[illegible]	[illegible]		[illegible]
15	Teacher's Lounge Faucet (cold) in teacher's lounge		0
16	[illegible]		0
17	[illegible]		0
18	[illegible]		0
19	[illegible]		0
20	[illegible]		0
21	[illegible]		0
22	[illegible]		0
23	[illegible]		1
24	[illegible]		0

CPS-FCS Actions

0 = [illegible]

1 = [illegible] & [illegible] ([illegible]) [illegible]

(1) [illegible]

[illegible]) [illegible] (

[illegible] shall post a sign saying "Notice" "work station sink, water not intended for drinking." (if needed).

* [illegible] ([illegible]) [illegible]

[illegible]

[illegible] 98 % [illegible]

[illegible] (, [illegible] L).

[illegible] B [illegible] (

[illegible] ([illegible] (

[illegible]

[illegible]

PDC [illegible]

[illegible] of 30 [illegible]

[illegible] (, [illegible] = [illegible] L).

[illegible]

Appendix A

2016

PDC Laboratories Inc.

Summary Report

,QLWLDO :DWHU 4XDOLW\ (YDOX

2016

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

DATE: June 15, 2016

FACILITY NAME: BENTON ELEMENTARY

PART A

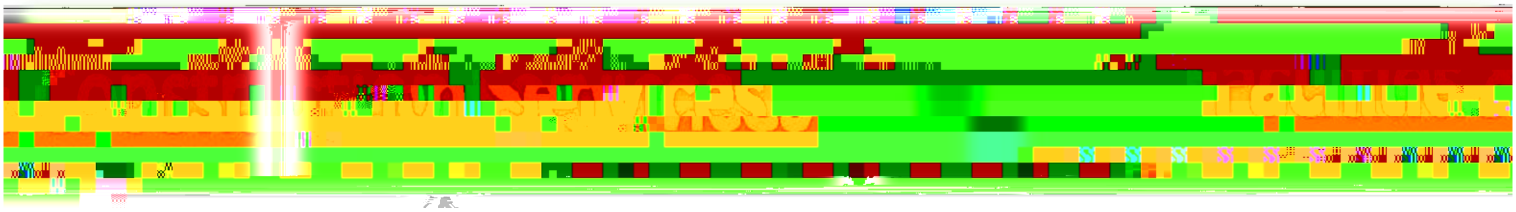
NUMBER OF SAMPLES COLLECTED AT THIS FACILITY:	24
PERCENTAGE OF SAMPLES BELOW COPPER ACTION LIMIT	100.0
COPPER ACTION LIMIT = 1,300 UG/L	
PERCENTAGE OF SAMPLES BELOW LEAD ACTION LIMIT	95.8
LEAD ACTION LIMIT = 15 UG/L	

(The requirement in the USEPA Lead and Copper Rule for public water supplies is 90% passing)

PART B

NUMBER OF SAMPLES EXCEEDING COPPER ACTION LIMIT	0
NUMBER OF SAMPLES EXCEEDING LEAD ACTION LIMIT	1

CONCLUSIONS/COMMENTS



COLUMBIA PUBLIC SCHOOLS

SUMMARY REPORT-FOLLOW UP SAMPLE(FLUSH SAMPLE)

DATE: July 18, 2016

FACILITY NAME: BENTON ELEMENTARY

Sample Location: BEN-FS-CF-12

Followup Results:

Lead ug/l	<1.0
Copper ug/l	21

Followup samples passed action limits:

Lead(action limit 15 ug/l)	YES
Copper(action limit 1300 ug/l)	YES

CONCLUSIONS/COMMENTS

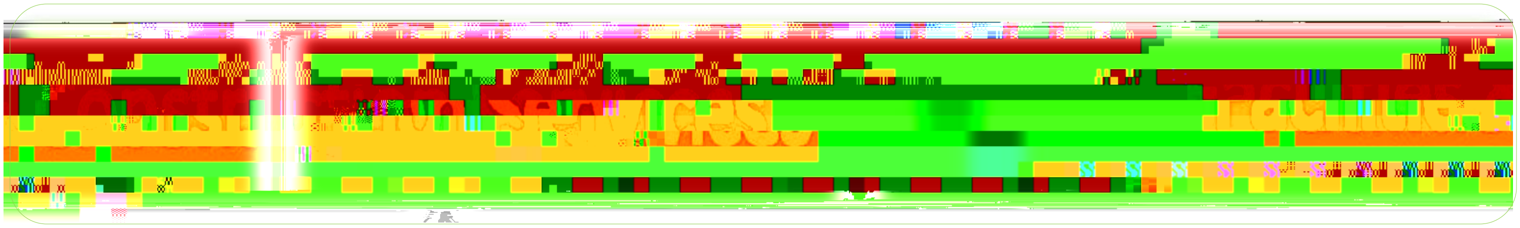
This location should be flushed for a minimum of 30 seconds prior to use.

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

Although the Lead and Copper Rule may not directly apply to Columbia Public Schools and each of its schools or support buildings that are part of the 2016 Water Quality Assessment Reporting; it is a common practice for experts in the field and members of the known industry to use the standard as a guideline for water assessment studies.

PREPARED BY

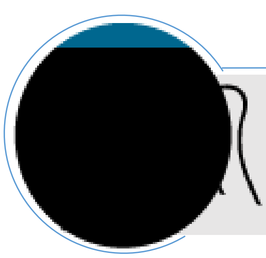
KURT C STEPPING
SENIOR PROJECT MANAGER
PDC LABORATORIES, INC.



