Drinking Water in California Schools: An Assessment of the Problems, Obstacles, and Possible Solutions

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In the last several years, hundreds of schools across California have been forced to restrict students' access to drinking water due to lead, nitrate, arsenic, and other serious contaminants. News reports and water quality databases indicate that problems are especially significant in schools in low-income communities of color—where many children already face water quality contamination at home, in public spaces, and in places of worship. It is uncertain exactly how many schools have shut off fountains or are unknowingly allowing students to drink contaminated water because many schools do not test their water. This Note examines the current regulatory landscape governing school water monitoring, contamination notice dissemination, and water quality remediation. Given the regulatory gaps, it also identifies additional tools advocates can use to secure clean water, including complaint procedures and funding processes won through the Williams v. California *settlement. The Note's purpose is to serve as a resource for drinking water advocates across the state as school infrastructure ages and districts struggle to maintain existing water fountains.*

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Most of the time, the water fountains don't work. They are clogged and rusty. We have had problems with the water fountains for the past two years and nothing is being done about it. In July of 1999, the water fountains at school became contaminated . . . . We could not drink out of the water fountains. The school gave each class only a gallon of water a day to be shared by thirty people. I was only able to get one cup of water the whole day. Some people got none. This went on for a week. Last summer, the water in the drinking fountains, particularly in the P.E. field, was brown. I told the principal but he told me not to worry about it. The water was still dirty the next day.

- Lizette Ruiz, eleventh grader at Huntington Park High School in Los Angeles[1]

Cómo puedes esperar un día más para mejorar el agua cuando la salud de mis hijos están en riesgo? [How can you wait even one more day to improve the quality of the water when my children's health is at risk?]

- Parent at Huron Elementary in Fresno County[2]

I. Introduction

In 2009, the Associated Press investigated the number of water safety violations at schools across the country to discover that "over the last decade, the drinking water at thousands of schools . . . contain[s] unsafe levels of lead, pesticides and dozens of other toxins."[3] In the most sobering part of the report, the Associated Press stated that while water contaminants are especially dangerous to children—who drink more water than adults for their body size and are more susceptible to the effects of many hazardous substances—the Environmental Protection Agency (EPA) "does not have the authority to require testing for all schools and can only provide guidance on environmental practices." The water at these schools is not always tested and, when it is, may not be tested at the tap. Without more robust monitoring in place, it is impossible to know if contaminants are entering the water supply from surrounding activities or leaching into the water from a school's aging plumbing system.[4] Surveys of drinking water at

[1] Ruiz Decl. ¶ 11, Jan. 28, 2001, http://decentschools.org/declarations/decl-0072.pdf.

[2] Michelle N. Rodriguez & Angelica K. Jongco, Williams v. California*: Hope and Confidence for Students and Parents*, RACE, POVERTY, & THE ENV'T, Fall 2007, at 13.

[3] Associated Press, *Drinking water unsafe at thousands of schools*, NBCNEWS.COM (Sept. 25, 2009, 8:29:01 AM), http://www.nbcnews.com/id/33008932/ns/health-childrens_health/t/drinking-water-unsafe-thousands-schools/#.VYd_9xNViko.

[4] School drinking water in at least thirty-eight states and the District of Columbia have been affected by lead

schools in California reveal a similarly grave account of the safety and appeal of school drinking water statewide.[5] Some schools have sealed pipes and blocked access to drinking fountains because contamination has gotten so bad.[6] Limited funding and other maintenance priorities have led several districts to purchase bottled water for students rather than fix well or plumbing issues.[7]

This note provides an overview of drinking water issues at schools across California (Part II), an examination of the current water quality standards (Part III), monitoring requirements (Part IV), and reporting and notification requirements (Part V), and a discussion of traditional and emerging opportunities to address contamination and access issues (Part VI). I wrote the note with two main goals in mind: to serve as a resource for drinking water advocates across the state, and to identify opportunities to remedy some of the inadequacies in the current school water regulation landscape.

II. Overview of Drinking Water in California Schools

Four California surveys—one conducted in 1990s, one in 2009, and two in 2011—provide some insight into the availability, safety, and appeal of school drinking water statewide. The 1990s survey examined the extent of lead contamination in drinking water across 200 representative schools.[8] Based on the sampling, the California Department of Health Services estimated that over eighteen percent of California schools may have lead in drinking water at

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and researchers say there is no reason to believe that lead problems do not exist in other states where cases have not yet been documented. Lambrinidou et al., *Failing our children: lead in U.S. school drinking water*, 20 NEW SOLUTIONS 25, 28, 34 (2010); US EPA, 3TS FOR REDUCING LEAD IN DRINKING WATER IN SCHOOLS: REVISED TECHNICAL GUIDANCE 6 (Oct. 2006), http://www.epa.gov/ogwdw/schools/pdfs/lead/toolkit_leadschools_guide_3ts_ leadschools.pdf.

[5] *See infra* notes 8-16 and accompanying text.

[6] *See, e.g.*, *infra* note 117 and accompanying text.

[7] *See, e.g.*, *infra* note 186 and accompanying text.

[8] CAL. DEP'T OF HEALTH SERVICES, LEAD HAZARDS IN CALIFORNIA'S PUBLIC ELEMENTARY SCHOOLS AND CHILD CARE FACILITIES: REPORT TO THE CALIFORNIA STATE LEGISLATURE 25 (Apr. 15, 1988), http://files.eric.ed.gov/fulltext/ED462820.pdf.

unsafe levels, and over ten percent of schools may have unsafe lead concentrations even when faucets are used (or flushed) within twenty-four hours of testing.[9] There have not been any studies since the 1998 survey attempting to quantify the scale of contamination across schools, but more recent studies have utilized surveys to estimate drinking water availability and understand the barriers to improvement.

The 2009 survey found that only about a quarter of school administrators reported having a policy on the availability of drinking water.[10] Approximately forty percent of responding school districts reported that none of the school cafeterias in their district provided students with access to free drinking water during school meals.[11] An additional fifteen percent reported that "less than half of schools in their district provided access to water."[12]

In one 2011 survey, researchers found that, of 240 respondent schools, all offered water in at least one location, but none provided "excellent drinking water access;"[13] only sixty percent thought that the tap water offered at their school was safe and appealing;[14] and twenty-five percent classified the drinking water quality at their school as "poor"—citing contamination, warm temperature, or bad taste.[15] In the second 2011 survey, respondents reported that approximately one in four middle and high school students attended a school where water-

[9] CAL. DEP'T OF HEALTH SERVICES, LEAD HAZARDS IN CALIFORNIA'S PUBLIC ELEMENTARY SCHOOLS AND CHILD CARE FACILITIES: REPORT TO THE CALIFORNIA STATE LEGISLATURE 46 (Apr. 15, 1988), http://files.eric.ed.gov/fulltext/ED462820.pdf.

[10] Kumar Chandran, *Improving Water Consumption in Schools: Challenges, Promising Practices, and Next Steps* 5 (2009), http://waterinschools.org/pdfs/WaterInSchools_FullReport_2009.pdf.

[11] *Id.*

[12] *Id.*

[13] "Excellent free water drinking access" was measured according to whether the school: 1) provided water in at least four of five key locations (e.g., food service area, classroom, gym, outdoor exercise area) where students learn, eat, and are active, 2) had a high density of free water (i.e., ± 1 fountain for every twenty-five students), 3) provided water via a non-fountain source to encourage increased water intake (e.g., pitcher, water dispenser, hydration station), 4) provided tap water that is safe and appealing (i.e., palatable, safe to drink, cold), and 5) maintained drinking fountains (i.e., fully functional and clean). Patel et al., *Tapping Into Water: Key Considerations for Achieving Excellence in School Drinking Water Access*, 104 AM. J. OF PUB. HEALTH 1314, 1316 (2014).

[14] *Id.*

[15] *Id.* at 1317.

quality issues affect drinking fountains.[16] As of 2015 it is estimated that over 2,000 of California's 9,846 schools[17] do not provide free, fresh drinking water to school children at mealtimes, and more than 500 California schools do not provide safe drinking water at all due to recurring safe drinking water compliance violations.[18]

A. Public Water System Classification

Schools throughout California get their water from public water systems that can be classified as either a community water system or a non-transient, non-community water system. Community water systems (also known as a public water suppliers) include water utilities, water districts, and municipalities, while non-transient, non-community water systems (also known as an on-site water systems) are usually wells.[19] Most school districts—about eighty percent—get their drinking water from a community source.[20] Rural school districts are more likely to be

[16] Hood et al., *Availability of drinking water in US public school cafeterias*, 114 J. OF THE ACAD. OF NUTRITION & DIETETICS 1389, 1389 (2014). *See also* NORTHCOAST NUTRITION AND FITNESS COLLABORATIVE, WATER WOES 3, http://www.waterinschools.org/pdfs/waterwoes.pdf (reporting on a 2010 assessment of school fountains in the North Coast of California that found that on 33% of 131 fountains were dirty or uninviting, 50% had water with an unappealing taste, 25% percent had inadequate water pressure, 70% of students felt the water fountains looked and tasted "gross" or "sick," and 25% of students said they avoid water fountains because "they're dirty, broken or the water tastes bad").

[17] Estimates of the number of schools on community and non-community systems water vary. The Water Resources Control Board estimates that there are over 13,000 schools, with about 420 on their own well. STATE WATER RES. CONTROL BD., COMMUNITIES THAT RELY ON A CONTAMINATED GROUNDWATER SOURCE FOR DRINKING WATER: REPORT TO THE LEGISLATURE 9 (Jan. 2013) http://www.waterboards.ca.gov/gama/ab2222/docs/ab2222.pdf [hereinafter CONTAMINATED GROUNDWATER SOURCE]. The California Department of Education reports that there are 11,566 public and charter schools across the state. *Fingertip Facts on Education in California*, CAL. DEP'T EDUC. (Sept. 21, 2015), http://www.cde.ca.gov/ds/sd/cb/ceffingertipfacts.asp.

[18] Elizabeth Zach, *Agua4All – Providing access to safe drinking water*, RURAL CMTY. ASSISTANCE P'SHIP (Mar. 26, 2015), http://www.rcap.org/node/1581.

[19] NAT'L CENTER FOR CHRONIC DISEASE PREVENTION & HEALTH PROMOTION, INCREASING ACCESS TO DRINKING WATER IN SCHOOLS 14 (2007), http://www.cdc.gov/healthyyouth/npao/pdf/Water_Access_in_Schools.pdf; LAUREL FIRESTONE, COMMUNITY WATER CENTER: GUIDE TO COMMUNITY DRINKING WATER ADVOCACY 6 (2009) (explaining that community water systems are those that serve more than twenty-five residents or fifteen residential units year-round, and non-transient, non-community water systems are those that serving at least twenty-five people who use the water for non-residential purposes for more than six months of the year).

[20] NAT'L CENTER, *supra* note 19, at 14.

served by small community water systems or non-community water systems.[21] These districts are more likely to confront contamination issues as they cannot respond as quickly when contaminants are found, and often rely on shallow wells that can become unusable when drought strikes, water levels decrease, and pollutants become more concentrated.[22] In fact, between 1998-2008 there were at least 612 Safe Drinking Water Act violations at schools served by non-transient, non-community water systems in California, and nearly half of the schools that violated the Act did so more than once.[23]

B. School Drinking Water as an Environmental Justice Issue

While there have not been any studies investigating income or racial disparities in water infrastructure or drinking water quality in California, the State Water Resources Control Board (SWRCB) acknowledges that "a large number of disadvantaged communities" lack access to safe drinking water.[24] There are many case reports that illustrate the increasingly serious water quality problems at schools in low income and minority communities in urban areas and the Central Valley.[25] For example, communities in Maywood and Huron, California, which are

[21] CONTAMINATED GROUNDWATER SOURCE, *supra* note 17, at 14; STATE WATER RESOURCES CONTROL BOARD, SAFE DRINKING WATER PLAN FOR CALIFORNIA: REPORT TO THE LEGISLATURE IN COMPLIANCE WITH HEALTH & SAFETY CODE SECTION 116365 15 (2015), http://www.waterboards.ca.gov/publications_forms/publications/legislative/docs/2015/sdwp.pdf [hereinafter SECTION 116365 REPORT].

[22] *See, e.g.*, Karla Scoon Reid, *In drought's firm grip, California schools try to cope*, EDSOURCE (June 28, 2015), http://edsource.org/2015/in-droughts-firm-grip-california-schools-try-to-cope/82131 (describing the situation at Orosi High School, where water was shut off last fall after tests showed unacceptable nitrate levels); Zoe Meyers, *How the California drought exacerbates water contamination*, HIGH COUNTRY NEWS (July 13, 2015), http://www.hcn.org/articles/california-drought-east-orosi-central-valley-video-water; *Small Water Systems*, WATER EDUC. FOUND., http://www.watereducation.org/post/small-water-systems (describing the problem in small community water systems).

[23] Associated Press, *supra* note 3.

[24] SECTION 116365 REPORT, *supra* note 18, at 1, 174.

[25] James VanDerslice, Drinking Water Infrastructure and Environmental Disparities: Evidence and Methodological Considerations, 101 AM. J. OF PUB. HEALTH S109, S109 (2011).

ninety-six percent and ninety-eight percent Latino, have ongoing school water contamination problems from volatile organic compounds and lead and trihalomethane, respectively.[26]

Problems are especially pronounced in California's Central Valley. Signs of the drought are everywhere and schools are no exception. In the Tulare Basin, groundwater levels have dropped by five hundred feet,[27] causing Pleasant View School District Supervisor Odsather to spend much of his time last spring and summer overseeing the drilling of a new well to replace a rapidly drying fifty-year-old well.[28] The new well cost over $160,000, forcing the district to dip into reserve funds and taking money and staff time away from developing much needed individualized instruction plans—in the Pleasant View District one hundred percent of children qualify for free- and reduced-priced lunch, and seventy percent are English Language Learners. As the groundwater levels in the region have fallen, so too have the rates of student enrollment. Enrollment rates in rural schools throughout the Valley have declined precipitously as work for migrant farmworkers has dried up. Over half the migrant student population has left the Pleasant View School District in just three years.[29] Much of California's education funding hinges on average daily attendance so, as students move away, districts can expect to see their aid for maintenance and other necessities fall.[30]

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[26] THE ENVT'L JUSTICE COALITION FOR WATER, THIRSTY FOR JUSTICE: A PEOPLE'S BLUEPRINT FOR CALIFORNIA WATER, 12-13 (2005) (describing the situation in Maywood); FIRESTONE, *supra* note 19, at 32-33 (2009) (describing the situation in Huron).

[27] Lisa Krieger, *California Drought: San Joaquin Valley Sinking as farmers race to tap aquifer*, SAN JOSE MERCURY NEWS (Aug. 2015), http://www.mercurynews.com/drought/ci_25447586/california-drought-san-joaquin-valley-sinking-farmers-race.

[28] Mareesa Nicosia, *The Forgotten Students of California's Drought*, THE ATLANTIC (Sept. 10, 2015), http://www.theatlantic.com/education/archive/2015/09/the-students-of-the-california-drought/404572/.

[29] In other parts of the Valley, Westside Elementary School District in Fresno County has seen a 14% drop in enrollment in four years, leaving just 230 students, and the Firebaugh-Las Deltas Unified district has lost 120 students in two years. *Id.*

[30] These shrinking districts may get some relief from a March 2014 action by the State Superintendent of Public Instruction, which added drought to the list of emergency conditions under which districts can apply for a waiver to maintain aid levels. *See* California Department of Education, State Schools Chief to Protect Funding Levels for Schools Seeing Drop in Attendance Because of Drought Emergency (Mar. 19, 2014), http://www.cde.ca.gov/nr/ne/

The Pleasant View School District is not alone in its struggle to secure clean water. When low-income and people-of-color communities face contamination problems, it takes officials longer to acknowledge and respond to them.[31] Schools in these communities are at a special disadvantage because they are likely also dealing with other educational access issues[32] and lack the ability secure funding from a wealthy tax base.[33]

C. Emerging Trends in the Movement to Secure Safe Drinking Water in School

Without adequate funding or monitoring and enforcement tools, advocates are turning to tools won through civil rights litigation, including the facilities complaint procedures established through the *Eliezer Williams, et al., vs. State of California, et al.* (*Williams*) settlement, to address safety concerns.

