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Safe to Drink Portal Mock-up

“Is my water safe to drink?”

Presented by:
Safe Drinking Water Workgroup
December 12, 2013
Mark Emmerson, Lead



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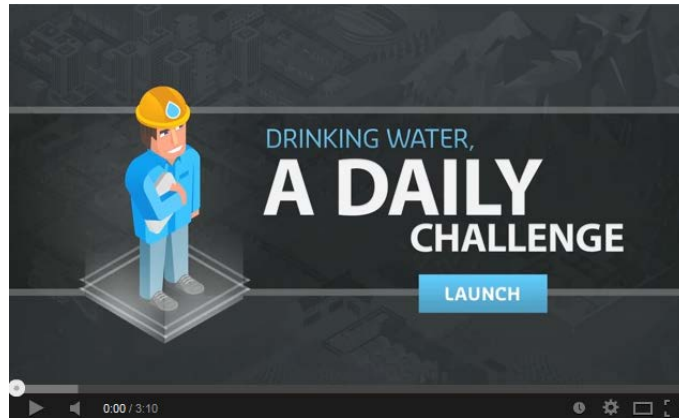
Portal Characteristics

- Five Primary Navigation Tabs
 - Tap Water
 - Water Sources
 - Made Safe
 - Contaminants
 - Contacts
- 40-plus pages
- Dynamic rendering of lists and graphs
- IFrame use of GeoTracker GAMA
- Use of media libraries of:



Safe To Drink

Is our Drinking Water safe?



Water is essential for life as we know it. Water grows our food, nurtures our landscapes and provides habitat for wildlife. Water powers turbines for electricity and serves as the lifeblood of industry.

And, of course, we also depend on clean water to drink.

In California, most residents get their drinking water piped through a public water system operated by a city or district agency or a private water company. In addition, about 4 million people get their water pumped from domestic or private wells.

California's drinking water supply is one of the safest in the world. Still, human and animal waste, industrial

QUESTIONS ANSWERED

- [Is my tap water safe to drink?](#)
- [What is the source of my water?](#)
- [What is in my drinking water?](#)
- [How is my drinking water treated?](#)
- [How is my drinking water made safe?](#)
- [How safe is groundwater? Surface water?](#)
- [Drinking water FAQ \(including taste/smell and other general questions\)](#)
- [Who do I contact about my water?](#)

http://www.youtube.com/watch?v=rleyFc9S_bg

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[Tap Water](#) | [Water Quality](#)

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Click on a county, or enter a system ID number or name below

[CLOSE](#)

ID	System Name
CA3400204	7042 FOLSOM LLC WATER SYSTEM
CA3400352	ACORN MOBILE VILLAGE
CA3400429	ADESA OF SACRAMENTO
CA3400100	ALAMAR MARINA
CA3400278	AMERICAN RIVER COLLEGE
CA3400424	ARCO AM PM
CA3400271	ARCOHE ELEM SCHOOL - MAIN CAMPUS
CA3400140	ASPEN GROVE MH & RV PARK
CA3400103	B & W RESORT MARINA
CA3400267	BATES ELEMENTARY SCHOOL
CA3400380	BERT S DINER
CA3400445	BING S MARKET
CA3400387	BLUE DIAMOND GROWERS
CA3400391	BRADSHAW CHRISTIAN SCHOOL
CA3400382	BRADSHAW RANCH GOLF COURSE INC
CA3400180	BRANCH CENTER [SWS]
CA3410302	BRANNAN ISLAND STATE REC. AREA



interest groups that have more details about individual water providers.

SELECT YOUR WATER SYSTEM?

- [How safe is groundwater? Can we drink it?](#)
- [Drinking water FAQ \(including taste/smell and other general questions\)](#)
- [Who do I contact about my water?](#)

SAFE TO DRINK

[CLOSE](#)

Click on a county, or enter a system ID number or name below

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CA3400204	7042 FOLSOM LLC WATER SYSTEM
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CA3400180	BRANCH CENTER [SWS]
CA3410302	BRANNAN ISLAND STATE REC. AREA



state and federal agencies that can provide more information about these topics, as well as statewide water interest groups that have more details about individual water providers.

SELECT YOUR WATER SYSTEM?

- [How is my drinking water made safe?](#)
- [How safe is groundwater? Surface water?](#)
- [Drinking water FAQ \(including taste/smell and other general questions\)](#)
- [Who do I contact about my water?](#)



[Safe To Drink](#) → [Tap Water](#)

Tap Water

What is in the tap water that is delivered to me?

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- [Natural Resources Agency](#)
- [About the California Water Quality Monitoring Council](#)

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Is in my tap water safe to drink?



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[<Link to EPA SDWA page>](#)

WATER BEING 'SAFE'

- All drinking water has contaminants, some harmful, some benign, some in large concentrations, and some in low.
- The [U.S. Environmental Protection Agency \(EPA\)](#) defines drinking water as "safe" when it can be consumed by humans with low risk of immediate or long-term harm. It must have low concentrations of harmful contaminants below an acceptable level.
- Not all harmful contaminants are regulated, and private domestic wells are not subject to regulatory oversight.
- The EPA sets standards for many harmful contaminants under the [Safe Drinking Water Act \(SDWA\)](#), and the California Department of Public Health, Drinking Water Program, regulates public water systems as delegated by the EPA.

[<Link to treatment page>](#)

Drinking water supplied by public water systems receives appropriate treatment to reduce and/or remove any regulated contaminants that pose a public health threat. That doesn't mean that drinking water is



"SAFE" TAP WATER QUESTIONS ANSWERED

- [What is reported in the Consumer Confidence Report for my water system?](#)




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- Safe to Swim
- Safe to Eat Fish
- Ecosystem Health
- Stressors & Processes
- Contact Us

Tap Water | Water Sources | Made Safe | Contaminants | Contacts

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Safe To Drink → Tap Water



Is in my tap water safe to drink?

WATER BEING 'SAFE'

- All drinking water has contaminants, some harmful, some benign, some in large concentrations, and some in low.
- The [U.S. Environmental Protection](#)



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Legend of Water Quality Test Results

Source – the reference number and name of the intake, well, or location where the water sample was taken

Sampled – the date when the sample was taken

Analyte – in this case, the name of the contaminant in the water whose level is being tested

Result – the numeric value of the test result. If the result has



[Safe to Drink](#) → [Tap Water](#) → [Health Effects](#)

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. There are regulatory standards for over 90 contaminants and indicators in drinking water. The presence of indicators at a level outside of specified limits may reflect a problem in the treatment process or in the integrity of the distribution system.

There is a difference between a **Public Health Goal** (PHG) as set forth by the [California Office of Health Hazard Assessment](#) (OEHHA) and a **Maximum Contaminant Level** (MCL) as established by the EPA and the CA Department of Public Health. To see health effects discussions associated with a PCG and MCL, please use the table below.

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Contaminant (and link to EPA Health Effects)	U.S. EPA		California		CA Public Health Goal
	MCL (mg/L)	Date ^a	MCL (mg/L)	Effective Date	parts per billion (ppb) or mg/L
<i>Inorganics</i>					
Aluminum	0.05 to 0.2 ^b	Jan-91	1	2/25/1989	600
			0.2 ^b	9/8/1994	
Antimony	0.006	Jul-92	0.006	9/8/1994	20
Arsenic	0.05	eff: 6/24/77	0.05	77	0.004
			0.01	11/28/2008	
Asbestos	7 MFL ^c	Jan-91	7 MFL ^c	9/8/1994	7x106 fibers/L
Barium	1	eff: 6/24/77	1	77	2000
Beryllium	0.004	Jul-92	0.004	9/8/1994	1
Cadmium	0.01	eff: 6/24/77	0.01	77	



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[Safe To Drink](#) → [Tap Water](#) → [Consumer Confidence Report](#)

What is reported in the Consumer Confidence Report for my water system?



