

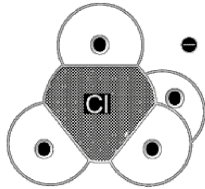
# Perchlorate And Your Drinking Water

Neighborhood Eyes: (916) 858-2399  
Clean Water Action: (415) 369-9160

May 2002

## What is perchlorate?

⇒ Perchlorate consists of an atom of chlorine surrounded by four atoms of oxygen.



⇒ Perchlorate occurs as ammonium, potassium, magnesium or sodium salts. It is exceedingly mobile in water and can persist for many decades under typical ground and surface water conditions.

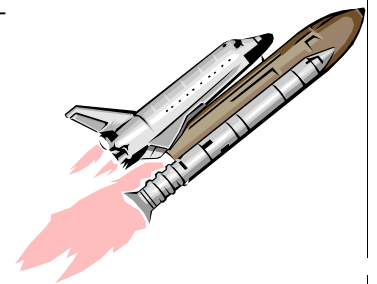
⇒ Millions of Californians are exposed to dangerous levels of perchlorate in Sacramento, Los Angeles, Orange, Riverside, San Bernardino, Santa Clara and Sonoma Counties.

Perchlorate (“per-clore-ate”) is the main ingredient in missile and rocket fuel. It is a chemical salt that does not break down in soil or water and is not eliminated by conventional drinking water filtration systems. Because companies disposed of perchlorate in water systems over the course of many decades, our drinking water is now polluted with perchlorate.

Perchlorate is used as an oxidizer for fuel (since it removes electrons) and is the primary component of solid propellant for rockets, missiles, nuclear reactors, and fireworks. Ninety percent of perchlorate produced in the US goes into rocket fuel for Air Force missiles and NASA space shuttles. Contamination is usually found around Superfund sites, and military and aeronautics facilities.

Due to perchlorate’s limited shelf life, companies must frequently dispose of “old” perchlorate and replace it with “fresh” perchlorate. Companies that produce rocket fuel like Aerojet and Lockheed Martin, have dumped millions of pounds of perchlorate into our environment in many states, including California, since the 1950’s.

Perchlorate moves at about the rate of groundwater in Rancho Cordova/Gold River area, which averages 500 feet per year. The plume of perchlorate (and other contaminants such as “TCE and “NDMA”) is moving from the Aerojet site in a southwest direction. There is also a plume of such contaminants moving under the American river towards Carmichael.



## What are the main health effects of perchlorate?

Scientists have known for decades that high amounts of perchlorate can harm brain development in early childhood; it has also been linked to rare infant thyroid cancer. Perchlorate harms the thyroid gland, which controls our growth and development. The contaminant deprives the thyroid of iodide, which reduces the production of thyroid hormone.

Perchlorate can have particularly severe effects on the brain development of a fetus if a mother is exposed to the contaminant while pregnant. Thyroid hormones are critical to proper development of the nervous and reproductive systems. Possible consequences of low thyroid levels include mental retardation, vision, speech and hearing impairment and abnormal gate. In older children, decreased thyroid levels have been linked to ADHD.

## When was rocket fuel discovered in our environment?

Perchlorate was first detected in drinking water systems in the US in 1957. In California, perchlorate was detected by the Central Valley Regional Water Quality Board at the Aerojet Credit Union in December 1979. Interestingly, the researchers were not looking for the origin of perchlorate, but for the origin of TCE, another contaminant. TCE has been proven to attack the liver and nerves and has been linked to leukemia clusters. Sacramento County also found perchlorate in the irrigation well at Mitchell Junior High that same year. Millions of Californians in Northern and Southern California are exposed to dangerous levels of perchlorate, since California housed many aerospace companies.



To get more information about local perchlorate contamination and the science of perchlorate, contact Larry Ladd, a local resident who is willing to help neighbors understand these issues: [lladd@sprintmail.com](mailto:lladd@sprintmail.com).

## How many wells have been closed so far because of perchlorate ?

As of April 2002, 20 wells in the Rancho Cordova and Sacramento areas have been closed due to unacceptable levels of perchlorate. Thirteen Arden Cordova wells, six Sacramento County wells and one American Water Works well have been closed. Since a number of wells are still at risk, call your water utility for up to date information about perchlorate contamination in your drinking water: Arden Cordova: (916-853-3613), Sacramento County: (916-874-4682), American Water Works: (916-568-4200). Your annual Consumer Confidence Report will list regulated contaminants detected in your drinking water. Call your water company for information on perchlorate in your water or contact Neighborhood Eyes for assistance.



## Perchlorate supporters

A number of influential groups are pressuring the government to relax or eliminate the regulation of perchlorate. The aerospace industry, including Aerojet, and Lockheed Martin, the US Air Force and the Department of Defense have been working for 30 years to keep perchlorate from being regulated. In 1992, these groups formed the Perchlorate Study Group, which aims to derail or weaken proposed standards.

