

EARLY ADOPTERS

State Approaches to Testing School Drinking Water for Lead in the United States



STATE PROFILE **California**

Summary of Program Features

California initiated a school drinking water lead testing policy in January 2017. This summary is based on a review of program documents collected between January 2018 – June 2018 and communication with California state contacts.

School Drinking Water Testing Policy/Program Overview

Policy/Program Feature	Information from Policy/ Program Documents	Additional Information from Communication with State
<i>Background</i>		
Name	Permit Amendment No. 2017 PA-Schools ^{1,2}	
Date(s) of Water Policy/Program	January 1, 2017 – November 1, 2019 ¹	
Issuing Authority	Other: State Water Resources Control Board ^{1,2}	
Agency Responsible for Program Management	State Water Resources Control Board ¹	
Policy or Program	Policy ¹	
One-time or Surveillance Program	One-time ¹	
Mandatory/Voluntary for Schools	Voluntary ^{1,2}	
Partnership with Local/Community Water Supplier/System	Yes, required ^{1,2}	
Other Key Partnerships	Not specified	
References or Uses the EPA 3Ts	Yes ^{1,2}	
<i>Program Coverage</i>		
School Type (Public, private, charter)	Public ^{1,2} , private and charter schools ¹	
Grade Levels	Kindergarten – grade 12 ^{1,2}	
Includes Testing for Lead	Yes ^{1,2}	
Includes Treatment/Remediation	Not specified	
Schools Eligible to Participate		
All schools	Not applicable	Yes, Kindergarten – grade 12, public and private ^{2,3}
OR (select all that apply)		
Schools of a certain building age	Not specified	No ³
Schools that serve certain ages/ demographics	Not specified	Kindergarten – grade 12 ^{2,3}
Schools that are their own local/ community water supplier	Not specified	No ^{2,3}
Schools that use local/community water supplier	Yes ^{1,2}	
Schools that have not received a waiver	Not specified	
<i>Funding</i>		
Funding Source	Not specified	
Funding Amount	Not specified	
Covers Sampling at Taps	Not specified	
Covers Testing in Lab	Yes (water system pays) ¹	
Covers Treatment/Remediation	Not specified	

Sampling Information

Policy/Program Feature	Information from Policy/Program Documents	Additional Information from Communication with State
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Background

Sampling/Testing Process One-Time or Recurring	One-time ¹	One-time, request by November 1, 2019 ^{1,3}
Number of Buildings/Facilities Sampled (All or a Portion?)	Not specified	
Types of Taps Sampled	Drinking ^{1,2} and cooking ¹	
Number of Taps Sampled Per School/ Building (All or a Portion?)	A portion ^{1,2} (1 to 5 samples from regularly used drinking fountains, cafeteria/food preparation areas or reusable bottle water filling stations) ¹	

Initial Sampling at Taps

Stagnation Period	Not specified	
First Draw	Yes ¹	
Flushing Period	Not specified	
Second Draw (Flushed Sample)	Not specified	
Additional Initial Samples	Not specified	
Sample Size of Water	Not specified	1 L ^{2,3}
Action Level for Lead	15 ppb ¹	

Action Required When Samples Exceed Action Level for Lead

Follow-Up Draws	Yes, if initial results are elevated ¹	
Flushing Period	Not specified	
Sample Size of Water	Not specified	
Additional Draws	Yes, after corrective action ¹	

Testing/Remediation/Communication Information

Policy/Program Feature	Information from Policy/Program Documents	Additional Information from Communication with State
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Testing

Type of Lab Used for Testing	State-certified lab ¹	
Sample(s) that Require Action if Results are Elevated	First draw ¹	

Remediation

Short-Term Measures	Not specified	Yes, EPA-approved measures are listed ^{2,3}
Long -Term Measures	Not specified	Yes, EPA-approved measures are listed ^{2,3}

Communication

Groups Notified of Test Results	Government and general public ¹	State government, general public and parents/guardians ^{1,3}
Type of Results Shared (outlet level, building level, school level)	Not specified	

School Drinking Water Testing Policy/Program Overview

Policy/Program Feature	Information from Policy/ Program Documents	Additional Information from Communication with State
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Background

Name	Assembly Bill 746 ^{2,4}	
Date(s) of Water Policy/Program	October 13, 2017 to July 1, 2019 ⁴	
Issuing Authority	State legislature ^{2,4}	State legislature / State Water Resources Control Board ³
Agency Responsible for Program Management	State Water Resources Control Board ^{2,4}	
Policy or Program	Policy ^{2,4}	
One-time or Surveillance Program	One-time, through July 1, 2019 ^{2,4}	
Mandatory/Voluntary for Schools	Mandatory ^{2,4}	
Partnership with Local/Community Water Supplier/System	Yes, required ^{2,4}	
Other Key Partnerships	Not specified	
References or Uses the EPA 3Ts	Yes ²	