Consumer Confidence Reports (CCR) are mandated by both federal and state laws requiring public water systems to report annually upon the quality of drinking water served by that system to its customers. Summarizing, the information required in the report includes:

- Sources used (i.e., rivers, lakes, reservoirs, or aquifers)
- Detected contaminants in the water
- Compliance on how the system is meeting drinking water contamination levels
- Other educational information

Reports are due by July 1st reporting upon the quality of water for the previous calendar year.

Here's a sample of a Consumer Confidence Report



How do I get a copy of my CCR?

CCRs are generally mailed to each individual account within the water system, not to each individual in the water system service area. The report would go to the owner of an apartment complex, but not necessarily mailed to each apartment renter. There is a requirement upon the water system, however, that reasonable effort be made to make available CCRs to all who ask for them and to promote to customers the availability of the CCR.

Recently, the EPA re-interpreted the requirement for mailing the CCR to now include posting of the CCR on a web site. Water systems may now convey a link on their bills or other notice to where the CCR may be viewed in lieu of having to mail individual copies.

Carmichael Water District – CA 3410004 – Consumer Confidence Report



7837 Fair Oaks Boulevard
Carmichael, CA 95608
(916) 483-2452
www.carmichaelwd.org

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Division 4

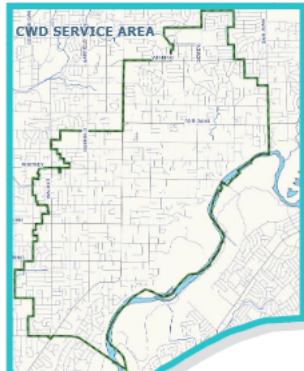
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Steve Nugent

CARMICHAEL WATER DISTRICT 2012 Consumer Confidence Report



This report contains important information about your drinking water.

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

A copy of the complete Source Water Assessment is available for inspection at the Carmichael Water District (CWD) office, 7837 Fair Oaks Blvd., Carmichael, CA, 95608. You may request a summary of the assessment be sent to you by contacting the District's Public Information Officer Chris Nelson at (916)483-2452.

Public Meetings

The Carmichael Water District Board of Directors typically meets at 7:00 pm on the third Monday of each month at the Carmichael Water District office. Meeting dates are posted at

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CARMICHAEL WATER DISTRICT 2012 Water Quality



Testing Program Shows Carmichael Water District's Drinking Water is Safe and Healthy

Demonstrating its commitment to public health protection and the public's right-to-know about local environmental information, the U.S. Environmental Protection Agency (USEPA) and California Department of Public Health (CDPH) require water suppliers to provide annual drinking water quality reports to its customers. This publication summarizes the most recent testing and includes a comparison of detectable constituents in your drinking water against established federal and state standards.

This year's report concludes that, once again, your drinking water meets or exceeds all federal and state drinking water standards.

Water Efficiency Tips

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference, try one today and soon it will become second nature.

- Take short showers—a 5 minute shower uses 4-5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead and save up to 750 gallons a month.
- Fix leaking toilets and faucets. Fixing or replacing a leaking toilet can save up to 1,000 gallons a month.
- Adjust sprinklers so only your landscape is watered. Apply water only as fast as the soil can absorb it. Applying water during the cool parts of the day will reduce evaporation.
- Teach your kids about water conservation to ensure a future generation that uses water wisely.
- Visit our website at www.carmichaelwd.org for more information on our conservation programs.

Where Does Our Water Come From?

Carmichael Water District's (District) approximately 38,354 customers receive on average approximately 84 percent of their water from the American River (surface water) and 16 percent from District groundwater wells. Since the expansion of the water treatment plant in 2008, the District has reduced the number of groundwater sources to three primary wells. The wells are operated seasonally, May through September. The water is tested for more than 200 constituents on a regular basis. Water samples are subject to the most up-to-date testing methods and then are re-tested for accuracy. Samples are then measured against state and federal standards to ensure quality.

The CDPH requires water providers to conduct a Source Water Assessment to help protect the quality of future water supplies. This assessment describes where a water system's drinking water comes from, the types of polluting activities that may threaten source water quality and an evaluation of the water's vulnerability to those threats.

Groundwater and Surface Water Assessment

To meet the CDPH requirements and provide our customers with information about our water supply, the District completed the American River Watershed Sanitary Survey in 2008.

The results indicate that our surface water source, the American River, is considered most vulnerable to contamination from sewer system spills, body contact, recreation, urban runoff and discharge of regulated and unregulated contaminants. The contaminants to which the surface water sources are considered most vulnerable include the following: perchlorate, nitrosodimethylamine (NDMA) and volatile organic chemicals discharged into the American River by the Aerojet General Corporation. Aerojet is under the joint regulatory oversight of the USEPA, California Department of Toxic Substance Control and the California Regional Water Quality Control Board.

The groundwater sources are considered most vulnerable to contamination from illegal activities and unauthorized dumping, sewer collection systems, dry cleaners, automobile repair shops, chemical/petroleum pipelines, electrical/electronic manufacturing, underground storage tanks and gas stations. The contaminants to which groundwater sources are considered most vulnerable include the following: liquid rocket fuel (NDMA), rocket fuel propellant (perchlorate), dry cleaning solvent (PCE), and gasoline additive (MTBE).



[Safe To Drink](#) → [Water Sources](#)

Water Sources

What is the source of my water?

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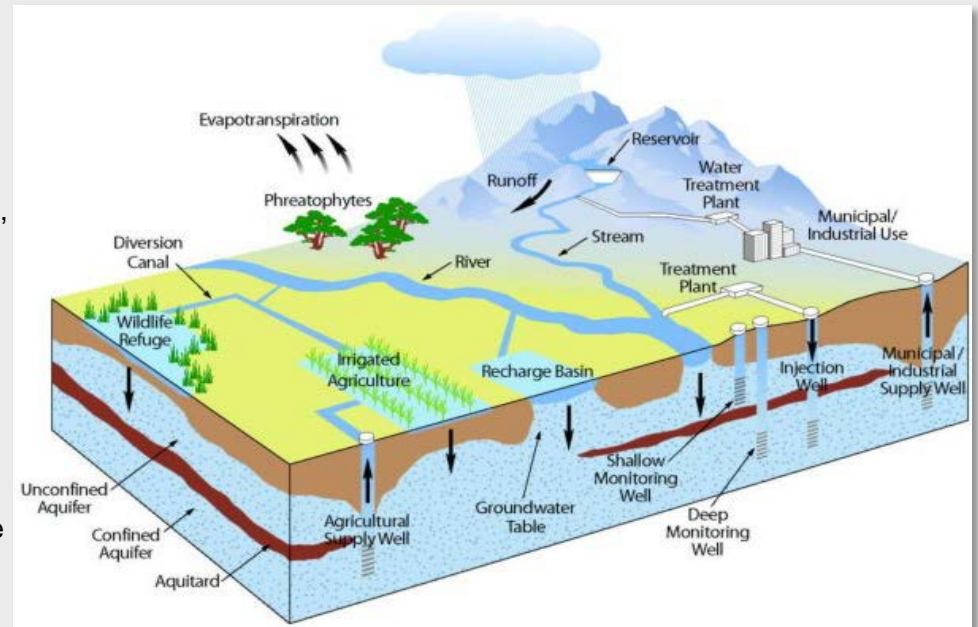
[Safe To Drink](#) → [Water Sources](#)



What is the source of my water?

It starts with the **HYDROLOGIC CYCLE**

- The cycle begins with evaporation and transpiration of water from the Earth's surfaces. As moist air is lifted, it cools and water vapor condenses to form clouds. Moisture is transported around the earth until it returns to the surface as rain or snow.
- Once the water reaches the ground, some may evaporate again, some becomes surface water, and some may penetrate the surface and become groundwater.
- The balance of water that remains on the Earth's surface is runoff, which empties into lakes, rivers and streams and is carried back to the oceans, where the cycle begins again.



