

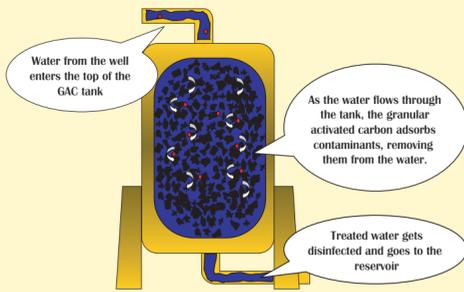
TREATMENT PROCESSES

A portion of the Bunker Hill Basin has been contaminated by historic discharges of volatile organic compounds (VOCs). The compounds, trichloroethylene (TCE) and tetrachloroethylene (PCE), listed on the opposite side, are removed from the water using two different but very effective methods.

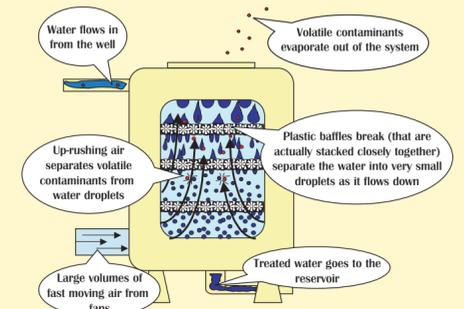
The first and most widely used method to treat the water is the application of granular activated carbon filtration (GAC). The water is pumped through large tanks, each containing about 20,000 pounds of granular activated carbon. The carbon removes the VOCs by the process of adsorption. The tanks operate in pairs and one pair can treat up to 750 gallons of water per minute.

The second method used is called air-stripping. This method is used only during periods of peak demand when more water is needed than can be treated by the granular activated carbon tanks. Water is allowed to flow from the top of a tower filled with plastic baffles that break the water up into very small droplets while at the same time large volumes of fan-driven air are forced up through the tower and the droplets of water. Because the compounds are so volatile, the up-rushing air easily separates the compounds from the water and evaporates the compound. Each of the four air stripping towers can also treat up to 5,000 gallons per minute.

The project to remove the contamination from the affected portion of the Bunker Hill Basin is currently funded by the U. S. Environmental Protection Agency's Superfund. The project will cost approximately \$70 million dollars over the project's 50-year lifetime, but will not affect the cost of your drinking water.



Granular Activated Carbon Tanks



Air-Stripping Towers

You can take your household hazardous waste to the San Bernardino County Fire Department Household Hazardous Waste Program at 2824 East "W" Street, San Bernardino (former Norton Air Force Base). The Center is open Monday through Friday from 9 a.m. to 4 p.m. (use delivery entrance). For more information on household hazardous waste call (909) 382-5401.

Water Conservation

As stewards of our own valuable local water resource, we all have a responsibility to protect and use it wisely. Conserving water also helps save you money. The more wisely you use water, the more you get out of each gallon that you pay for. This means you pay less without sacrificing any of the benefits. We have tips to help you save water and money in your home, both indoors and outdoors in ways that won't impact the way you live.

The first step to save wasted water is to see if you are losing water to hidden leaks by doing a water meter test. Leaks can waste a great deal of water and can increase your water bill. To check for a leak in your home, turn off all the water fixtures, and then check the water meter. Note the reading on the water meter and wait for 20 minutes to a 1/2 hour without turning on any faucets or flush any toilets. After waiting, go back and check the meter again. If the dials or the numbers on your meter have changed, you have a leak.

The second step is to reduce the amount of water you use. On the average, most people use about 308 gallons of water day in the kitchen, laundry, bathroom and outside the home for lawns, gardens and things like pools and car care. Inside the house you can reduce this by using low-flow showerheads, low-flow toilets, checking the settings on your clothes washer and making sure the dishwasher runs only when it is full. Outside, you can check that sprinklers are working correctly, use nozzles on the end of hoses, and sweep the driveway and sidewalks with a broom instead of washing them down with the hose.

Join us in preserving and using our water resources wisely and efficiently to ensure our long-term supply. The quality of water you drink tomorrow will be determined by the quality of your actions today.