Additional support for clean school water has grown out of the burgeoning nutrition movement.[34] Drinking water advocates have begun to focus not just on removing chemical pollutants to protect children against disease, but also on encouraging water intake to meet health and nutritional goals. Water consumption is associated with a number of health benefits, including obesity prevention,[35] reduction in dental caries, and improved cognitive functioning.[36]

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yr14/yr14rel28.asp. However, only one district has applied for a waiver so far, and most district superintendents do not know about this opportunity. Nicosia, *supra* note 28.

[31] The ongoing crisis in Flint, Michigan is only the latest tragic example of the government's failure to respond to the concerns of environmental justice communities. Zoë Carpenter, *How the EPA Has Failed to Challenge Environmental Racism in Flint—and Beyond*, THE NATION (Jan. 28, 2016), http://www.thenation.com/article/how-the-epa-has-failed-to-challenge-environmental-racism-in-flint-and-beyond/; *see also* Amy Vanderwarker, *Water and Environmental Justice*, *in* A TWENTY-FIRST CENTURY U.S. WATER POLICY 52, 52-60 (Juliet Christian-Smith and Peter Gleick ed., 2012).

[32] *See infra* notes 152-153 and accompanying text.

[33] *See* ERIC J. BRUNNER, INST. FOR RESEARCH ON EDUC. POLICY & PRACTICE, FINANCING SCHOOL FACILITIES IN CALIFORNIA 3, http://www.mikemcmahon.info/financefacilities.pdf; WATER EDUC. FOUND., *supra* note 22.

[34] *See, e.g.*, Maya Rhodan, *Michelle Obama's Pro-Water (Soda Silent) Campaign Makes Waves*, TIME MAGAZINE (July 23, 2014), http://time.com/3020500/michelle-obamas-soda-water-health-junk-food/

[35] Anisha I. Patel & Karla E. Hampton, *Encouraging Consumption of Water in School and Child Care Settings: Access, Challenges, and Strategies for Improvement*, 101 AM. J. OF PUB. HEALTH 1370 (2011) (discussing the chronic diseases associated with consumption of sugar-sweetened beverages and noting an Institute of Medicine

Children spend the majority of their day at school, so improving water accessibility can influence children's water intake.[37] Furthermore, with the national shift away from sugar-sweetened beverages in schools,[38] bottled water is increasingly available for purchase. Advocates are beginning to recognize that when schools fail to provide clean potable water in addition to bottled water, they support an environmentally unfriendly industry,[39] and they may make it difficult for low-income students to access water throughout the day.[40] In fact, it may be necessary to go beyond basic safety requirements to increase the attractiveness of water fountains—for example, by providing chilled water and ensuring that water tastes good and is not discolored—in order to encourage consumption by children with fewer resources and a cultivated aversion to tap water.[41]

Study that found that drinking water only accounts for thirty-three percent of the average adolescent's water intake, while the rest comes from beverages with excess calories).

[36] Patel et al., *supra* note 13, at 1314 (discussing the negative effects of dehydration on memory, reasoning, concentration, perception, language skills, and coordination, and noting a 2009 study indicating that sixty percent of students studied in Los Angeles and New York were dehydrated at the start of the school day); NORTHCOAST NUTRITION AND FITNESS COLLABORATIVE, *supra* note 16, at 2 (quoting Ann Lindsay, the Health Officer of Humboldt County: "A student who won't use a school drinking fountain in poor condition and who cannot afford to buy bottled water is definitely at risk of more serious dehydration").

[37] *See, e.g.*, NORTHCOAST NUTRITION AND FITNESS COLLABORATIVE, *supra* note 16, at 4 (discussing a pilot intervention in six classrooms in the Ukiah Unified School District that indicates that students increase their water consumption when water is "appealing, available and thought to be beneficial").

[38] LEVI ET AL., F AS IN FAT: HOW OBESITY THREATENS AMERICA'S FUTURE 31, 41-42 (2010), http://healthyamericans.org/reports/obesity2010/Obesity2010Report.pdf.

[39] Producing bottled water takes up to 2,000 times the amount of energy needed to produce tap water. PH Gleick & HS Cooley, *Energy implications of bottled water*, 4 ENVTL. RES. LETTERS 6 (2009). Even a study commissioned by Nestlé Waters North America found that bottled water has a higher carbon footprint than tap water. FOOD & WATER WATCH, TEACHING THE TAP: WHY AMERICA'S SCHOOLS NEED FUNDING FOR WATER 4 (Oct. 2010), http://waterinschools.org/pdfs/TeachingTapFWW.pdf. The industry also wastes water and produces mountains of plastic waste: seventy-five percent of plastic bottles end up in landfills. *Id.*

[40] Gena L. Napier & Charles M. Kodner, *Health risks and benefits of bottled water*, 35 PRIMARY CARE 789, 802 (2008).

[41] Children from minority, low-education, and immigrant backgrounds are least likely to drink tap water, and only one in three Mexican-American youth in the U.S. drink tap water. Researchers speculate that these racial and ethnic disparities in water consumption may "support[] the hypothesis that immigrants . . . perceive water in the U.S. as unsafe due to contaminants in their 'home' country water supply." Or, the preference for bottled water may stem from poor water quality in their current communities, as minority populations may be more likely to live in older homes with private well water that is discolored, foul-tasting, or contaminated. *See* Patel et al., *Sociodemographic Characteristics and Beverage Intake of Children Who Drink Tap Water*, 45 AM. J. OF PUB. HEALTH 75, 77 (2013); Laura Bliss, *In California's Poorest Towns, Tap Water's Legacy is Toxic for Latinos*, CITYLAB (Jan. 14, 2015),

III. Contaminants of Concern and Drinking Water Standards

Every public drinking water system must comply with the federal and state Safe Drinking Water Acts.[42] The federal Safe Drinking Water Act sets minimum standards, and California's state Safe Drinking Water Act includes some standards that are even more stringent than the federal law.[43] California regulates four major categories of contaminants: primary contaminants; secondary contaminants; treatment additives, byproducts, and residuals; and "unregulated" contaminants that are listed and monitored only to determine whether they may be present in drinking water.[44] The contaminants most likely to be found in school drinking water fall in the first two categories, they are: primary contaminants arsenic, nitrate, lead, copper, and total coliform, and secondary contaminants manganese and iron.[45] This Note focuses on these more prevalent contaminants, but advocates should be aware that other chemicals can foul a public water system's groundwater source and put school water at risk.[46] Common naturally occurring

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http://www.citylab.com/cityfixer/2015/01/in-californias-poorest-towns-tap-waters-legacy-is-toxic-for-latinos/384482/.

[42] 42 U.S.C. § 300g (West 2016).

[43] 42 U.S.C. § 300g-2 (West 2016); CAL. HEALTH & SAFETY CODE §116470(f) (West 2015); STATE WATER RES. CONTROL BD., MAXIMUM CONTAMINANT LEVELS AND REGULATORY DATES FOR DRINKING WATER U.S. EPA VS. CALIFORNIA (July 2014) http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/dwdocuments/MCLsEPAvsDWP-2014-07-01.pdf (outlining how maximum contaminant levels differ under the federal and state acts).

[44] FIRESTONE, *supra* note 19, at 41, 43.

[45] Telephone Interview with Laurel Firestone, Executive Director, Community Water Center (June 17, 2015). Drinking water projects at schools funded through the State Drinking Water State Revolving Fund and Proposition 84 provide some insight into which contaminants are causing the most issues. CAL. DEP'T OF PUB. HEALTH, PROPOSITION 84, SECTION 75021 - PART 1 EMERGENCY ACTIVE PROJECTS LIST (June 16, 2014) http://www.waterboards.ca.gov/drinking_water/services/funding/documents/prop84/section%2075021/P84%2075021%20Part%201%20Emergency%20-%20Active%20Projects%20List%20-%202014-06-16.pdf; CAL. DEP'T OF PUB. HEALTH, PROPOSITION 84, SECTION 75022 - FIRST, SECOND, AND THIRD ROUND ACTIVE PROJECTS LIST (Mar. 12, 2014) http://www.waterboards.ca.gov/drinking_water/services/funding/documents/prop84/P84%2075022%20Active%20Projects%20List%203-12-14.pdf; STATE WATER RES. CONTROL BD., SAFE DRINKING WATER STATE REVOLVING (SDWSRF) ANNUAL SDWSRF REPORT FOR FISCAL YEAR 2013-2014 Appendix B (Mar. 5, 2015) http://www.waterboards.ca.gov/drinking_water/services/funding/documents/annualrpts/dwsrf_annual_report_sfy1314.pdf.

[46] CONTAMINATED GROUNDWATER SOURCE, *supra* note 17, at 17.

contaminants include uranium, gross alpha, and fluoride.[47] Common anthropogenic contaminants include 1,2-dibromo-3-chloropropane (DBCP), a legacy pesticide that is widespread in agricultural areas;[48] perchlorate, an emerging contaminant of concern in areas with heavy industrial and military activity;[49] and trihalomethanes and haloacetic acids, which are disinfection byproducts.[50]

A. Arsenic and Nitrate

Arsenic and nitrate are the two most common chemicals that contaminate school water supply at the source, before water reaches school pipes.[51] Arsenic occurs naturally and as a result of agricultural and industrial activities,[52] and it is especially prevalent in California's Central Valley.[53] Long-term exposure to high arsenic concentrations may lead to a variety of cancers, and has been associated with diabetes, cardiovascular disease, neurotoxicity,

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[47] *Id.*

[48] *Id.*

[49] FIRESTONE, *supra* note 19, at 51-52. Due to resistance from industry groups and the military, the federal government has been slow to regulate perchlorate and there is no final maximum contaminant level (MCL) under federal law. *Perchlorate*, US EPA (Sept. 26, 2012), http://water.epa.gov/drink/contaminants/unregulated/perchlorate.cfm. California set its MCL to 0.006 mg/L. CAL. CODE REGS. tit. 22, § 64432(d), Table 64432-A (West 2015) More perchlorate violations may be on the horizon, as the Office of Environmental Health Hazard Assessment recently lowered its public health goal from 0.006 mg/L to 0.001 mg/L in response to emerging scientific evidence that current perchlorate limits are not stringent enough. Jim Steinberg, *California lowers health goal for perchlorate*, SAN BERNARDINO SUN (Feb. 27, 2015), http://www.sbsun.com/environment-and-nature/20150227/california-lowers-health-goal-for-perchlorate. The public health goal is the level of contamination that is considered safe if it is ingested at that level throughout someone's life. These goals are then used to set MCLs, which also take technological feasibility and cost into account. FIRESTONE, *supra* note 19, at 130. The SWRCB will decide whether to amend the MCL in early 2016. Jim Steinberg, *California lowers health goal for perchlorate*, SAN BERNARDINO SUN (Feb. 27, 2015), http://www.sbsun.com/environment-and-nature/20150227/california-lowers-health-goal-for-perchlorate.

[50] Renee Sharp, *Water Treatment Contaminants: Forgotten Toxics in American Water*, ENVTL. WORKING GROUP (Feb. 27, 2013), http://www.ewg.org/research/water-treatment-contaminants.

[51] CONTAMINATED GROUNDWATER SOURCE, *supra* note 17, at 17.

[52] *Basic Information about the Arsenic Rule*, US EPA (Mar. 6, 2012), http://water.epa.gov/lawsregs/rulesregs/sdwa/arsenic/Basic-Information.cfm#one.

[53] *See* Alice Daniel, *Partnership Brings Clean Drinking Water to Central Valley Schools, Programs*, CALIFORNIA HEALHLINE (Nov. 14, 2013), http://www.californiahealthline.org/insight/2013/partnership-brings-clean-drinking-water-to-central-valley-schools-head-start-programs?view=print (describing arsenic contamination in south Kern County and the partnership to install water filters at kitchen sinks, playground fountains, and classrooms in five Head Start Centers and four public schools); *Arsenic in Groundwater in the United* States, UNITED STATES GEOLOGICAL SURVEY (Nov. 17, 2011), http://water.usgs.gov/nawqa/trace/arsenic/ (mapping the areas with the highest arsenic levels in groundwater).

developmental effects, and reproductive problems.[54] Short-term exposure can induce nausea and vomiting, muscle weakness, respiratory infections, and skin rashes.[55]

Rising nitrate levels are an increasing problem in rural, agricultural communities, where excessive use of fertilizers and facilities with animal waste runoff are common.[56] This is especially true in schools that are served by shallow wells where contaminants can become more concentrated as the well resource is depleted.[57] Short-term exposure to high nitrate levels may cause children to become nauseous and vomit, and long-term exposure can lead to diuresis, hypotension, and potentially cancer.[58]

Arsenic and nitrate are regulated with reference to maximum contaminant levels (MCLs) and detection limits for purposes of reporting.[59] MCLs can be thought of as a threshold; if a contaminant is detected at or above this level, the public water system is in violation of the Safe Drinking Water Act. Detection limits for purposes of reporting are the lowest levels at which a contaminant can be reliably detected by a machine. If a water provider detects a contaminant at or above this level, the provider must report the results to the SWRCB.[60]

B. Lead, Copper, and Total Coliform

Lead, copper, and total coliform usually enter drinking water through school distribution

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[54] *Arsenic in Drinking Water*, NATURAL RESOURCES DEF. COUNCIL (Feb. 12, 2009), http://www.nrdc.org/water/drinking/qarsenic.asp; Meliker et al., *Arsenic in drinking water and cerebrovascular disease, diabetes mellitus, and kidney disease in Michigan*, 5 ENVTL. HEALTH 4 (2007).

[55] Deborah Blum, *The Arsenic in Our Drinking Water*, N.Y. TIMES BLOG (Sept. 20, 2013), http://well.blogs.nytimes.com/2013/09/20/the-arsenic-in-our-drinking-water/?_r=1; *Arsenic*, AM. CANCER SOC. (July 9, 2014), http://www.cancer.org/cancer/cancercauses/othercarcinogens/intheworkplace/arsenic.

[56] *See* THOMAS HARTER & JAY LUND, ADDRESSING NITRATE IN CALIFORNIA'S DRINKING WATER 5 (March 2012) http://groundwaternitrate.ucdavis.edu/files/138956.pdf; Julia Scott, *Nitrate contamination spreading in California communities*, CAL. WATCH (May 13, 2010), http://californiawatch.org/nitrate-contamination-spreading-california-communities

[57] Nathaniel Browning, *Lead, arsenic, nitrates, OH MY!*, CAL. SCH. BDS. ASSOC. BLOG, (Oct. 22), http://blog.csba.org/lead-arsenic-nitrates-oh-my/.

[58] FIRESTONE, *supra* note 19, at 141.

[59] CAL. CODE REGS. tit. 22, § 64431-32 (West 2015); *see* Appendix A.