Program Coverage

School Type (Public, private, charter)	Public ^{2,4} and charter schools ⁴	Public and charter schools, mandatory ³
Grade Levels	Pre-Kindergarten – grade 12 ^{2,4}	
Includes Testing for Lead	Yes ^{2,4}	
Includes Treatment/Remediation	Yes ⁴	
Schools Eligible to Participate		
All schools	Not applicable	
OR (select all that apply)		
Schools of a certain building age	Schools built before January 1, 2010 ^{2,4}	
Schools that serve certain ages/demographics	Not specified	Kindergarten – grade 12, pre-Kindergarten on public school property ^{2,3}
Schools that are their own local/community water supplier	Not specified	No ^{2,3}
Schools that use local/community water supplier	Yes ^{2,4}	
Schools that have not received a waiver	Not specified	

Funding

Funding Source	Funding will be provided, but not yet secured ⁴	Not specified ³
Funding Amount	Not specified	Not specified
Covers Sampling at Taps	Not specified	Yes, Public Water System pays ^{2,3}
Covers Testing in Lab	Not specified	Yes, Public Water System pays ^{2,3}
Covers Treatment/Remediation	Yes ⁴	No (school responsible for paying for any corrective actions) ^{2,3}

Sampling Information

Policy/Program Feature	Information from Policy/Program Documents	Additional Information from Communication with State
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Background

Sampling/Testing Process One-Time or Recurring	One-time (by July 1, 2019) ^{2,4}	
Number of Buildings/Facilities Sampled (All or a Portion?)	A portion (those built before January 1, 2010) ^{2,4}	
Types of Taps Sampled	Drinking ^{2,4} and cooking ⁴	
Number of Taps Sampled Per School/Building (All or a Portion?)	Not specified	Up to 25 sample sites ^{2,3}

Initial Sampling at Taps

Stagnation Period	Not specified	None ^{2,3}
First Draw	Yes ⁴	
Flushing Period	Not specified	
Second Draw (Flushed Sample)	Not specified	
Additional Initial Samples	Not specified	Distribution source sample – if there is an action level exceedance ^{3,4}
Sample Size of Water	Not specified	1 L ^{2,3}
Action Level for Lead	15 ppb ⁴	

Action Required When Samples Exceed Action Level for Lead

Follow-Up Draws	Yes, at point of entry if initial results are elevated ⁴	
Flushing Period	Not specified	Yes, time not specified ^{2,3}
Sample Size of Water	Not specified	1 L ^{2,3}
Additional Draws	15 ppb ⁴	

Testing/Remediation/Communication Information

Policy/Program Feature	Information from Policy/Program Documents	Additional Information from Communication with State
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Testing

Type of Lab Used for Testing	Community water system, ² or lab used by community water system ⁴	Labs certified by Environmental Laboratory Accreditation Program (ELAP) ^{2,3}
Sample(s) that Require Action if Results are Elevated	First draw ⁴	

Remediation

Short-Term Measures	Yes, EPA-approved measures are listed ⁴	
Long -Term Measures	Yes, EPA-approved measures are listed ⁴	

Communication

Groups Notified of Test Results	Parents/guardians ⁴	
Type of Results Shared (outlet level, building level, school level)	Not specified	

Sources:

1. California State Water Resources Control Board. Permit Amendment No. 2017PA-Schools; 2017:1-5. <https://calmutuals.org/wp-content/uploads/Permit-Amendment-for-Schools.pdf>. Accessed March 27, 2018.
2. California State Water Resources Control Board. Lead Sampling of Drinking Water in California Schools. Waterboards.CA.Gov. https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadsamplinginschools.html. Accessed March 5, 2018.
3. Email Communication with California State Water Resources Control Board Contact. June 2018.
4. State of California. An Act to Add and Repeal Section 116277 of the Health and Safety Code, Relating to Public Health; 2017. Assembly Bill 746. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB746. Accessed March 1, 2018.

Summary of Water Test Results

This report features the data collected through two California initiatives to test for lead in school drinking water. California's School Drinking Water Lead Testing Program (State Water Resources Control Board Permit Amendment No. 2017 PA-Schools) was initiated on January 1, 2017. Data provided by the state program on April 4, 2018 documented findings from 11,578 drinking water samples that were collected from 2,473 organizations. The state's program is ongoing through November 1, 2019.

California passed an additional policy (Assembly Bill 746) in 2017 that requires testing for lead in drinking water in public and charter schools (grades pre-Kindergarten (PK)-12) that were built before January 1, 2010 and use a community water system. The water test results in this profile are from the Permit Amendment and AB 746 policies. The two policies are not identical, and the Permit Amendment features were used for study analyses. While many states may collect water quality data from a number of organizations, this state profile is focused on water quality testing completed in public schools serving grades PK-12.