REGULATIONS

In order to ensure that tap water is safe to drink, USEPA and the State of California Department of Health Services (DHS) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide protection for public health. More information can be obtained by calling FDA's, Office of Plant and Dairy Foods and Beverages; telephone number (301) 436-2023 for additional information.

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. More information about contaminants and potential health effects can be obtained by calling USEPA's Safe Drinking Water Hotline (800) 426-4791 or visiting their Web site at www.epa.gov/safewater/hhfacts.html.

SOURCE WATER ASSESSMENT PROGRAM

In response to the Federal Safe Drinking Water Act (SDWA), the California Department of Health Services (DHS) Division of Drinking Water and Environmental Management has developed a program to assess the vulnerability of drinking water sources to contamination. This program, called the Drinking Water Source Assessment and Protection (DWSAP) Program, is a partnership between local, state and federal agencies to ensure that the quality of California's approximately 16,000 drinking water sources is maintained and protected. The San Bernardino Municipal Water Department completed our DWSAP Program during 2002.

The program has two primary elements: Assessment and Protection. The Assessment element consists of defining protection areas around water sources and conducting an inventory of activities in our service area that might contaminate our drinking water. The Protection Element consists of managing these potentially harmful activities to prevent contamination and planning for contingencies. We completed the Assessment Element, in December of 2002. We began the Protection Element of the program during 2003. The Protection Element includes careful land-use planning and zoning techniques, monitoring local industrial practices and public education.

The City of San Bernardino Municipal Water Department is a participant with other water purveyors in the Bunker Hill Groundwater Basin in a joint DWSAP Program sponsored by the Upper Santa Ana Water Resources Association (USAWRA). USAWRA is a voluntary association of water producers in the Bunker Hill Groundwater Basin. USAWRA members, including the City of San Bernardino Municipal Water Department, believe this is the most efficient and cost-effective approach for Bunker Hill Basin source water protection. By combining our resources and planning efforts, the member agencies can better plan for the protection of our local drinking water sources. The City of San Bernardino overlies a major portion of the Bunker Hill Basin and contamination of any portion of the Bunker Hill groundwater resource will impact us along with many other USAWRA member agencies.

SYSTEM SECURITY

Many people across the country are concerned about the safety and security of their drinking water system. San Bernardino's water system is at low risk

from natural or man-made disasters because of the manner in which our system is monitored and the decentralized nature of its structure.

Water Department employees visit wells, reservoirs, and other facilities at least daily and often more frequently. Our system is under frequent scrutiny by employees who are trained to look for things and people that are out of place or suspicious. Each portion of the distribution system is also monitored by an advanced system of sensors and computers called the Supervisory Control and Data Acquisition System, or SCADA, that reports from moment to moment on critical water quality factors, such as water pressure and chlorine content, and on the system's integrity.

Our water distribution system is also very safe because of its decentralized structure. Instead of using a few very large reservoirs, the Water Department uses many smaller ones. This means that any natural or man-made disasters will affect only a small portion of the water system at one time. We can quickly isolate any problems in the system and take water from other parts of the system to replace what we take off-line.

We invite the public to report any suspicious or out-of-place activity around our city's water facilities. The public that lives or works near above ground facilities are in a position to identify unusual activity and report it to the Water Department. This also includes the unusual use of fire hydrants and any apparent dumping into the storm drains.

ADDITIONAL REQUIRED INFORMATION

The Safe Drinking Water Act requires additional health information based on finding contaminants at a certain level within a utility sample. Although we have met all state MCL for nitrate, we are required to report the following information: Nitrate in drinking water at levels above 45 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 45 mg/L may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity.

CHLORINE IN THE WATER:

Why do we put chlorine in the water? Chlorine is an oxidizing agent used as a disinfectant that, when added to water, kills microorganisms such as bacteria and viruses. The State of California requires that we maintain a minimum residual of 0.2 parts per million (ppm) of chlorine in our water at all times to kill any potential microorganism(s).

YOUR COMMENTS ARE WELCOME

The City of San Bernardino Municipal Water Department was formed by City Charter and is governed by an appointed Board of Water Commissioners. The Water Board meets on the second and fourth Tuesdays of each month. The meetings are held in the Water Department Boardroom, Fifth Floor of City Hall. The public is welcome to attend these meetings. Meeting agendas are posted in the first floor lobby of City Hall, the Feldheim Central Library, and the City's Web site at least 72 hours prior to each meeting. For additional information on Board meetings, call Stacey Aldstadt, Deputy General Manager, at (909) 384-7210.