[60] CAL. CODE REGS. tit. 22, § 64400.34 (West 2015); CAL. HEALTH & SAFETY CODE §116470 (West 2015)

systems rather than at the water source. Lead is often found in drinking water at older schools built before lead plumbing and fixtures were banned.[61] Corrosion of lead pipes or the leaded solder that holds pipes together increases lead levels in drinking water.[62] Lead can cause a number of adverse health effects even after short periods of exposure, including: interference with red blood cells, lowered IQ, learning disabilities, attention and behavioral problems, impaired growth, and hearing loss.[63] Children are more susceptible to these effects because their bodies and brains are still developing. Copper is also found in older plumbing materials. Long-term exposure to copper may lead to liver or kidney damage, and short-term exposure may cause gastrointestinal distress.[64]

Because lead and copper contamination usually occurs as water moves through the distribution system, these chemicals are regulated at the tap rather than the source. In addition, there are no MCLs for lead and copper.[65] Instead, if concentrations rise above the applicable

[61] Barrett Newkirk, *Don't Drink the Water: Lead Found in California Schools*, DESERT SUN (Mar. 16, 2016), http://www.desertsun.com/story/news/health/2016/03/16/ california-lead-water-schools/81343492/. In 1986 Congress amended the Safe Drinking Water Act to ban pipes and solder with high lead levels. Press Release, Envtl. Prot. Agency, *President Signs Safe Drinking Water Act Amendments*, (June 20, 1986), http://www.epa.gov/aboutepa/president-signs-safe-drinking-water-act-amendments. The 1988 federal Lead Contamination and Control Act also required states to establish a remedial action program to address lead in school drinking water. *See* Cradock et al., *Getting Back on Tap: The Policy Context and Cost of Ensuring Access to Low-Cost Drinking Water in Massachusetts Schools*, *Tapping Into Water: Key Considerations for Achieving Excellence in School Drinking Water Access*, 43 AM. J. OF PREV. MED. S95, S96 (2012). However, a 1996 legal challenge rendered the Lead Contamination and Control Act's remedial action program unenforceable against the states. Assoc. of Cmty. Orgs. for Reform Now v. Edwards, 81 F.3d 1387, 1394-95 (5th Cir. 1996); *see also* Lambrinidou et al., *supra* note 4, at 31-33. New school buildings were not built with certified "lead-free" fittings and fountains until the late 1990s. *Lead in Drinking Water at Schools and Child Care Facilities*, ENVTL. PROT. AGENCY, http://epa.gov/dwreginfo/lead-drinking-water-schools-and-child-care-facilities (last visited Mar. 26, 2016). Even then, "lead free" fittings still contained trace amounts of lead—it wasn't until 2013 that the permissible lead levels in "lead free" fittings fell to near zero. Michael Wines et al., *Schools Nationwide Still Grapple With Lead in Water*, N.Y. TIMES (Mar. 26, 2016), http://www.nytimes.com/2016/03/27/us/schools-nationwide-still-grapple-with-lead-in-water.html?_r=0.

[62] FIRESTONE, *supra* note 19, at 14.

[63] *Consumer Factsheet on Lead in Drinking Water*, US EPA (Mar. 6, 2012), http://water.epa.gov/lawsregs/rulesregs/sdwa/lcr/fs_consumer.cfm; GRUMMON ET AL., WATER WORKS 13 (2014), http://waterinschools.org/pdfs/WaterWorksGuide2014.pdf.

[64] *Basic Information about Copper in Drinking Water*, US EPA (Dec. 19, 2013), http://water.epa.gov/drink/contaminants/basicinformation/copper.cfm.

[65] CAL. CODE REGS. tit. 22, §§ 64670(b) (West 2015).

action level,[66] the public water system must take certain corrective measures.[67]

Bacteria are common contaminants in school water, especially at schools that have their own well,[68] and at schools where fountains are not properly maintained.[69] Bacteria can cause nausea, cramps, and diarrhea.[70] Bacteria are monitored by taking total coliform samples. Total coliform is an indicator for a range of harmful pathogens that might be in drinking water.[71] Like lead and copper, total coliform samples are taken at the tap. A public water system is in violation of the MCL when a certain number of samples are total coliform, fecal coliform, or *E. coli* positive.[72]

C. Manganese and Iron

Manganese and iron are regulated as "secondary contaminants." These contaminants are regulated due to "consumer acceptability" concerns related to their impact on the "taste, odor, or color of drinking water," and their potential to "cause cosmetic skin or tooth discoloration or damage to the water system's infrastructure."[73] At low levels these contaminants are not considered a health risk, even though there are severe health consequences when children do not

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[66] *Id.* § 64678; *see* Appendix A.

[67] *Id.* § 64684, 64685-86, 64688 (West 2015).

[68] Associated Press, *supra* note 3 (citing coliform bacteria as the most common contaminant at schools with their own water supplies between 1998 and 2008).

[69] US EPA, DRINKING WATER BEST MANAGEMENT PRACTICES FOR SCHOOLS AND CHILD CARE FACILITIES SERVED BY MUNICIPAL WATER SYSTEMS 1-2 (2013), http://water.epa.gov/infrastructure/drinkingwater/schools/upload/ epa816b13002.pdf.

[70] *Basic Information about Pathogens and Indicators in Drinking Water*, US EPA (Dec. 13, 2013), http://water.epa.gov/drink/contaminants/basicinformation/pathogens.cfm.

[71] *Revised Total Coliform Rule and Total Coliform Rule*, US EPA (Jan. 14, 2016), http://www.epa.gov/ dwreginfo/revised-total-coliform-rule-and-total-coliform-rule.

[72] System providers must monitor for the presence of total coliforms in the distribution system at a frequency proportional to the number of people served by the system. CAL. CODE REGS. tit. 22, § 64423 (West 2015). The MCL may be found at section 64426.1(b) of the California Code of Regulations, title 22; *see* Appendix A.

[73] FIRESTONE, *supra* note 19, at 64; *see also* W. States Petroleum Ass'n v. Dep't of Health Servs., 99 Cal. App. 4th 999, 1004 (2002) ("Secondary drinking water standards may apply to any contaminant in drinking water that may adversely affect the odor or appearance of the water and may cause a substantial number of persons served by the public water system to discontinue its use, or that may otherwise adversely affect the public welfare."); *Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals*, US EPA (May 31, 2013), http://water.epa.gov/drink/ contaminants/secondarystandards.cfm.

drink water at school regardless of whether they refrain because the water is unsafe or unappealing.[74]

Secondary contaminants are monitored with reference to secondary Maximum Contamination Levels.[75] Some health researchers are calling for regulators to reevaluate the current manganese contamination level in light of new information about its potential long-term exposure effects.[76] Scientists have known that high doses of manganese can cause neurological disorders for decades, but have only recently begun to look into its low-level effects.[77] Long-term effects may include symptoms that emulate those of Parkinson's disease, neurological development problems in children, and heart defects.[78] In recognition of manganese's potential neurotoxic risk, California established a notification level for manganese in 2003 that provides

[74] *See supra* notes 35-37 and accompanying text.

[75] CAL. CODE REGS. tit. 22, § 64449(a) (West 2015); *see* Appendix A.

[76] The same researchers that called out lead and arsenic as developmental neurotoxins have flagged manganese, fluoride, chlorpyrifos, DDT, tetrachloroethylene and polybrominated diphenyl ethers as chemicals that also cause neurological damage. James Hamblin, *The Toxins that Threaten Our Brains*, THE ATLANTIC (Mar. 18, 2014), http://www.theatlantic.com/features/archive/2014/03/the-toxins-that-threaten-our-brains/284466/; *see also* Charles Duhigg, *That Tap Water Is Legal but May Be Unhealthy*, N.Y. TIMES (Dec. 16, 2009) (discussing the manganese water contamination problems in Maywood, California); Karin Ljung & Marie Vahter, *Time to Re-evaluate the Guideline value for Manganese in Drinking Water?*, 115 ENVTL. HEALTH PERSP. 1536 (2007) (calling for a re-valuation of the World Health Organization manganese guideline value of 0.4 mg/L in light of potential negative effects on children).

[77] Gabe Riven, *Mapped Data Offers Insights About Water Quality and Birth Defects*, N.C. HEALTH NEWS (Nov. 28, 2014), http://www.northcarolinahealthnews.org/2014/11/24/mapped-data-offers-insights-about-water-quality-and-birth-defects/.

[78] CONN. DEP'T OF PUB. HEALTH: DRINKING WATER SECTION, MANGANESE IN DRINKING WATER 2, http://www.ct.gov/dph/lib/dph/drinking_water/pdf/manganese.pdf (noting that young children appear to absorb more manganese, but excrete less, making this group more at risk than older age groups); Oulhote et al., *Neurobehavioral Function in School-Age Children Exposed to Manganese in Drinking Water*, 122 ENVTL. HEALTH PERSP. 1348 (2014) (reporting that higher levels of exposure to manganese are associated with poorer memory, attention, and motor functioning, and that there is the potential for harmful effects at manganese levels commonly found in groundwater); Sanders et al., *Association between arsenic, cadmium, manganese, and lead levels in private wells and birth defects prevalence in North Carolina*, 14 BIOMED CENT. PUB. HEALTH 1 (2014) (examining the potential link between elevated manganese levels in groundwater and infants born with heart defects); Gabe Riven, *Mapped Data Offers Insights About Water Quality and Birth Defects*, N.C. HEALTH NEWS (Nov. 28, 2014), http://www.northcarolinahealthnews.org/2014/11/24/mapped-data-offers-insights-about-water-quality-and-birth-defects/.

an extra layer of protection to consumers.[79]

IV. Monitoring Requirements

While the Safe Drinking Water Act sets standards for water quality, many schools may not know when their water fails these standards due to inadequate monitoring. The monitoring location and frequency requirements for arsenic,[80] nitrate,[81] lead and copper,[82] total coliform,[83] and manganese and iron[84] are insufficient for generating up-to-date school-specific information.

First, and most troubling, water at the majority of schools in California is not directly monitored. Only the approximately twenty percent of schools served by non-transient, non-community systems (i.e. schools with their own water wells) are required to monitor all regulated contaminants.[85] Though secondary contaminants are monitored less frequently at these schools and there may be issues with proper data collection,[86] at least these schools have some idea of the water quality in their wells and coming out of their taps. Schools that receive water from community public water systems, on the other hand, are not required to collect and analyze their own samples on a regular basis, as the public water supplier is already supposed to ensure that it meets federal and state drinking water standards for contaminants under the federal and state

[79] *Drinking Water Notification Level for Manganese*, STATE WATER RES. CONTROL BD. (Aug. 28, 2014), http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Manganese.shtml. This notification level applies to all water systems. CAL. HEALTH & SAFETY CODE § 116455 (West 2015). This is important because "[c]hildren are considered to be particularly susceptible to possible effects of high levels of manganese exposure because they absorb and/or retain more manganese than adults," *id*. (citing Agency for Toxic Substances & Disease Registry, *Toxic Substances Portal–Manganese*, AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY (Sept. 2012), http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=102&tid=23; *Manganese (CASRN 7439-96-5)*, EPA (Oct. 31, 2014), http://www.epa.gov/iris/subst/ 0373.htm, yet schools sourced by non-transient, non-community systems do not have to comply with most secondary standards, *see infra* note **Error! Bookmark not defined.**.

[80] CAL. CODE REGS. tit. 22, § 64432 (West 2015); *see* Appendix B.

[81] CAL. CODE REGS. tit. 22, § 64432.1 (West 2015); *see* Appendix B.

[82] CAL. CODE REGS. tit. 22, § 64675-79 (West 2015); *see* Appendix B.

[83] CAL. CODE REGS. tit. 22, § 64423-26.5 (West 2015); *see* Appendix B.

[84] CAL. CODE REGS. tit. 22, § 64449 (West 2015); *see* Appendix B.

[85] NAT'L CENTER, *supra* note 19, at 14.

[86] *Id.*

Safe Drinking Water Acts.[87] For most contaminant tests the water provider is only obligated to take samples at the source.[88] Source monitoring is sufficient for contaminants like arsenic, nitrate and nitrite, and perchlorate, but it is not sufficient to monitor lead, copper, total coliform, and iron and manganese contamination, which may enter the water through the school's physical distribution system on the way to fountains.[89]

The most recent Centers for Disease Control School Health Policies and Programs Study found that about 56% of states require inspection of school drinking water outlets for lead.[90] California is not one of those states. Lead, copper, and total coliform samples are collected at the tap, but system providers are required to take only a certain number of samples throughout the entire system, so not every school is monitored.[91] Only schools that spend the resources to implement a voluntary monitoring system are equipped to detect problems as they arise.[92] Finally, even when a school where water quality *is* monitored has elevated contamination levels,

[87] *Id.*; Lambrinidou et al., *supra* note 4, at 30.

[88] *See supra* notes **Error! Bookmark not defined.-Error! Bookmark not defined.**.

[89] Telephone Interview with Laurel Firestone, Executive Director, Community Water Center (June 17, 2015) ; *see also* Michael Wines and John Schwartz, *Unsafe Levels in Tap Water Not Limited to Flint*, N.Y. TIMES, Feb. 8, 2016, http://www.nytimes.com/2016/02/09/us/regulatory-gaps-leave-unsafe-lead-levels-in-water-nationwide.html?smprod=nytcore-iphone&smid=nytcore-iphone-share&_r=0 (explaining that schools were required to monitor for lead under the 1988 Lead Contamination Act, but that since the part of that law affecting schools was struck down in 1996, federal lawmakers have not stepped in to revisit the issue); Laura Unger, *Lead Taints Drinking Water in Hundreds of Schools, Day Cares Across USA*, USA TODAY (Mar. 17, 2016), http://www.usatoday.com/story/news/nation/2016/03/17/drinking-water-lead-schools-day-cares/81220916/ (quoting water quality expert Yanna Lambrinidou, who went so far as to say that there is "a regulatory black hole when it comes to schools and day-care centers" because lead can enter water through school distribution systems but public water systems and schools are not required to monitor water at fountains).

[90] Jones, Axelrad, Wattigney, *Healthy and Safe School Environment, Part II, Physical School Environment: Results From the School Health Policies and Programs Study 2006*, 77 J. OF SCH. HEALTH 544, 551-52 (2007).

[91] For lead and copper, the number of required tap sample sites depends on the size of the system—ranging from 5 in a system serving 100 or less to 100 in a system serving 100,000 or more. CAL. CODE REGS. tit. 22, §§ 64675-64679 (West 2015). For total coliform, the number of samples ranges from one per month for a system serving less than 1,000 people and 15-400 connections, to 120 samples per week for a system serving more than 3,960,000 people and 1,414,300 connections. *Id.* §§ 64675-64679 (West 2015).

[92] Cash-strapped schools are often disincentivized from implementing a voluntary program. Not only do schools need to forgo other expenses to monitor, they are also often forced to take on some responsibility to remediate any problems that are found. Wines et al., *supra* note 89. Water quality expert Marc Edwards notes that schools often "feel it's almost better not to sample, because you're better off not knowing." *Id.*

the system provider may not have to do anything about the issue. Ten percent of lead or copper samples may exceed the action level before the provider is required to issue notices or install control treatment.[93]

Second, system providers are often able to reduce monitoring frequency requirements or obtain a waiver after submitting a certain number of uncontaminated samples. For example, depending on the results of previous sampling, system providers might monitor for lead contamination as infrequently as every four months, every year, every three years, or even every nine years for a small system.[94] Public water systems can get similar waivers or variances for arsenic, total coliform, and secondary contaminant monitoring.[95] Waivers reduce the burden on system providers to pay for monitoring, but it also means that if a problem emerges over time, there could be a significant delay before anyone notices.

Finally, while every public water system provider must hire trained professionals to collect and analyze samples,[96] the EPA and SWRCB do not directly oversee monitoring. Public water systems may not monitor as often as they should. For example, Orange Center School in Fresno County did not monitor for lead in the nine years following a 2003 lead violation.[97] This delayed the discovery that lead concentrations were more than six times the Safe Drinking Water Act action level; contamination problems are serious enough to merit shutting off access to all fountains and extending the city of Fresno's water system at a cost of almost $3 million to

[93] There is a requirement that public water systems deliver the lead results to "the persons served by the water system at the specific sampling site from which the sample was taken" within thirty days. 40 C.F.R. § 141.85(d) (West 2015).

[94] *Id.* §§ 64675, 75.5, 78.5 (West 2015).

