

PASADENA WATER AND POWER

13TH ANNUAL DRINKING WATER QUALITY REPORT

Pasadena Water and Power (PWP) is pleased to provide you with our 13th Annual Water Quality Report, which contains information about the quality of the drinking water delivered to you. We are proud to report that the water delivered by Pasadena Water and Power in 2002 compiled all state and federal water quality standards. Water quality has always been a top priority for PWP. We are continuing to make improvements, enforce policies and provide substantial investments to ensure high quality water for the years to come. This brochure is a snapshot of last year's water quality.

Working closely with Metropolitan Water District of Southern California (MWD), with state and federal officials, we have instituted several security precautions to safeguard our water system, and remained vigilant in our increased water monitoring and testing. These changes include an increase in the frequency and types of water quality tests, expanded security and system patrols, restricted facility access, a thorough assessment of the water system vulnerability and the development of new contingency plans.

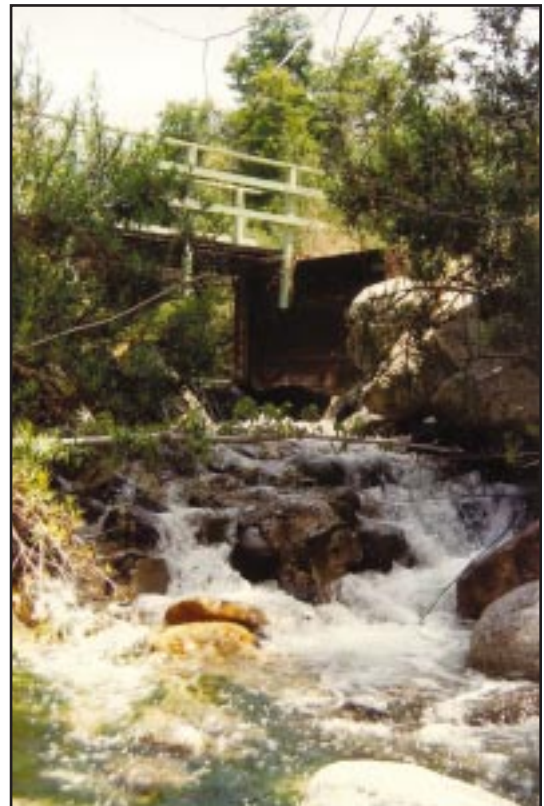
SUPPLY CHALLENGES

The U.S. Department of the Interior recently mandated that MWD reduce its allocation of water from the Colorado River, a major source for Pasadena and other cities throughout the region. MWD is negotiating with Northern California farmers and other groups to alleviate the cutback for the next two years. In the meantime, MWD and PWP are aggressively pursuing alternative options to ensure a reliable water supply long into the future.

PWP is meeting this challenge by increasing the reliability of its own supply, putting plans in place to treat wells that were closed due to perchlorate contamination, maximizing the use of our spreading grounds, promoting water conservation and studying the feasibility of using reclaimed water. Reclaimed water use will conserve our potable water and is more reliable during droughts. Our engineers designed and built one new well, increasing our local production by 17%. PWP is also actively involved in the effort to encourage water conservation, offering rebates for replacing traditional toilets with low-flow toilets, purchasing high-efficiency clothes washers, offering landscaping classes and providing advice to how to save water.

WHAT IS IN MY DRINKING WATER?

Your drinking water is regularly tested for organic chemicals, minerals, metals, bacteria and total trihalomethanes using DHS-approved methods to ensure its safety. The tables below list all constituents detected in your drinking water that have federal and state drinking water standards. Detected unregulated constituents and other constituents of interest are also included. More than 100 regulated constituents have been tested and **were not detected** in water delivered by PWP. When testing is conducted, some constituents are not detected at any level; those are not included in the tables. Certain regulated chemicals are monitored less frequently than once each year. Some of the data, although more than one year old, are representative of the current drinking water quality.