Table 1: California School Drinking Water Lead Testing Results Summary

In California, the level of lead found in a drinking water sample that warrants action, or the "action level," is 15 ppb for a water sample of 1L. This summary describes "first draw" samples taken in California School Drinking Water Lead Testing Program. The "first draw" is a sample that is taken from the tap as soon as the water is turned on. Additional "draws" may be taken according to the state's procedures.

In California, data were reported by fixture. Each school reported the date and time of collection, building name, location of fixture, and the result from the draw.

- ◇ In California, three percent (3%) of public schools serving grades PK-12 had one or more draws at or above the state's action level for lead.
- ◇ In California, one percent (1%) of first draw samples tested from public schools serving grades PK-12 had a lead content that was at or above the state's action level for lead.

	All schools providing drinking water quality testing results	Public schools serving grades PK-12 providing drinking water lead testing results*
<i>School-Level Summary</i>		
Number of schools with test result for lead	2,403	2,202
Average (min/max) number of samples taken at each school	4.7 (1, 12)	4.7 (1, 12)
Number (%) of schools with one or more samples at or above the State's "action level"	78 (3%)	64 (3%)
<i>Outlet/Tap-Level Summary</i>		
Number of samples	11,303	10,441
Number (%) of samples at or above the State's "action level"	115 (1%)	96 (1%)

* See table 3 for characterization of schools

Table 1a: California School Drinking Water Lead Testing Program Results Summary *By School Level* among the 2,202 Public Schools Serving Grades PK-12 Providing Drinking Water Lead Testing Results*

	Primary	Middle	High	Middle/High
<i>School-Level Summary</i>				
Number of schools with test result for lead	1,474	337	370	21
Average (min/max) number of samples taken at each school	4.8 (1, 12)	4.7 (1, 12)	4.5 (1, 10)	5.0 (1, 10)
Number (%) of schools with one or more samples at or above the State's "action level"	36 (2%)	13 (4%)	14 (4%)	1 (5%)
<i>Outlet/Tap-Level Summary</i>				
Number of samples	7,076	1,592	1,669	104
Number (%) of samples at or above the State's "action level"	57 (1%)	14 (1%)	23 (1%)	2 (2%)

* See table 3 for characterization of schools

Table 1b: California School Drinking Water Lead Testing Program Results Summary *By Metro Status or Locale* among the 2,202 Public Schools Serving Grades PK-12 Providing Drinking Water Lead Testing Results*

	City	Suburban	Town	Rural
<i>School-Level Summary</i>				
Number of schools with test result for lead	1,005	1,003	91	103
Average (min/max) number of samples taken at each school	4.9 (1, 10)	4.7 (1, 12)	4.3 (1, 7)	4.3 (1, 10)
Number (%) of schools with one or more samples at or above the State's "action level"	23 (2%)	36 (4%)	2 (2%)	3 (3%)
<i>Outlet/Tap-Level Summary</i>				
Number of samples	4,890	4,713	395	443
Number (%) of samples at or above the State's "action level"	33 (1%)	54 (1%)	2 (1%)	7 (2%)

* See table 3 for characterization of schools

Additional Details on Findings from California

School Eligibility for California School Drinking Water Lead Testing Program

Eligible schools according to available program documents:

- ◇ Public schools serving grades Kindergarten – 12
- ◇ Private schools, charter schools
- ◇ Schools that use a community water source

Excluded schools:

- ◇ Schools that are their own community water source

Characteristics of Schools in the California School Drinking Water Lead Testing Program

The National Center for Educational Statistics (NCES) is the primary federal entity for collecting and analyzing educational data in the United States. Each year, the NCES reports a directory of all public schools in the United States and their characteristics in the Common Core of Data.

In order to better understand the characteristics of schools that were being served by the California School Drinking Water Lead Testing Program, we matched demographic data on the schools and students available in the NCES Common Core of Data (2015-2016) school directory to the schools present in the data available from the state's drinking water testing program. We matched these schools using the school and district names and other public data sources.

We identified 2,202 California schools with drinking water lead testing results provided by the California School Drinking Water Lead Testing Program that were also present in the 2015-2016 NCES Common Core of Data. These 2,202 schools represent 92% of the 2,403 schools serving grades PK-12 that had drinking water lead testing results reported in the state program data.