[95] *Id.* §§ 64432 (arsenic waiver), 64423(a)(1-3) (total coliform monitoring reduction), 64426.5 (total coliform variance), 64449 (West 2015) (secondary contaminants waiver).

[96] *Id.* § 64415(b) (West 2015); CAL. HEALTH & SAFETY CODE § 116390 (West 2015).

[97] Newkirk, *supra* note 61

replace the school's private well system.[98] Errors reportedly "plague" the agencies' databases, and may lead to unreliable enforcement.[99]

A bill proposed last year by State Senator Leyva sought to address some of these monitoring problems with respect to lead. Senate Bill 334 would have required testing at a representative sample of school sites for lead in drinking water.[100] The bill was passed by the legislature but vetoed by Governor Brown for reasons discussed in Section VI.[101] The governor clarified that his refusal to sign the bill was unrelated to the monitoring requirements it instituted. In fact, he noted his intention to direct the SWRCB to "work with school districts and local water systems to incorporate water quality testing in schools as part of their lead and copper rule."[102]

One potential way to incorporate school-specific monitoring into the lead and copper rule would be to require community public water systems to sample for lead and copper at a specified number of public schools during each compliance period.[103] Sampling could rotate between all schools with lead pipes and fittings that are served by the system,[104] so that each school is sampled at least once every five years. A similar rotating sampling schedule could eventually be adopted for total coliform.

V. Notification Requirements

Even where contaminants are regularly monitored and problems are promptly identified, reporting and notification is often insufficient to keep track of which water systems need more

[98] *Id.*
[99] Associated Press, *supra* note 3.
[100] S.B. 334 (proposing to amend CAL. EDUC. CODE § 32247(a)).
[101] *See infra* note 150 and accompanying text.
[102] Office of the Governor, Senate Bill 334 Veto Message (Oct. 9, 2015), https://www.gov.ca.gov/docs/SB_334_Veto_Message.pdf.
[103] S.B. 334 initially mandated annual testing. *SB-334 Pupil health: drinking water,* CAL. LEGISLATIVE INFO (Apr. 20, 2015), http://www.leginfo.ca.gov/pub/15-16/bill/sen/sb_0301-0350/sb_334_bill_20150223_introduced.html (last visited June 3, 2015).
[104] *See supra* note 61 and accompanying text.

resources to resolve recurring issues and to inform students, parents, and staff when water is tainted.

Public water systems are required to regularly report sampling results to the SWRCB and issue notices when there is a Safe Drinking Water Act violation.[105] Data reported to the SWRCB may be viewed in data management systems,[106] Annual Compliance Reports,[107] and Consumer Confidence Reports. Consumer confidence reports are documents that are distributed to customers served by a public water system every year and posted on the Internet.[108] They detail violations and contaminant levels, and provide information about exceptions, variances, and opportunities for public participation.[109]

These resources are helpful for understanding the history of water quality associated with particular water systems. However, they are incomplete. Parents who want to look at information about the public water system that serves their child's school may have a difficult time determining which system is the right one. There is no comprehensive database detailing which schools are connected to which public water system. Public water system service areas intersect and overlap, often making it difficult to link schools and water systems.[110]

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[105] CAL. CODE REGS. tit. 22, §§ 64423.1(c) (West 2015) (reporting), 64463.4(a) (arsenic notification), 64463.1 (nitrate notification), 64463.4(a) (bacteria notification), 64426 (bacteria emergency notification) 64449 (secondary contaminant notification) U.S. ENVTL. PROT. AGENCY, LEAD AND COPPER RULE, http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10058C5.txt (lead and copper notification); *see* Appendix C.

[106] The Department of Drinking Water is currently transitioning to the Safe Drinking Water Information System, which includes public water system inventory information, MCL violation incidents, maximum residual disinfectant levels, treatment techniques, notification violations, and information on enforcement activity. SECTION 116365 REPORT, *supra* note 18, at 1, 92-93.

[107] Annual Compliance Reports are prepared every year by the State Water Resources Control Board for the US Environmental Protection Agency to provide information about which PWSs are not complying with drinking water standards. SECTION 116365 REPORT, *supra* note 18, at 29; STATE WATER RES. CONTROL BD., SELECTED DRINKING WATER PROGRAM PUBLICATIONS http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml (last visited Feb. 1, 2016).

[108] *Id.* § 64480-83 (West 2015).

[109] *Id.* § 64481 (West 2015).

[110] Community Water Center & Environmental Justice Coalition for Water, An Analysis of California Schools Impacted by Unsafe Drinking Water at the Tap 6 (Mar. 9, 2015) (unpublished report) (on file with author).

When parents are directed to the right report, they may be misled if they see that the community water system serving the school has not had a lead and copper violation. As noted in section IV, unless taps at a school are included in a public water system's sampling list, school water is not regularly monitored for lead at the faucet. Schools can choose to pass along the results of voluntary testing, but the most recent Centers for Disease Control School Health Policies and Programs Study found that, among schools served by community water systems that conducted voluntary testing, only 49.8% provided drinking water test results to school faculty and staff, 27.8% provided results to students' families, and 23.6% provided results to students.[111]

Comprehensive databases that link source and voluntary distribution system monitoring results to specific schools are needed to give staff, students, and parents the ability to look up information quickly. They are also needed to understand the scale of water quality problems at schools across California so that resources can be directed to the violative public water systems that impact the most children.

It is equally important that staff, parents, and students are notified about water quality problems at schools as they arise, so that children do not drink contaminated water and local communities are empowered to advocate for solutions. The California Code of Regulations sections related to water quality notices instruct public water systems to try to reach non-paying customers through newspaper publications, public postings, emails, and community organizations.[112] But just one code section specifies that school employees, students, and parents

[111] Jones, Axelrad, Wattigney, Healthy and Safe School Environment, Part II, Physical School Environment: Results From the School Health Policies and Programs Study 2006, Journal of School Health, October 2007, Vol. 77, No. 8. 544, 549. The Los Angeles Unified School District is an example of one school that reports voluntary monitoring results. OFFICE OF ENVIRONMENTAL HEALTH & SAFETY: SCHOOL DRINKING WATER TESTING RESULTS, http://lausd-oehs.org/drinkingwater_listschools.asp (last visited Feb. 1, 2016).

[112] Tier 1 notices, for waterborne microbial disease outbreaks, fecal coliform and *E. coli* violations, nitrate violations, and perchlorate violations must be issued using a delivery method—either radio or television, posting in conspicuous locations, hand delivery, or some other approved method—"designed to reach residential, transient, and

must be notified. Health and Safety Code section 116450(g), added in 1994, puts the responsibility on schools and school districts to "notify school employees, students and parents if the students are minors" within ten days of receiving a notice from a public water system. The system must provide a sample notification form and indicate which notification methods are most appropriate, including "the sending of a letter to each water user and the posting of a notice at each site where drinking water is dispensed."[113] Any school or school district that fails to give notice is liable for a civil penalty of up to $1,000 per day that notice is not given.[114]

Even with this requirement in place, there are still several problems with notification at schools. The first problem is inadequate enforcement.[115] Concerned parents often must prod administrators into taking action to resolve water contamination issues. For example, the Los Angeles Unified School District first learned about lead problems in 1988, but did not officially notify parents or address the problem until twenty years later, in 2008, when a concerned parent teamed up with the local media to highlight the problem through an undercover investigation.[116] In 2014 an elementary school in Merced County failed to notify parents when the school cut off

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nontransient users of the water system" within 24 hours. *Id.* § 64463.1 (West 2015). Tier 2 and Tier 3 notices, for less serious MCL violations, variance violations, certain treatment technique violations, and procedural violations, must be delivered in the following ways: community water systems must contact bill-paying customers by mail or direct delivery to "to each customer receiving a bill including those that provide their drinking water to others (e.g., schools or school systems, apartment building owners, or large private employers)" *and* must try to "reach persons not likely to be reached by a mailing or direct delivery" (e.g., renters or students) by either publishing a notice in the local newspaper, posting on the internet or in conspicuous places served by the PWS, *or* delivering to community organizations; non-community water systems must post in "conspicuous locations throughout the area served by the water system," *and* either publish in a newspaper or newsletter, post on the internet, directly deliver to each customer, *or* send emails to employees or students. *Id.* §§ 64463.4(c), 64463.7(c) (West 2015).

[113] CAL. HEALTH & SAFETY CODE § 116450(g)(1) (West 2015).

[114] *Id.* § 116450(g)(3) (West 2015).

[115] Telephone Interview with Laurel Firestone, Executive Director, Community Water Center (June 17, 2015); *see infra* note 143 and accompanying text.

[116] Lambrinidou et al., *supra* note 4, at 25-27, 38; *see also id.* at 38-39 (describing how the Washington D.C.'s public school system learned of lead problems in 1987, but initially said it was not a health hazard and did not launch a full testing effort until 2006 or remediate until 2009); *id.* at 40-41 (describing the testing efforts of two fathers at a Seattle elementary school, which eventually lead to the discovery that seventy percent of schools in the district had at least one fountain with excessive levels of lead, and to the creation of a new district-wide policy for testing and remediation).

access to drinking water after total coliform bacteria was found in one of the school's water storage tanks.[117] While the SWRCB can issue citations for non-compliance,[118] the Board does not have a mandatory duty to do so. In 2009 the California Supreme Court held that the state agency regulating the system (usually the SWRCB, but in some cases the local primacy agency, and, before 2014, the Department of Public Health) does not have an implied mandatory duty to notify residents when a water provider submits monitoring data indicating that the water is contaminated.[119] This case suggests that PWSs and the SWRCB are not required to ensure that staff and students are given adequate notice.[120]

The second problem is that in cases where notices are forwarded to parents, they may be not be very conspicuous. Consider a 2013 notification for a radionuclide MCL exceedance at Island Union School in Lemoore, which was not widely distributed to students or parents, but merely posted on the school' website and on an office window.[121] Some advocates have suggested that schools disseminate notices in: letters that are mailed directly to parents and placed in school staff mailboxes; parent and staff newsletters; presentations at community,

[117] Ana B. Ibarra, *Parents complain after bacteria found in drinking water at McSwain Elementary School in Merced*, SACRAMENTO BEE, (Mar. 21, 2014), http://www.sacbee.com/news/article2593599.html.

[118] *See, e.g.*, Citation No. 02-17-15C-019 Total Coliform Monitoring and Reporting Violation Monterey Mushroom Inc., System No. 4300941 (May 14, 2015), http://tinyurl.com/oodfxnr; Citation No. 03-23-14C-020 Annual Nitrate Monitoring and Reporting Violation Doyals Mobile Home Park, Systems No. 1000405 (Mar. 7, 2014), http://tinyurl.com/nrjbnk3.

[119] Guzman v. County of Monterey, 46 Cal. 4th 887, 909 (2009) ("any specific direction to the water system to notify consumers is made *at the recommendation,* and not based on the compulsory duty, of the Department or the local primacy agency.") In *Guzman*, the residents of mobile home park brought a negligence action against the county—which was serving as the local primacy agency—when the county failed to command the system provider to notify residents about dangerously high levels of fluoride contamination. The county had received reports that the park water was contaminated since at least 1995 but did not take any action until 2003. *Id.* at 894-906.

[120] California Health and Safety Code section 116450(g)(4) does require public water systems to report to the SWRCB when they have evidence that schools are in "noncompliance with this subdivision."

[121] *See, e.g.*, Consumer Confidence Report for Island Union School in Lemoore, California, (June 28, 2013), http://www.islandcardinals.com/SiteAssets/SitePages/Home/CR%20and%20notification%20certs%20Aug.%202013%20Island%20School.pdf.

parent-teacher association, school board, or staff meetings; and emails,[122] but the regulations do not specify how notices should be distributed. [123]

In addition, the notices may not convey the seriousness of the situation.[124] For example, the Superintendent at an elementary school in Michigan wrote a letter to parents informing them that, though levels of arsenic at the school were above Environmental Protection Agency limits, children were not in danger. He claimed that levels were not at an "acute or dangerous level;" students were not at risk since they "don't drink that much during the day."[125] While administrators may want to use these messages to allay parents' concerns, this approach ultimately undermines efforts to encourage children to drink more at school. These notices give the impression that administrators do not take the threat of low-level exposure to unsafe contaminated drinking water seriously. They fail to reassure parents that providing safe water is a priority.

A final problem is that, because warnings are triggered by violations found in the course of monitoring, they are not issued for distribution system contamination that goes unnoticed. If taps at a school are included in a public water system's sampling list, the public water system must deliver the lead results to "the persons served by the water system at the specific sampling site from which the sample was taken" within thirty days.[126] In all other cases, notice will not be forthcoming unless advocates have pushed a school district to adopt a voluntary program with notice requirements.

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[122] GRUMMON ET AL., *supra* note 63, at 16 (suggesting schools disseminate notices in letters that are mailed directly to parents and placed in school staff mailboxes; parent and staff newsletters; presentations at community, parent-teacher association, school board, or staff meetings; and emails).

[123] CAL. HEALTH & SAFETY CODE § 116450(g)(1) (West 2015).

[124] Telephone Interview with Laurel Firestone, Executive Director, Community Water Center (June 17, 2015).

[125] Andy Fitzpatrick, *Arsenic tops EPA limits in Sonoma Elementary drinking water*, BATTLE CREEK ENQUIRER, (Jan. 20, 2015), http://www.battlecreekenquirer.com/story/news/local/2015/01/20/arsenic-tops-epa-limits-sonoma-elementary-drinking-water/22057315/.

[126] 40 C.F.R. § 141.85(d) (West 2015).

Recently vetoed Senate Bill 334 sought to ensure that results from lead monitoring efforts at schools would be publicly available. One provision required the Department of Education and the State Department of Public Health to post results to their websites.[127] Future legislative efforts might try again to mandate these lead notice requirements, to demand similar notices for other contaminants, and to specify the method of notice dissemination. In addition, the SWRCB might provide a template notice or further clarify what should and should not be included in a school notice.

VI. Enforcement and Opportunities to Secure Clean Water

Until the late 2000s, the only enforceable requirements related to drinking water in school were the Safe Drinking Water Act standards and the California Building Code prescription that schools have one water fountain for every one hundred and fifty people.[128] These requirements have not done enough to ensure access to safe, clean water in schools. In addition, funding sources have been inadequate to increase and improve water access. Limited funding for all educational needs and a growing list of school infrastructure problems have made clean drinking water a lesser priority. The 2004 *Williams* settlement and Nutrition Act, however, may begin to help change the situation in California's schools.

In this section I outline the current tools available for water quality enforcement—both through the Safe Drinking Water Act and the *Williams* settlement. I then discuss implementation and enforcement of new drinking water access requirements. Finally, I provide an overview of the costs associated with providing safe water in schools, the current major sources of infrastructure and maintenance funding, and the opportunity for advocates to use the planning

[127] S.B. 334 (proposing to amend CAL. EDUC. CODE § 32241.5).
[128] GRUMMON ET AL., *supra* note 63, at 62.

process made available through California's new school financing system to secure more funding for drinking water projects at local schools.

A. Safe Drinking Water Act Enforcement

To comply with the Safe Drinking Water Act's requirements public water system operators must take particular treatment measures when there is a lead action level exceedance.[129] For other primary and secondary contaminant requirements, operators may treat their water using one of the permissible treatment technologies outlined in the California Code of Regulations.[130] The SWRCB "shall" step in to enforce the Safe Drinking Water Act when the system operator fails to adequately treat the water and: 1) the system has been in violation for a period of at least ninety days within the previous year, or 2) a particular drinking water contaminant presents an imminent danger to the health of the system's water users.[131]

There are a variety of remedies the SWRCB (or local primacy agency) can select and use in combination as appropriate for the situation.[132] Administrative remedies include: orders directing a violator to take specific action to comply with the law,[133] written citations,[134] civil penalties,[135] summary abatement,[136] and permit suspension or revocation after a formal hearing.[137] In addition, the SWRCB has several judicial remedies at its disposal, including:

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[129] Action level exceedances trigger corrosion control treatment requirements. If the treatment is ineffective, the system provider must begin replacing the lead and copper service lines that it owns. CAL. CODE REGS. tit. 22 §§ 64688–64690.

