forward these results to any program or person other than the above listed client. It is your responsibility to make sure these results get sent to whichever agency, city, or organization has requested them if these results are for compliance purposes.

Approved by: \_\_\_\_\_

Adriana Gonzalez-Gray  
Laboratory Director

This report shall not be reproduced, except in full, without the written approval of the laboratory.

**APPENDIX 2.0**  
**CHAIN'S OF CUSTODY (COC'S)**



Professional Laboratory Services

13035 SW Pacific Hwy Tigard, OR 97223 ph: 503.639.9311 fax: 503.684.1588 email: mail@alexinlabs.com

# Chain of Custody Record

Laboratory Job Number:

Page 1 of 3

Client Contact Information		Results Reporting Information		Invoicing Information	
Company/Client Name:	BFS	Project Manager:		Accounts Payable Contact:	
Address:	11981 Fargo Road	Mailing Address:	(Blank)	Mailing Address:	(Spots)
City/State/Zip:	Astoria, Oregon 97102	City/State/Zip:		City/State/Zip:	
phone:	(703) 680-6398	phone:		phone:	
fax or email:	charles-a-spear@yahoo.com	fax or email:		fax or email:	

**SAMPLING INFORMATION**

Sampling Location: MGS P.O. #: 2021033 PWSID #: \_\_\_\_\_

Sampled By: Charles Sp Project Name: B/S Project #: 2021037 Permit #: \_\_\_\_\_

Send results to OR State Health Division? (Please circle) Yes (No)

Analysis Requested\*\*

Maxin Elementary  
308 Deshutes Avenue  
Mapin, Oregon 97037

Lab ID	Sample Identification	Date Collected	Time Collected	Sample Matrix*	# of cont. rec'd
	22251108 - 030 NF21A	05/14	pm	DW	1
	22251108 - 031 BF21A				
	22251108 - 032 WB21A				
	22251108 - 033 CF21A				
	22251108 - 034 CF21A				
	22251108 - 035 CF21A				
	22251108 - 036 CF21A				
	22251108 - 037 CF21A				
	22251108 - 038 BF21A				

SEE ATTACHED

Sample Specific Notes/Field Data for each WW sample, specify Grab / Composite for each DW sample, specify Raw / Treated, Source / Distribution, Single / Combined WHERE APPLICABLE

Relinquished By (print): Charles Sp	Company: BFS	Date/Time: 5/17/21	Signature: [Signature]	Received By:	Company:	Date/Time:	Signature:
Relinquished By (print): Charles Sp	Company: BFS	Date/Time: 5/17/21	Signature: [Signature]	Received By:	Company:	Date/Time:	Signature:

Received by Laboratory Log-In Staff: 1418  
5/17/21

Temp. on receipt: \_\_\_\_\_ °C  
Containers Intact? (Y) N

ID: TRM-10-\_\_\_\_\_

The most current revision of SOP-10-003 was used when these samples were collected

\* Drinking water (DW), effluent (EFF), ground water (GW), influent (INF), non-aqueous liquid (NAL), paint chips, raw water (RW), sludge, soil, solid, source water (SOURCE), spring, stormwater (SW), surface water, wastewater (WW), well water (WELL)

\*\* Analyses for SOC, Radionuclide, Radon, and Asbestos are subcontracted out to other accredited laboratories.





Professional Laboratory Services

13035 SW Pacific Hwy Tigard, OR 97223 ph: 503.639.9311 fax: 503.684.1588 email: mail@alexinlabs.com

Laboratory Job Number:

# Chain of Custody Record

Client Contact Information		Results Reporting Information		Invoicing Information	
Company/Client Name:	Address:	Project Manager:	Mailing Address:	Accounts Payable Contact:	
City/State/Zip:	phone:	Mailing Address:	City/State/Zip:	City/State/Zip:	
fax or email:	fax or email:	City/State/Zip:	phone:	phone:	
fax or email:		fax or email:		fax or email:	

## SAMPLING INFORMATION

Sampling Location:	P.O. #:
Sampled By:	Project #:
Project Name:	Project #:
Send results to OR State Health Division? (Please circle) Yes <input type="radio"/> No <input checked="" type="radio"/>	Analysis Requested**

Sample Specific Notes/Field Data  
 for each WW sample, specify Grab / Composite  
 for each DW sample, specify Raw / Treated,  
Source / Distribution, Single / Combined  
 WHERE APPLICABLE

Lab ID	Sample Identification	Date Collected	(High-end / comp.) Time Collected	Sample Matrix*	# of cont. rec'd	SEE ATTACHED
	22251108-040BF21A	05/14	pm	DW	1	
	22251108-041BF21A					
	22251108-042BF21A					
	22251108-043CF21A					
	22251108-044CF21A					
	22251108-045CF21A					
	22251108-046CF21A					
	22251108-047WB21A					
	22251108-048BF21A					
	22251108-049BF21A					

Relinquished By (print):	Company:	Date/Time:	Signature:	Received By:	Company:	Date/Time:	Signature:
Relinquished By (print):	Company:	Date/Time:	Signature:	Received By:	Company:	Date/Time:	Signature:
Received by Laboratory Log-In Staff:		Date/Time:	Temp. on receipt: _____ °C	Containers Intact? <input checked="" type="radio"/> N <input type="radio"/> Y	ID: TRM-10-_____		

\* Drinking water (DW), effluent (EFF), ground water (GW), influent (INF), non-aqueous liquid (NAL), paint chips, raw water (RW), sludge, soil, solid, source water (SOURCE), spring, stormwater (SW), surface water, wastewater (WW), well water (WELL)

\*\* Analyses for SOC, Radionuclide, Radon, and Asbestos are subcontracted out to other accredited laboratories.