Table 2: Number and Types of Organizations Represented in California School Drinking Water Lead Testing Program Data¹

Type of Organization	Number	Category Definition
Schools Serving Grades PK-12	2,403	Sum of all school types serving grades PK-12
Public schools serving grades PK-12 (including public charter), with identifiable school characteristics	2,202	All public schools with grades PK-12, including public charter schools, with identifying information in the national census of public schools (National Center for Education Statistics (NCES) Common Core of Data, 2015-2016)
Other public schools serving grades PK-12, without identifiable school characteristics	69	All other public schools with grades PK-12, including public charter schools, without identifying information in the national census of public schools (NCES Common Core of Data, 2015-2016)
Non-public schools	131	Private schools
Other schools	1	Schools of unknown type or schools that do not fit into other categories above
Schools Serving Other Grades/Age Groups	46	Sum of all school types serving other grades or age groups
Child care centers	16	Organizations or schools that primarily serve as a child care center (includes preschool)
School-based adult education programs	14	Schools providing adult education programs
Public schools with unknown grades	16	Public schools that have identifying information in the national census of public schools (NCES Common Core of Data 2015-2016) but do not specify the grades that are served
Other organization or facility types	24	Other organization or facility types such as recreation centers, educational administration buildings, afterschool programs
Total number of organizations where data were collected	2,473	Total number of organizations where data were collected as of April 4, 2018

1. California schools with drinking water lead test results provided by the California program were matched to the 2015-2016 NCES Common Core of Data database using school and district names and other information provided by California School Drinking Water Lead Testing Program data or other public data sources (i.e., state school directory, school district websites)

Characteristics of Public Schools in California Serving Grades PK-12

In California

- ◇ All public schools serving grades PK-12 that use a community water source were considered eligible to participate in the state's drinking water testing program for this study.
- ◇ There are 10,104 public schools serving grades PK-12, according to the National Center for Education Statistics Common Core of Data 2015-2016.
- ◇ Of these, 2,202 (22%) schools had lead testing findings that were collected via the California School Drinking Water Lead Testing Program in schools as of April 4, 2018. These 2,202 schools serve 24% of California's PK-12 students.

Table 3: Number and Characteristics of California Public Schools Serving Grades PK-12 (NCES Common Core of Data 2015-16)¹

	Schools Eligible to Participate in the California School Drinking Water Lead Testing Program ¹	Schools with Drinking Water Lead Test Results (January 1, 2017 – April 4, 2018) ^{2,3}
NUMBER OF SCHOOLS²	10,104	2,202 (22%)
<i>School-Level⁴</i>		
Primary	6,363 (63%)	1,474 (67%)
Middle	1,440 (14%)	337 (15%)
High	2,161 (21%)	370 (17%)
Middle/High	140 (1%)	21 (1%)
<i>Metro Status/Locale⁴</i>		
City	4,035 (40%)	1,005 (46%)
Suburban	4,025 (40%)	1,003 (46%)
Town	859 (9%)	91 (4%)
Rural	1,185 (12%)	103 (5%)
NUMBER OF STUDENTS IN GRADES PK-12	6,178,734	1,513,439 (24%)
<i>Number (%) of students eligible for free or reduced price meals</i>	3,646,106 (59%)	790,169 (52%)
<i>Number (%) students by race and ethnicity⁴</i>		
White	1,483,811 (24%)	420,754 (28%)
Black	356,015 (6%)	92,305 (6%)
Asian	704,226 (11%)	232,053 (15%)
Hispanic	3,342,394 (54%)	677,305 (45%)
Hawaii Native/Pacific Islander	30,224 (<1%)	9,568 (1%)
American Indian/Alaska Native	34,357 (1%)	7,558 (<1%)
Two or More Races	227,707 (4%)	73,896 (5%)

1. Public schools and their characteristics were identified using the National Center for Education Statistics Common Core of Data 2015-2016, Public Elementary/Secondary School Universe Survey Data, downloaded March 22, 2018 from <https://nces.ed.gov/ccd/pubschuniv.asp>.
2. Only schools identified in the 2015-2016 NCES Common Core of Data database are included here.
3. California schools with drinking water lead test results provided by the California program were matched to the 2015-2016 NCES Common Core of Data database using school and district names and other information provided by California School Drinking Water Lead Testing Program data or other public data sources (i.e., state school directory, school district websites).
4. Percentages may not add up to exactly 100% due to rounding.

Citation:

Cradock AL, Poole MK, Vollmer LY, Barrett JL, Flax C, Hecht CA. State Approaches to Testing School Drinking Water for Lead in the United States [State Profile: California]. Boston, MA: Harvard Prevention Research Center on Nutrition and Physical Activity at the Harvard T.H. Chan School of Public Health; 2019. Available at <https://www.hsph.harvard.edu/prc/projects/school-research/early-adopters>. Address correspondence to Angie Cradock, ScD, MPE at acradock@hsph.harvard.edu.

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