PDC Laboratories Inc. Laboratory Results

Q L, W L D W H U 4 X (Y D O L X D W L R Q

Field Data & Chain-of-Custody Forms



2016 Water Quality Evaluation

Columbia Public Schools

Columbia, Missouri

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

June 15, 2016

Randy Jackson
Columbia Public Schools
5909 Paris Road
Columbia, MO 65202

Dear Randy Jackson:

Please find enclosed the analytical results for the sample(s) the laboratory received on 6/7/16 8:00 am and logged in under work order 6061358. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President, John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Kurt Stepping
Senior Project Manager
(309) 692-9688 x1719
kstepping@pdclab.com

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 6161
(800) 752-665

ANALYTICAL RESULTS

Sample:	6061358-01	Sampled:	05/31/16 00:00
Name:	BEN EWC-1	Received:	06/07/16 08:00
Alias:	ELECTRIC WATER COOLER OUTSIDE MEDIA	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	95	ug/L		1300	06/14/16 14:23	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/14/16 14:23	KMC	EPA 200.8

Sample:	6061358-02	Sampled:	05/31/16 00:00
Name:	BEN NSF-1	Received:	06/07/16 08:00
Alias:	NURSES OFFICE SINK	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/14/16 14:24	KMC	EPA 200.8
Lead	3.2	ug/L		15	06/14/16 14:24	KMC	EPA 200.8

Sample:	6061358-03	Sampled:	05/31/16 00:00
Name:	BEN CF-1	Received:	06/07/16 08:00
Alias:	RM 106	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	160	ug/L		1300	06/14/16 14:25	KMC	EPA 200.8
Lead	3.2	ug/L		15	06/14/16 14:25	KMC	EPA 200.8

Sample:	6061358-04	Sampled:	05/31/16 00:00
Name:	BEN CF-2	Received:	06/07/16 08:00
Alias:	RM 105	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	80	ug/L		1300	06/14/16 14:31	KMC	EPA 200.8
Lead	1.9	ug/L		15	06/14/16 14:31	KMC	EPA 200.8

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(800) 752-6651

ANALYTICAL RESULTS

Sample:	6061358-05	Sampled:	05/31/16 00:00
Name:	BEN CF-3	Received:	06/07/16 08:00
Alias:	RM 108	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	44	ug/L		1300	06/14/16 14:32	KMC	EPA 200.8
Lead	2.7	ug/L		15	06/14/16 14:32	KMC	EPA 200.8

Sample:	6061358-06	Sampled:	05/31/16 00:00
Name:	BEN EWC-2	Received:	06/07/16 08:00
Alias:	ELECTRIC WATER COOLER OUTSIDE 108	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	54	ug/L		1300	06/14/16 14:36	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/14/16 14:36	KMC	EPA 200.8

Sample:	6061358-07	Sampled:	05/31/16 00:00
Name:	BEN CF-4	Received:	06/07/16 08:00
Alias:	RM 107	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	24	ug/L		1300	06/14/16 14:38	KMC	EPA 200.8
Lead	2.6	ug/L		15	06/14/16 14:38	KMC	EPA 200.8

Sample:	6061358-08	Sampled:	05/31/16 00:00
Name:	BEN EWC-2	Received:	06/07/16 08:00
Alias:	ELECTRIC WC ACROSS RM 104	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	83	ug/L		1300	06/14/16 14:39	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/14/16 14:39	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample:	6061358-09	Sampled:	05/31/16 00:00
Name:	BEN CF-5	Received:	06/07/16 08:00
Alias:	RM 103	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	79	ug/L		1300	06/14/16 14:40	KMC	EPA 200.8
Lead	4.1	ug/L		15	06/14/16 14:40	KMC	EPA 200.8

Sample:	6061358-10	Sampled:	05/31/16 00:00
Name:	BEN CF-6	Received:	06/07/16 08:00
Alias:	RM 101	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	61	ug/L		1300	06/14/16 14:41	KMC	EPA 200.8
Lead	3.6	ug/L		15	06/14/16 14:41	KMC	EPA 200.8

Sample:	6061358-11	Sampled:	05/31/16 00:00
Name:	BEN KF-1	Received:	06/07/16 08:00
Alias:	KITCHEN FAUCET EAST WALL	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	100	ug/L		1300	06/14/16 14:42	KMC	EPA 200.8
Lead	2.3	ug/L		15	06/14/16 14:42	KMC	EPA 200.8

Sample:	6061358-12	Sampled:	05/31/16 00:00
Name:	BEN KF-2	Received:	06/07/16 08:00
Alias:	KITCHEN FAUCET ISLAND	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	14	ug/L		1300	06/14/16 14:48	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/14/16 14:48	KMC	EPA 200.8

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ANALYTICAL RESULTS

Sample:	6061358-13	Sampled:	05/31/16 00:00
Name:	BEN EWC-3	Received:	06/07/16 08:00
Alias:	ELECTRIC WATER COOLER ACROSS 101	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
Copper	33	ug/L		1300	06/14/16 14:49	KMC	EPA 200.8
Lead	< 1.0	ug/L		15	06/14/16 14:49	KMC	EPA 200.8

Sample:	6061358-14	Sampled:	05/31/16 00:00
Name:	BEN CF-7	Received:	06/07/16 08:00
Alias:	RM 102	Matrix:	Drinking Water - Regular Sample

Parameter	Result	Unit	Qualifier	MCL	Analyzed	Analyst	Method
Total Metals - PIA							
	81						

PDC Laboratories Inc. Laboratory Results
Follow-up water quality evaluation

Field Data & Chain-of-Custody Form

PDC Laboratories, Inc.
2231 West Altorfer Drive
Peoria, IL 61615
(800) 752-6651

NOTES

Specific method revisions used for analysis are available upon request.

** Indicates lab result exceeds a monitoring limit. Monitoring limits are either client permit limits or client requested action levels.

Certifications

PIA - Peoria, IL
- TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
- Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870
- Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
- Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
- Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO
- USEPA DMR-QA Program

STL - St. Louis, MO
- TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
- Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
- Drinking Water Certifications: Missouri (1050)
- Missouri Department of Natural Resources

... of the water that is in the plumbing upstream from the ...

... d run for 30 secon ...