Below New Arroyo Headworks

JUNE 2003

PASADENA GROUNDWATER AND MWD SURFACE WATER DATA FOR YEAR 2002

Parameter	MCL (MRDL)	PHG (MCLG)	Pasadena Wells		MWD Weymouth Plant		Most Recent Sampling Date	Typical Source of Contaminant
			Average	Range	Average	Range		
Primary Standards								
Radionuclides								
Alpha Radiation (pCi/L)	15	n/a	7	1 - 16	5	2 - 6	1999	Erosion of natural deposits
Radium (pCi/L)	5	n/a	1	1 - 2	ND	ND - 1	(1)	Erosion of natural deposits
Uranium (pCi/L)	20	0.5	6	1 - 18	3	2 - 4	(1)	Erosion of natural deposits
Inorganic Chemicals								
Aluminum (ppb)	1000 / 200 (2)	600	ND	ND - 104	54	ND - 164	2002	Erosion of natural deposits
Arsenic (ppb)	50	n/a	ND	ND	ND	ND - 2	2002	Erosion of natural deposits
Fluoride (ppm)	2	1	1	0.9 - 1.5	0.2	0.2 - 0.3	2002	Erosion of natural deposits
Lead (Pb) (ppb)	AL=15	2	ND	ND - 9	ND	ND	2002	Internal corrosion of household plumbing
Nitrate (ppm as N)	10	10	4.7	2 - 8.6	ND	ND - 0.5	2002	Runoff and leaching from fertilizer use
Volatile Organic Compounds								
Methyl-tert-butyl-ether (ppb)	13 / 5 (2)	13	ND	ND	ND	ND - 1	2002	Leaking underground gasoline storage tanks
Secondary Standards (2)								
Chloride (ppm)	500	n/a	24	13 - 33	85	74 - 98	2002	Runoff or leaching from natural deposits
Color (units)	15	n/a	ND	ND	2	1 - 2	2002	Naturally - occurring organic materials
Corrosivity (SI)	non-corrosive	n/a	-0.4	(- 0.5) - (- 0.1)	0.3	0.2 - 0.4	2002	Elemental balance in water
Iron (ppb)	300	n/a	ND	ND - 178	ND	ND	2002	Leaching from natural deposits; industrial wastes
Odor Threshold (Units)	3	n/a	ND	ND	(3)	(3)	2002	Naturally-occurring organic materials
Specific Conductance (umho/cm)	1600	n/a	466	392 - 549	839	766 - 910	2002	Substances that form ions in water
Sulfate (ppm)	500	n/a	52	25 - 143	171	139 - 196	2002	Runoff or leaching of natural deposits
Total Dissolved Solids (ppm)	1000	n/a	278	220 - 328	500	449 - 533	2002	Runoff or leaching of natural deposits
Zinc (ppm)	5	n/a	0.1	ND - 0.7	ND	ND	2002	Runoff or leaching of natural deposits
Unregulated Chemicals Requiring Monitoring								
Boron (ppb)	AL = 1000	n/a	145	ND - 231	130	100 - 140	(4)	Erosion of natural deposits
Perchlorate (ppb)	AL = 4	n/a	ND	ND - 4	ND	ND	2002	Discharge from industrial sources
Vanadium (ppb)	AL = 50	n/a	8	ND - 15	ND	ND	(4)	Naturally-occurring; industrial waste discharge
Other Parameters								
Alkalinity (ppm)	n/a	n/a	141	106 - 188	114	100 - 126	2002	Erosion of natural deposits
Calcium (ppm)	n/a	n/a	49	34 - 58	54	44 - 62	2002	Erosion of natural deposits
Hardness (ppm)	n/a	n/a	172	109 - 211	230	196 - 254	2002	Runoff or leaching from natural deposits
Magnesium (ppm)	n/a	n/a	12	6 - 16	23	21 - 26	2002	Erosion of natural deposits
pH (Units)	n/a	n/a	7.8	7.3 - 7.9	8.1	8.1	2002	Physical characteristics
Sodium (ppm)	n/a	n/a	28	22 - 31	80	74 - 89	2002	Runoff or leaching from natural deposits
<p>(1)-results are for 2000 Pasadena and 1998/99 for MWD; (2)-chemical is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color); (3)-MWD has developed a flavor-profile analysis method that can more accurately detect odor occurrences. For more information contact MWD at (213)-217-6850; (4)-results are for 2001 Pasadena and 2002 for MWD. No MCL violation occurred in 2002. See page 7 for Glossary of Terms.</p>								