[130] *Id.* §§ 63750.85 (West 2015) (water treatment facility), 64401.90 (West 2015) (treatment definition), 64433.5 (West 2015) (fluoridation), 64447–64447.4 (West 2015) (best available technologies).

[131] CAL. HEALTH & SAFETY CODE § 116325 (West 2015) (setting out the SWRCB's enforcement responsibilities), 116675 (West 2015) (outlining the two triggers for enforcement).

[132] *Id.* § 116745 (West 2015).

[133] *Id.* § 116655 (West 2015).

[134] *Id.* § 116650(a)–(d) (West 2015).

[135] *Id.* § 116650(e) (West 2015) (allowing penalties up to $1,000 per day for failing to comply with the law or with an order or citation).

[136] *Id.* § 116670 (West 2015).

[137] CAL. HEALTH & SAFETY CODE § 116625 (West 2015).

injunctive relief,[138] civil penalties,[139] appointing a receiver to take temporary possession of the system,[140] and criminal penalties.[141] Water users may also seek a remedy through an injunction.[142]

However, states rarely impose formal sanctions or bring enforcement actions. Instead, agencies usually use a series of warning letters, visits, and minor fines.[143] Even where enforcement mechanisms can be utilized,[144] they may not be sufficient to protect drinking water at schools. Schools supplied by community water systems cannot rely on the system provider to fix problems that are internal to the school. When lead or copper action levels are exceeded, for example, the system provider is only responsible for installing corrosion controls and replacing pipes in the lines that it owns.[145] The Safe Drinking Water Act also does not impose any requirements to take more proactive measures, such as instituting a cleaning schedule or

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[138] *Id.* § 116660(a) & (b) (West 2015) (allowing courts to direct a provider to stop engaging in a practice that violates the law and / or direct the provider to take action to comply).

[139] *Id.* § 116650(e) (allowing for fees of up to $1,000 per day for each violation).

[140] *Id.* § 116665 (West 2015).

[141] *Id.* § 116730 (West 2015) (allowing sentences of up to one year of imprisonment and $25,000 in fines for intentional violations).

[142] FIRESTONE, *supra* note 19, at 90 (describing two types of injunction that may be available: an injunction to order a polluter to stop contaminating a water source, *id.* § 117030 (West 2015), and an injunction to halt the public nuisance of water contamination, *see* CAL. CODE CIV. PROC. § 731 (2008)). California has statutorily expanded the common law definition of public nuisance to include: "Anything done, maintained, or suffered as a result of a failure to comply with any primary drinking water standard is a public nuisance dangerous to health . . . . Every public officer or body lawfully empowered to do so shall abate the nuisance immediately." CAL. HEALTH & SAFETY CODE § 116670 (2015). However, the expanded public nuisance theory created by this statute may only be used by private litigants when the nuisance is "specially injurious" to them. Frost v. City of Los Angeles, 181 Cal. 22, 24-25 (1919).

[143] Several General Accounting Office studies have identified ongoing deficiencies in state programs, including failure to take timely and appropriate enforcement actions against significant non-compliers. *See, e.g.*, U.S. Government Accounting Office Drinking Water: Compliance Problems Undermine EPA Program as New Challenges Emerge (1990) GAO/RCED-90-127, Washington, D.C.

[144] Associated Press, *supra* note 3 (discussing the underutilization of enforcement actions at the state and federal level: "'It's an outrage,' said Marc Edwards, an engineer at Virginia Tech University who has been honored for his work on water quality. 'If a landlord doesn't tell a tenant about lead paint in an apartment, he can go to jail. But we have no system to make people follow the rules to keep school children safe?'"); *see also* McNairy v. C.K. Realty, 150 Cal. App. 4th 1500, 1504-06 (2007) (allowing damages for emotional distress under former Civil Code section 1942.4(b)(1) where landlord violated warranty of habitability because they refused to resolve issues with "dirty, unsanitary water" from rusting iron pipes).

[145] CAL. CODE REGS. tit. 22 §§ 64684–64690.

installing more fountains, to encourage consumption.

Senator Leyva's vetoed Senate Bill 334 sought to change this by mandating that any school with water that does not meet drinking water standards "close access to those drinking water sources immediately" and provide alternative drinking water to students.[146] Another provision in an early version of the bill required the school district to work with the state and local Department of Public Health to develop a plan for mitigation and present the plan with timelines and funding sources to the governing board of the school district at a regularly scheduled public meeting.[147] A third provision required school districts to close access to drinking water sources where lead is found, and—if that closure results in a school site not having the minimum number of drinking fountains—required the district to "notify parents, pupils, teachers, and other school personnel" immediately.[148] Schools with lead-containing components would have been required to take the preemptive step of flushing (moving water through pipes and taps) "all drinking water sources" for at least thirty seconds at the beginning of each school day.[149] In his veto message, Governor Brown stated that, while "all California students should have access to safe drinking water," the mandate the bill would have created was "of uncertain but possibly very large magnitude."[150] The Governor did not elaborate on this statement, but presumably he was referring to the cost to close off all drinking water access points with high lead levels, to flush water sources at schools with lead-containing plumbing

[146] S.B. 334 (proposing to add CAL. EDUC. CODE § 49580).
[147] *SB-334 Pupil health: drinking water,* CAL. LEGISLATIVE INFO (Aug. 17, 2015), http://www.leginfo.ca.gov/pub/15-16/bill/sen/sb_0301-0350/sb_334_bill_20150223_introduced.html (last visited Feb. 7, 2016) (proposing to amend CAL. EDUC. CODE §§ 32248(a-c)).
[148] S.B. 334 (proposing to amend CAL. EDUC. CODE § 49580).
[149] *Id.* (proposing to add CAL. EDUC. CODE § 32249).
[150] Office of the Governor, *supra* note 102.

components, and to provide access to free, fresh drinking water at all schools.[151]

B. The Williams *Settlement Complaint Process*

On May 17, 2000—the 46th anniversary of *Brown v. Board of Education*—several legal organizations filed *Eliezer Williams, et al., vs. State of California, et al.* (*Williams*), seeking to equalize basic educational opportunities across the state.[152] *Williams* challenged the state for subjecting low-income students and students of color to learning environments with underprepared and emergency-credentialed teachers; unhealthy facilities, including facilities with poor water quality; [153] and outdated or insufficient numbers of textbooks. The *Williams* case was ultimately settled in 2004.[154] The settlement acknowledged the state's obligation to provide California public school students with school facilities that are in "good repair," qualified teachers, and adequate textbooks. It also established new standards, new accountability mechanisms, and $1 billion in funding to implement the promises of the settlement. The complaint process established through the settlement helps ensure that schools adhere to the new standards.

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[151] S.B. 334, 2015 Leg., Reg. Sess. (Cal. 2015) (proposing to amend CAL. EDUC. CODE § 49580 and add CAL. EDUC. CODE §§ 32249, 38086)

[152] *Williams v. California*, PUB. ADVOCATES, http://www.publicadvocates.org/williams-v-california.

[153] First Amended Complaint for Injunctive and Declaratory Relief, No. 312236 at 29, Williams v. State of California, (Cal. Super. Ct., S.F. Cty., May 17, 2000), available at http://decentschools.org/courtdocs/01FirstAmendedComplaint.pdf ("Water at [Bryant Elementary School in San Francisco] is unsafe for drinking. Many children bring bottled water to class, and the principal has recommended that teachers flush the pipes every day by running water for a full minute in the morning."); Ruiz Decl. ¶ 11, Jan. 28, 2001, http://decentschools.org/declarations/decl-0072.pdf. ("Most of the time, the water fountains don't work. They are clogged and rusty. We have had problems with the water fountains for the past two years and nothing is being done about it. In July of 1999, the water fountains at school became contaminated . . . . We could not drink out of the water fountains. The school gave each class only a gallon of water a day to be shared by thirty people. I was only able to get one cup of water the whole day. Some people got none. This went on for a week. Last summer, the water in the drinking fountains, particularly in the P.E. field, was brown. I told the principal but he told me not to worry about it. The water was still dirty the next day.").

[154] *The* Williams *Case – An Explanation*, CAL. DEP'T OF EDUC. (May 6, 2015), http://www.cde.ca.gov/eo/ce/wc/wmslawsuit.asp; Williams *Settlement Highlights*, DECENT SCHS. FOR CAL. 1-2 (Apr. 2005), http://decentschools.org/settlement/Williams_Highlights_April_2005.pdf.

Specific Outcomes from the *Williams* Settlement:

- Every student has a right to "sufficient textbooks," a school in "good repair," and a qualified teacher.
- Districts must perform self-evaluations to ensure compliance with the textbook and facilities standards, and review teacher misassignments and vacancies. The results of these evaluations and reviews must be reported in annual School Accountability Report Cards.
- Parents, students, teachers, can use the Uniform Complaint Process to ensure schools meet the new standards.
- Schools ranked in deciles one to three, inclusive, on the 2003 base Academic Performance Index receive additional funds and oversight.
  - In the first year of implementation districts in deciles one to three received $25 million for a comprehensive assessment of the facility conditions and needs, and districts in deciles one and two received $138 million for new instructional materials.
  - The State committed to providing $800 million in installments of at least $100 million each year to pay for emergency repairs in these schools.
  - County superintendents are required to visit and review these schools annually.

The settlement legislation required the development of a Facilities Inspection Tool to standardize the assessment of school conditions. A school facility is in "good repair" when it is "maintained in a manner that assures that it is clean, safe, and functional," as determined by the Tool.[155] Good repair deficiencies can range from minor conditions, such as a burned-out light bulb, to urgent and extreme conditions, such as structural damage. Conditions that pose a threat to the health or safety of students or staff are identified as "emergency facilities needs." Drinking water at schools is evaluated according to the following criteria: interior and exterior drinking fountains are functional, accessible, and free of leaks; drinking fountain water pressure is adequate; fountain water is clear and without unusual taste or odor, and moss, mold, or excessive staining is not evident; and drinking fountains appear to have been cleaned each day that the school is in session.[156]

The complaint process is the main tool developed through the *Williams* settlement that advocates can use to ensure that school drinking water problems are addressed.[157] The residents

[155] CAL. EDUC. CODE § 17002 (d) (West 2015).
[156] *Id.* § 17002 (d)(1)(L), (S) (West 2015).
[157] CAL. DEP'T OF EDUC., SETTLEMENT IMPLEMENT AGREEMENT 7-9 (2008), http://www.cde.ca.gov/eo/ce/wc/documents/wmssettleagmt.pdf; *Uniform Complaint Procedures*, CAL. DEP'T OF EDUC. (June 25, 2015), http://www.cde.ca.gov/re/cp/uc/; *The Williams Complaint Process*, DECENT SCHS. FOR CAL.,

of Huron, California, for example, used complaints to voice concerns about discoloration and visible debris in school water at Huron Elementary School.[158] In 2007 parents submitted seventy-five complaints about the water system and other school issues along with results from a water survey showing that iron, lead, and trihalomethane levels increased as the water traveled through the school's water distribution system.[159] The school officials responded by addressing a majority of the parents' concerns; after securing funding from the School Facilities Emergency Repairs Account they began replacing old, dilapidated water fountains with newer ones.[160]

While conditions in schools have reportedly improved since 2004,[161] the complaint process is likely to remain an important tool to secure clean water going forward. According to twenty-seven county superintendents' responses to a survey by the *Williams* plaintiffs, over fifteen percent of the schools they visited needed some type of maintenance before they could be considered to be in "good repair," and drinking fountains were one of the most common items in need of attention.[162] Parents, students, and staff can check their school's School Accountability Report Card (SARC) to find whether there are drinking water related repairs needed or actions planned.[163] Problems that are not reported in the SARC or that are reported but do not have associated planned actions can form the basis of a complaint.

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http://decentschools.org/settlement_action.php; Rodriguez & Jongco, *supra* note 2, at 13 (explaining the complaint process).

[158] FIRESTONE, *supra* note 19, at 32-33.

[159] A Huron community group worked with an Environmental Protection Agency-certified laboratory from January to March of 2007 to test drinking water at the school both at the point where water entered the school distribution system and at the school water fountains. After submitting the complaints the parents met with the district superintendent, and asked them "[c]ómo puedes esperar un día más para mejorar el agua cuando la salud de mis hijos están en riesgo?" ("how can you wait even one more day to improve the quality of the water when my children's health is at risk?"). Rodriguez & Jongco, *supra* note 2, at 13.

[160] FIRESTONE, *supra* note 19, at 33.

[161] SALLY CHUNG, WILLIAMS V. CALIFORNIA: LESSONS FROM NINE YEARS OF IMPLEMENTATION, 25 (2013), http://decentschools.org/settlement/Williams_v_California_Lessons_From_Nine_Years_Of_ Implementation.pdf.

[162] BROOKS M. ALLEN, WILLIAMS V. CALIFORNIA SETTLEMENT: THE FIRST YEAR OF IMPLEMENTATION, 21 (2005), http://decentschools.org/settlement/WilliamsReportWeb2005.pdf.

[163] *Find a SARC*, CAL. DEP'T OF EDUC., http://sarconline.org/.

C. Water Access and Nutrition Laws

Ensuring that children drink water enough water in school to stay healthy is not just about water safety, it is also about access and appeal. In recognition of the importance of accessible water, state and federal nutrition laws passed in 2010 address this issue. California Senate Bill 1413 requires K-12 public schools to provide access to free drinking water during meal times in school "food service areas."[164] Though the law is a big victory for nutrition advocates, it currently lacks teeth, as it has "no punitive language" if a school fails to offer free water,[165] and schools can choose to opt out if the school district governing board adopts a resolution stating that meeting the law's requirements would be too financially burdensome.[166] In addition, there is no statewide database or system to track which schools are in compliance and which are not.

If a school receives federal money through the National School Lunch Program and School Breakfast Program, it is also subject to the Healthy, Hunger-Free Kids Act of 2010. That Act also requires schools to make free potable water available to all students during breakfast and lunch.[167] The national law is different from the state law in that it provides an enforcement mechanism. Once the US Department of Agriculture releases its final regulations, schools will need to "undergo an administrative review of their water access every three years" and "may have to comply with a corrective action plan or in extreme cases, they could lose funding."[168]

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[164] CAL. EDUC. CODE § 38086(a) (West 2015).

[165] Bernice Young, *Survey: Drinking water compliance eludes some California schools*, CAL. WATCH (Oct. 23, 2012), http://californiawatch.org/dailyreport/survey-drinking-water-compliance-eludes-some-california-schools-18516.

[166] CAL. EDUC. CODE § 38086(b) (West 2015).

[167] 42 U.S.C. § 1758(a)(5) (West 2015); US DEP'T OF AGRIC., MEMO 28-2011: WATER AVAILABILITY DURING NATIONAL SCHOOL LUNCH PROGRAM MEAL SERVICES (July 12, 2011), http://www.fns.usda.gov/sites/default/files/SP28-2011_osr.pdf (describing the lunch requirements); National School Lunch Program and School Breakfast Program, 78 Fed. Reg. 39,068, 39,082-83 (June 28, 2013) (to be codified at 7 C.F.R. pt. 210.10(a)(1)) (adding the same requirements for breakfast meals).