Date: [illegible] Name of Reviewer: [illegible]

Comments: Faucet is [illegible]

Signature of Reviewer: [illegible]

L2011520-1

KF Kitchen Faucet (cold)

FACS Family and Consumer Science Faucet (cold)

RRF Restroom Faucet (cold)

Appendix C

PDC Laboratory Certifications

2016

Lead and Copper Rule

2016

84(
%BUF 4JHOFE 'FCS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 2 9 2016

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Clarificati[illegible]
Copper Rule

FROM: Peter C. Grevatt, Director
Office of Ground Water & Drinking Wat[illegible]

TO: Water Division Directors
Regions I - X

The Lead and Copper Rule, 40 [illegible] to identify levels of lead in drinking water that may result from corrosion or lead-be[illegible] components in a public water system's distribution system or in household plumbing. These samples help assess the need for, or the effectiveness of, corrosion control [illegible]ent. The purpose of this memorandum is to provide recommendat[illegible] systems should address the removal an[illegible] aerators, pr[illegible] flus[illegible]

[illegible]

Removal and Cleaning of Aerators

EPA issued a me[illegible] *with the Lead and Copper Rule* [illegible] that hom[illegible] their ae[illegible] partic[illegible] stat[illegible] that public water systems should not recommend the remov[illegible] cleaning of aera[illegible] prior to or during the collection of tap samples gathered for pu[illegible]ses of the Lead and Copper Rule. EPA continues to recommend this approach. The r[illegible] or cleanin[illegible] mask the add[illegible]n of lead at the tap, which may potentially lead to th[illegible] takin[illegible]dditional ac[illegible]ons needed to reduce exposure to lead in drinking water. EPA's rec[illegible] about the removal and cl[illegible]ing of aerators during sample collection applies [illegible] monitoring [illegible] for lead and copper conducted pursuant to 40 C.F.R. 141.86.

Pr[illegible]-Stagnation Flushing

EPA is aware that some sampling instructions provid[illegible] residents include [illegible] the tap [illegible] a specified period of time prior to starting the minimum 6-hour stagnation time required for samples collected under the Lead and Copper Rule. This practice is called pre-stagnation flushing. [illegible] stagnation flushing may potentially lower the lead levels as compared to when it is not practiced.

Flushing [illegible] water that may have been in contact with the lead service line for extended [illegible] which [illegible] lead typically leaches into drinking water. Therefore, EPA recommends that [illegible] instructions not contain a pre-stagnation flu[illegible]

Bottle Configuration

EPA recommends that wide-mouth bottles be used to collect Lead and C[illegible] samples. It has become [illegible] wide-mouth bottles allow for a higher flow rate during sample collection which is more representative of the flow th[illegible] consumer may use [illegible] fill up a glass of water. In additi[illegible] higher flow rate can result in greater [illegible] identifying lead con[illegible]

Conclusion

EPA is providing th[illegible] recommendations [illegible] Lead and Copper Rule [illegible] refl[illegible] discussed above may potentially lead to samples that erroneously reflect lower levels of lead concentrations. The recomm[illegible] recommendations provided by the EPA's Flint Task Force. For more information about the Task Force please view EPA's website at: http://www.epa.gov[illegible]t.

To provide further information on this topic, EPA included an amended "Suggested Directions for Homeowner Tap Sample Collection Procedures" in Appendix D o[illegible] *Copper Rule Monitoring and Reporting Gu[illegible] for Public Water Systems* (EPA 816-R-10-004). This document [illegible] found at: http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100DP2P.txt

Please share these recommendations with your state drinking water program directors. If you have any questions, please contact Anita Thompkins at thompkins.anita@epa.gov.

Attachment

cc: James Taft, Association of State Drinking Water Administrators

Columbia Missouri Water and Light: 2015

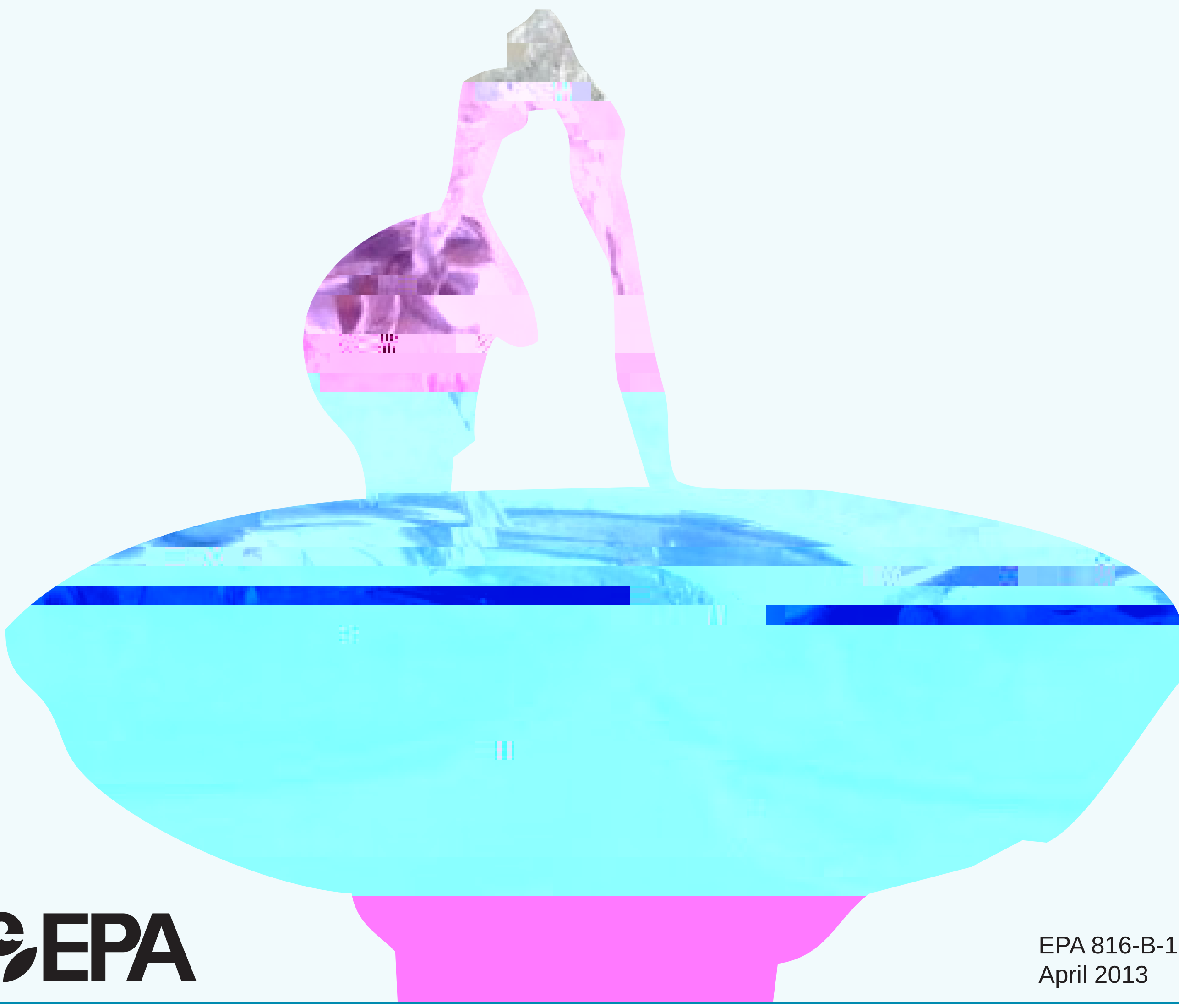
CONTAMINANT	CONCENTRATION (milligrams per liter)	MAXIMUM CONTAMINANT LEVEL (milligrams per liter)
INORGANIC CHEMICALS CONTINUED:		
Nickel	NONE DETECTED	0.1
Zinc**	1.95	5
Thallium	NONE DETECTED	0.002
Beryllium	NONE DETECTED	0.004
Cyanide	NONE DETECTED	0.2
SYNTHETIC ORGANIC CHEMICALS:		
TTHM	0.0499	0.08 [EMC /P3(05)]7>>BDC 0.006 Tc -0.006 T
Endrin	NONE DETECTED	0.002
Lindane	NONE DETECTED	0.0002
Methoxychlor	NONE DETECTED	0.04
Toxaphene	NONE DETECTED	0.003
2,4-D	NONE DETECTED	0.07
2,4,5-TP (silvex)	NONE DETECTED	0.05
Aldicarb	NONE DETECTED	0.003
Chlordane	NONE DETECTED	0.002
Dalapon	NONE DETECTED	0.2
Diquat	NONE DETECTED	0.02
Endothall	NONE DETECTED	0.1
Glyphosate	NONE DETECTED	0.7
Carbofuran	NONE DETECTED	0.04
Vydate	NONE DETECTED	0.1
Simazine	NONE DETECTED	0.004
PAHs	NONE DETECTED	
PCBs	NONE DETECTED	
Atrazine	NONE DETECTED	
Heptachlor	NONE DETECTED	0.6 <</MCID 170 >>BDC 0.001 TcD
Pentachlorophenol	NONE DETECTED	
Picloram	NONE DETECTED	
Dinoseb	NONE DETECTED	
Alachlor	NONE DETECTED	
Hexachlorocyclopentadiene	NONE DETECTED	
2,3,7,8-TCDD	NONE DETECTED	
HAA5	0.022	