PASADENA WATER DISTRIBUTION SYSTEM DATA FOR YEAR 2002						
Parameter	MCL	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation	Typical Source of Contaminant
Disinfection Byproducts						
Haloacetic Acids (HAA5) (ppb)	60	n/a	21	ND - 37	No	Byproducts of chlorine disinfection
Total Trihalomethanes (ppb)	80	n/a	38	ND - 79	No	Byproducts of chlorine disinfection
Microbiological Contaminants						
Total Coliforms	No more than 5% positive samples in any month	(0)	Highest percentage of positive samples in any month was 2.8%	0% - 2.8%	No	Naturally present in the environment
16 locations in the distribution system are tested quarterly for haloacetic acids and total trihalomethanes; 130 to 159 locations are tested monthly for total coliforms.						
LEAD AND COPPER ACTION LEVELS AT RESIDENTIAL TAPS FOR YEAR 2002						
		PHG (MCLG)	90 th Percentile Value	Number of Sites Exceeding AL	AL Violation	Typical Source of Contaminant
Lead (ppb) AL	15	2	2.3	1 out of 50	No	Corrosion of household plumbing
Copper (ppm) MCL	1.0	0.17	0.14	0 out of 50	No	Corrosion of household plumbing
Every three years, 50 residences are tested for lead and copper levels at-the-tap. The most recent set of samples was collected in 2002. Lead was detected in 35 samples. Only one lead sample exceeded the regulatory action level (AL). Copper was detected in 50 samples. The copper action level was never exceeded.						

DISINFECTION BY-PRODUCTS IN METROPOLITAN WATER DISTRICT WATER FOR YEAR 2002			
Parameter	State MCL [MRDL]	Average Amount	Range of Detections
Information Collection Rule (Data collected August 1997 - November 1998)			
Chloral Hydrate (ppb)	n/a	4	2 - 7
Cyanogen Chloride (ppb)	n/a	2	ND - 3
Haloacetonitriles (ppb)	n/a	8	5 - 13
Haloketones (ppb)	n/a	2	1 - 3
Total Organic Halides (ppb)	n/a	116	72 - 174
Disinfection By-Products and Disinfectant Residuals (Data collected in 2002)			
Total Trihalomethanes (TTHMs) (ppb)	80	46	33 - 61
Haloacetic Acids (HAA5) (ppb)	60	19	13 - 24
Total Chlorine Residual (ppm) *	[4]	2.4	2.4 - 2.5
<p>The Information Collection Rule (ICR) is a multi-year national monitoring program administered by the USEPA. The primary purpose of the ICR is to gather nationwide occurrence data on chemicals which may be formed during drinking water disinfection. The results of the ICR will assist the EPA in regulating many of these disinfection by-products.</p> <p>* - Data for the Weymouth treatment plant effluent. Disinfection by-products are formed by the reaction with chlorine disinfectant.</p>			

METROPOLITAN WATER DISTRICT WATER FOR YEAR 2002			
Clarity			
Turbidity - combined filter effluent	State MCL	Measurements	Typical Source of Contaminant
1) Highest single turbidity measurement (NTU)	0.3	0.12	Soil run-off
2) Percentage of samples less than 0.5 NTU (%)	95	100	Soil run-off
Microbial Contaminants - Naturally present in the environment			
Parameter	State MCL	Average	Range of Detections
Total Coliform Bacteria (%)	5 *	0.02	0 - 0.12
Heterotrophic Plate Count (CFU/mL)	TT	4	<1 - 43
<p>Turbidity is a measure of the cloudiness of the water and is a good indicator of water quality; the turbidity level of the filtered water shall be less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed 1.0 NTU at any time.</p> <p>* - No more than 5% of the monthly samples can be total coliform-positive. No MCL violation occurred in 2002.</p>			

DRINKING WATER STANDARDS

To ensure that the tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the California Department of Health Services (DHS) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Drinking water standards established by USEPA and DHS set limits for substances that may affect consumer health or aesthetic qualities of drinking water.

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, persons with HIV/AIDS or other immune system disorders, infants, pregnant women and some elderly persons should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800) 426-4791.