[Click diagram to enlarge](#)

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- [<Link to workgroup page>](#)

Your drinking water comes from surface water sources for example, rivers, lakes, streams and reservoirs, or groundwater wells drilled into underground aquifers, or a blend of source waters. Source water is then treated

SOURCE WATER QUESTIONS ANSWERED

→ [What do we know about our water sources?](#)



Safe To Drink → Water Sources → Source Info

What do we know about our water sources?



SURFACE WATER AND GROUNDWATER SOURCES

Surface and ground water supplies are readily used for drinking water sources because of their abundant supply, cost, and availability through water rights which guarantee the use of these sources for municipal and industrial uses.

Water supplies, whether surface water or groundwater, throughout California are among the safest and cleanest in the world. The California Department of Public Health, Division of Drinking Water and Environmental Management, through the U.C. Davis Information Center for the Environment provide a service where you can locate information about your drinking water system.



- Click on the Drinking Water Watch button below
- Enter your **Water System Name** or the **County** in which you live
- Click the **Search For Water Systems** button
- Select your water system from the list provided by clicking on its **Water System Number**

[When available, swap out for map-based selection tool.]



<Link to <http://www.drinc.ca.gov/DWW/>>

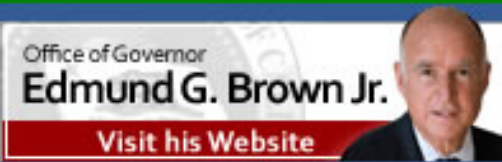
You will be provided with many details about your water system, including:

- Contact information
- Annual dates of operation
- Population served

WHAT ABOUT SEA WATER?

Sea water may be used for drinking water, but first it must have the salt removed (desalinated) before it can be treated to become fresh drinking water.

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How do we assess the safety of our water sources?

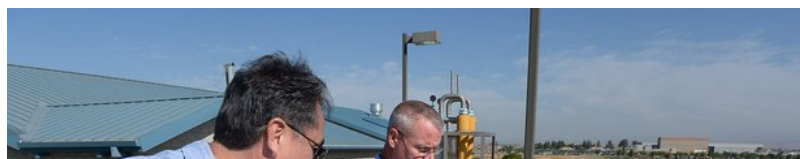
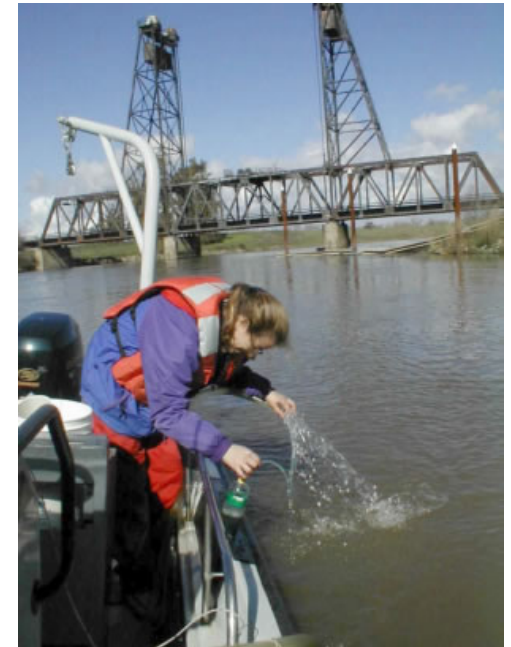


One of the best ways to protect drinking water quality is to make sure contaminants don't get into the water supply in the first place. This can be more difficult than it seems, however. Surface water is vulnerable to all kinds of pollutants from just about everywhere. Anything that is placed or spilled onto the land, washed into the water, even airborne particles like pollen or smog finds its way into water supplies. The first step is to find out what's in the water and where it is coming from.

Understanding what's in the water in the near-term and long term allows the state to create strategies to better protect surface water from industrial discharges, spills, urban runoff, and pesticides. Although chemical contamination is a concern, public health officials say that the biggest threat to public health is bacteria, viruses and parasites that thrive in water.

Watershed Sanitary Surveys

Drinking water utilities that use surface water as a source are required to conduct a comprehensive sanitary survey of source watersheds, under the California Surface Water Treatment Rule. This survey must be updated every five years. The purpose of the survey is to identify actual or potential sources of contamination, or any other watershed-related factor, which might adversely affect the quality of water used for domestic drinking water. Specific objectives include:



- Provide a general description of the local source water system.
- Provide a general description of existing environmental conditions in the

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What is the quality of our surface water sources?

<Link graphic to <http://aquaforia.com/projects/SWPSlideshowCP/SWPSlideshowCP.swf>>



STATE WATER PROJECT: *Connecting California's Water*



© Water Education Foundation



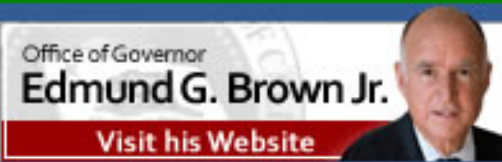
The California State Water Project is a water storage and delivery system of reservoirs, aqueducts, power generating plants and pumping plants. It extends for more than 600 miles, two-thirds the length of California. Planned, constructed, and operated by the Department of Water Resources (DWR), the State Water Project is the largest state-built, multi-purpose water project in the U.S. It provides water supply to more than 25 million Californians in Northern California, the Bay Area, the San Joaquin Valley, the Central Coast and Southern California. The system also provides flood control, power generation, recreation, fish and wildlife protection, and water quality improvements in the Sacramento-San Joaquin Delta.



Measuring Delta Water Quality

DWR's [Division of Operations & Maintenance \(O&M\)](#) monitors surface water quality along the State Water Project at various locations, and the [Environmental Water Quality and Estuarine Studies program](#) and the [Municipal Water Quality Investigations \(MWQI\) program](#) monitors surface water quality in the Sacramento-San Joaquin Delta, both for drinking water purposes. These are the longest continuous monitoring programs for drinking water constituents at DWR. Data are generated from discrete samples,





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Which Surface Waters Are Listed by the State as Impaired for Drinking-Related Uses?

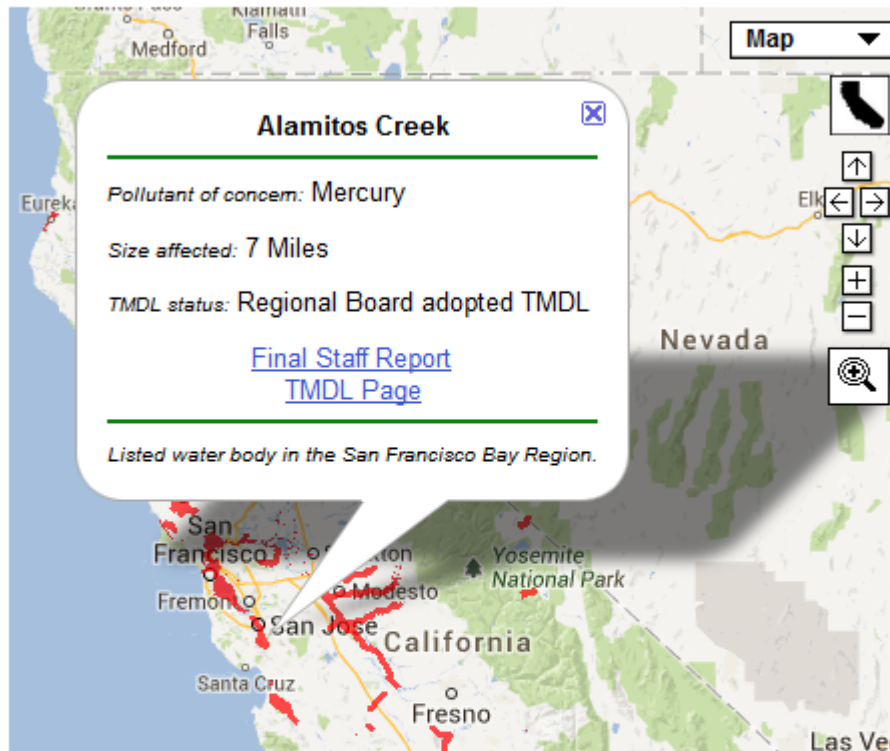


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County: Water Body:
 Show county



This interactive map shows which of California's surface waters are listed as impaired for uses related to sources of drinking water and which pollutants are involved. Also shown are the Total Maximum Daily Load (TMDL) projects to reduce pollutants to acceptable levels.