Professional Laboratory Services

13035 SW Pacific Hwy Tigard, OR 97223 ph: 503.639.9311 fax: 503.684.1588 email: mail@alexinlabs.com

Results Reporting Information

Invoicing Information

Client Contact Information

Company/Client Name: EIS

Address: 11981 Fridge Road

City/State/Zip: Astoria, OR 97103

phone: (503) 680-0398

fax or email: e.hartles-9-sp@gyabto.com

Accounts Payable Contact: (SAME)

Mailing Address: (SAME)

City/State/Zip: (SAME)

phone: \_\_\_\_\_

fax or email: \_\_\_\_\_

SAMPLING INFORMATION

Sampling Location: MOG

Sampled By: Chad Seal

Project Name: EIS

P.O. #: \_\_\_\_\_

Project #: 2004033

Permit #: \_\_\_\_\_

Send results to OR State Health Division? (Please circle) Yes NO

Sample Specific Notes/Field Data for each WW sample, specify Grab / Composite for each DW sample, specify Raw / Treated, Source / Distribution, Single / Combined WHERE APPLICABLE

EIS

Lab ID	Sample Identification	Date Collected	(Begin-End / comp.) Time Collected	Sample Matrix*	# of cont. rec'd	Analysis Requested**	Company	Date/Time	Signature
	2225108-0500F2A	05/14	pm DW		1	SEE ATTACHED			

Relinquished By (print): Chad Seal Date/Time: 5/17/21 Signature: [Signature]

Relinquished By (print): [Signature] Date/Time: 5/17/21 Signature: [Signature]

Received By Laboratory Log-In Staff: guy Date/Time: 5/17/21 Signature: [Signature]

Received By: guy Date/Time: 5/17/21 Signature: [Signature]

Temp. on receipt: \_\_\_\_\_ °C Containers intact? Y

On Ice? Y ID: TRM-10-1

\*\* Analyses for SOC, Radionuclide, Radon, and Asbestos are subcontracted out to other accredited laboratories.