## Fighting Perchlorate Contamination

In response to industry opposition to perchlorate cleanup and regulation, the Perchlorate Action Group, an ad hoc coalition of environmental, public health and community-based organizations, was formed. PAG addresses the widespread contamination of California's drinking water and the risks posed by perchlorate to our health. The group urges state and federal regulatory agencies and policy makers to:

- ⇒ **Set immediate health protective standards for perchlorate that protects all Californians, including unborn babies**
- ⇒ **Provide those most vulnerable to contamination with a full disclosure of health risks associated with perchlorate exposure**
- ⇒ **Implement an immediate prevention plan to protect other water sources**
- ⇒ **Mandate that polluters pay the full cost of perchlorate cleanup**

## What regulations are on the books now for perchlorate?

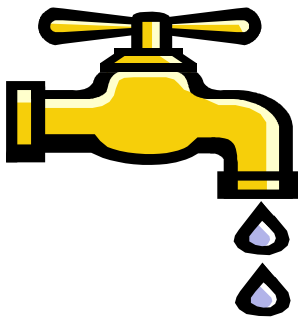
The Environmental Protection Agency (EPA) determined in January 2002 that the contaminant was much more harmful than previously thought, and set a reference dose (a no observed effect level) that would suggest no more than a 1 ppb standard. Yet the agency has yet to create a drinking water standard for perchlorate that would force water providers and companies to comply with a regulation.

The state of California has set an “action level” for perchlorate at 4 ppb. California Department of Health Services sets action levels for contaminants whose levels are currently unregulated but have been deemed harmful to human health. Action levels do not force water utilities to comply with the standard; they set an advisory level. The state of California is currently in the process of creating a “maximum contaminant level” for perchlorate. MCLs do carry the weight of law and water utilities are required by law to abide by the standard. On the way to setting an MCL, the state must first determine the “public health goal”. The state is currently discussing a PHG of 6 ppb, which is less protective than the action level and would not be protective of fetuses, children and other vulnerable populations.

### *How is perchlorate removed from water?*

Perchlorate is typically removed by blending contaminated water with clean sources. This “dilution solution” does not fully eliminate the contaminant. Another more expensive method filters water through membranes with extremely small holes to remove the contaminant. Bacteria can also convert perchlorate into less toxic compound, but this method has not been tested on a large scale. All of these technologies are extremely expensive.

## What can I do in my neighborhood to speed up the process of getting rocket fuel out of our water?



- ***Get Involved:*** Get involved in local campaigns to spread perchlorate awareness and pressure the California EPA to set enforceable standards at protective levels.

Neighborhood Eyes is a local citizens group that is actively involved in the perchlorate issue and would love to meet with you! Contact Nora Kostelnik at Neighborhood Eyes for more information on how to participate, (916) 858-2399.

- ***Get Educated:*** Learn more about perchlorate contamination and the effects it has on our health. Speak with local residents who are working to reduce perchlorate in our water, attend workshops, and keep up on newspaper articles on environmental health and pollution.

Clean Water Fund offers free workshops for parents and community members that discuss how perchlorate and other toxins harm child development. To request one for your neighborhood, contact Jessica at (415) 369-9160 x306

- ***Have Your Voice Heard:*** Call your local county and assembly representatives, and set up a community meeting to talk with them about the process of setting a drinking water standard. Remember that your neighborhood elected these folks! See the list of elected representatives on the next page.

## Your Representatives:

### California State Senate

Michael J. Machado (D) 5th District  
916.445-2407  
Senator.Machado@sen.ca.gov

### California State Assembly

Anthony Pescetti, (R) 10th District  
916.319.2101  
Anthony.Pescetti@asm.ca.gov

### US Congress

Richard Pombo (R-11th district)  
202.225-1947  
Rpombo@mail.house.gov

### US Senate

Dianne Feinstein (D) California  
202.224-3841  
Feinstein.senate.gov

Barbara Boxer (D) California  
202.224.3553  
Boxer.senator.gov

Urge your  
representatives to:

- ◇ *Support cleanup of perchlorate pollution*
- ◇ *Provide affected communities with replacement water if cleanup is not forthcoming*
- ◇ *Support a protective MCL for perchlorate at 0.1 ppb that would protect unborn infants and vulnerable adults*
- ◇ *Require the polluter to pay for perchlorate cleanup*



## For more information contact:

Neighborhood Eyes  
(916) 858-2399  
www.neighborhoodeyes.org  
Email: ranchoice@hotmail.com

**Neighborhood Eyes** (NE) is a citizen's water rights group in Rancho Cordova. NE is fighting Aerojet's contamination of Sacramento's waterways with perchlorate. Contact Nora Kostelnik at (916) 858-2399 for more information on how to join and participate. Check out NE's website to learn more about Aerojet contamination, the cleanup, and opportunities for further action.

Clean Water Action  
(415) 369-9160 x306  
www.cleanwateraction.org  
www.preventingharm.org  
Email: jleibler@cleanwater.org

**Clean Water Action** (CWA) is a national citizens' organization working for clean, safe and affordable water, prevention of health-threatening pollution, creation of environmentally-safe jobs and businesses, and empowerment of people to make democracy work.

**Clean Water Fund** is CWA's sister research and educational organization.