Note: These listings are for waters that are to be protected as sources of municipal or domestic water supply as designated by the California Water Boards. Through treatment and blending, such waters may be made potable – meeting all drinking water standards – prior to being delivered to customers. Therefore, listing as “impaired” does not necessarily mean that customers are being served unsafe water at the tap.



View 2010 Impaired Waters Listing and current TMDL Information:

→ Click on a water body shown in

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What is the quality of our groundwater sources?



Over 95 percent of the 38 million California residents get their drinking water from a public or municipal source - these supplies are typically treated to ensure that the water is safe to drink. Combined, Californians use more groundwater than any other state in the country, equal to about 15 billion gallons per day.

However, up to 2 million California residents are served either by the estimated 250,000 to 600,000 private domestic wells or by water systems serving fewer than 15 service connections. The California Department of Public Health's (CDPH) Drinking Water Program does not regulate the quality of water from either of these sources, so owners are responsible for maintaining their well and are encouraged to test their well water quality. Visit [Concerned About Your Well's Water Quality](#) for more information.

Californians served by a public water system should also be concerned about groundwater quality since nearly nine out of ten systems rely on groundwater for at least a portion of their supply. Contaminated groundwater results in treatment, well closures, or new well construction, which increases costs for consumers.

California's reliance on groundwater increases during times of drought and will continue to increase with the growing demand from municipal, agricultural, and industrial sources. Due to California's reliance on groundwater, and because many community water systems are entirely reliant on groundwater for their drinking water supply, contamination of this resource can have far-reaching consequences.

Having clean water is critical to sustain society and the environment, as well as business, industry, and agriculture. Comprehensive monitoring of groundwater is critical in managing our water resources.

→ [How do nitrate and other chemicals effect our groundwater sources?](#) [<Links to Contaminants page>](#)





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How do chemical contaminants effect our groundwater sources?



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CONTAMINANTS IN CALIFORNIA GROUNDWATER

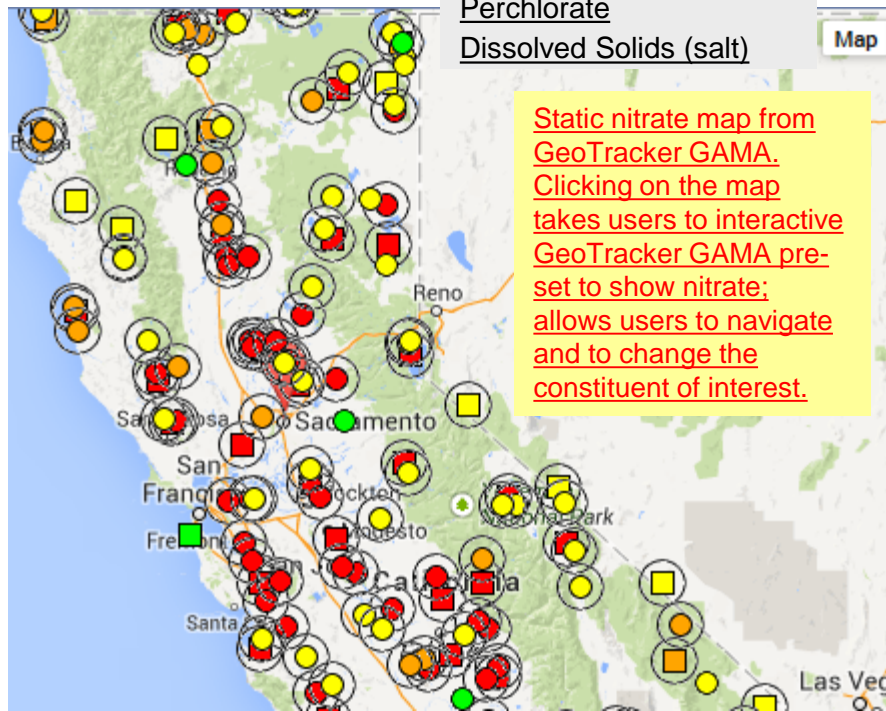
1. Select contaminant →
2. Click on map to explore

▼

[Arsenic](#)

[Perchlorate](#)

[Dissolved Solids \(salt\)](#)



[Static nitrate map from GeoTracker GAMA. Clicking on the map takes users to interactive GeoTracker GAMA pre-set to show nitrate; allows users to navigate and to change the constituent of interest.](#)

Many groundwater basins throughout California are contaminated with either naturally occurring or anthropogenic pollutants (human induced, not naturally found in groundwater), or both. As a result, many water systems in the state incur significant costs to remove the contaminants from the groundwater before serving it to their customers as drinking water. Approximately 98 percent of Californians using a public water supply receive safe drinking water that meets all public health standards, even though some groundwater sources may contain elevated concentrations of contaminants.

This map allows for direct queries to the GeoTracker GAMA information system. Simply select the contaminant you would like to view from the drop-down box. This opens a new tab in your browser.

WHAT DO COLORS MEAN?

Green – Well was sampled for



[Home](#) → [Safe To Drink](#) → [Water Sources](#) → [Site Cleanups](#)

How does contaminated site cleanup protect our groundwater sources?



In many areas of the state, contaminated sites have polluted or threaten to pollute California’s groundwater and surface water resources. In a number of cases, drinking water intakes and wells have been affected. Cleaning up these sites is often a long and costly process, but is critical to supplying California’s demand for drinking water.

Federal, state and local agencies regulate and oversees the investigation and cleanup of sites where recent or historical unauthorized releases of pollutants to the environment – including soil, groundwater, surface water, and sediment – have occurred. Cleanup sites are varied and include, military facilities, pesticide and fertilizer facilities, rail yards, ports, equipment supply facilities, metals facilities, industrial manufacturing and maintenance sites, dry cleaners, bulk transfer facilities, refineries, and some brownfields. Some of these releases are from strictly [petroleum underground storage tanks \(USTs\)](#). The types of pollutants encountered at the sites are plentiful and diverse and include solvents, pesticides, heavy metals, and fuel constituents to name a few.

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Are There Cleanup Sites Near Me?

The [Geotracker](#) database is the storehouse of site information for cleanup sites that the California Regional Water Boards oversee; the database also stores information for cleanup sites that are overseen by cities, counties, and health agencies in the State. To find a site:

GEOTRACKER

LAYERS

- SIGNIFIES A CLOSED SITE
- Leaking Underground Tank (LUST) Cleanup Sites
- Other Cleanup Sites
- Land Disposal Sites
- Military Sites
- WDR Sites
- Permitted Underground Storage Tank (UST) Facilities
- Monitoring Wells*
* ZOOM IN TO SEE MWS
- DTSC Cleanup Sites
- DTSC Haz Waste Permit

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[Safe To Drink](#) → [Water Sources](#) → [Recycled Water](#)

What Role Does Recycled Water Play



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With only one percent of water on our planet available for human use, new and resourceful ways to increase the life of our potable water supplies is essential. One way to extend our water resources is through recycled water.

What is a Recycled Water?