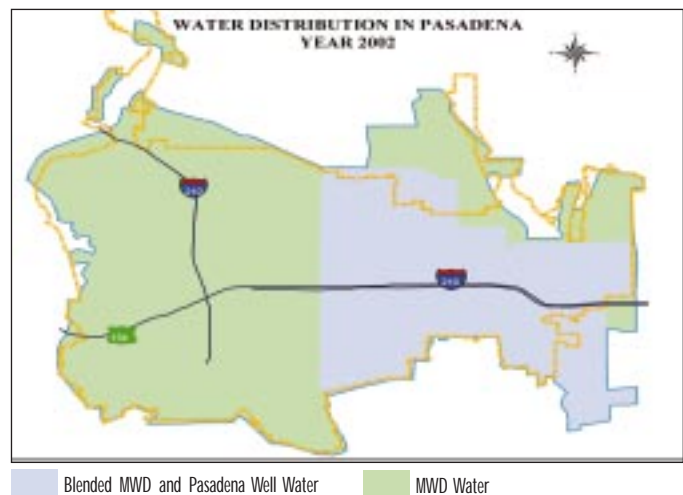
Millard Canyon Intake

SOURCES OF DRINKING WATER

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of 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 or from human activity. These substances can contaminate surface water and groundwater. Contaminants that may be present in source water, before it can be treated include:

- **Microbial contaminants**, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals, may be naturally-occurring or result from urban stormwater runoff, industrial or domestic waste water 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, are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** may be naturally-occurring or be the result of oil and gas production and mining activities.

WHERE DOES PASADENA'S DRINKING WATER COME FROM?



Your tap water is a blend of groundwater and imported surface water. In 2002, 25% of our water supply came from Pasadena's own groundwater wells and 75% was purchased from MWD. Imported water is a blend of Colorado River water delivered through MWD's Colorado River Aqueduct and surface water from Northern California delivered through the State of California Water Project Aqueduct. MWD's water is filtered and disinfected with chloramines (chlorine plus ammonia) at the Weymouth Filtration Plant in La Verne.



MWD's Diamond Valley Reservoir

DID YOU KNOW?

- PWP serves approximately 160,000 people in Pasadena and some surrounding areas of Altadena and unincorporated Los Angeles County.
- The city's water supply in year 2002 consisted of 5 active deep wells located on the east side of town and 5 connections with the MWD. The city has interconnections with 7 other local water systems that can supply water during emergencies, shortages or high demand.
- In 2002 Pasadena put in service one new well. This well draws high quality drinking water from approximately 800 feet below ground.
- In 2002 PWP distributed 38,000 acre-feet of water to its customers. This is equivalent to nearly 12 billion gallons.
- An acre-foot of water equals 325,851 gallons - enough to serve the needs of two typical families for one year.
- Pasadena's water contains fairly high levels of calcium and magnesium which occur naturally in water. Our water is considered "hard." Water hardness or softness does not affect health.
- Pasadena's well water contains high amounts of naturally occurring fluoride.
- PWP uses disinfectants such as chlorine to prevent bacteria growing in our water storage reservoirs and distribution pipelines. Our well water is blended with MWD's chloraminated water.
- Fish are unable to live in water containing chloramine. Owners of freshwater tropical fish should use a dechlorination agent to neutralize it in a pond or tank and increase the dosage above the manufacturers suggested amount. A chlorine test kit can be used.
- Some Pasadena residents have experienced cloudy, almost milky-looking water coming from their water faucets. This cloudiness is due to compressed air in the water. Turning on a faucet releases pressure in the water piping system, causing thousands of tiny air bubbles to form and creating a cloudy appearance. If the water is allowed to sit for a few seconds, the bubbles will dissipate.
- Aerators on home water faucets reduce the flow and help conserve water.
- Leaving the water running while brushing your teeth or while shaving wastes 4 to 6 gallons of water every time you brush or shave.
- A leaking faucet can waste more than 100 gallons of water a month.
- As much as 30 percent of water can be lost to evaporation by watering the lawn during midday. It is more efficient to water before 8 a.m. or after 6 p.m. and to avoid watering on windy days.

DRINKING WATER SOURCE ASSESSMENT

An assessment of the drinking water sources for Pasadena's water system was completed in August 2002. The wells in Pasadena were found to be most vulnerable to contamination from automobile gas stations, repair shops and body shops; underground storage tanks; and military installations. A copy of the complete assessment is available at Pasadena Water and Power, 150 S. Los Robles Ave., Suite 200. In December, 2002, MWD completed its source water assessment of its Colorado River and State Water Project supplies. Colorado River supplies are considered to be most vulnerable to recreation, urban/stormwater runoff, increasing urbanization in the watershed and wastewater. State Water Project supplies are considered to be most vulnerable to urban/stormwater runoff, wildlife, agriculture, recreation and wastewater. A copy of the assessment can be obtained by contacting MWD at (213) 217-6850.