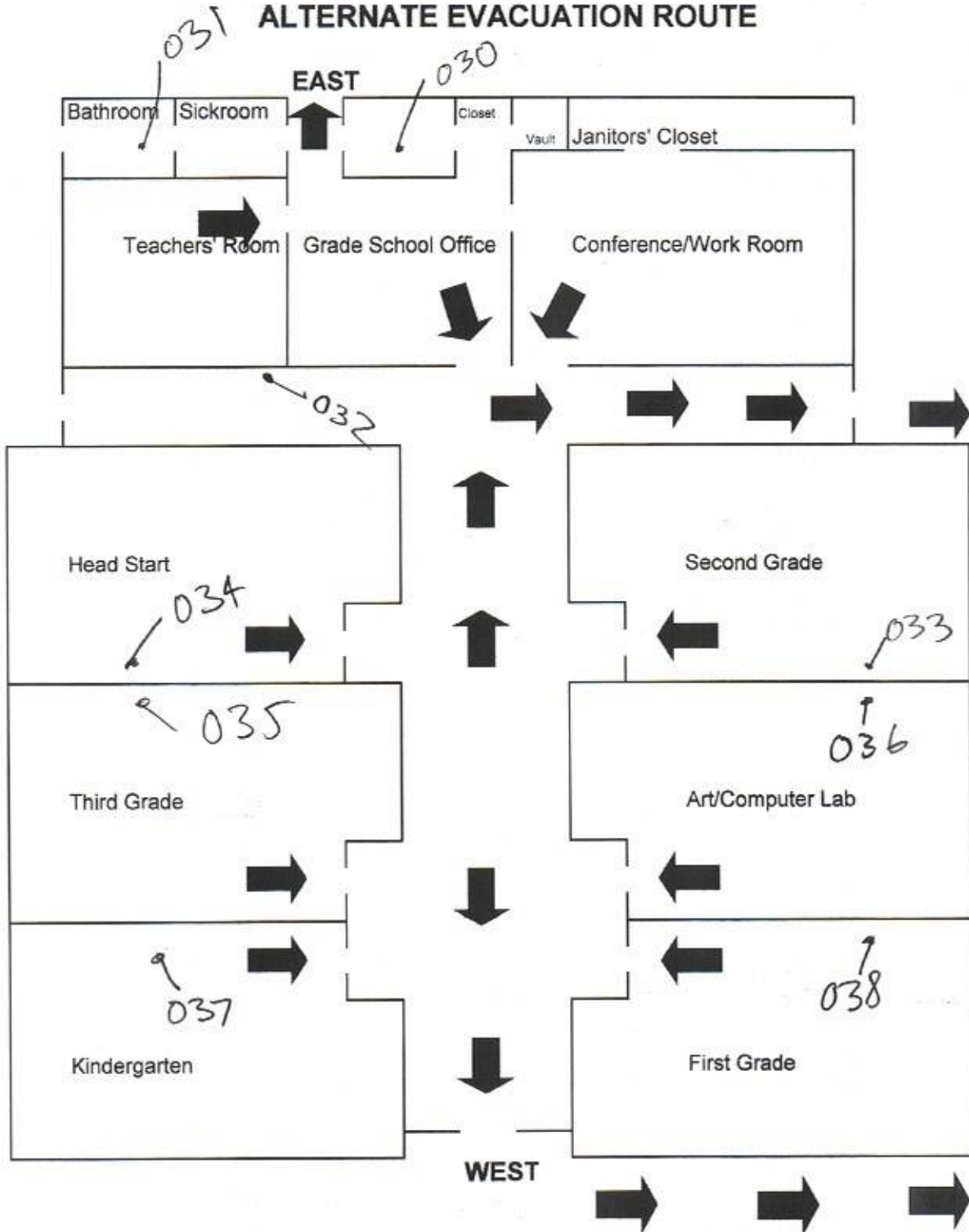
guy 5/17/21

**APPENDIX 3.0**

**SCHOOL SAMPLING FLOOR PLAN**



# MGS PRIMARY BUILDING ALTERNATE EVACUATION ROUTE

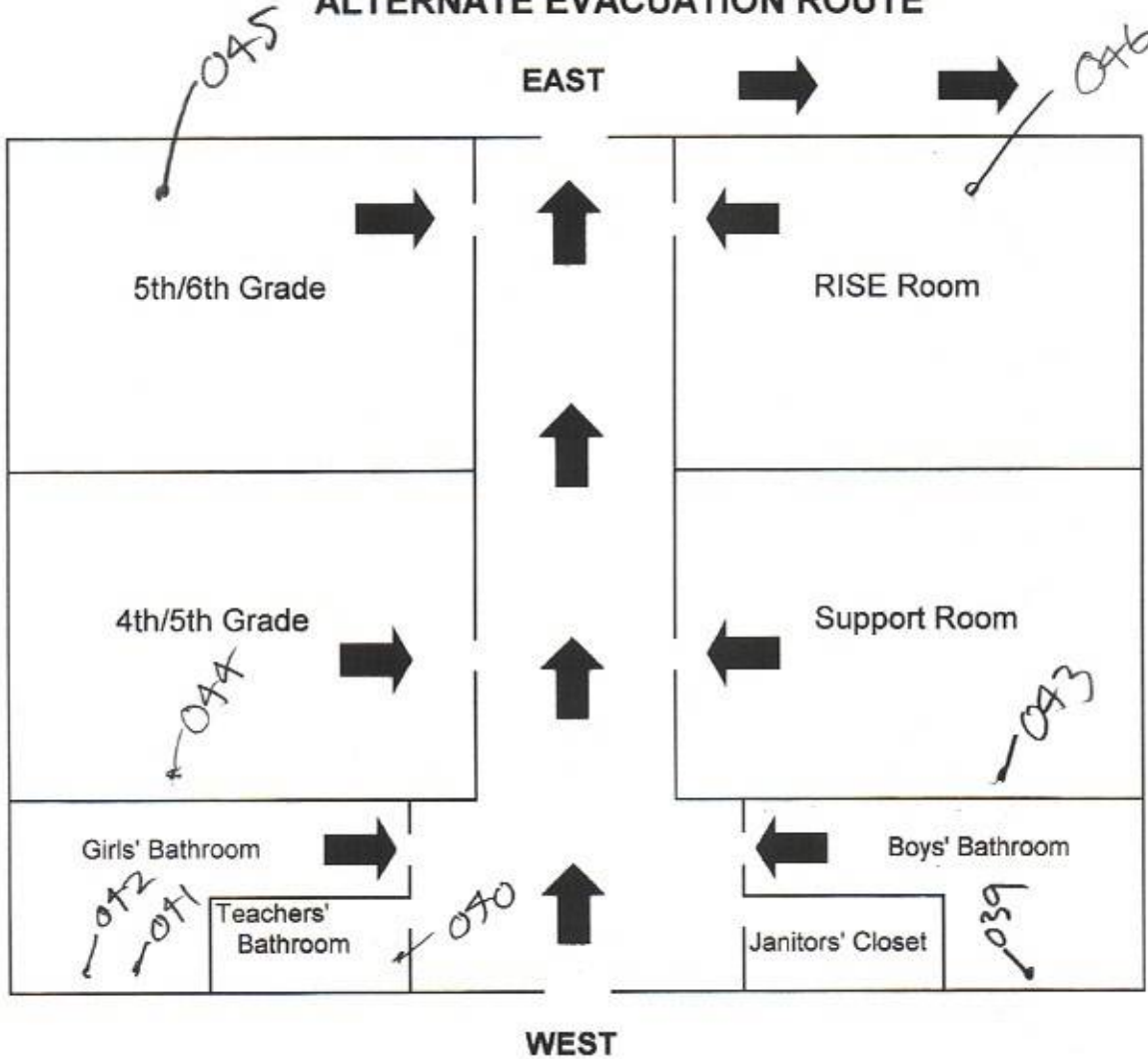


**ALL GRADES MEET** to the North of the school grounds in the middle of the Football Field.  
**ALTERNATE ROUTES** in case original route is blocked will be:

1. The closest door available;
2. The exit the teacher feels is safest at the time.

RED - 1st or Primary Building Evacuation Route  
 GREEN - 2nd or Alternate Building Evacuation Route