Water recycling, also known as reclamation or reuse, is the treating and managing of municipal, industrial, or agricultural wastewater to produce water that can be productively utilized. Recycled water is a reliable, economically feasible and environmentally sensitive means to maximize California's water resources, assist with drought prevention, and reduce the demand on freshwater systems. Water recycling offers a climate independent water source that is dependable, locally-controlled, and generally beneficial to the environment. Through water recycling communities become less dependent on groundwater and surface water sources.

History

The reuse of water as a non-potable supply is nothing



Safe To Drink → Water Sources → Recycled Water

What Role Does Recycled Water Play



How is recycled water treated?

The process used for water recycling includes basic physical, biological and chemical principles to remove contaminants from water. Use of mechanical or physical systems is generally referred to as **primary treatment**. The further biological treatment processes is known as **secondary treatment**. Additional purification is called **tertiary treatment**.

Primary treatment uses mechanical and physical processes such as screens to remove roughly half of the impurities from wastewater.

Secondary treatment uses biological methods to remove most of the residual contaminants. Oxygen is mixed with the water in basins. Any organic material is then consumed by bacterial microorganisms converting them into settleable solids. These solids are settled in clarifier tanks.

Tertiary treatment includes the removal of any remaining solids through filters. The water is treated further through chemical disinfection.



http://www.youtube.com/watch?feature=player_embedded&v=c03koXEx9fs



Primary and Secondary Wastewater Treatment

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What Role Does Recycled Water Play



What are the uses of recycled water?

Depending on the level of treatment, recycled water can be utilized in many ways to satisfy water demands. Once the water is treated to meet regulatory guidelines it can be used for:

- Food crop irrigation
- New home construction
- Groundwater recharge
- Wetlands, wildlife habitat, stream augmentation
- Industrial cooling processes
- Landscape and golf course irrigation
- Toilet flushing
- Vehicle washing
- Recreational use
- Seawater barrier

According to the California Department of Water Resources, over 525,000 acre-feet of wastewater is recycled each year. About half of that (48%) is used for agricultural irrigation. Another 20% is used for landscape irrigation, and about 12% is used for groundwater recharge.

In future years, experts predict California will recycle even more wastewater. A target of achieving close to 1 million acre-feet of recycled wastewater in coming decades has been set. That level of recycling will go a long way toward meeting the needs of the 17 million additional residents California will have by 2030 and reducing

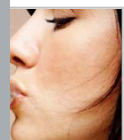
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- Data Source
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Water Recycling 2030

Recommendations of California's Recycled Water Task Force





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Made Safe

How is my water made safe?

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Why is my water treated?

Sources of drinking water are subject to contamination and require appropriate treatment to remove disease-causing contaminants. The presence of contaminants in water can lead to adverse health effects, including gastrointestinal illness, reproductive problems, and neurological disorders. Infants, young children, pregnant women, the elderly, and people whose immune systems are compromised because of AIDS, chemotherapy, or transplant medications, may be especially susceptible to illness from some contaminants.

Your drinking water comes from either **surface water sources** (rivers, lakes, springs, reservoirs) or **ground water wells** drilled into underground aquifers. Depending on the quality of the source of the water, the water may need to be treated to remove contaminants and meet health standards. Some water systems also provide additional treatment to make water more aesthetically pleasing.



The types of treatment processes and facilities used to achieve safe drinking water are dictated primarily by the quality of the source water and the regulatory requirements that must be met. Typical ground water treatment processes often **differ from** treatment for surface water sources because all surface water sources are assumed to be contaminated by harmful microorganisms like Giardia. The water quality found in surface water varies greatly and is highly dependent on the type of water body and **watershed characteristics**. Therefore, surface water systems and systems with sources that are ground water under the influence of surface water usually require treatment methods that will physically remove pathogens.

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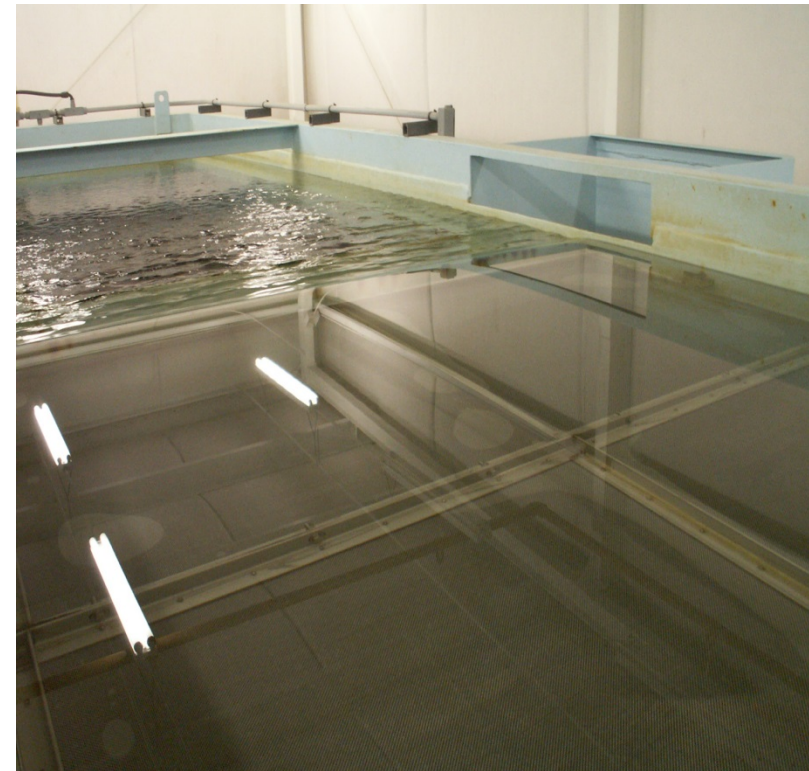
How is my water treated?

To find out how your water is treated please contact your drinking water supplier on your water bill, use our [Contacts](#) page to get contact information, or contact the California Department of Public Health Office in the district your water system is located.

[<DISTRICT OFFICE LINK HERE>](#)

The type of treatment that water receives depends on the type and quality of source water. Water extracted from an uncontaminated, subterranean aquifer using a correctly constructed drinking water well may often receive minimal treatment prior to being sent to customers. Water from a river flowing through uncontrolled wilderness may receive extensive treatment to ensure that pathogens are removed from the water and are prevented from reestablishing after treatment.

A typical water system that uses groundwater from aquifers will usually only need to inject a small amount of disinfecting substances like ozone or chlorine to eliminate the pathogens that manage to penetrate the soil and reach the aquifer, and the disinfectant is often added as a safeguard rather than a necessity. Other water systems may use ultraviolet radiation to achieve a similar result.



A water system that uses either a surface water or a shallow underground water source contaminated by surface water, such as a lake, river, or spring, will

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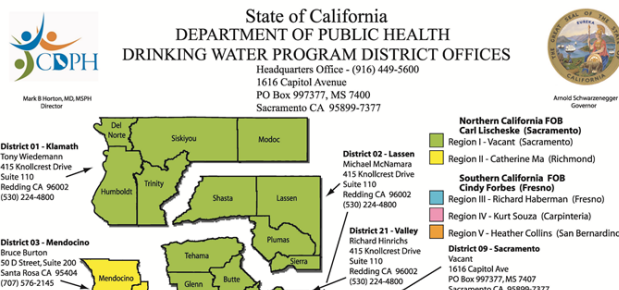


[Safe To Drink](#) → [Made Safe](#) → [Regulator](#)

Who regulates my water system?

The EPA designates the California Department of Public Health, Drinking Water Program, the primary regulator of all water systems within the State. This program oversees water recycling projects, permits water treatment devices, certifies drinking water treatment and distribution operators, supports and promotes water system security, provides support for improving technical, managerial, and financial (TMF) capacity, and provides funding opportunities for water system improvements.

There are 23 districts within the Drinking Water program illustrated in the map below. The program has delegated regulatory authority for water system having less than 200 service connections to local county environmental health authorities.