WHO DO I CALL IF I HAVE QUESTIONS?

If you have any questions regarding the information in this report, please contact William Bryden, Director, Water Utility at (909) 384-5107 or e-mail your comments or questions to: ccr_comments@ci-san-bernardino.ca.us. Please include your name, address, and phone number so that we can respond to you directly.

City of San Bernardino Municipal Water Department

San Bernardino City Hall, Fifth Floor
300 North "D" Street San Bernardino, CA 92418
Voice: (909) 384-5141 Fax: (909)384-5215
Web: <http://www.ci-san-bernardino.ca.us/water>
E-mail: ccr_comments@ci-san-bernardino.ca.us



Board of Water Commissioners:

B. Warren Cocke, President
Judith W Battey, Commissioner
Toni Callicott, Commissioner
Martin A. Matich, Commissioner
Norine I. Miller, Commissioner

General Manager

Bernard C. Kersey
Deputy General Manager
Stacey R. Aldstadt
Director, Water Utility
W. William Bryden, P.E.
Director, Water Reclamation
John A. Perry, P.E.
Director, Finance and Administration
David S. Erickson

EMPLOYEE CERTIFICATION

DHS categorizes water systems on a scale of one to five for treatment and distribution. Grade one systems are typically small and not very complex. Grade five systems serve large populations, are very large and complex systems with multiple types of treatment facilities. Our system has been rated by DHS as a grade 5 treatment and grade 5 distribution system.

To comply with State and Federal law, Water Production and Treatment Operators must possess and maintain valid State of California Department of Health Services certification in water treatment.

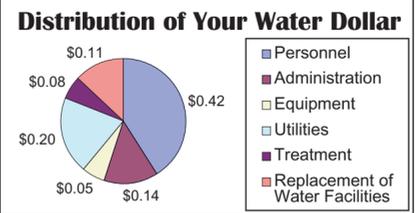


Figure 3: How your water-dollar gets used.

Water Treatment Employees

Our operators and technicians obtain state certification of various grade levels (Levels 1 through 5) through a combination of course work in water science, years of work experience, and successfully passing a state-administered Water Treatment Operator examination. Our certified employees operate, monitor and regulate the wells, reservoirs and treatment plants that make up your water system 24-hours-a-day, 7-days-a week, to ensure the water you drink meets all State and Federal standards for domestic drinking water.

Water Distribution Employees

We require the employees that repair and maintain the water facilities to obtain and maintain California Department of Health Services Water Distribution Operator Certification. Certification is obtained by successfully completing college-level course work in water science, work experience, and passing a state-administered Water Distribution Operator examination.

Water Quality Employees

Our Water Quality Technicians must also possess and maintain valid State of California Department of Health Services certification in water treatment. They collect more than 6,000 water quality samples throughout the water system each year. Our contract laboratories conduct about 30,000 water analyses on those samples. We do this to ensure that all the water we serve meets or exceeds State and Federal standards.

PROTECTION OF OUR GROUNDWATER SUPPLY

The source of our drinking water (both tap water and bottled water) is from groundwater wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals and human activity. The contaminants that may be present in an untreated source water include: Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. Pesticides and herbicides may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.

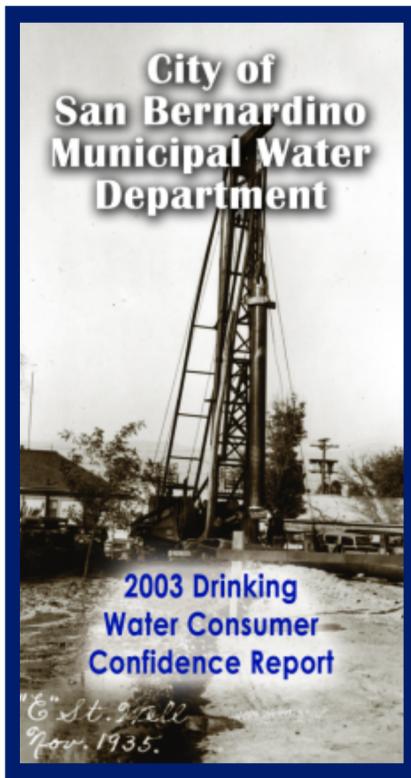
Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff; and septic systems.