EPA
Drinking Water
Best Management Practices

2016

Drinking Water
Best Management Practices

For Schools and Child Care Facilities Served by Municipal Water Systems



EPA 816-B-13-002
April 2013

Drinking Water
Best Management Practices

For Schools and Child Care Facilities Served by Municipal Water Systems

This guide is intended for use by school o cials and child care providers responsible for the maintenance and/or safety

What Decision Makers Should Know

On any given day in America nearly 50 million public school students spend a VLJQLÀFDQW SRUWLRQ RI WKHLU GD\ LQ VFKRRO buildings. Exposure to environmental hazards LQ VFKRROV FDQ QHJDWLYHO\ LPSDFW WKH KHDOWK RI FKLOGUHQ DQG VFKRRO VWDII 0RUHRYHU VWXGLHV have shown that poor indoor environments in schools have negative impacts on teacher SURGXFWLYLW\ DQG[1,2,3] VWXGHQW SHUIRUPDQFH

6FKRROV DQG FKLOG FDUH IDFLOLWLHV UHFHLYH WKHLU GULQNLQJ ZDWHU IURP QHDUE\ PXQLFLSDO ZDWHU systems or their own on-site water system.)DFLOLWLHV WKDW UHFHLYH WKHLU ZDWHU IURP D ZDWHU provider can be assured that the water is UHJXODUO\ WHVWHG WR HQVXUH LW PHHWV IHGHUDO DQG VWDWH GULQNLQJ ZDWHU VWDQGDUGV VXFK DV IRU bacteria and chemicals.

Bacteria

%DFWHULD DUH SUHVHQW WKURXJKRXW WKH
environment. They have adapted to live
DQG UHSURGXFH LQ D YDULHW\ RI HQYLURQPHQWV
LQFOXGLQJ LQVLGH DQLPDOV
LQ ZDWHU VRLO DQG IRRG
DUH SUHVHQW LQ GULQNLQJ ZDWHU
DUH UHPRYHG GXULQJ WKH GLVLQIHFWLRQ SURFHVV
+RZHYHU VRPH PD\ VXUYLYH WKH
GLVWULEXWLRQ V\VWHP WKH EXLOGLQJ·V SLSHV DQG
SOXPELQJ %DFWHULD FDQ
SOXPELQJ V\VWHP ZDWHU
7KHUHIRUH LW LV LPSRUWDQW
\RXU IDFLOLW\·V ZDWHU IRXQWDLQV IDXFHWV DQG KRW
water tanks.

Lead

Understanding Lead Exposure

6FKRRO RIÀFLDOV DQG FKLOG FD
NQRZ ZKHWKHU WKH VWXGHQWV
FRQVXPH HOHYDWHG OHYHOV RI
ZDWHU LQ WKHLU IDFLOLW\ EHF
FDQ FDXVH VHULRXV KHDOWK SU
IRU \RXQJ FKLOGUHQ

/HDG LQ GULQNLQJ ZDWHU LV SU
materials and components associated with
VHUYLFH OLQHV DQG IDFLOLW\ S
municipal water supplier is responsible
IRU SURYLGLQJ KLJK TXDOLW\ G
EXW FDQQRW FRQWURO WKH YDU
contained in the plumbing components used
LQ WKH \RXU IDFLOLW\

Health Effects of Lead

/HDG FDQ FDXVH
PXOWLSOH
WKH ZDWHU
include:

‡,QIDQWV \RXQJ FKLOGUHQ DQG
DUH DW JUHDWHVW ULVN WR O
‡,QFUHDVHG OHDG OHYHOV KDY
FDXVH GDPDJH WR WKH EUDLQ
‡,QFUHDVHG OHDG OHYHOV LQW
SURGXFWLRQ RI UHG EORRG FH
R[\JHQ WR DOO SDUWV RI \RXU