[168] Bernice Young, *Survey: Drinking water compliance eludes some California schools*, CAL. WATCH (Oct. 23, 2012), http://californiawatch.org/dailyreport/survey-drinking-water-compliance-eludes-some-california-schools-

While there is no separate funding available to provide the water, schools can charge necessary and reasonable costs associated with providing drinking water, such as costs for pitchers and paper cups, to their nonprofit food services accounts.[169]

There are two ways to make these state and federal nutrition laws even stronger. First, better compliance is needed. In a survey conducted the year after the acts went into effect, researchers found that compliance with the requirement to provide free drinking water in school food service areas in California had increased from seventy-two percent before the implementation date to eighty-three percent.[170] The number of administrators that had heard of Senate Bill 1413 or the Healthy, Hunger-Free Kids Act only increased from thirty-six percent pre-implementation to forty-two percent post-implementation.[171] Better dissemination may help to ensure that schools comply with these policies. For example, notices about the policies could go out to key school administrators (e.g. principals, facilities staff), in addition to food service directors. Linking access mandates to the requirements of other laws might also increase compliance. For example, new legislation could require schools to include an assessment of the number and condition of water access points—including number, location, and whether they are in "good repair"—in their SARC or funding plan (see section VI.F below). Forcing schools to include an assessment in their funding plan might motivate district officials to allocate funds to bring schools into compliance with Senate Bill 1413 or the Healthy, Hunger-Free Kids Act.

18516; *see also* US DEP'T OF AGRIC., MEMO 28-2011: WATER AVAILABILITY DURING NATIONAL SCHOOL LUNCH PROGRAM MEAL SERVICES (July 12, 2011), http://www.fns.usda.gov/sites/default/files/SP28-2011_osr.pdf (providing questions and answers about the Child Nutrition Act's Water Availability During National School Lunch Program Meal Service).

[169] US DEP'T OF AGRIC., MEMO 28-2011: WATER AVAILABILITY DURING NATIONAL SCHOOL LUNCH PROGRAM MEAL SERVICES (July 12, 2011), http://www.fns.usda.gov/sites/default/files/SP28-2011_osr.pdf.

[170] Patel et al., *supra* note 13, at 1316.

[171] *Id.* 1317.

Second, in concert with efforts to fully implement the acts in meal service areas, advocates can push to expand the requirements to other areas of the school. The legislature can specify that drinking water must also be provided at playgrounds and gyms during recreation times. Vetoed Senate Bill 334 originally sought to do this, but that provision was deleted in a later version of the bill.[172] On a more local level, school districts can adopt wellness policies to ensure that water is available throughout the day.[173] All school districts that receive federal funding for food programs are required to have a wellness policy establishing nutrition guidelines for foods and beverages available during the school day.[174] Wellness policies can have a range of goals and implementation actions related to drinking water availability—from performing a baseline inventory of currently operating sources of drinking water in the school, to allowing students to take water into the classroom in covered containers.[175] For example, the Earlimart School District in the Central Valley has a policy that requires schools to make water available throughout the school day from fountains that are periodically cleaned and tested.[176]

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[172] *SB-334 Pupil health: drinking water*, CAL. LEGISLATIVE INFO., http://www.leginfo.ca.gov/pub/15-16/bill/sen/sb_0301-0350/sb_334_bill_20150223_introduced.html (last visited June 3, 2015) (proposing to add CAL. EDUC. CODE § 49580).

[173] *See* NAT'L POLICY & LEGAL ANALYSIS NETWORK TO PREVENT CHILDHOOD OBESITY, MODEL WELLNESS POLICY LANGUAGE FOR WATER ACCESS IN SCHOOLS (2011), https://www.cdph.ca.gov/programs/cpns/Documents/School%20Health--COPP%20legacy%20docs--Wellness_Policy_Language_Water_Access_in_Schools_20111108.pdf (outlining a model wellness policy); *see also* HAZELTON AREA SCHOOL DISTRICT WELLNESS POLICY (May 25, 2006), http://www.hasdk12.org/cms/lib3/PA01001366/Centricity/Domain/53/wellness.pdf (stipulating that "[d]rinking water shall be available at all meal periods and throughout the school day").

[174] Federal Child Nutrition and Women, Infants and Children (WIC) Reauthorization Act of 2004 (P.L.108-265, 42 U.S.C. 1751).

[175] Model wellness policy language is available at the ChangeLab Solutions website. CHANGELAB SOLUTIONS, WATER ACCESS IN SCHOOLS: MODEL WELLNESS POLICY LANGUAGE (Last visited Feb. 1, 2016), http://www.changelabsolutions.org/sites/default/files/documents/Drinking_Water_in_Schools_FINAL_20111206.pdf.http://www.changelabsolutions.org/publications/wellness-policy-water; *see also* GRUMMON ET AL., WATER WORKS 62-67 (2014), http://waterinschools.org/wp-content/uploads/2015/06/Water-Works-Guide-2014-Supplemental-Materials4.pdf.

[176] PUBLIC HEALTH LAW & POLICY, BRINGING FREE DRINKING WATER BACK TO CALIFORNIA 3 (Dec. 2013), http://www.changelabsolutions.org/sites/default/files/documents/Drinking_Water_in_Schools_FINAL_20111206.pdf.

D. The Cost of Clean Water

All schools that face an enforcement action or want to improve their water supply must figure out how to raise enough money. The amount of funding necessary to replace pipes, install fountains and filters, or make other improvements to fix drinking water problems in California's schools is largely unknown.[177] California lacks a basic inventory of public school facility conditions—something that twenty-two other states have, and that education advocates have been requesting for years.[178] But, even without an inventory, it is clear that many schools do not have enough funding to provide safe water. The California School Board Association estimates that there is currently a backlog of two billion dollars for school facility projects awaiting a new state bond to provide matching funds.[179] Some of this backlog is almost certainly related to drinking water facility needs. In a 2011 survey of 240 California school administrators, 44% cited cost as a primary barrier to improving drinking water access.[180]

The costs of improving quality and access can vary depending on the extent of the water problem and the measures needed to fix it. It costs approximately $30 to test a tap, $500 to

[177] The amount of infrastructure funding needed for the water systems that schools depend on is also not well documented, but according to the most recent Drinking Water Infrastructure Needs Survey, conducted in 2011, California's total drinking water needs exceed $2.2 billion per year for the next 20 years. STATE WATER RES. CONTROL BD., STATE OF CALIFORNIA DRINKING WATER STATE REVOLVING FUND INTENDED USE PLAN: STATE FISCAL YEAR 2015-2016 1 (2015), http://www.waterboards.ca.gov/drinking_water/services/funding/documents/srf/draft_2015_16_dwsrf_iup.pdf. There is a growing need among small community sources that rely on groundwater. STATE WATER RES. CONTROL BD., *supra* note 17. Meanwhile, funding for State Drinking Water Programs has declined across the country. ASSOC. OF STATE DRINKING WATER ADMINISTRATORS, INSUFFICIENT RESOURCES FOR SAFE DRINKING WATER PROGRAMS THREATEN PUBLIC HEALTH 26 (Dec. 2013), http://www.asdwa.org/document/docWindow.cfm?fuseaction=document.viewDocument&documentid=2683&documentFormatId=3404.

[178] Sarah Szambelan & Kate Gordon, *Which CA Schools Need Energy Upgrades? Bond Finance Paints a Picture*, NEXT GENERATION (Mar. 25, 2013), http://thenextgeneration.org/blog/post/prop39-school-bonds.

[179] CAL. SCH. BD. ASSOC., CALIFORNIA'S CHALLENGE: ADEQUATELY FUNDING EDUCATION IN THE 21ST CENTURY 15 (2015) https://www.csba.org/Advocacy/EducationLegalAlliance/~/media/CSBA/Images/Advocacy/ELA/ Adequacy_Committee/CA-Challenge-Adequacy-2015.ashx. An estimated twenty billion dollars is needed to address school facility needs over the next decade. *Id.*

[180] Patel et al., *supra* note 13, at 1316. More than half of school administrators agreed or strongly agreed that other concerns "hindered their ability to improve drinking water access on their school campus." *Id.* at 1317.

remediate a tap that has lead problems,[181] and $5,000 to replace a lead pipe.[182] Total costs to provide students with appealing water during mealtimes range between $12,500 and $28,000 over a ten-year period.[183]. Larger, system-wide solutions are much more expensive. The Pleasant View school district recently paid $160,000 to dig a new well for its students.[184] The Baltimore school system, after six years of trying to fix its lead problems, decided it would be more cost-effective to spend $675,000 a year on bottled water instead.[185] Similarly, Stone Corral Elementary in Seville, California budgets up to $500 a month to buy bottled water for its students due to nitrate contamination.[186]

Flushing water through pipes and out of taps every morning for several minutes is an alternative that schools can use to address manganese, iron, and lead problems for less money.[187] The only associated costs are the price of water, the staffing time necessary to turn taps on to move water through pipes at high velocity, and the cost of lab testing for assurance that the process is working. Indeed, vetoed Senate Bill 334 required flushing at all schools with lead-

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[181] 2010 e-mail communication between Food & Water Watch and Marc Edwards, a water quality expert at Virginia Tech. FOOD & WATER WATCH, *supra* note 39, at 3.

[182] Michael Wines and John Schwartz, *Unsafe Levels in Tap Water Not Limited to Flint*, N.Y. TIMES (Feb. 8, 2016) http://www.nytimes.com/2016/02/09/us/regulatory-gaps-leave-unsafe-lead-levels-in-water-nationwide.html?smprod=nytcore-iphone&smid=nytcore-iphone-share&_r=0.

[183] Cradock et al., *supra* note 61 at S98 (estimating the costs of various dispenser options, installation, testing every 5 years, water, cups, and labor: 5-gallon refrigerated tap water dispenser = $20,601, 5-gallon non-refrigerated tap water dispenser = $16,538, wall-mounted bottle filler = $21,386, refrigerated water fountain = 12,544, commercial bottled water dispenser = $27,922); *see also* Chandran, *supra* note 10, at 9 (discussing a Los Angeles a pilot cafeteria water program that provides filtered, chilled tap water to 1,668 students in five-gallon dispensers at mealtimes for a cost of $2,000 a year); GRUMMON ET AL., *supra* note 63, at 49-57 (providing cost estimates for fountains and other materials).

[184] Nicosia *supra* note 28.

[185] PRESS RELEASE, CITY OF BALTIMORE, BALTIMORE CITY PUBLIC SCHOOLS' CEO ANNOUNCES SYSTEM-WIDE SHIFT TO BOTTLED DRINKING WATER (Nov. 2007), http://www.greenandhealthyhomes.org/sites/default/files/files/LeadintheWater.pdf.

[186] Patricia Leigh Brown, *The Problem is Clear: The Water is Filthy*, N.Y. TIMES (Nov. 13, 2012) http://www.nytimes.com/2012/11/14/us/tainted-water-in-californiafarmworker-communities.html ?pagewanted=all.

[187] For example, the O'Connor Tract Co-Operative Water Company recently instituted a flushing protocol to address manganese accumulation in the pipes at several apartment complexes in East Palo Alto. Interview with Jeanne Merino, Consulting Supervising Attorney, Community Legal Services in East Palo Alto (June 2, 2015); *see also* Helen H. Kang, *Environmental Law and Justice Clinic Fall 2014 Report* 1-2 (2014), http://digitalcommons.law.ggu.edu/ eljc/24.

containing components.[188] However, in many instances flushing policies should be only a temporary solution. Flushing reduces lead levels for only short periods of time, and without adequate oversight, school employees are unlikely to observe district flushing policies over long periods of time.[189]

E. Traditional Funding Sources

Schools have traditionally turned to the Drinking Water State Revolving Fund and state and local bonds for infrastructure funding needs, and to the district deferred maintenance program for maintenance funding. There is a growing recognition that these funding sources are not enough on their own to cut into the deep school facility funding backlog noted in the last section.

Drinking water infrastructure projects in California are largely funded by the Drinking Water State Revolving Fund,[190] and bonds—like Proposition 50,[191] Proposition 84,[192] and

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[188] *See supra* note 149 and accompanying text.

[189] *See, e.g.*, Joel Grover & Matt Schrader, *Thousands of Children Could Be Drinking Lead-Tainted Water Years After NBC4 Exposed the Problem*, NBCLOSANGELES.COM (Feb. 18, 2015, 11:59 PM) http://www.nbclosangeles.com/investigations/children-could-be-drinking-tainted-water-nbc4-investigation-exposed-292465681.html (describing the fall-off in compliance with Los Angeles Unified School District's "Flushing Policy"; in 2008 up to ninety percent of schools were flushing their fountains, but in 2015 as few as twenty percent of schools visited by District auditors could verify that they were flushing); *see also* US EPA, 3TS FOR REDUCING LEAD IN DRINKING WATER IN SCHOOLS: REVISED TECHNICAL GUIDANCE, 55-56 (2006), http://www.epa.gov/ogwdw/schools/pdfs/lead/ toolkit_leadschools_guide_3ts_leadschools.pdf.

[190] The California Drinking Water State Revolving Fund (DWSRF) is the largest source of funds for priority infrastructure projects to maintain and improve water quality. *Drinking Water State Revolving Fund*, STATE WATER RES. CONTROL BD. (June 19, 2015), http://www.waterboards.ca.gov/drinking_ water/services/funding/SRF.shtml. In fiscal year 2013/2014, the California Department of Public Health disbursed over $176 million in project loan funds. *Safe Drinking Water State Revolving Fund and Source Water Protection Program: Annual Report to the United States Environmental Protection Agency State Fiscal Year: 2013-14*, STATE WATER RES. CONTROL BD. 14 (Mar. 5, 2015) http://www.waterboards.ca.gov/ drinking_water/services/funding/documents/annualrpts/dwsrf_ annual_report_sfy1314.pdf. Projects funded through DWSRF loans and grants include water source development, water storage facilities, treatment systems, distribution systems, interconnections, consolidations, waterline extensions, and water meters. STATE WATER RES. CONTROL BD., DRINKING WATER STATE REVOLVING FUND FREQUENTLY ASKED QUESTIONS 2 (Feb. 9, 2015) http://www.waterboards.ca.gov/drinking_water/services/funding/documents/srf/dwsrf_faq.pdf.

[191] In 2002 Californians passed Proposition 50 to allocate $90 million to the DWSRF, and $70 million to fund infrastructure improvement projects to help community water systems meet safe drinking water standards through monitoring upgrades, treatment facilities, distribution infrastructure improvements, and water source protection.

Proposition 1.[193] These funding sources mostly benefit school water indirectly; when a community water system improves its infrastructure, the schools connected to that system might see water quality improvements.[194]

To improve water quality infrastructure at individual schools, administrators usually must turn to local funding sources.[195] Voters in some parts of the state have passed local bonds to secure the funding needed to conduct basic upgrades. In a few cases, bonds specifically call out improving access to drinking water as a goal. For example, in 2008, voters in Los Angeles

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CAL. WATER CODE § 79530 et seq.; STATE OF CALIFORNIA HEALTH AND HUMAN SERVICES AGENCY, RANKING CRITERIA FOR PROJECTS PROPOSITION 50 9, https://www.cdph.ca.gov/ services/funding/Documents/Prop50/General/ CriteriaforChapters3and4-FINAL.pdf. The funds from this proposition for drinking water quality projects have been fully allocated. CONTAMINATED GROUNDWATER SOURCE, *supra* note 17, at 22.

[192] In 2006 Californians passed Proposition 84 to allocate approximately $250 million to the California Department of Public Health for grants and loans to community and non-community water systems for drinking water planning and infrastructure. CAL. PUB. RES. CODE § 75020 et seq.; *Proposition 84 Funding for Public Water Systems*, CAL. STATE WATER RES. CONTROL BD. (July 1, 2014). http://www.waterboards.ca.gov/drinking_water/services/funding/Prop84.shtml. The majority of the funds are already allocated. CONTAMINATED GROUNDWATER SOURCE, *supra* note 17, at 22.