Radioactive contaminants can be naturally-occurring or can be the result of oil and gas production and mining activities.

In San Bernardino, the Water Department and other city departments exercise environmental oversight to ensure that industrial and commercial sources of contaminants are minimized or eliminated. The City also sponsors educational programs that help residents understand how their actions can have both a negative and positive impact on our local water quality.

WHAT CAN YOU DO TO PROTECT OUR WATER SUPPLY?

You can help protect our precious water supply by disposing of harmful household products and other toxic chemicals in the proper manner. Household hazardous waste includes cleaners, glues, soaps, pesticides, paints, fertilizers, medicines, chlorine, motor oil, and batteries. Never dump these wastes down the drain, in the trash, or on the ground. Instead, take them to a hazardous waste collection or recycling center. Whenever possible, cut down your use of toxic household products by switching to safer alternatives.



Water Department excavation, circa 1928



Recent Water Department excavation



City of San Bernardino
Municipal Water Department
P.O. Box 710, San Bernardino
CA 92402-0710

FCR WSS
POSTAL CUSTOMER

PRSR STD
U.S. POSTAGE
PAID
PRSC
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enable us to meet our peak-hour water demand on hot summer days and to provide water storage for emergencies and for fire protection. We use more than 551 miles of water mains to deliver this water to homes and businesses throughout the city.

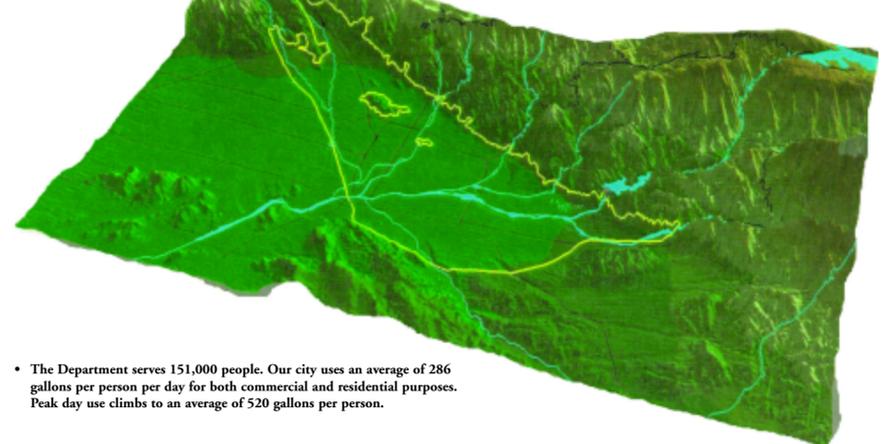
In 1990, the City of San Bernardino Municipal Water Department developed a Water System Master Plan of water system and facilities improvements to help us manage the city's water infrastructure. This master plan summarized and prioritized those water lines in need of replacement and identified areas in our water system that require additional wells, reservoirs, and boosting capacity. Since 1990, we have installed 48 miles of new water lines, added 8.5 million gallons of storage capacity, constructed ten new wells and replaced 2,500 customer water services.

In December of 2003, we completed a major update of our Master Plan that reflects the needs of our growing city. By the end of 2004 we will have begun construction on the improvements that our updated Master Plan requires. This new construction will include two 12-million gallon reservoirs, 6 miles of new pipeline and two new boosters that will more



Bunker Hill Groundwater Basin

Graphic courtesy of San Bernardino Valley Water Conservation District



• The Department serves 151,000 people. Our city uses an average of 286 gallons per person per day for both commercial and residential purposes. Peak day use climbs to an average of 520 gallons per person.

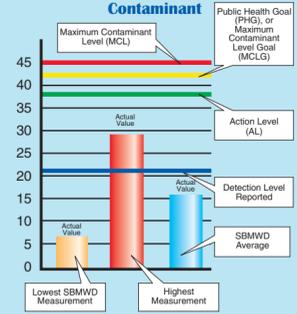
water to higher elevations of the city. These improvements will improve the reliability of water service to older parts of the city and provide the needed infrastructure to move water into areas of new development and industrial expansion.