Reduction of Lead in Drinking Water Act

$ QHZ UHTXLUHPHQW VLJQHG LQWR ODZ E\ 3UHVLGHQW 2
OHDG LQ SLSHV SLSH ÀWWLQJV SOXPELQJ ÀWWLQJV DQG
SHUFHQW 7KH 5HGXFWLRQ RI /HDG LQ 'ULQNLQJ :DWHU
'ULQNLQJ :DWHU $FW WR PHDQ QRW FRQWDLQLQJ PRUH
UHVSHFW WR VROGHU DQG ÁX[WKH
DQG QRW PRUH WKDQ ZKHQ XVHG ZL
ZHWWHG VXUIDFHV RI SLSHV SLSH ÀWWLQJV SOXPELQJ
ZLOO EHFRPH HIIHFWLYH LQ -DQXDU\

‡6FLHQWLVWV KDYH OLQNHG WKH HIIHFWV RI OHDG RQ
WKH EUDLQ ZLWK ORZHUHG LQWHOOLJHQFH TXRWLHQW
,4 LQ FKLOGUHQ
‡$GXOWV ZLWK NLGQH\ SUREOHPV DQG KLJK EORRG
SUHVVXUH FDQ EHU DIIHFWHG E\ ORZ
OHDG PRUH WKDQ KHDOWK\ DGXOWV
‡/HDG LV VWRUHG LQ WKH ERQHV DQG LW FDQ EH
UHOHDVHG ODWHU LQ OLIH DQG
‡'XULQJ SUHJQDQF\ WKH IHWXV UHFHLYHV OHDG
IURP WKH PRWKKHU·D\ ERQHFWZKLF
brain development.

Copper pipes joined by lead solder.

and copper than the average adult because
RI WKHLU UDSLG GHYHORSPHQW
LQWR ZDWHU WKURXJK FRUURVL
V\VWHP ² SULPDULO\ IURP SLSHV
IDXFHWV DQG ÀWWLQJV PDGH RI
D VRXUFH 7KH DPRXQW RI FRSS
strongly depends on the acidity and types and
DPRXQWV RI PLQHUDOV LQ WKH
QRW LW LV R[\JHQDWHG RU GLVL
WKH ZDWHU VWD\V LQ WKH SLSH
WKH SLSHV KDYH EHHQ LQ XVH D
WHPSHUDWXUH (VSHFLDOO\ ZK
EHORZ QHXWUDO DQG ZKHQ W
ZDWHU ELFDUERQDWH FRQWHQW
FRQFHQWUDWLRQV RI FRSSHU FD

Copper

&RSSHU LV ZLGHO\ XVHG LQ KRXVHKROG SOXPELQJ DQG ÀW
VRPHWLPHV ZLWKRXW SUREOHPV new construction and remodeled or renovated
ZDWHU TXDOLW\ ([FHVV FRSSHU
FDXVH VWRPDFK DQG LQWHVWLQDO
NLGQH\ GDPDJH DQG FRPS plumbing corrosion. RI :LOVRQ·V
GLVHDVH &KLOGUHQ·V ERGLHV DEVRUE PRUH OHDG

Drinking Water Best Management Practices

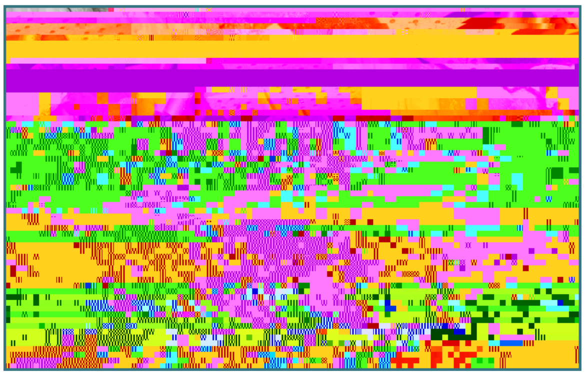
Bacteria

Drinking Water Fountains

'ULQNLQJ ZDWHU IRXQWDLQV VKRXOG EH FOHDQHG

Hot Water Tanks

+RW ZDWHU WDQNV DUH VXVFHSWLEOH WR WKH GHYHORSPHQW RI ELRÀOP ZKLFK LV D VXUIDFH GHSRVLW RI EDFWHULD WKDW DFFXPXODWHV FUHDWLQJ D VOLPH OD\HU 6LPLODU WR WKH SODTXH WKDW IRUPV RQ WHHWK ELRÀOPV DFFXPXODWH RYHU WLPH ,W is recommended that you consult with an H[SHULHQFHG SURIHVVLRQDO WR KDYH \RXU KRW ZDWHU tank periodically cleaned to remove existing ELRÀOPV DQG VHGLPHQWV[2]



A cross connection between a dishwasher drain (copper pipe) and a main pipe.

‡

‡

‡ %ULHCZS PPÀ€•ZDWHU A@@p0@`

Cross Connections

A cross connection is an actual or potential FRQQHFWLRQ EHWZHHQ \RXU IDFLOLW\·V GULQNLQJ ZDWHU V\VWHP DQG RWKHU OLTXLGV RU VXEVWDQFHV ,W LV LPSRUWDQW WR EH DZDUH RI FURVV FRQQHFWLRQV ZLWKLQ \RXU IDFLOLW\ DV FRQWDPLQDWLRQ FDQ RFFXU &URVV FRQWDPLQDWLRQ IURP EDFNÁRZ RI KDUPIXO VXEVWDQFHV PD\ RFFXU DV D UHVXOW RI UHGXFHG SUHVVXUH LQ WKH GULQNLQJ ZDWHU V\VWHP RU EHFDXVH RI LQFUHDVHG SUHVVXUH LQ WKH FRQWDPLQDWLQJ VRXUFH %H DZDUH FURVV contamination may not be immediately apparent because a contaminant may not have a VWURQJ WDVWH RGRU RU FRORU