## MGS INTERMEDIATE BUILDING ALTERNATE EVACUATION ROUTE



**ALL GRADES MEET** to the North of the school grounds in the middle of the Football Field.

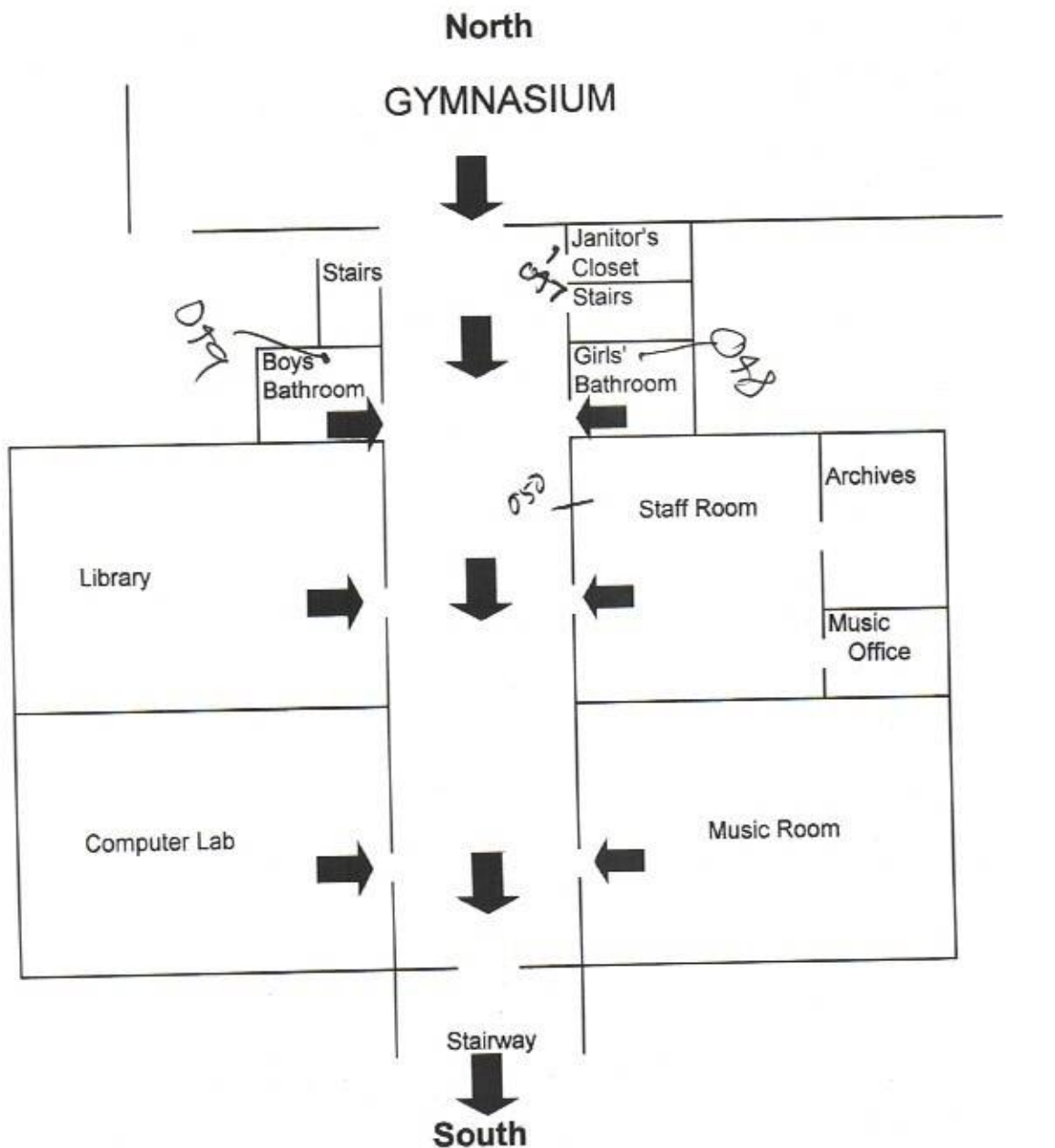
**ALTERNATE ROUTES** in case original route is blocked:

1. The closest door available;
2. The exit the teacher feels is safest at the time.

RED - 1st or Primary Building Evacuation Route

GREEN - 2nd or Alternate Building Evacuation Route

# MGS GYM BUILDING/UPPER FLOOR ALTERNATE EVACUATION ROUTE



**ALL GRADES MEET** to the North of the school grounds in the middle of the Football Field  
**ALTERNATE ROUTES** in case original route is blocked will be:

1. The closest door available;
2. The exit the teacher feels is the safest at the time.

RED - 1st or Primary Building Evacuation Route  
 GREEN - 2nd or Alternate Building Evacuation Route



**APPENDIX 4.0**  
**LEAD IN WATER REGULATION**

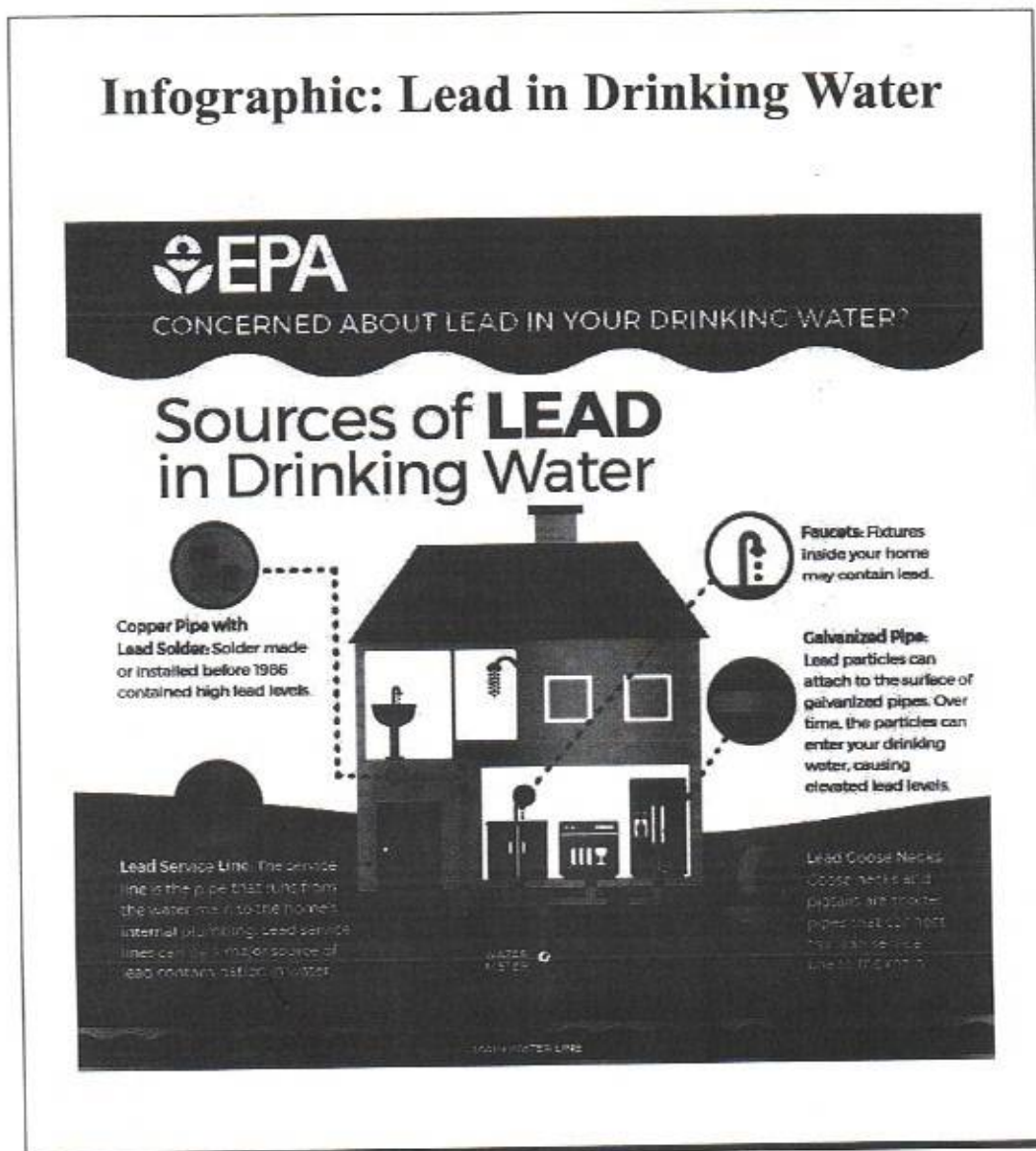
An official website of the United States government.