HOW WE PAY FOR THESE IMPROVEMENTS

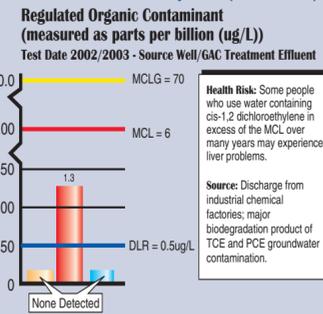
Water system improvements are generally financed over a period of years and through a combination of water rates and new water service acquisition of service fees, grants and low-interest government loans.

The figure above shows how each dollar in water rates and service fees is used to provide our customers with the high quality water they receive. While basic water rates differ with the size of the water line used, everyone gets the first five units of water as part of that service. A "unit" is 100 cubic feet of water or 748 gallons. After the first five units are used, each additional unit costs the average residential customer only 88 cents.

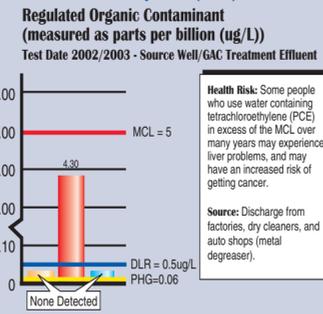
How to Read the Charts



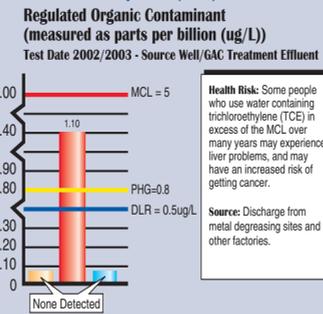
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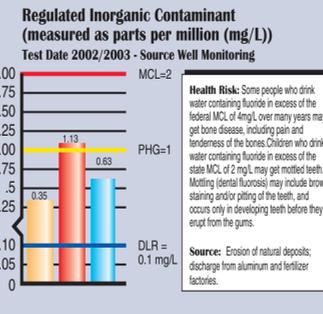
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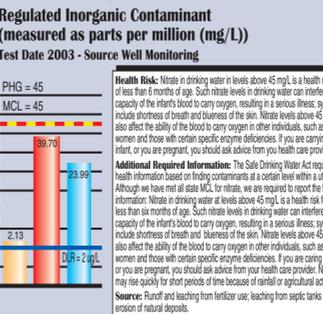
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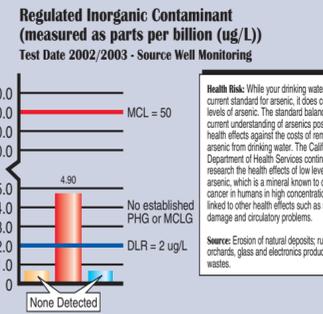
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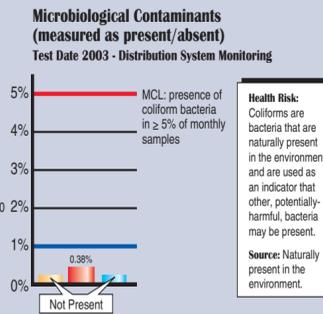
PRIMARY STANDARD



PRIMARY STANDARD



PRIMARY STANDARD



The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

Terms to Know

Contaminant: Any physical chemical, biological, or radiological substance or matter in water.

Primary Drinking Water Standard: California Department of Health Services standards that govern the maximum levels of contaminants allowed in your drinking water, to assure no adverse health effects.

Secondary Drinking Water Standard: Secondary Drinking Water Standards shall not be exceeded in the water supplied to the public because these constituents may adversely affect the taste, odor, or appearance of drinking water.

Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the United States Environmental Protection Agency.

Public Health Goal (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL): The level of disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of disinfectant added for water treatment below which there is no known or expected health risk. MRDLG's are set by the U.S. Environmental Protection Agency.

Regulatory Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Detection Level Reported (DLR): Detection limit for purposes of reporting. The designated minimum level at or above which any analytical finding of a contaminant in drinking water resulting from monitoring required by Title 22, Chapter 15, shall be reported to the DOHS.