[2] 1DWLRQDO (QYLURQPHQWDO 6HUYLFHV &HQWHU 7HFK %ULHI %LRÀOP &RQWURO LQ 'LVWULEXWLRQ 6\VWHPV 6XPPHU 9RO ,VVXH

2WKHU VRXUFHV RI SRWHQWLDO FURVV FRQWDPLQDWLRQ include cross connections between the drinking ZDWHU V\VWHP DQG KHDWLQJ V\VWHP ERLOHUV ZDWHU FRROHUV ODZQ VSULQNOHU V\VWHPV ÀUH VSULQNOHU V\VWHPV RU VRIW GULQN PDFKLQHV

Cross contamination can be prevented by XVLQJ EDFNÁRZ SUHYHQWLRQ GHYLFHV WKDW RQO\ DOORZ ZDWHU WR ÁRZ LQ RQH GLUHFWLRQ IURP WKH VRXUFH WR WKH WDS VR OLTXLG FDQQRW ÁRZ EDFN down the tap and contaminate the water in WKH GLVWULEXWLRQ V\VWHP %DFNÁRZ SUHYHQWLRQ GHYLFHV VKRXOG EH WHVWHG DQQXDOO\ ,I \RX KDYH TXHVWLRQV DERXW FURVV FRQQHFWLRQV DQG FRQWDPLQDWLRQ FRQWDFW WKH ORFDO EXLOGLQJ SOXPELQJ LQVSHFWRU RU IRU PRUH LQIRUPDWLRQ RQ cross contamination please visit http://water. HSD JRY LQIUDVWUXFWXUH GULQNLQJZDWHU SZV FURVVFRQQHFWLRQFRQWURO LQGH[FIP

/DVWO\ LQVSHFW \RXU IDFLOLW\·V SLSHV WR PDNH VXUH WKHUH DUH QR OHDNV RU RXWVLGH LQGLFDWLRQV RI FRUURVLRQ /HDNV LQ \RXU SOXPELQJ V\VWHP FDQ EH D ZD\ IRU EDFWHULD WR JHW LQWR \RXU ZDWHU

Lead

Voluntary Testing of Lead in Drinking Water

<RX FDQQRW VHH WDVWH RU VPHOO OHDG LQ \RXU GULQNLQJ ZDWHU $V VXFK WHVWLQJ WKH IDFLOLW\·V ZDWHU LV WKH RQO\ VXUH ZD\ WR NQRZ LI WKHUH DUH HOHYDWHG OHYHOV RI OHDG LQ WKH ZDWHU

(3$ GHYHORSHG WKH 7V IRU 5HGXFLQJ /HDG LQ 'ULQNLQJ :DWHU LQ 6FKRROV 5HYLVHG 7HFKQLFDO *XLGDQFH 7UDLQLQJ 7HVWLQJ DQG 7HOOLQJ WR KHOS VFKRROV DQG FKLOG FDUH IDFLOLWLHV LPSOHPHQW VLPSOH VWUDWHJLHV IRU PDQDJLQJ WKH KHDOWK ULVNV RI OHDG LQ GULQNLQJ ZDWHU 7KH 7V LQFOXGH

Lead exposure poses a great risk to young children.

‡Training VFKRRO DQG FKLOG FDUH RIÀFLDOV WR UDLVH DZDUHQHVV RFFXUUHQFHV FDXVHV DQG KHD OHDG LQ GULQNLQJ ZDWHU DVV LGHQWLI\LQJ SRWHQWLDO DUHD OHDG PD\ RFFXU DQG HVWDEOL WR LGHQWLI\ DQG SULRULWL]H V

‡Testing GULQNLQJ ZDWHU LQ WKH I WR LGHQWLI\ SRWHQWLDO SUREO FRUUHFWLYH DFWLRQV DV QHFH

‡Telling VWXGHQWV SDUHQWV VWD larger community about monitoring SURJUDPV SRWHQWLDO ULVNV testing and remediation actions.

7KH 7V IRU 5HGXFLQJ /HDG LQ 'U

‡,GHQWLI\ WKH GULQNLQJ ZDWHU RXWOHWV IDUWKHVW
IURP WKH PDLQ ZDWHU VHUYLFH OLQH 1RWH ,I
\RXU IDFLOLW\ KDV PXOWLSOH ZLQJV WKHUH ZLOO EH
PRUH WKDQ RQH RXWOHW IDUWKHVW IURP WKH PDLQ
VHUYLFH OLQH

‡'HWHUPLQH WKH EHVW RUGHU WR RSHQ DQG ÁXVK
GULQNLQJ ZDWHU RXWOHWV EHJLQQLQJ ZLWK WKH
IDUWKHVW IURP WKH PDLQ VHUYLFH OLQH

‡,GHQWLI\ RSWLRQV IRU FROOHFWLRQ DQG QRQ
SRWDEOH UH XVH RI ÁXVKHG ZDWHU H J SODQW
ZDWHULQJ DQG

‡'HYHORS D V\VWHP IRU DFFRXQWDELOLW\
LQFOXGLQJ LGHQWLI\LQJ RQH SHUVRQ ZKR LV LQ
charge and developing a record keeping
system.

Flush all water outlets used for drinking or food preparation

‡$W WKH VWDUW RI HDFK GD\ EHIRUH XVLQJ DQ\
ZDWHU IRU GULQNLQJ RU FRRNLQJ ÁXVK WKH
FROG ZDWHU ZLWKLQ HDFK RXWOHW ZDWHU WR
UXQ IRU D SHULRG RI WLPH &RQWDFW \RXU
PXQLFLSDO ZDWHU V\VWHP WR ÀQG RXW ZKDW
WKH UHFRPPHQGHG ÁXVKLQJ WLPH LV IRU \RXU
IDFLOLW\ EDVHG RQ \RXU V\VWHP VL]H DQG SLSLQJ
7KLV VKRXOG EH GRQH IRU DOO ZDWHU RXWOHWV
XVHG IRU GULQNLQJ RU IRRG SUHSDUDWLRQ

‡)OXVKLQJ RU RSHQLQJ XS D WDS DQG OHWWLQJ
WKH ZDWHU UXQ UHSODFHV WKH VWDJQDQW ZDWHU
that may have been in contact with lead-
FRQWDLQLQJ SOXPELQJ À[WXUHV RYHUQLJKW
or over the weekend. The longer water is
exposed to lead pipes or solder the greater
WKH OLNHOLKRRG RI OHDG FRQWDPLQDWLRQ