## Basic Information about Lead in Drinking Water

*Have a question that's not answered on this page? Contact the [Safe Drinking Water Hotline](#).*

[Información relacionada disponible en español](#)



EPA and the Centers for Disease Control and Prevention (CDC) agree that there is no known safe level of lead in a child's blood. Lead is harmful to health, especially for children.

### On this page:

#### General Information about Lead in Drinking Water

- [How lead gets into drinking water](#)
- [Health effects of being exposed to lead in drinking water](#)
- [Can I shower in lead-contaminated water?](#)

#### What You Can Do

- [Find out if lead is in your drinking water](#)
- [Important steps you can take to reduce lead in drinking water](#)
- [Get your child tested to determine lead levels in his or her blood](#)
- [Find out if lead in drinking water is an issue in your child's school or child care facility](#)

#### Drinking Water Requirements for Lead

- [EPA's drinking water regulations for lead](#)
  - [Recent actions and revisions](#)
- [How EPA requires states and public water systems to protect drinking water](#)

## General Information about Lead in Drinking Water

### How Lead Gets into Drinking Water

Lead can enter drinking water when plumbing materials that contain lead corrode, especially where the water has high acidity or low mineral content that corrodes pipes and fixtures. The most common sources of lead in drinking water are lead pipes, faucets, and fixtures. In homes with lead pipes that connect the home to the water main, also known as lead service lines, these pipes are typically the most significant source of lead in the water. Lead pipes are more likely to be found in older cities and homes built before 1986. Among homes without lead service lines, the most common problem is with brass or chrome-plated brass faucets and plumbing with lead solder.

The Safe Drinking Water Act (SDWA) has reduced the maximum allowable lead content -- that is, content that is considered "lead-free" -- to be a weighted average of 0.25 percent calculated across the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures and 0.2 percent for solder and flux.

- [Learn more about the maximum allowable content of lead in pipes, solder, fittings and fixtures](#)
- [Learn more about EPA's regulations to prevent lead in drinking water](#)
- [Learn how to identify lead-free certification marks on drinking water system and plumbing products \(PDF\)](#)



Corrosion is a dissolving or wearing away of metal caused by a chemical reaction between water and your plumbing. A number of factors are involved in the extent to which lead enters the water, including:

- the chemistry of the water (acidity and alkalinity) and the types and amounts of minerals in the water,
- the amount of lead it comes into contact with,
- the temperature of the water,
- the amount of wear in the pipes,
- how long the water stays in pipes, and
- the presence of protective scales or coatings inside the plumbing materials.

To address corrosion of lead and copper into drinking water, EPA issued the [Lead and Copper Rule \(LCR\)](#) under the authority of the SDWA. One requirement of the LCR is corrosion control treatment to prevent lead and copper from contaminating drinking water. Corrosion control treatment means utilities must make drinking water less corrosive to the materials it comes into contact with on its way to consumers' taps. [Learn more about EPA's regulations to prevent lead in drinking water.](#)

## Health Effects of Exposures to Lead in Drinking Water\*

\*The health effects information on this page is not intended to catalog all possible health effects for lead. Rather, it is intended to let you know about the most significant and probable health effects associated with lead in drinking water.

### Is there a safe level of lead in drinking water?

The Safe Drinking Water Act requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur with an adequate margin of safety. These non-enforceable health goals, based solely on possible health risks, are called maximum contaminant level goals (MCLGs). EPA has set the maximum contaminant level goal for lead in drinking water at zero because lead is a toxic metal that can be harmful to human health even at low exposure levels. Lead is persistent, and it can bioaccumulate in the body over time.

Young children, infants, and fetuses are particularly vulnerable to lead because the physical and behavioral effects of lead occur at lower exposure levels in children than in adults. A dose of lead that would have little effect on an adult can have a significant effect on a child. In children, low levels of exposure have been linked to damage to the central and peripheral nervous system, learning disabilities, shorter stature, impaired hearing, and impaired formation and function of blood cells.

The Centers for Disease Control and Prevention (CDC) recommends that public health actions be initiated when the level of lead in a child's blood is 5 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) or more.

It is important to recognize all the ways a child can be exposed to lead. Children are exposed to lead in paint, dust, soil, air, and food, as well as drinking water. If the level of lead in a child's blood is at or above the CDC action level of 5 micrograms per deciliter, it may be due to lead exposures from a combination of sources. EPA estimates that drinking water can make up 20 percent or more of a person's total exposure to lead. Infants who consume mostly mixed formula can receive 40 percent to 60 percent of their exposure to lead from drinking water.

### Children

Even low levels of lead in the blood of children can result in:

- Behavior and learning problems
- Lower IQ and hyperactivity
- Slowed growth
- Hearing problems
- Anemia

In rare cases, ingestion of lead can cause seizures, coma and even death.