[193] In 2014 Californians passed Proposition 1 to authorize $7.12 billion in general obligation bonds for state water supply infrastructure projects. $520 million is set aside for expenditures, grants, and loans for projects that improve water quality or help provide clean, safe, and reliable drinking water to all Californians. $260 million is set aside for drinking water projects for disadvantaged communities. PACIFIC INSTITUTE, INSIGHTS INTO PROPOSITION 1: THE 2014 CALIFORNIA WATER BOND v (Oct. 2014) http://pacinst.org/wp-content/uploads/sites/21/2014/10/Insights-into-Prop-1-full-report.pdf.

[194] There are some exceptions. Under current Revolving Fund policy, non-community water systems owned by a public school are eligible for up to $500,000 for a planning project, and up to $5,000,000 for a construction project. OFFICE OF SUSTAINABLE WATER SOLUTIONS, NEWSLETTER 3 (Jan/Feb. 2016), http://www.swrcb.ca.gov/water_issues/programs/grants_loans/sustainable_water_solutions/docs/jan_feb16_osws_newsletter_english.pdf. The Consolidation Incentive Project program offers funding priority to projects where larger water systems to connect with smaller non-community systems, like schools. For example, the City of Fresno is working with the State Water Resources Control Board to extend water services to the Orange Center School to meet safe drinking water standards. In addition, the California legislature passed Assembly Bill 496 last year to make it easier for schools and school districts to directly access state funding streams. The Bill does not provide a new funding pool, but instead requires the California Department of Education to consult with the SWRCB to identify available state funds that schools can apply for. *AB-496 Pupil nutrition: fresh drinking water: funding,* CAL. LEGISLATIVE INFO (Oct. 9, 2015), https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160AB496 (last visited Feb. 1, 2016). The Bill also authorizes the Department of Education to receive money from state and federal sources and allocate it to school districts. *Id.* In theory, this allows school districts to apply to one Department to access the full range of funds available to them.

[195] According to a report on California Schools by the Berkeley Center for Cities and Schools, local bonds have have provided more than half of the revenue for school construction and modernization since 1998. CTR. FOR CITIES & SCHS, CALIFORNIA'S K-12 EDUCATIONAL INFRASTRUCTURE INVESTMENTS: LEVERAGING THE STATE'S ROLE FOR QUALITY SCHOOL FACILITIES IN SUSTAINABLE COMMUNITIES v (2012), http://citiesandschools.berkeley.edu/reports/CCS2012CAK12facilities.pdf.

approved Measure Q to issue the Los Angeles Unified School District seven billion dollars to improve health and safety, in part by addressing "water quality concerns."[196] The district is considering asking voters for more money to provide some of the forty billion dollars still needed to replace roofs, upgrade plumbing, and repair aging campuses.[197]

Schools in less affluent parts of the state do not the benefit from local bonds at the same rate.[198] To make matters worse, the School Facilities Emergency Repairs Account created through the *Williams* settlement legislation to provide school districts with $800 million to "immediately address facility conditions in low performing schools that pose urgent threats to students' health and safety" is no longer active.[199]

To make up for this funding shortfall or supplement state and local funds that are available, many advocates have found that donations from local governments, nonprofit organizations, parents, foundations, and companies can help start water programs with one-time grants.[200] For example, one parent in Oakland was able to obtain funding from the PTA and

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[196] Annie Gilbertson, *LAUSD eyeing more bonds as funds for school repairs dwindle*, S. CAL. PUB. RADIO (Nov. 17, 2014), http://www.scpr.org/blogs/education/2014/11/17/17561/lausd-eyeing-more-bonds-as-funds-for-school-repair/.

[197] *Id.*

[198] *See Build America Bonds*, US DEP'T OF THE TREASURY (May 16, 2011), http://www.treasury.gov/initiatives/recovery/Pages/babs.aspx. Recent research shows that hundreds of California's schools are in areas that have not passed a local bond since 1980. Most of these schools are in rural and low-income parts of the state, meaning some of the California kids with the fewest opportunities are also those trying to learn in the most decrepit school buildings. Szambelan & Gordon, *supra* note 178.

[199] The Facilities Emergency Repairs Account was established to address facility conditions in low performing schools that pose urgent threats to students' health and safety. At least $100 million was supposed to be allocated to the Account each year to exhaust the $800 million by 2012. Instead, only $338 million had been allocated by 2013 and no money was allocated between 2008 and 2013. The State Allocation Board's Office of Public School Construction stopped adding to its workload list in 2008, and districts that applied for help with health and safety repair projects in 2008 continue to wait for funding to go through. In 2013 there were 471 approved yet unfunded Emergency Repairs Account plumbing projects including broken, leaking, or backed up water, sewer, or gas lines; deteriorated water lines, valves, and fixtures. CHUNG, *supra* note 161, at 30. As of late February 2015, $530.7 million had been apportioned and the balance of the money has been claimed. *Emergency Repair Program*, OFFICE OF PUB. CONSTR. (2008), http://www.dgs.ca.gov/opsc/Programs/emergencyrepairprogram.aspx.

[200] The Environmental Protection Agency maintains a listing of foundations that fund projects to improve drinking water quality in schools and child care facilities. *Water Quality Funding Sources for Schools: A Resource*

matching funds from the city council to pay for a hydration station at a school.[201] In Utah, public schools obtained free filters for at least 18,000 drinking fountains across 750 schools by working with a filter manufacturer.[202]

Such one-time grants are often the easiest way to get a drinking water program started. However, grants have fixed timelines and budgets. To maintain water programs beyond the term of a grant and ensure that fountains are regularly inspected and repaired, school districts must fund long-term maintenance. In 2009, when school budgets were reduced statewide, schools were given the flexibility to allocate funding that was traditionally restricted to maintenance to other needs.[203] As a result, nearly every county in the state reported reducing maintenance spending and cutting maintenance staff.[204] Under the new education finance system instituted in 2013—the Local Control Funding Formula—there are no protected deferred maintenance funds.[205] Though the funding districts previously received for deferred maintenance is still included in the new formula, districts are not specifically required to use these funds for that purpose. Instead, districts must come to a decision with input from parents, students, staff and community members about whether they want to spend more or less money for maintenance than they did prior to 2009.[206]

Given the lack of funding, more bills and propositions to fund drinking water

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for K-12 Schools and Child Care Facilities, US EPA, http://www.epa.gov/safewater/schools/pdfs/lead/funding_schools_fundingsources.pdf

[201] Chandran, *supra* note 10, at 10-11.

[202] GRUMMON ET AL., *supra* note 63, at 33.

[203] CHUNG, *supra* note 161, 28. In 2009 the state Legislature also reduced the amount of general funds that schools must set aside for their Routine Restricted Maintenance Accounts, which provide funds for ongoing and major maintenance of school buildings, from thirty percent to one percent. *Id.* at 29.

[204] *Id.* at 29.

[205] CHUNG, *supra* note 161, at 28.

[206] Tandus|Centiva, *How and Why to Budget for Deferred Maintenance in the World of LCFF*, THE CAL. ASSOC. OF SCH. BUS. OFFICIALS (June 17, 2014), http://www.casbo.org/?page=TandusCentiva6102014.

infrastructure are likely to appear over the next year.[207] In the meantime, advocates can turn their attention to making the school budgeting system that is already in place more responsive to drinking water concerns, as discussed in the next section.

F. Local Control Formula Funding

The more flexible nature of the Local Control Funding Formula (LCFF)[208] provides an emerging opportunity for communities to assign more money to evaluating and addressing water quality in schools. The LCFF system works by increasing school funding overall and directing resources to high-needs students.[209] Each school district receives the same "base" grant funding amount per pupil based on grade level. Additional "supplemental" and "concentration" grants are provided based on the number and concentration of high-need students (defined as low-income, English language learner, or foster youth under the law).[210] Districts must use supplemental and concentration grants to "increase or improve services" for the high-need students that allowed the district to apply for the extra grants.[211]

Under the LCFF, every school district is required to develop and adopt a Local Control and Accountability Plan (LCAP) in consultation with parents, students, school personnel, and the

[207] For example, a $9 billion statewide school bond will be on the ballot for November 2016. *Californians for Quality Schools Files Ballot Initiative for 2016 School Facility Bond*, CALIFORNIANS FOR QUALITY SCHS. (Jan. 12, 2015), http://www.californiansforqualityschools.com/californians-quality-schools-files-ballot-initiative- 2016-school-facility-bond/. Proposed Senate Bill 552 (Wolk) specifically focuses on bringing public water systems in disadvantaged communities into compliance with state and federal safe drinking water laws. If it passes in the next legislative session, the SWRCB will be required to develop a report before 2017 to identify funding sources, enforcement mechanisms, and specific legislative and administrative actions necessary to help them come into compliance. S.B. 552 (proposing to add CAL. HEALTH & SAFETY CODE § 11625.5).

[208] *See supra* notes 203-206 and accompanying text.

[209] *See California's New School Finance Law: Local Control Funding Formula*, PUB. ADVOCATES, http://www.publicadvocates.org/californias-new-school-finance-law-local-control-funding-formula-lcff.

[210] *Local Control Funding Formula Overview*, CAL. DEP'T OF EDUC. (Jan. 9, 2015), http://www.cde.ca.gov/fg/aa/lc/lcffoverview.asp.

[211] *Id.*

community.[212] The LCAP is effective for three years[213] and it sets annual goals within eight state priority areas, describes the specific actions the district will take to achieve those goals, and details how funds will be spent to implement those actions.[214]

One of the state priority areas is "compliance with *Williams* requirements,"[215] including the mandate to maintain school facilities in "good repair."[216] Drinking fountains must be clean, "functional, accessible, and free of leaks[,]" with adequate pressure and clear, tasteless, and odorless water.[217] Thus, the LCAP provides an opportunity for districts to include goals and actions to address water quality and access issues.

For example, one goal for the LCAP might be to develop annual maintenance and capital improvement drinking water objectives and align them with maintenance priorities and capital investment programs. Specific actions and expenditures might include: developing an annual assessment of school water to document "good repair," developing of a three-year facilities maintenance plan for cleaning and repairing water fountains, developing a long-term drinking

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[212] School districts are required to "consult with teachers, principals, administrators, other school personnel, local bargaining units of the county office of education, parents, and pupils in developing" the LCAP. CAL. EDUC. CODE § 52060(g) (West 2015). Consultation may occur through surveys, town halls, and meetings with school site councils. At a minimum, the district must form Parent Advisory Committee (composed of a majority of parents and including parents of high-needs students) and English Learner Parent Advisory Committee (if the district includes at least 15% English learners and at least 50 students who are English learners), and employ student surveys, forums, advisory committees or some other mechanism for gathering student input. *Id.* §§ 52063(a), (b) (West 2015); CAL. CODE REGS. tit. 5, §§ 15495(a), (b), (f) (West 2015). The district must present its near final LCAPs to its Parent Advisory Committee (and English Learner Parent Advisory Committee, if applicable) for review, the superintendent must provide an opportunity for members of the public to provide written comments, and the superintendent must respond in writing to any comments received. CAL. EDUC. CODE § 52062(a) (West 2015). Finally, the district must present its LCAP to the public at two board meetings and receive written and oral comments for consideration prior to adoption. *Id.* § 52062(b) (West 2015).

[213] Adopted LCAPs are revisited in years two and three through an "annual update," in which the proposed goals, actions, and expenditures of the latest LCAP are reviewed against actual progress. CAL. EDUC. CODE § 52061 (West 2015).

[214] *Id.* § 52060 (West 2015).

[215] *Id.* § 52060(d)(1); Letter from California Department of Education to County Superintendents, District Superintendents, and Direct-Funded Charter School Administrators, *Local Control Funding Formula* (Aug. 7, 2013), http://www.cde.ca.gov/nr/el/le/yr13ltr0807.asp.

[216] CAL. EDUC. CODE § 17002(d) (West 2015).

[217] *Id.* § 17002 (d)(1)(L) (West 2015); *see supra* notes 155-156 and accompanying text.

water improvement plan that includes pipe and fixture replacement, and restoring maintenance staff.[218]

Funds to improve school facilities can come out of the "base" LCFF, or out of the "concentration" and "supplemental" grants, provided that the district's proposed improvement will meet the LCAP goals for high-needs students,[219] and has the support of parents, students, teachers and community members involved in the LCAP development process.[220]

More funding is needed to avoid reverting to pre-*Williams* facility conditions, and ensure that school facilities are properly maintained.[221] In the meantime, staff, students, parents, and community members can help ensure that a portion of the money allocated to their school district each year goes toward providing safe water.

VII. Conclusion

In 2012 California passed a bill declaring that every human being has a right to "safe, clean, affordable, and accessible water."[222] Yet California has the highest number of schools in the nation with unsafe drinking water.[223] School administrators, state agencies, and all Californians bear a responsibility to ensure that one of the state's most vulnerable populations

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[218] *See* Public Advocates & American Civil Liberties Union California Affiliates, *Basic Necessities: LCAP Guidance for Developing Goals and Specific Actions for the First State Priority*, PUBLIC ADVOCATES (June 20, 2014), http://www.publicadvocates.org/sites/default/files/library/williams_for_lcap.pdf.

[219] The deputy policy director and assistant legal counsel to the State Board of Education has stated that if a district's enrollment of high-needs students is below fifty-five percent, the district would need to describe how the proposed district-wide use of funds is the "most effective" way to meet the district's goals for those students. For a district where the high-needs student enrollment is above fifty-five percent, the district would need to describe how the proposed use of funds would help meet a specific goal for those students. For school-wide expenditures, the requirements are similar, but the enrollment threshold is forty percent. Karla Scoon Reid, *Districts may have funding flexibility to repair and improve school facilities*, EDSOURCE (Apr. 24, 2014), http://edsource.org/2014/districts-may-have-funding-flexibility-to-repair-and-improve-school-facilities/63544.

[220] CAL. EDUC. CODE §§ 52060, 52062-63 (West 2015).

[221] *See* CHUNG, *supra* note 161, at 25-38.

[222] CAL. WATER CODE § 106.3 (West 2015) ("every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes").

[223] Emily M. Thor, *The Human Right to Water in the United States: Why So Dangerous?*, 26 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 315, 326 (2013).

has access to clean water. So far state and national laws have not provided the tools to fulfill this responsibility. With the *Williams* settlement and the growing understanding that water is a necessary component of good nutrition, Californians have more tools at their disposal to find lasting solutions. But there is still more work to be done.

The key to improving water quality in schools, and especially in schools in disadvantaged communities, is the same as for all environmental justice struggles—it is in building the political strength to effectively influence decision-making.[224] I hope that safe drinking water advocates can use some of the resources outlined in this paper to continue to build the movement to secure the human right to safe drinking water.

[224] *See generally* Luke Cole, Empowerment as the Key to Environmental Protection: the Need for Environmental Poverty Law, 19 ECOLOGY L. Q. 619 (1992).

Appendix A: Violation and Reporting Levels for Contaminants of Concern

Arsenic and Nitrate Maximum Contaminant Levels and Reporting Levels

Contaminant	Maximum Contaminant Level (mg/L)	Detection Limit for Purposes of Reporting (mg/L)	Warning in Consumer Confidence Report (mg/L)
Arsenic[225]	0.01[226]	0.002	0.005-0.01
Nitrate (as NO_3)*[227]	45	2	N/A
Nitrate (as N)*[228]	10	0.4	> 5, <10
Nitrate + Nitrite (as N)*[229]	10	N/A	N/A
Nitrite (as N)*[230]	1	0.4	N/A

* The maximum contaminant levels for nitrate measured as NO_3, nitrite measured as N, and the other nitrate measurements are all essentially the same; they are simply based on different chemical structures.[231]

Lead and Copper Action Levels and Reporting Levels

Contaminant	Action Level	Detection Limit for Purposes of Reporting	Warning in Consumer Confidence Report
Lead[232]	If more than 10% of tap samples collected in a six-month period exceed 0.015 mg/L	0.005 mg/L	5-10% of samples exceed the action level
Copper[233]	If more than 10% of tap samples collected in a six month period exceed 1.3 mg/L	0.05 mg/L	N/A

[225] CAL. CODE REGS. tit. 22, §§ 64431 (2016) (maximum contaminant level), 64432 (detection limit for purposes of reporting), 64482(a) (consumer confidence report level).