‡)OXVKLQJ WLPHV YDU\ GHSHQGLQJ RQ \RXU
EXLOGLQJV SLSHV DQG RXWOHWV UHIULJHUDWHG
ZDWHU IRXQWDLQV FDQ WDNH DV ORQJ DV
PLQXWHV WR SURSHUO\ ÁXVK RXW WKH UHVHUYRLU

‡,I PDQ\ WDSV QHHG ÁXVKLQJ WKH WDS IDUWKHVW
IURP WKH PDLQ SLSH VKRXOG EH RSHQHG IRU
DSSUR[LPDWHO\ WHQ PLQXWHV WR ÁXVK RXW WKH
PDLQ SLSH 7KHQ LQGLYLGXDO GULQNLQJ ZDWHU
WDSV VKRXOG EH ÁXVKHG WR ULG VWDJQDQW ZDWHU
IURP WKH SLSHV .HHS LQ PLQG WKDW LI \RXU
IDFLOLW\ KDV PRUH WKDQ RQH ZLQJ WKHUH PD\ EH

water line.

Use only cold water to prepare food and drinks

‡+RW ZDWHU GLVVROYHV OHDG P
FROG ZDWHU DQG LV WKHUHIRUH
KDYH JUHDWHU DPRXQWV RI OH

‡,I KRW ZDWHU LV QHHGHG ZDW
GUDZQ IURP WKH FROG WDS DQG

‡8VH RQO\ WKRURXJKO\ ÁXVKHG
FROG ZDWHU WDS IRU GULQNLQJ
PL[HG EDE\ IRUPXOD MXLFHV RU

Clean debris out of all outlet screens or aerators on a regular basis

‡6PDOO VFUHHQV RQ WKH HQG RI
sediments containing

International to remove lead.

‡0DLQWDLQLQJ 328 WUHDWPHQW GHYLFHV LV YHU\ LPSRUWDQW 5HIHU WR WKH PDQXIDFWXUHU·V LQVWUXFWLRQV IRU PDLQWHQDQFH SURFHGXUHV ,I QRW PDLQWDLQHG SURSHUO\ VRPH WUHDWPHQW devices may increase lead and other contaminant levels.

‡,I XVLQJ D 328 GHYLFH \RX VKRXOG GR IROORZ up testing to make sure the water is still below the action level.

‡:LWK WKH XVH RI D 328 GHYLFH D IOXVKLQJ LV not necessary.

‡,I XVLQJ 328 GHYLFHV RQ VRPH IDXFHWV EXW QRW DOO PDNH VXUH WKDW IDXFHWV ZLWK D 328 GHYLFH DUH FOHDUO\ ODEHOHG WKDW WKH\ DUH QRW IRU GULQNLQJ RU FRRNLQJ Z

Communicate with Your Community about the Voluntary Lead Testing Program

,W LV LPSRUWDQW WR FRPPXQLFDWH HDUO\ DQG RIWHQ DERXW \RXU WHVWLQJ SODQV UHVXOWV DQG QH[W VWHSV 7HOOLQJ SDUHQWV DQG VWDII DERXW \RXU YROXQWDU\ lead testing program will demonstrate your proactive commitment to protecting the health RI \RXU VWXGHQWV DQG VWDII DQG EXLOG FRQÀGHQFH LQ \RXU IDFLOLW\·V DELOLW\ WR SURYLGH D VDIH DQG KHDOWK\ HQYLURQPHQW ZKHWKHU RU QRW HOHYDWHG OHDG OHYHOV DUH IRXQG LQ \RXU IDFLOLW\

Additional Considerations

Copper

7HVWLQJ IRU FRSSHU PD\ EH DSS ZDWHU LV VRPHZKDW DFLGLF ZL DQG ZKHQ LW LV GLVLQIHFWHG decreases steadily over time under normal water XVDJH FRQGLWLRQV EXW HOHYD FDQ SHUVLVW IRU PDQ\ \HDUV LQ ,I \RX DUH HISHULHQFLQJ EOXH ZDWHU VLQNV EDWKWXEV RU V LV JURZLQJ EOXH HQFUXVWDWLR DAU \HsLGU D@RI \VC-ZDP QIHFL @FWHG,I \RX DUH H[SHULHQFV

ZDW' RUHs @V ZPLQNV Z@

7KH /HDG DQG &RSSHU 5XOH 4XLFN 5HIHUHQFH *XLGH IRU 6FKRROV DQG &KLOG &DUH)DFLOLWLHV WKDW DUH 5HJXODWHG 8QGHU WKH 6DIH 'ULQNLQJ :DWHU $FW DYDLO-able at: KWWS ZDWHU HSD JRY LQIUDVWUXFWXUH GULQN LQJZDWHU VFKRROV XSORDG B B BVFKRROVB OHDGBVTUJBOFUBVFKRROV SGI

Water Conservation

6FKRROV DQG FKLOG FDUH IDFLOLWLHV XVH ODUJH DPRXQWV RI ZDWHU HYHU\ GD\ IRU KHDWLQJ DQG FRROLQJ V\VWHPV UHVWURRPV GULQNLQJ ZDWHU FRRNLQJ ORFNHU URRPV FDIHWHULDV ODERUDWRULHV DQG RXWGRRU SOD\LQJ ÀHOGV DQG ODZQV 2SWLRQV WR FRQVHUYH ZDWHU IRU WKHVH IDFLOLWLHV LQFOXGH

‡&RQVLGHU UHSODFLQJ ROG HTXLSPHQW VXFK DV dishwashers with energy and water saving GHYLFHV
‡5HSDLU ZDWHU OHDNV DQG OHDN\ WRLOHWV
‡,QVWDOO DHUDWRUV DQG DXWRPDWLF VKXW RII GHYLFHV RQ IDXFHWV
‡8VLQJ ORZ ÁRZ VKRZHU KHDGV DQG WLPHU VKXW RII GHYLFHV WR UHGXFH ZDWHU XVH GXULQJ VKRZHUV
‡,QVWDOOLQJ WLPHUV RQ VSULQNOHUV
‡,QVWDOOLQJ WRLOHW GDPV RQ ROGHU PRGHOV
‡

‡

Resources

3Ts for Reducing Lead in Drinking Water in Schools

3URYLGHV GHWDLOHG JXLGDQFH IRU VFKRROV WKDW UHFHLYH WKHLU GULQNLQJ ZDWHU IURP PXQLFLSDO water supplies regarding training and testing IRU DQG FRPPXQLFDWLQJ DERXW OHDG LQ GULQNLQJ water.