### Pregnant Women

Lead can accumulate in our bodies over time, where it is stored in bones along with calcium. During pregnancy, lead is released from bones as maternal calcium and is used to help form the bones of the fetus. This is particularly true if a woman does not have enough dietary calcium. Lead can also cross the placental barrier exposing the fetus to lead. This can result in serious effects to the mother and her developing fetus, including:

- Reduced growth of the fetus
- Premature birth

Find out more about lead's effects on pregnancy:

- [Effects of Workplace Hazards on Female Reproductive Health](#) (National Institute for Occupational Safety and Health)

Lead can also be transmitted through breast milk. Read more on [lead exposure in pregnancy and lactating women \(PDF\)](#). (302 pp, 4.3 MB, [About PDF](#))

### Adults

Lead is also harmful to adults. Adults exposed to lead can suffer from:

- Cardiovascular effects, increased blood pressure and incidence of hypertension
- Decreased kidney function
- Reproductive problems (in both men and women)

### Related Information

- [Learn more about lead and its health effects](#)



## Can I shower in lead-contaminated water?

Yes. Bathing and showering should be safe for you and your children, even if the water contains lead over EPA's action level. Human skin does not absorb lead in water.

This information applies to most situations and to a large majority of the population, but individual circumstances may vary. Some situations, such as cases involving highly corrosive water, may require additional recommendations or more stringent actions. Your local water authority is always your first source for testing and identifying lead contamination in your tap water. Many public water authorities have websites that include data on drinking water quality, including results of lead testing. Links to such data can be found on the [EPA Consumer Confidence Report](#) website.

For more information, see [CDC's "Sources of Lead: Water" Web page](#).

## What You Can Do

### Find Out if Lead is in Your Drinking Water

#### First, learn more about the water coming into your home

EPA requires all community water systems to prepare and deliver an annual water quality report called a *Consumer Confidence Report (CCR)* for their customers by July 1 of each year. Contact your water utility if you'd like to receive a copy of their latest report. If your water comes from a household well or other private water supply, check with your health department, or with any nearby water utilities that use ground water, for information on contaminants of concern in your area.

- [Find your local Consumer Confidence Report](#)
- [Information about CCRs for consumers](#)
- [EPA's CCR home page](#)
- [Learn more about protecting water quality from private drinking water wells](#)
- [Printable color fact sheet: Is There Lead in My Drinking Water?](#)

EPA's *Public Notification Rule* requires public water systems to alert you if there is a problem with your drinking water.

- [Learn more about the Public Notification Rule](#)

#### Second, you can have your water tested for lead

Homes may have internal plumbing materials containing lead. Since you cannot see, taste, or smell lead dissolved in water, testing is the only sure way of telling whether there are harmful quantities of lead in your drinking water. A list of certified laboratories are available from your state or local drinking water authority. Testing costs between \$20 and \$100. Contact your water supplier as they may have useful information, including whether the service connector used in your home or area is made of lead.



You can learn on our [Protect Your Family from Exposures to Lead web page](#):

- when you may want to test your drinking water; and
- what to do if your home tests positive for lead.

You can also view and print a [fact sheet on testing your home's drinking water](#).

## Important Steps You Can Take to Reduce Lead in Drinking Water

- **Have your water tested.** Contact your water utility to have your water tested and to learn more about the lead levels in your drinking water.
- **Learn if you have a lead service line.** Contact your water utility or a licensed plumber to determine if the pipe that connects your home to the water main (called a service line) is made from lead.
- **Run your water.** Before drinking, flush your home's pipes by running the tap, taking a shower, doing laundry, or doing a load of dishes. The amount of time to run the water will depend on whether your home has a lead service line or not, and the length of the lead service line. Residents should contact their water utility for recommendations about flushing times in their community.
- **Learn about construction in your neighborhood.** Be aware of any construction or maintenance work that could disturb your lead service line. Construction may cause more lead to be released from a lead service line.
- **Use cold water.** Use only cold water for drinking, cooking and making baby formula. Remember, boiling water does not remove lead from water.
- **Clean your aerator.** Regularly clean your faucet's screen (also known as an aerator). Sediment, debris, and lead particles can collect in your aerator. If lead particles are caught in the aerator, lead can get into your water.
- **Use your filter properly.** If you use a filter, make sure you use a filter certified to remove lead. Read the directions to learn how to properly install and use your cartridge and when to replace it. Using the cartridge after it has expired can make it less effective at removing lead. Do not run hot water through the filter.

[Learn more by reviewing EPA's Lead in Drinking Water Infographic.](#)

### Related Information

- [Fact sheet: How to Identify Lead-Free Certification Marks for Drinking Water System & Plumbing Products \(PDF\)](#)
- [Factsheet: A Consumer Tool for Identifying Point of Use \(POU\) Drinking Water Filters Certified to Reduce Lead \(PDF\)](#)
- [How to make your home lead-safe](#)
- [What you can do to protect your drinking water](#)

## Get Your Child Tested to Determine Lead Levels in His or Her Blood

A family doctor or pediatrician can perform a blood test for lead and provide information about the health effects of lead. State, city or county departments of health can also provide information about how you can have your child's blood

tested for lead. The Centers for Disease Control and Prevention recommends that public health actions be initiated when the level of lead in a child's blood is 5 micrograms per deciliter ( $\mu\text{g}/\text{dL}$ ) or more.

## Find Out if Lead in Drinking Water is an Issue in Your Child's School or Child Care Facility

Children spend a significant part of their days at school or in a child care facility. The faucets that provide water used for consumption, including drinking, cooking lunch, and preparing juice and infant formula, should be tested.