REGULATORY QUESTIONS ANSWERED

→ [Who regulates water system with less than 200 service connections?](#)

Please select another water system to view the regulator's contact information.

Regulatory Contact Information

PWS ID: CA3410004

System Name: Carmichael Water District
 7787 Fair Oaks Blvd.
 Carmichael CA 95608
 (916) 483-2452

System Contact: Chris Nelson
 cnelson@carmichaelwd.org

(Expand out to full page when map clicked)



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Northern California FOB Carl Lischeske (Sacramento)

- Region I - Vacant (Sacramento)
- Region II - Catherine Ma (Richmond)

Southern California FOB Cindy Forbes (Fresno)

- Region III - Richard Haberman (Fresno)
- Region IV - Kurt Souza (Carpinteria)
- Region V - Heather Collins (San Bernardino)

District 09 - Sacramento

Vacant
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Sacramento CA 95899-7377
(916) 449-5600

District 11 - Merced

Carl Carlucci
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Suite 205
Fresno CA 93720
(559) 447-3300

District 12 - Visalia

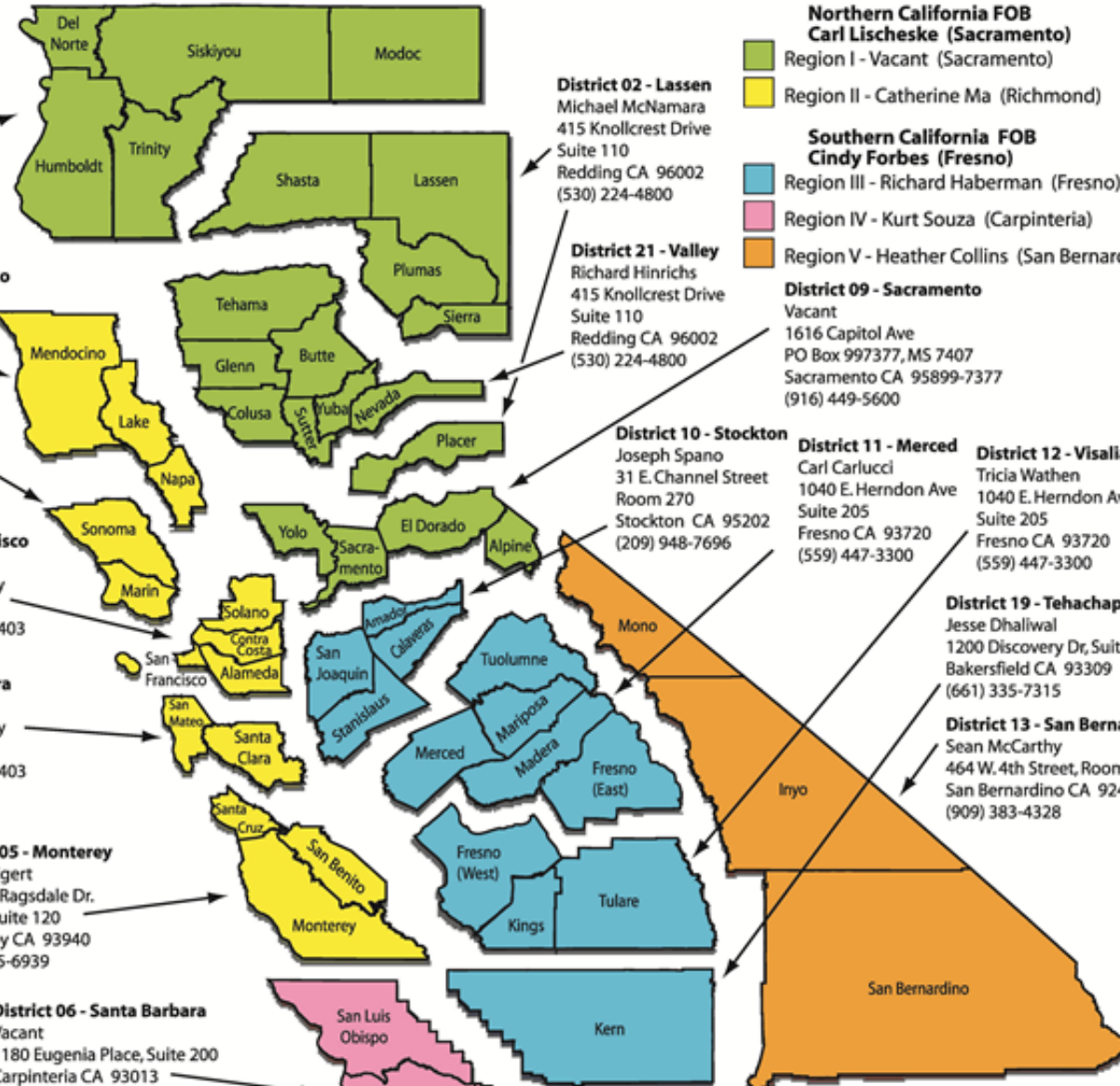
Tricia Wathen
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District 19 - Tehachapi

Jesse Dhallwal
1200 Discovery Dr, Suite 100
Bakersfield CA 93309
(661) 335-7315

District 13 - San Bernardino

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Tap Water | Water

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Safe To Drink → Made Safe → Local County Primacy Agencies



Who regulates my water system?

Some 39 county agencies, with which the Department of Public Health, Drinking Water Program, has contracts, regulate water system of less than 200 service connections. Those counties include:

Alpine	Merced	San Luis Obispo
Amador	Mono	Santa Barbara
Butte	Monterey	Santa Cruz
Calaveras	Napa	Shasta
Contra Costa	Nevada	Stanislaus
El Dorado	Placer	Tehama
Imperial	Plumas	Tulare
Inyo	Riverside	Yolo
Los Angeles	Sacramento	Yuba
Madera	San Bernardino	
	San Diego	
	San Joaquin	

REGULATORY QUESTIONS ANSWERED

→ [Who regulates water system with 200 or more service connections?](#)

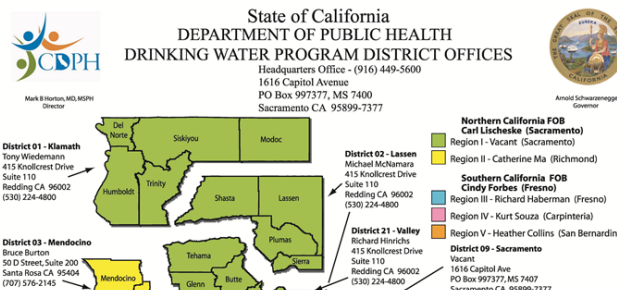
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System Contact: Chris Nelson
 cnelson@carmichaelwd.org



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Who is responsible for treating my water?



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If you receive water from a public water system then it is responsible for ensuring that your water is safe, clean, and in adequate supply. Water suppliers come in many forms and sizes including cities, mutual water companies, and regional water suppliers. Sometimes the water will be directly supplied by a property owner, like a business park or an apartment complex, in which case that property owner is responsible for ensuring the quality of your water. Water suppliers will often have employees tasked with operating and maintaining the treatment equipment or will hire an operator on a contract basis.



Public water system treatment operators are required to be certified by the State of California by taking a test and providing evidence of both educational and work experience minimum standards, and meeting continuing education requirements to ensure that they are aware of current treatment methods and regulations. If you are interested in obtaining certification for water system operation, please follow the following [<LINK TO CDPH OP CERT>](#) for more information. If you are interested in contacting a certified operator please following the following link to the lists of registered operators in California [<link to operator lists>](#)



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How do operators and regulators ensure that my treatment is working correctly?



Public water system staff, county health officials, and the California Department of Public Health work together to help ensure that your water is safe to drink and that treatment systems are working as intended.