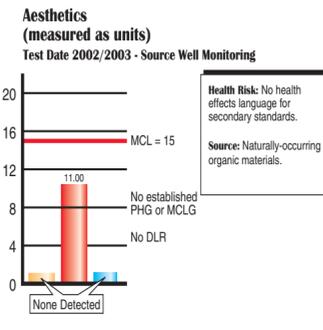
Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Important Definitions

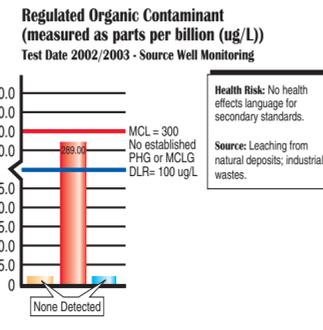
- SBMWD Average:** Numerical average of constituent values in active wells above the DLR in SBMWD's water system
- NS:** No Standard established
- PPM:** mg/L, parts per million, or milligram per liter
- PPB:** ug/L, parts per billion, or micrograms per liter
- pCi/L:** picocuries per liter (a measure of radiation)
- micro:** 1/1000th
- mhos:** Basic unit of conductance.

Note: One part per million is the equivalent of 1/2 of a dissolved aspirin tablet in a full bathtub of water (approximately 50 gallons). One part per billion is equivalent to 1/2 of a dissolved aspirin tablet in 1,000 bathtubs of water (approximately 50,000 gallons).

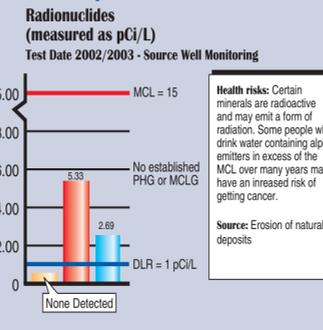
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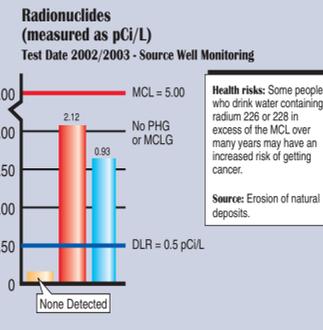
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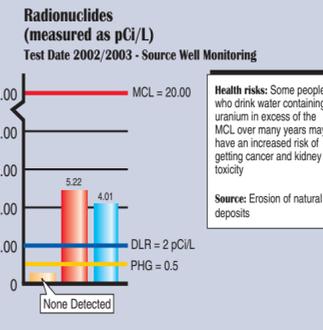
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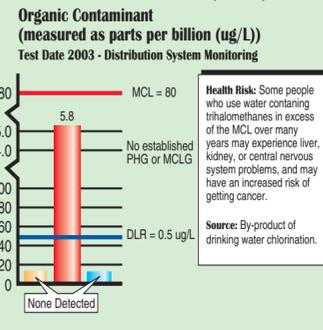
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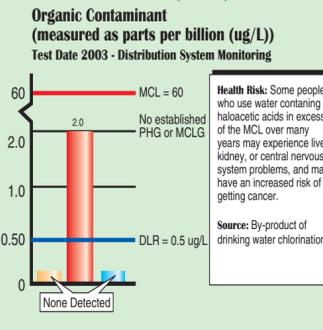
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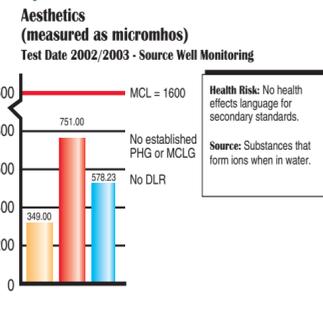
DISTRIBUTION SYSTEM MONITORING