- [Protect your children from lead where they learn and play: learn how to test your child, and how to check the condition of schools and child care facilities](#)
- [How schools and child care centers can test for lead in drinking water](#)
- [EPA main page on drinking water at schools and child care facilities](#)

## Drinking Water Requirements for Lead

### EPA's Drinking Water Regulations for Lead

In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur with an adequate margin of safety. These non-enforceable health goals, based solely on possible health risks are called maximum contaminant level goals (MCLGs). The MCLG for lead is zero. EPA has set this level based on the best available science which shows there is no safe level of exposure to lead.

For most contaminants, EPA sets an enforceable regulation called a maximum contaminant level (MCL) based on the MCLG. MCLs are set as close to the MCLGs as possible, considering cost, benefits and the ability of public water systems to detect and remove contaminants using suitable treatment technologies.

However, because lead contamination of drinking water often results from corrosion of the plumbing materials belonging to water system customers, EPA established a treatment technique rather than an MCL for lead. A treatment technique is an enforceable procedure or level of technological performance which water systems must follow to ensure control of a contaminant.

The treatment technique regulation for lead (referred to as the ***Lead and Copper Rule***) requires water systems to control the corrosivity of the water. The regulation also requires systems to collect tap samples from sites served by the system that are more likely to have plumbing materials containing lead. If more than 10 percent of tap water samples exceed the lead action level of 15 parts per billion, then water systems are required to take additional actions including:

- Taking further steps optimize their corrosion control treatment (for water systems serving 50,000 people that have not fully optimized their corrosion control)
- Educating the public about lead in drinking water and actions consumers can take to reduce their exposure to lead.



- Replacing the portions of lead service lines (lines that connect distribution mains to customers) under the water system's control.

EPA issued the Lead and Copper Rule in 1991 and revised the regulation in 2000 and 2007. States may set more stringent drinking water regulations than EPA.

In addition:

- EPA requires all community water systems to prepare and deliver an annual water quality report called a **Consumer Confidence Report (CCR)** for their customers.
  - [Find your local Consumer Confidence Report](#)
  - [Information about CCRs for consumers](#)
  - [EPA's CCR home page](#)
- EPA's **Public Notification Rule** requires public water systems to alert you if there is a problem with your drinking water.
  - [Learn more about the Public Notification Rule.](#)
- In 2011, changes to the Safe Drinking Water Act reduced the maximum allowable lead content -- that is, content that is considered "lead-free" -- to be a weighted average of 0.25 percent calculated across the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixture and 0.2 percent for solder and flux. [Learn more about the maximum allowable content of lead in pipes, solder, fittings and fixtures.](#)

### Recent Actions and Revisions

- [Webinar: Strategic Plan for Targeted Outreach to Populations Affected by Lead \(March 2017\)](#)
- [Long-Term Revisions to the Lead and Copper Rule -- regulatory options to improve the existing rule](#)
- [Memorandum: Implementation of the Lead and Copper Rule Provisions Related to Sample Site Selection and Triennial Monitoring \(October 2016\)](#)
- [Document: Optimal Corrosion Control Treatment Evaluation Technical Recommendations \(March 2016\)](#)
- [Memorandum: Clarifying Recommended Tap Sampling Procedures for the Lead and Copper Rule \(February 2016\)](#)
- [EPA Letters to Governors and State Environment and Public Health Commissioners \(2016\)](#)

### How EPA Requires States and Public Water Systems to Protect Drinking Water

The Safe Drinking Water Act (SDWA) requires EPA to establish and enforce standards that public drinking water systems must follow. EPA delegates primary enforcement responsibility (also called **primacy**) for public water systems to states and tribes if they meet certain requirements. Learn more about:

- [The SDWA and SDWA standards](#)
- [How EPA regulates drinking water contaminants](#)
- [Primacy enforcement responsibility for public water systems](#)



## Related Information from Other Federal Government Agencies

### Centers for Disease Control and Prevention (CDC):

- [About Lead in Drinking Water](#)
- [Prevention Tips for Lead in Water](#)
- [CDC main page on lead](#)

### Agency for Toxic Substances & Disease Registry (ATSDR):

- [Public Health Statement for Lead](#)
- [ToxFAQs for Lead](#)
- [ATSDR main page on lead](#)

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**APPENDIX 5.0**  
**CONSULTANT RESUME**

## **RESUME**

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**AHERA INSPECTOR (EPA CERTIFICATION NO. IRO-21-2439A**

**CERTIFIED ENVIRONMENTAL INSPECTOR  
CEI - 10364**

### **Professional Background**

Charles A. Spear, President and founder of Environmental Inspection Services has over 30 years technical experience ranging from facility and school district radon testing to site remediation. Technical employment included food technologist to hazardous waste site remediation at Federal SUPERFUND sites from California to Maryland. Mr. Spear has successfully performed over 3,000 Phase One, Phase Two, and Phase Three Environmental Site Assessment inspections and multiple radon inspections and surveys on properties from California to Alaska and east to Maryland.

Mr. Spear has managed such projects as spilled mustard gas and organophosphate demilitarization and remediation as a decontamination sergeant of the U.S. Army Chemical Corps Technical Escort Unit Drill & Transfer Unit at Umatilla Army Depot and removal of leaking solvent underground storage tanks in California and Oregon. Additional experience included supervision as a USARMY NBC Specialist of focused remediation at the Federal Superfund site known as Aberdeen Proving Grounds, Maryland (Michaelsville Landfill). EIS does not conduct or perform geological work. Geologic work is referred to a state registered geologist.



Specifically, Mr. Spear has worked with clients such as: numerous school districts, Housing & Urban Development, the International Fabric Care Industry (IFI), the U.S. Environmental Protection Agency, The U.S. Department of Defense, The Oregon Department of Environmental Quality (ODEQ), The Oregon Department of Forestry, INTEL, Sun Microsystems, IBM, Rohm & Haas, General Electric, AT&T, Texaco, Unocal, BP, Lockheed Missile and Space Center, FMC Corporation, Oregon Department of Fish & Wildlife, Washington Department of Fish & Wildlife, City of Beaverton, City of Hillsboro, City of Corvallis, Housing Authority of Portland, Northwest Oregon Housing Authority, Washington County Department of Housing, Housing & Urban Development, numerous lenders and mortgage companies, many private development and site remedial site projects, and many attorneys and investors.