:HEVLWH KWWS ZDWHU HSD JRY LQIUDVWUXFWXUH GULQNLQJZDWHU VFKRROV JXLGDQFH FIP WV

3Ts for Reducing Lead in Drinking Water in Child Care Facilities

3URYLGHV GHWDLOHG JXLGDQFH IRU FKLOG FDUH IDFLOLWLHV WKDW UHFHLYH WKHLU GULQNLQJ ZDWHU IURP municipal water supplies regarding training and WHVWLQJ IRU DQG FRPPXQLFDWLQJ DERXW OHDG LQ drinking water.

:HEVLWH KWWS ZDWHU HSD JRY LQIUDVWUXFWXUH GULQNLQJZDWHU VFKRROV JXLGDQFH FIP WV

EPA's Website on Lead
http://www.epa.gov/lead/

EPA's Website on Lead in Drinking Water
KWWS ZDWHU HSD JRY GULQN LQIR OHDG LQGH[FIP

EPA's Website on Reducing Lead in Drinking Water in Schools and Day Care Centers
KWWS ZDWHU HSD JRY GULQN LQIR OHDG VFKRROVBLQGH[FIP

Centers for Disease Control and Prevention's Website on Lead
http://cdc.gov/lead/

National Lead Information Center Hotline:
/($'

EPA's Safe Drinking Water Hotline:

Are You Providing Safe Drinking Water at Your School or Child Care Facility?
)RU 6FKRROV DQG &KLOG &DUH)
7KHLU 2ZQ 'ULQNLQJ :DWHU 6RXU

Caring for Our Children: National Health and Safety Performance Standards Guidelines for Early Care and Education Programs, 3rd Edition (2011)

Provides national standards that represent the EHVW HYLGHQFH H[SHUWLVH DQ FRXQWU\ RQ TXDOLW\ KHDOWK D DQG SROLFLHV WKDW VKRXOG EH early care and education settings. Chapter 5 FRYHUV GULQNLQJ ZDWHU VDIHW appropriate plumbing.

:HEVLWH http://nrckids.org/CFOC3/index.html

State Drinking Water and Lead Prevention Information Sources

State drinking water programs can describe VWDWH VSHFLÀF UHTXLUHPHQWV DGGLWLRQDO JXLGDQFH PDWHUL FRPSOHWH OLVW RI 6WDWH 'ULQ FRQWDFWV DQG OHDG SUHYHQWL VRXUFHV VHH

Implementing the Lead Public Education Provision of the Lead and Copper Rule for Non Transient, Non Community Water Systems, Appendix C:
http://water.epa.gov/lawsregs/rulesregs/ VGZD OFU XSORDG ,PSOHPHQWLQ 3XEOLF (GXFDWLRQ 3URYLVLRQ &RSSHU 5XOH $ *XLGH IRU 1RQ 7 &RPPXQLW\ :DWHU 6\VWHPV SGI

Implementing the Lead Public Education Provision of the Lead and Copper Rule for Community Water Systems, Appendix C:
http://water.epa.gov/lawsregs/rulesregs/
VGZD OFU XSORDG ,PSOHPHQWLQJ WKH /HDG 3XEOLF (GXFDWLRQ 3URYLVLRQV RI WKH /HDG DQG &RSSHU 5XOH $ *XLGH IRU &RPPXQLW\ :DWHU 6\VWHPV SGI

Backwashing:
7KH SURFHVV RI UHYHUVLQJ WKH EDFN WKURXJK WKH ÀOWHU PHGL entrapped solids.

Bacteria:
0LFURVFRSLF OLYLQJ RUJDQLVPV RI D VLQJOH FHOO %DFWHULD FD

Glossary

Acidic:
7KH FRQGLWLRQ RI ZDWHU RU VRLO ZKLFK FRQWDLQV D VXIÀFLHQW DPRXQW RI DFLGLF VXEVWDQFHV WR ORZHU WKH S+ EHORZ

Action Level:
7KH OHYHO RI OHDG RU FRSSHU ZKLFK LI H[FHHGHG WULJJHUV WUHDWPHQW RU RWKHU UHTXLUHPHQWV WKDW D ZDWHU V\VWHP PXVW IROORZ

Alkalinity:
7KH FDSDFLW\ RI ZDWHU WR QHXWUDOL]H DFLGV 7KLV FDSDFLW\ LV FDXVHG E\ WKH ZDWHU·V FRQWHQW RI FDUERQDWH ELFDUERQDWH K\GUR[LGH DQG RFFDVLRQDOO\ ERUDWH VLOLFDWH DQG SKRVSKDWH $ONDOLQLW\ LV H[SUHVVHG LQ PLOOLJUDPV SHU OLWHU RI HTXLYDOHQW FDOFLXP FDUERQDWH $ONDOLQLW\ LV QRW WKH VDPH DV S+ EHFDXVH ZDWHU GRHV QRW KDYH WR EH VWURQJO\ EDVLF KLJK S+ WR KDYH D KLJK DONDOLQLW\ $ONDOLQLW\ LV D PHDVXUH RI KRZ PXFK DFLG FDQ EH DGGHG WR D OLTXLG ZLWKRXW FDXVLQJ D VLJQLÀFDQW FKDQJH LQ S+

Alloy:
$ VROXWLRQ PDGH RI WZR RU PRUH HOHPHQWV DW OHDVW RQH RI ZKLFK LV D PHWDO

Back ow:
$ UHYHUVH ÁRZ FRQGLWLRQ FUHDWHG E\ D GLIIHUHQFH LQ ZDWHU SUHVVXUHV ZKLFK FDXVHV ZDWHU WR ÁRZ EDFN LQWR WKH GLVWULEXWLRQ SLSHV RI D SRWDEOH ZDWHU VXSSO\ IURP DQ\ VRXUFH RU VRXUFHV RWKHU than an intended source.