Arroyo Seco streambed

OTHER WATER QUALITY ISSUES

Lead and Copper

- ◆ **Lead and copper have not been detected in Pasadena's wells.**
- ◆ Domestic plumbing is the primary source of these metals.
- ◆ We test tap water for lead and copper inside a number of representative homes every three years.
- ◆ Lead levels in your home could be higher than in other homes in the community as a result of the plumbing materials used.
- ◆ Infants and young children are more vulnerable to the effects of lead in drinking water than the general population.
- ◆ You can minimize exposure to lead by flushing the water out of your tap for about 30 seconds before drinking whenever plumbing has not been used for 6 hours or more. Save "flushed water" for watering plants.
- ◆ Use only cold water for cooking, drinking and especially for making baby formula.

Perchlorate

- ◆ Perchlorate is a chemical used to make rocket fuel, explosives, fireworks and road flares.
- ◆ **There is currently no state or federal standard for perchlorate.** DHS uses a 4 parts per billion action level (AL) for perchlorate to protect consumers, especially pregnant woman and infants, from its adverse health effects.
- ◆ Perchlorate can block iodine from entering the thyroid gland, which will result in decrease in production of thyroid hormones. In 2002, nine of Pasadena's wells were out of service due to high concentration of perchlorate.

GLOSSARY OF TERMS

(See pages 2 and 3)

Average: The annual average of all tests for a particular substance.

CFU/ml: Colony Forming Units per milliliter

Maximum Contaminant Level (MCL):
The highest level of a contaminant allowed in drinking water

Maximum Contaminant Level Goal (MCLG):
Set by the USEPA to determine the level of a contaminant in drinking water below which there is no known or expected risk to health

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

Maximum Residual Disinfectant Level Goal (MRDLG): Set by the USEPA to determine the level of a disinfectant added for water treatment below which there is no known or expected risk to health

n/a: Not Applicable

ND: Not Detected

Nephelometric Turbidity Units (NTU):
A measurement of turbidity in water

Parts per Billion (ppb or ug/l):
A standard unit of measure for water analysis— It is roughly equivalent to one drop in 10,000 gallons.

Parts per Million (ppm or mg/l): A standard unit of measure for water analysis – It is roughly equivalent to one drop in 10 gallons.

PicoCuries per Liter (pCi/L):
A measurement of radioactivity in water.

Primary Drinking Water Standards (PDWS):
MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements and surface water treatment requirements

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

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

Secondary Drinking Water Standards (SDWS): MCLs for substances that could affect aesthetic aspects of water quality such as taste, odor and appearance but do not affect health

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



Spreading Basin

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo o hable con alguien que lo entienda bien, o llame al (626) 744-3838.

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QUALITY REPORT
June 2003



WE WANT TO HEAR FROM YOU

Comments from the public are welcomed and may be presented at City Council meetings Mondays at 6:30 p.m. in the Council Chambers, Room 247 at Pasadena City Hall.

PWP encourages your water quality questions and participation:

Pasadena Water and Power
150 S. Los Robles Ave., Suite 200
Pasadena, CA 91101

For more information, please contact:

PWP AnswerLine for Customer Service Needs
(626) 744-6970
www.PWPweb.com

Water Quality Questions:

Inna Babbitt (English) (626) 744-4465
Tony Estrada (Spanish) (626) 744-3838

Metropolitan Water District of
Southern California (213) 217-6850
www.mwd.dst.ca.us

California Department of Health Services
Division of Drinking Water and Environmental
Management (213) 580-5723
www.dhs.ca.gov/ps/ddwem

U.S. Environmental Protection Agency
Office of Groundwater and Drinking Water
Safe Drinking Water Hotline (800) 426-4791
www.USEPA.gov/safewater

If you have concerns about your drinking water or desire to have it tested, you can call DHS at (213) 580-5723 for a listing of state-certified laboratories.

For an online version of this report, visit www.PWPweb.com and click on "Your Water."