Mr. Spear managed complex solvent tank farm removals at Xidex Corporation in Sunnyvale, California and was the site cleanup manager at the Rose City Plating Site currently developed as the Oregon Convention Center. Mr. Spear is a certified hazardous waste professional who has coupled military experience as a Nuclear, Biological and Chemical Specialist (U.S. Army MOS 54E20) with experience as a professional industrial and process research engineer in both the corrugated paper and petroleum industries.

Mr. Spear has managed food industry quality control as an inplant food technologist and prepared cost reduction programs as a corrugated boxboard industrial engineer in Dallas, Texas. He is currently registered with the states of California, Washington, and Oregon and is an active member of the national respected Environmental Assessment Association. Due diligence projects have been performed throughout the United States from Fairbanks, Alaska to San Diego, California.

Professional experience includes the following:

### **Professional Experience**

- \* Dry Cleaner Inspections
- \* Environmental Consultation
- \* Waste Reduction Audits
- \* Regulatory Compliance Audits
- \* Drum Yard Clearances
- \* Tank Farm Removals/Replacements
- \* Lab Packaging & Supervision
- \* Environmental Site Assessments
- \* Superfund Site Remediation
- \* Hazardous Waste site Project Design & Management
- \* Habitat/Wetlands Restoration
- \* AHERA asbestos inspections for school districts
- \* Landfill Remediation
- \* Agricultural assessments
- \* Indoor air quality inspections

### **Professional Employment/Consultation**

- \* C.F.S. Continental Coffee, Inc., Food technologist, Chicago, Illinois
- \* Holiday Industries, Research Engineer, Grand Prairie, Texas
- \* Alton Packaging Corporation, Industrial Engineer, Dallas, Texas
- \* U.S. Army Chemical Corps., Nuclear, Biological, Chemical Specialist - Special assignment - Umatilla Army Depot (DATS)  
Oregon and permanent assignment U.S. Army Chemical Corps. Technical Escort Unit in Edgewood, Maryland
- \* Rollins Environmental Services, Remedial Project Manager
- \* Crown Environmental Services, Technical Director, Redmond, California
- \* Dames & Moore, Remedial design Engineer, Portland, Oregon
- \* Pegasus Environmental Management Services, Director of Technical Services
- \* Pacific Tank & Construction, Manager of Estimation, Portland, Oregon
- \* Enviro-Logic Inc., Director of Environmental Site Assessment Division
- \* Environmental Inspection Services Founder / President

### **Professional Education**

- \* Environmental Research & Technology radon training
- \* American Standard for Testing & Materials ASTM E1527-13 Training
- \* Bachelor of Science, Chemistry, Northeastern Illinois University, 1978
- \* U.S. Army Chemical School, Ft. McClellan, Alabama, 1983
- \* U.S. Army Technical Escort Unit, Accident / Incident Response Training Center 1983
- \* Registered Environmental Assessor REA - 01241 (Former classification)
- \* Certified environmental Inspector CEI - 10364
- \* AHERA Certified Asbestos Inspector IR-19-2439A
- \* ODEQ Soil Matrix Assessor & UST Decommission Supervisor ID No. 10305
- \* Washington DOE Registered Environmental Assessor
- \* Wetland Specialist - Training Wetlands Institute 1997
- \* EPA / HUD Lead-Based Paint (LBP) Certified Inspector & Risk Assessor

### **Additional Education**

- \* Joint Military Material Packaging & Transportation
- \* Asbestos Abatement Seminar attendance 1987
- \* Thin Layer Chromatography, 1989
- \* Oregon Registered Underground storage Tank Supervisor, 1998
- \* Oregon Registered Soil Matrix Assessor, 1998
- \* Washington Registered Assessor, 1991
- \* Washington Registered Underground Storage Tank Supervisor, 1991
- \* Wetland Training Institute Delineation Course Study University of Portland 1997
- \* 40-Hour HAZMAT Certified
- \* AHERA-Certified Inspector



## **Special Skills**

- \* School District radon surveys and radon control planning
- \* Facility Environmental Compliance Audits
- \* ASTM standard Environmental Site Assessments
- \* Computer Programming
- \* Organic surfactant chemical synthesis and analysis
- \* Hazardous Waste Site remediation/ estimating/ standards development
- \* Design of filtration systems, batch and continuous process optimization studies
- \* QA/QC Procedures
- \* SUPERFUND Site Management
- \* Industrial/ Research Engineering
- \* Hazardous Waste Site Remediation/ Consultation
- \* Wetlands Delineation and Habitat Restoration

## **Certification**

- \* U.S. Army MOS 54E20 - U.S. Army Chemical Corps.
- \* International Fire Code Institute (IFCI) Certified UST Supervisor
- \* International Fire Code Institute (IFCI) Certified Soil Matrix Assessor
- \* Certified Hazardous Waste Manager
- \* 40-hour OSHA Training
- \* 40-hour OSHA Supervisor Training
- \* Registered Environmental Assessor (DOE)
- \* DEQ Registered UST Supervisor
- \* DEQ Registered Soil Matrix Assessor
- \* Resolution Trust Corporation (RTC) approved Environmental Assessor
- \* California Registered Environmental Assessor (REA-01241)- program discontinued
- \* Department of Ecology (DOE) Registered Environmental Assessor
- \* Environmental Assessment Association, Certified Environmental Inspector & Transaction Specialist (CEI-10364)
- \* Environmental Assessment Association, Certified Environmental Consultant (CEC)
- \* AHERA Certified Asbestos Inspector
- \* Wetland Delineator Graduate Wetland Training Institute, University of Portland 1997
- \* EPA / HUD LBP Inspector & Risk Assessor
- \* ASTM Training class, May, 2004