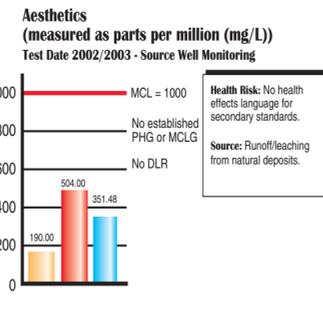
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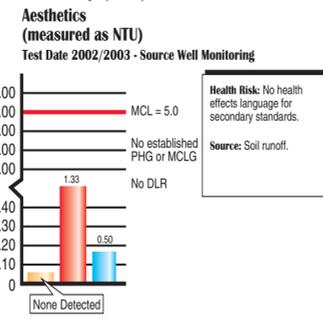
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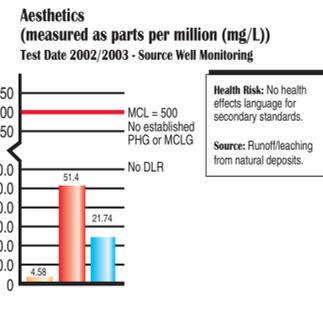
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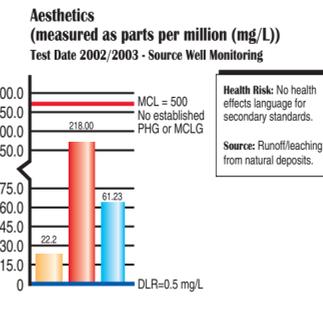
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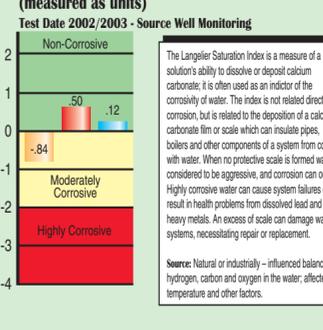
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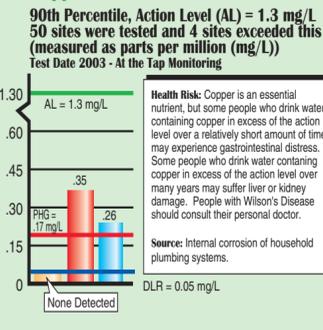
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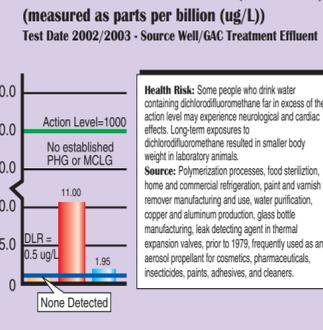
Corrosivity Guide



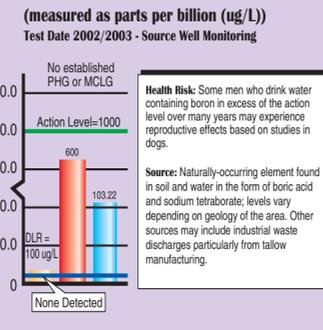
AT THE TAP MONITORING



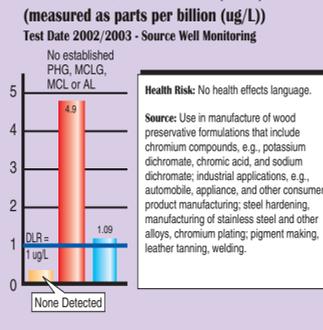
UNREGULATED CONTAMINANT



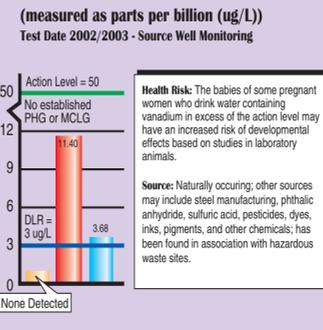
UNREGULATED CONTAMINANT



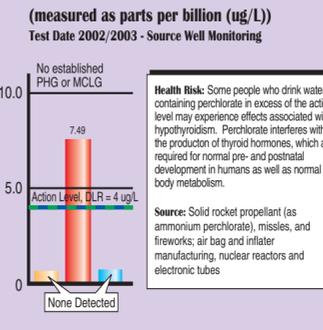
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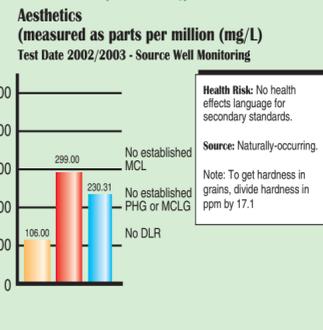
UNREGULATED CONTAMINANT



UNREGULATED CONTAMINANT



ADDITIONAL MONITORING



ADDITIONAL MONITORING