Treatment Monitoring

Public water systems that contain treatment for specific contaminants will routinely perform monitoring of the treated water and report the results of the monitoring and any related treatment performance data. The data is reviewed by regulators to ensure both that the treatment is working and to better anticipate potential treatment failures. Most treatment methods require monthly submittals to regulators and some submittals will contain hundreds of data points for review.

Distribution Sampling

Not all contaminants come from the source waters. Water systems are required to routinely collect a variety of samples from the distribution system to ensure that the water coming from your tap remains uncontaminated. Common examples of distribution sampling are monthly coliform sampling requirements [<link to TCR>](#) and sampling for lead and copper [<link to L&C on EPA>](#).

Sanitary Surveys



DO INSPECTORS INSPECT EVERYTHING?

Regulators look at the following eight elements of a water system:

- Sources
- Treatment
- Distribution Systems
- Finished Water Storage



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Examples of Water Treatment methods?



The types of treatment processes and facilities used to achieve safe drinking water are dictated primarily by the quality of the source water and the regulatory requirements that must be met.

DISINFECTION

- Chlorination – Gas, Hypochlorination, Onsite Generation, Chloramination
- Ultra-Violet (UV) Light
- Ozone



Ultra-violet disinfection

SURFACE WATER TREATMENT

Options are in addition to Disinfection

- Slow Sand Filtration



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Examples of **Disinfection** treatment methods



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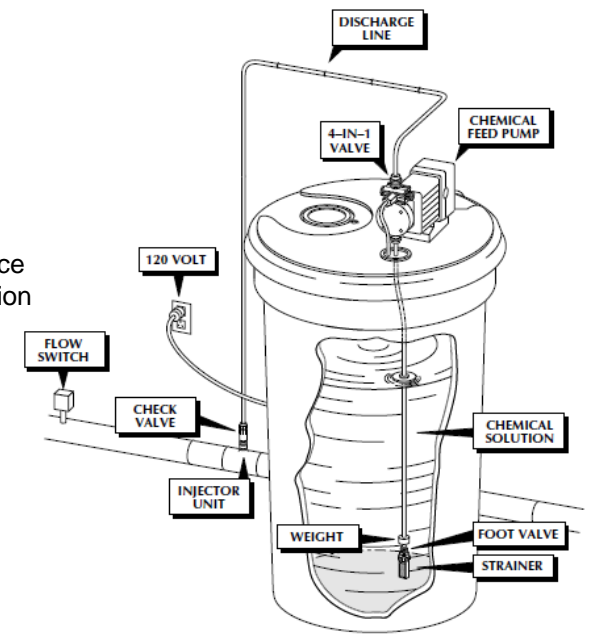
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CHLORINATION

Chlorination is the most common disinfection method used by water systems in the United States. Most systems utilize gas or hypochlorination using sodium hypochlorite. Sodium hypochlorite is similar to bleach you might use for laundry and household cleaning. While chlorine is the most common, there are other methods of disinfection used in California such as Ozone, Ultraviolet (UV) light, Chlorine Dioxide and Chloramination.

The type of disinfectant used is based on the type of source, the source water quality, the overall treatment goal and on the design and condition of the distribution system.

Liquid Feed Pump (Hypochlorinator)



Insert UV graphic



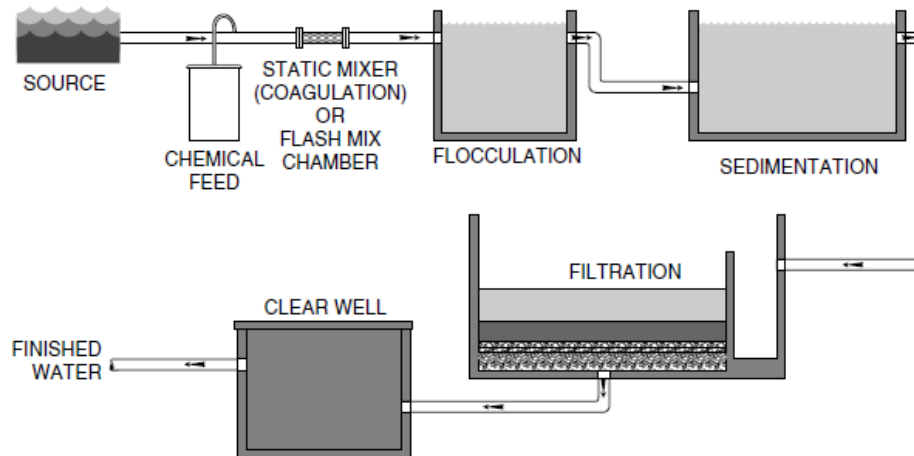
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Examples of Surface Water treatment methods



CONVENTIONAL FILTRATION

The most widely used technology for removing turbidity and microbial contaminants from surface water supplies includes coagulation, flocculation, and sedimentation, followed by filtration. Conventional treatment plants typically use aluminum or iron compounds in the coagulation processes. Generally, gravity filters with sand, dual, or mixed media filters are used.



Some of the common treatment processes for surface and ground water are discussed below.

Pretreatment. Pretreatment is a physical, chemical, or mechanical process that removes some impurities or alters some of the objectionable characteristics of water (such as taste and odor, iron and manganese, organics, or hardness) before it is treated further. On occasion, chemical addition to alter the water quality is the only treatment technique used. This technique may include corrosion control, iron and manganese sequestering, disinfection, and fluoridation.

Coagulation and Flocculation. Coagulation and flocculation are chemical and physical processes to improve the particulate and colloid-reduction efficiency of subsequent settling or filtration processes. Coagulation involves feeding chemicals to destabilize the similar charges on suspended particles, allowing them to coalesce and thereby begin to form floc. Flocculation, which partly overlaps the coagulation, requires gentle mixing of

DIRECT FILTRATION

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What is Cross Connection Control



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In addition to treatment and monitoring requirements, public water suppliers are required to maintain an active Cross-Connection Control Program to ensure safe potable drinking water throughout their distribution supply systems.

What is a Cross Connection

A **cross-connection** is any actual or potential physical connection between a drinking water system and any other non-potable substance (liquid, solid, or gas). An example is the connection between a public water system or consumer's potable water system and an auxiliary water system, cooling system, or irrigation system.

These cross connections can create a serious public health hazard due to the potential of contaminating drinking water supplies through what is known as **backflow** (the undesirable reversal of flow of potentially contaminated water into the potable water supply).

There are many, well documented cases where cross connections have been responsible for contamination of drinking water, and have resulted in the spread of



CROSS CONNECTION QUESTIONS ANSWERED

- [How is my water supply protected from backflow?](#)
<Links to page 2>
- [How can I prevent backflow from occurring?](#)
<Links to page 3>



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What is Cross Connection Control



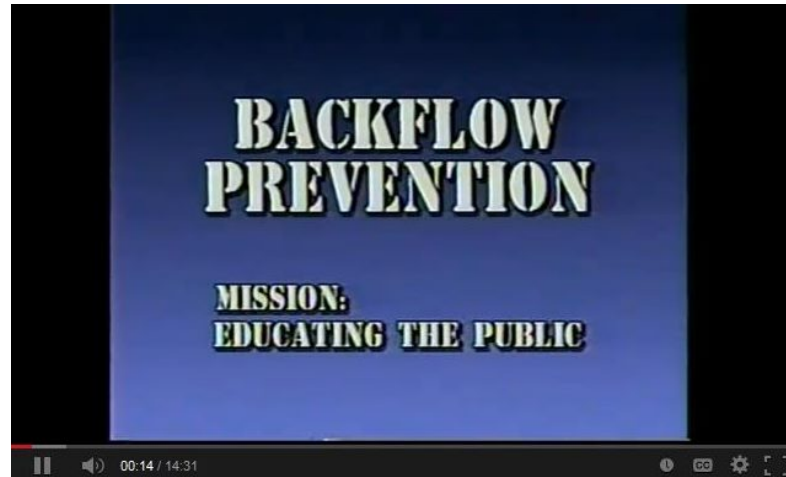
How is my water supply protected from backflow?