[226] In 2008, California lowered the arsenic maximum contaminant level (MCL) from 0.05 milligrams per liter (mg/L) to 0.01 mg/L to protect consumers served by public water systems from the health risks associated with arsenic exposure. *Arsenic in Drinking Water: MCL Status*, STATE WATER RES. CONTROL BD., http://www.waterboards.ca.gov/drinking_water/certlic/ drinkingwater/Arsenic.shtml (last updated Feb. 25, 2015).

[227] STATE WATER RES. CONTROL BD., GROUNDWATER INFORMATION SHEET: NITRATE 1 (2010), http://www.waterboards.ca.gov/gama/docs/coc_nitrate.pdf.

[228] CAL. CODE REGS. tit. 22, §§ 64431 (2016) (maximum contaminant level), 64432 (detection limit for purposes of reporting), 64482(b) (consumer confidence report level).

[229] *Id.*

[230] *Id.*

[231] FIRESTONE, *supra* note 19, at 142.

[232] CAL. CODE REGS. tit. 22, §§ 64671.55 (2016) (reporting period), 64678(d) (action level), 64678(a) (detection limit for purposes of reporting), 64482(c) (consumer confidence report level).

[233] *Id.* §§ 64671.55 (reporting period), 64678(a) (detection limit for purposes of reporting), 64678(e) (action level). Copper also has a secondary maximum contaminant level of 1.0 mg/L. *Id.* § 64449.

Total Coliform Maximum Contaminant Levels

Number or Type of Samples[234]	Trigger[235]
Public water system (PWS) collecting < 40 routine samples per month	One sample is total coliform positive
PWS collecting ≥ 40 routine samples per month	More than 5% of samples are total coliform positive
Repeat sample after total coliform-positive routine sample	One sample is fecal coliform- or *E. coli*-positive
Repeat sample after fecal coliform- or *E. coli*-positive routine sample	One sample is total coliform-positive

Manganese and Iron Secondary Maximum Contaminant Levels and Reporting Levels

Contaminant	Secondary Maximum Contaminant Level (mg/L)	Notification Level
Manganese[236]	0.05	0.5
Iron[237]	0.3	

Appendix B: Monitoring Requirements for Contaminants of Concern

Arsenic (and other inorganic chemicals excluding asbestos, perchlorate, nitrate and nitrite)

Routine Monitoring[238]	Monitoring Once Violation Is Detected	Resuming Routine Monitoring[239]	Waiver[240]
Groundwater Systems Every source must be tested once during each three-year compliance period. **Surface Water Systems** Annually	If arsenic is detected at a level above the MCL during routine monitoring, the PWS must: 1) repeat sampling quarterly (every 3 months), or 2) calculate the average with a second sample within 14 days, and begin sampling quarterly if the average exceeds the MCL.[241] If monitoring results show that concentrations are increasing over time, quarterly monitoring is also required.[242]	**Groundwater Systems** If arsenic is detected at a level below the MCL for two quarterly samples in a row, the PWS can apply to reduce the monitoring frequency to once during each three-year compliance period. **Surface Water Systems** If arsenic is detected at a level below the MCL for four quarterly samples in a row, the PWS can apply to reduce the monitoring frequency.	If arsenic is detected at a level below the MCL for three routine samples in a row, the PWS can apply for a waiver. A PWS on a waiver must take at least one sample in every nine-year compliance cycle.

[234] System providers must monitor for the presence of total coliforms in the distribution system at a frequency proportional to the number of people served by the system. *Id.* § 64423.

[235] *Id.* § 64426.1(b).

[236] CAL. CODE REGS. tit. 22, §§ 64449(a) (West 2015) (secondary maximum contamination level); STATE WATER RES. CONTROL BD., DRINKING WATER NOTIFICATION LEVELS AND RESPONSE LEVELS: AN OVERVIEW 1 (Feb. 4, 2014) http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/notificationlevels/notificationlevels.pdf.

[237] CAL. CODE REGS. tit. 22, §§ 64449(a) (West 2015).

[238] *Id.* §§ 64400.25 (compliance period length), 64432(c)(1) (monitoring frequency). Systems that combine water from surface and groundwater sources must monitor at distribution entry points annually. *Id.* § 64432(c)(1).

[239] *Id.* § 64432(j).

[240] *Id.* § 64432(m).

[241] *Id.* § 64432(g).

[242] *Id.* § 64432(c)(2).

Nitrate and Nitrate

	Routine Monitoring[243]	Monitoring Once Nitrate or Nitrite Is Detected at Greater Than 50% of the MCL[244]	Resuming Routine Monitoring and Reducing Monitoring[245]
Nitrate	**Groundwater Systems** Annually **Surface Water Systems** Quarterly	If nitrate is detected at greater than 50% of the MCL, the PWS must collect sample quarterly for at least one year.	**Groundwater Systems** If nitrate is detected at a level below the MCL in four consecutive quarterly samples, the PWS can request to reduce monitoring to once a year. **Surface Water Systems** If nitrate is detected at a level less than 50% of the MCL in four consecutive quarterly samples, the PWS can request to reduce monitoring to once a year. Once a PWS begins annual monitoring after a round of quarterly sampling, the PWS must still sample in the quarter that had the highest concentration of nitrate.
Nitrite	Once during each three-year compliance period.	If nitrite is detected at greater than 50% of the MCL, the PWS must collect sample quarterly for at least one year.	If nitrite is detected at a level below the MCL in four consecutive quarterly samples, the PWS can request to reduce monitoring to once a year. Once a PWS begins annual monitoring after a round of quarterly sampling, the PWS must still sample in the quarter that had the highest concentration of nitrite.

Lead and Copper

Public Water Systems must monitor for lead and copper at residential and other building taps, and at the entry points of the source water into the distribution system.[246] The number of required tap sample sites depends on the size of the system—ranging from 5 in a system serving 100 or less to 100 in a system serving 100,000 or more.[247] Fifty percent of these samples must be from sites with lead service lines.[248]

[243] *Id.* § 64432.1(a) (nitrate), (b)(3) (nitrite).
[244] *Id.* § 64432.1(a)(2)-(3) (nitrate), (b)(2) (nitrite).
[245] *Id.*
[246] *Id.* §§ 64675-64679, 64680–64682 (West 2015).
[247] *Id.* §§ 64675-64679 (West 2015).
[248] *Id.* § 64675(e) (West 2015).

Routine Monitoring[249]	Monitoring Once Violation Is Detected[250]	Resuming Routine Monitoring and Reducing Monitoring
Once every six months.	If lead and copper action levels are exceeded in more than 10% of the samples, the PWS must monitor source water within six months, conduct additional tap monitoring, and determine if corrosion control treatment, source water treatment, or lead service line replacement is necessary.	If at least 90% of samples in two monitoring periods are 0.015 mg/L or less for lead and 1.3 mg/L or less for copper, a PWS conducting additional monitoring due to an action level exceedance may resume routine monitoring.[251] If at least 90% of samples in two consecutive routine, six-month sampling periods are 0.005 mg/L or less for lead and 0.65 mg/L or less for copper, a PWS can sample fewer sites and reduce sampling to once every three years.[252] If at least 90% of samples in two consecutive routine, six-month sampling periods are between 0.005 and 0.015 mg/L for lead and between 0.65 and 1.3 mg/L for copper, the PWS can ask for permission from the SWRCB to sample fewer sites and reduce sampling to once per year. If results are below action levels for two years of annual sampling, the PWS can ask for permission to reduce sampling to once every three years.[253] A PWS with less than 3,300 people can apply for a waiver if at least 90% of samples in at least one routine, six-month sampling period are below 0.005 mg/L for lead and 0.65 mg/L for copper. A PWS with a waiver can sample fewer sites and reduce monitoring to once every nine years.[254]

Total Coliform

Routine Monitoring[255]	Monitoring Once Violation Is Detected[256]	Reducing Monitoring[257]
Depending on the size of the PWS, sampling frequency ranges from one sample per month for a PWS serving less than 1,000 people and 15-400 connections, to 120 samples per week for a PWS serving more than 3,960,000 people and 1,414,300 connections.	If one sample (or five percent of samples if the PWS collects more than forty samples per month) tests positive for total coliforms, the PWS must collect a set of repeat samples located at adjacent sites within twenty-four hours. When a routine or repeat sample tests positive for total coliforms, it must also be analyzed for fecal coliforms or *E. coli*.	A water PWS can apply for a variance from total coliform monitoring if the PWS meets specific requirements indicating that a dangerously high level of bacterial contamination is unlikely, including no *E.coli*-positive samples in the six months prior to the variance request, and less than one total coliform per hundred milliliters of water in at least ninety-five percent of all samples in the thirty days prior to the variance request.

[249] *Id.* § 64671.55.
[250] *Id.* §§ 64678(d)–(e) (lead and copper action level exceedance explanation), 64673(c)–(d) (requirements for small and medium systems), 64674(e)–(f) (requirements for large systems), 64685(a) (source monitoring time limit).
[251] *Id.* § 64673(e) (small and medium systems), 64674(d)(4) (large systems).
[252] *Id.* § 64675.5(a)(1).
[253] *Id.* § 64675.5(a)(2).
[254] *Id.* § 64678.5(a)–(c).
[255] *Id.* § 64423.
[256] *Id.* §§ 64423–24.
[257] *Id.* §§ 64423(a)(1–3), 64426.5.

		A PWS that uses groundwater and serves less than 1,000 people can request permission from to reduce bacteria monitoring to one sample every three months.

Manganese and Iron

Routine Monitoring[258]	Monitoring Once Violation Is Detected[259]	Resuming Routine Monitoring and Reducing Monitoring[260]
Community Water Systems For groundwater systems, every source or distribution entry point must be tested once during each three-year compliance period. Surface water systems must be tested annually. **Non-transient, Non-community Water Systems** Must monitor secondary contaminants "at least once."	If a violation is detected at a community water system, the system must begin monitoring quarterly, and thereafter determine compliance based on the average of four consecutive quarterly samples.	If the average of four quarterly samples does not exceed the sMCL and the samples do not show that concentrations are increasing over time, a community water system can request to reduce monitoring frequency. If, after three rounds of regular monitoring, none of the samples contain a contaminant above the sMCL, the community water system may apply to SWRCB for a waiver. Community water systems with a waiver need only collect one sample over the nine-year waiver period.

[258] *Id.* § 64449(b) (community water systems), (g) (non-transient, non-community water systems).
[259] *Id.* § 64449(c).
[260] *Id.* § 64449(c)(4) (reducing monitoring frequency), (f) (waiver).

Appendix C: Reporting and Notice for Contaminants of Concern

	Regular Reporting	Violation Notice
Arsenic	The PWS must report the results of all samples to the SWRCB no later than the tenth day following the month they were collected.[261] The PWS must report violations, contaminant levels, exceptions, and variances in annual consumer confidence reports.[262]	If a sample exceeds the arsenic MCL, the PWS must issue a Tier 2 notice within 30 days, unless the SWRCB determines that a Tier 1 notice is required based on "potential health impacts and persistence of the violations." [263] The PWS must notify local city and governing bodies of any arsenic MCL violation.[264]
Nitrates and Nitrites	The PWS must report the results of all samples to the SWRCB no later than the tenth day following the month they were collected.[265] The PWS must report violations, contaminant levels, exceptions, and variances in annual consumer confidence reports.[266]	If a sample exceeds the ntrate or nitrite MCL, the PWS must take a confirmation sample within twenty-four hours, or issue a Tier 1 notice and take a confirmation sample within two weeks.[267] If a the PWS confirms that a nitrate or nitrite MCL violation, the PWS must issue a Tier 2 notice within 30 days, unless the SWRCB determines that a Tier 1 notice is required based on "potential health impacts and persistence of the violations." [268] The PWS must notify local city and governing bodies of any nitrate or nitrite MCL violation.[269]
Lead and Copper	The PWS must deliver a consumer notice of lead results to "the persons served by the water system at the specific sampling site from which the sample was taken (e.g. the occupants of the residence where the tap was tested)," within thirty days of knowing the sample result.[270] The PWS must report the results of all tap samples to the SWRCB within the first ten days after the end of each period that sampling was conducted.[271] The PWS must report violations, contaminant levels, exceptions, and variances in annual consumer confidence reports.[272]	Whenever lead levels exceed the action level, the PWS must issue public education materials, including an informational poster on lead that must be placed in "a public place or common area in each of the buildings served by the system." The PWS must also give informational pamphlets to "each person served by the system." These posters and brochures must be issued within sixty days of the exceedance and reissued for every twelve months as long as the exceedance continues.[273] The PWS must notify local city and governing bodies of any lead or copper MCL violation.[274]

[261] CAL. CODE REGS. tit. 22, § 64469 (2016).
[262] *Id.* §§ 64480–83.
[263] *Id.* § 64463.4(a).
[264] CAL. HEALTH & SAFETY CODE § 116455 (West 2016).
[265] CAL. CODE REGS. tit. 22, § 64469 (2016).
[266] *Id.* §§ 64480–83.
[267] *Id.* § 64432.1(a)(1)(C).
[268] *Id.* § 64463.4(a).
[269] CAL. HEALTH & SAFETY CODE § 116455 (West 2016).
[270] 40 C.F.R. § 141.85(d) (2016).
[271] CAL. CODE REGS. tit. 22, § 64690.10 (2016).
[272] *Id.* §§ 64480–83.
[273] ENVTL. PROT. AGENCY, LEAD AND COPPER RULE, http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10058C5.txt; *see also* CAL. CODE REGS. tit. 22, §§ 64673(d)(1) (2016) (small and medium-sized water system public education requirement), 64673(e)(2) (large water system public education requirement).
[274] CAL. HEALTH & SAFETY CODE § 116455 (West 2016).

Total Coliform	The PWS must report the results of all samples to the SWRCB no later than the tenth day following the month they were collected.[275] The PWS must report violations, contaminant levels, exceptions, and variances in annual consumer confidence reports.[276]	A Tier 1 notice is required when there is a violation of the total coliform MCL, when fecal coliform or *E. coli* is present in the water, and when a repeat sample tests positive for coliform and the PWS fails to test for fecal coliform or *E. coli* in the repeat sample.[277] If the PWS violates the monitoring and testing requirements for bacteriological quality, the SWRCB can require the PWS to issue a Tier 2 notice depending on the "potential health impacts and persistence of the violations."[278] The PWS must notify users of a significant rise in bacterial count through an emergency notification plan.[279] The PWS must notify local city and governing bodies of any total coliform MCL violation.[280]
Manganese and Iron	The PWS must report the results of all samples to the SWRCB no later than the tenth day following the month they were collected.[281] The PWS must report violations, contaminant levels, exceptions, and variances in annual consumer confidence reports.[282]	If a sample's manganese concentrations exceed the notification level, the PWS must notify local city and governing bodies.[283] When the average of any four consecutive samples exceeds the sMCL, the PWS must notify the SWRCB.[284]

[275] CAL. CODE REGS. tit. 22, § 64469 (2016).
[276] *Id.* §§ 64480–83.
[277] *Id.* § 64463.1(a)(1).
[278] *Id.* § 64463.4(a)(2).
[279] *Id.* § 64426.
[280] CAL. HEALTH & SAFETY CODE § 116455 (West 2016).
[281] CAL. CODE REGS. tit. 22, § 64469 (2016).
[282] *Id.* §§ 64480–83.
[283] CAL. HEALTH & SAFETY CODE § 116455 (West 2016).
[284] CAL. CODE REGS. tit. 22, § 64449(c)(3) (2016).