The water supplier is responsible for compliance with the Safe Drinking Water Act which includes assurances that the quality of potable water within their distribution system maintains its safety. Water suppliers are responsible for establishing methods to eliminate cross-connections within the distribution system.

One method of eliminating cross connection is through site evaluation. As a minimum, the evaluation should consider: the existence of cross-connections, the nature of materials handled on the property, the probability of a backflow occurring, the degree of piping system complexity and the potential for piping system modification.

Title 17 of the California Public Health Code requires installation of an approved backflow preventer when the public water supplier determines that either an actual or potential health hazard or degradation of public water exists.

A backflow preventer is a means or mechanism to prevent backflow. The most effective means of



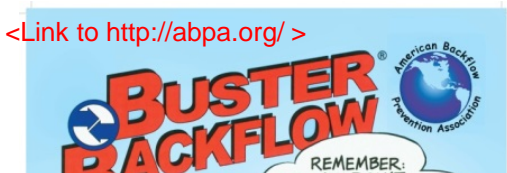
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Links to

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<Link to <http://abpa.org/>>



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What is Cross Connection Control



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How can I prevent backflow from occurring?

There are many instances of household cross-connection hazard. For example: Suppose one end of a garden hose is attached to your home's water system and the other end is submerged into a bucket of herbicide or a swimming pool. At the same time an unforeseen loss of water pressure occurs in the main water line serving your home (such as a water main break). The drop in pressure causes a reverse flow in the water line and non potable water from the bucket or pool is sucked into your home's drinking water and potentially into the public water supply. A simple way to eliminate this undesirable reversal of flow is to prevent the hose from being submerged. It is best to maintain an air gap separation between the end of the hose and any liquid container.

Other examples of potential household cross connections include:

- A hose submerged in a pail of soapy water
- A chemical sprayer attached to the end of a hose
- A water softener recharge line submerged in a floor drain
- Submerged lawn irrigation system
- A connection made between a private well supply and the water being supplied by a public water system through the water supply plumbing
- Residential fire suppression systems

Depending on the degree of hazard, your water supplier may require the installation of a backflow preventer. Contact your local water supplier for more information.

[Click here to locate your water supplier](#)

[<Link to water supplier locator tool>](#)



Contaminants

What are the contaminants in drinking water of concern?

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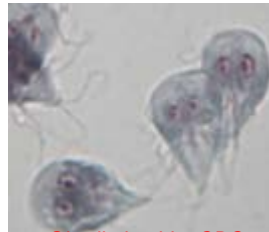
What are common contaminants of concern?



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Giardia lamblia, CDC



Pathogens at a Glance

E. coli bacteria

Sources of Contamination - Human and animal fecal waste

Health Effects - Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.

Giardia lamblia, viruses, *Legionella*, *Cryptosporidium*

Sources of Contamination - Naturally present in the environment –

Health Effects - Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

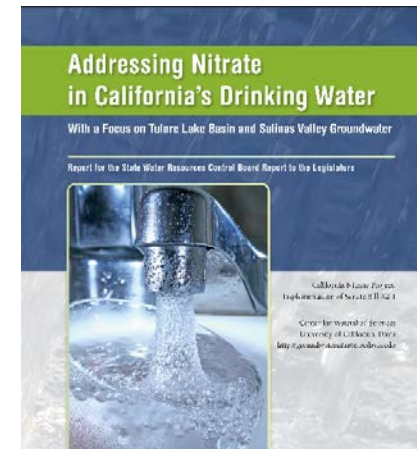
Nitrate at a Glance

Sources of Contamination

Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits

Health Effects

Infants below the age of six months who drink water containing nitrate in excess of the regulated limit may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the





Contacts

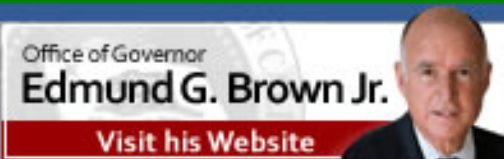
Who do we contact for more information?



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Request a CCR of your water system



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Your are on this page because you want more information about your water quality and are requesting a copy of the **Consumer Confidence Report** from your water system.

Please complete the information below and a request will be sent on your behalf.

Thank you for your interest in the Safe to Drink Portal.

Information request:

Consumer Confidence

Your Name:

DRINC Admin

Your Email Address:

drinc@cdph.ca.gov

Your address:

Please send me a copy of the CCR to 3425 Lindi Court, Carmichael 95608. Thank you.

Submit



[Safe To Drink](#) → [Contacts](#) → [Safe Drinking Water Workgroup](#)

Contact the Safe Drinking Water Workgroup



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Background

In its [Comprehensive Monitoring Program Strategy for California](#), the [California Water Quality Monitoring Council](#) envisioned formation of a new workgroup to focus on the theme "Is our water safe to drink?" The purpose of this workgroup is to develop a [My Water Quality](#) internet portal to bring relevant water quality data and assessment information to decision makers and the public that directly address this theme from a number of perspectives, including water quality at the tap, the quality of surface water and groundwater sources, and the efforts of many agencies and organizations to bring safe drinking water to the consumer.

In the process of developing the portal, the workgroup will evaluate existing monitoring, assessment and reporting efforts and work to enhance those efforts so as to improve the delivery of water quality information to the user. Portal development provides the context to effectively evaluate and then resolve monitoring design, coordination, and information access problems, working to achieve only that degree of standardization necessary to meet users' needs.

Membership

- [Mark Emmerson - Workgroup Lead](#)
Paul Collins
[California Department of Public Health](#)
- [Rita Schmidt Sudman](#)
Beth Stern
Rebecca Scott
Susan Lauer
[Water Education Foundation](#)
- [Cindy Garcia](#)
Bruce Agee
Murage Ngatia
Kelly Pepper
[California Department of Water Resources](#)
- [John Borkovich](#)
Jon Marshack - Monitoring Council Liaison
Dorian Bellan
[California State Water Resources Control Board \(SWRCB\)](#)





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→ [What contaminants are in my tap water?](#)

→ [What is reported in the Consumer Confidence Report for my water system?](#)

→ [Is my water drinkable if there are harmful contaminants in my tap water?](#)

[What is the source of my water?](#)

→ [What do we know about our source waters?](#)

→ [How do sanitary surveys protect source waters?](#)

→ [What is the quality of our surface water sources?](#)

→ [Which surface waters are listed by the state as impaired for drinking-related uses?](#)

→ [What is the quality of our groundwater sources?](#)

→ [How do nitrate and other chemicals effect our groundwater sources?](#)

→ [How does contaminated site cleanup protect our groundwater sources?](#)

→ [Recycled Water](#)

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Phase 2 topics

- Cost of my water
- Water conservation and efficiency goals versus water usage
- Case study: Recycled water GET facility
- Groundwater recharge and desalinization
- Technical Assistance

Grants and Loan programs



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Members of the Safe Drinking Water Workgroup

- [Kris Jones, Department Water Resources ...](#)
- [Chris Nelson, Carmichael Water District ...](#)
- [Dori Bellan, State Water Resources Control Board ...](#)
- [Caryn Mandelbaum, Environment Now](#)
- [Cindy Garcia, Department Water Resources ...](#)
- [Murage Ngatia, Department Water Resources](#)
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- [Adam Walukiewicz, ACWA ...](#)
- [Larry Cooper, SCCWRP](#)
- [Bruce Burton, CDPH Drinking Water Program ...](#)
- [John Borkovich, State Water Resources Control Board](#)
- [Rita Schmidt-Sudman, Water Education Foundation](#)
- [Susan Lauer, Water Education Foundation](#)
- [Beth Stern, Water Education Foundation](#)