



PASADENA
Water & Power
SERVING THE COMMUNITY SINCE 1906

2016 Consumer Confidence Report

ON WATER QUALITY



Message from the General Manager

PASADENA WATER AND POWER (PWP) is pleased to present the **2016 Consumer Confidence Report on Water Quality**. We are happy to announce that your tap water has once again exceeded all drinking water quality standards set by the U.S. Environmental Protection Agency (USEPA) and the State Water Resources Control Board, Division of Drinking Water (DDW).

Though the drought in Southern California is not as severe as previous years, conservation and regional sustainability remain essential. PWP engages with the community by encouraging conservation through a variety of programs, workshops and educational partnerships. Also, by developing key plans such as the Urban Water Management Plan and Water Integrated Resource Plan, PWP remains focused on addressing our water supply issues long-term.



Gurcharan Bawa
General Manager

Our partnerships with local public and private schools support educational programs aimed at raising awareness about water conservation and environmental stewardship. Workshops held throughout the year help to educate residents about PWP's water-saving programs and incentives. PWP also offers tours of our Monk Hill Water Treatment Facility and Water Quality Laboratory as a way to familiarize the community with their local utility.

Through education, engagement and outreach, PWP continues to encourage conservation and provide safe, reliable drinking water for the community.

To learn more about the quality of your drinking water, visit PWPweb.com/WaterQuality.



Questions about your water?

PWP welcomes your comments, questions, and participation.

For information about this report, or your water quality in general, please contact:

David E. Kimbrough, Ph.D. (626) 744-7315 (in English),
or **Tony Estrada (626) 744-3838** (en Español).

Public comments are also welcomed at the weekly Pasadena City Council meetings, held every Monday at 6:30 p.m. at City Hall, 100 N. Garfield Avenue.

This report is available electronically at PWPweb.com/CCR2016. Previous years' reports and additional water quality information are available at PWPweb.com/WaterQuality.

If you would like a copy of this report mailed to you, please call **(626) 744-7315**.

Pasadena Citizen Service Center: (626) 744-7311

Water Waste Hotline

(626) 744-8888

ww5.CityofPasadena.net/citizen-service-center

Rebates and Conservation Tips

(626) 744-6970 • PasadenaSavesWater.com

Metropolitan Water District of Southern California

(213) 217-6000 • mwdh2o.com

State Water Resources Control Board, Division of Drinking Water

(818) 551-2004

www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/publicwatersystems.shtml

U.S. Environmental Protection Agency Safe Drinking Water Hotline

(800) 426-4791 • epa.gov/safewater

Hazardous Waste Disposal and Recycling

(888) CLEAN-LA • 888CleanLA.com

The Quality of Your Water is Our Primary Concern

Your Water Supply

In 2016, PWP produced 26,890 acre-feet or 8.8 billion gallons of water, to serve approximately 166,000 consumers in Pasadena, portions of the unincorporated areas of Altadena, East Pasadena, and San Gabriel. During the year, nearly 40 percent of the water supply was pumped from our local groundwater, whereas 60 percent came from imported surface water purchased from the Metropolitan Water District (MWD). Less than 1 percent was purchased from neighboring water agencies that combine surface

water and groundwater.

The Monk Hill Treatment Facility continues to operate and successfully remove perchlorate and volatile organic compounds from four groundwater wells in the

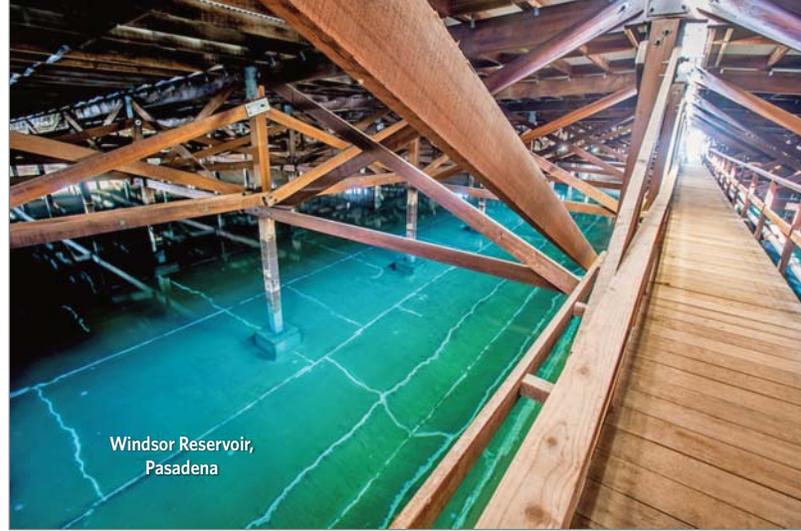
northwest portion of Pasadena. The treatment system, combined with continued conservation and strategic local supply planning, has helped decrease Pasadena's reliance on imported water. PWP continues to explore all possible opportunities that will maximize use of our local water supplies.

PWP's groundwater is pumped from the Raymond Groundwater Basin, a natural water-bearing zone underlying Pasadena, Altadena, La Cañada Flintridge, and portions of San Marino, Arcadia and Sierra Madre. Surface water from streams, rivers, lakes, and precipitation enters the basin area through the natural water cycle. As surface water slowly percolates through the ground to the basin, the ground acts as a natural filter to strip the water of most contaminants. PWP's water is disinfected with chlorine and chloramines (chlorine plus ammonia) prior to distributing the water to our customers.

MWD is a consortium of 26 cities and water agencies that import wholesale water from the Colorado River and from the Sacramento and San Joaquin rivers in Northern California to serve nearly 19 million people in Southern California. MWD supplies PWP with water treated at the Weymouth Filtration Plant in La Verne. MWD uses chloramines to disinfect its water.

Water Quality

In order to ensure that tap water is safe to drink, the USEPA and the DDW prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. DDW



Windsor Reservoir,
Pasadena

regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Drinking Water Contaminants

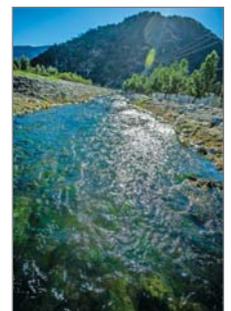
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline, (800) 426-4791.

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 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 or from human activity.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These individuals should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) 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.



Water Quality Issue that Could Affect Your Health

FEDERAL AND STATE REGULATIONS THAT IMPACT HEALTH & WATER QUALITY

Contaminants that May be Present in Source Water include...

- **Microbial contaminants** such as viruses and bacteria that 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 stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides** that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- **Radioactive contaminants** can be naturally-occurring or be the result of oil and gas production and mining activities

Fluoride

Your purchased water is fluoridated. MWD, which supplies about 60 percent of PWP's drinking water, adds fluoride to their water supply to the level of 0.6 to 1.2 parts per million (ppm). Before drinking water is delivered to your home or business tap, the fluoridated water is blended with PWP's groundwater. Since PWP's groundwater has naturally occurring fluoride levels of 0.4 to 1.5 ppm, the resulting concentration of fluoride is 0.4 to 1.4 ppm in our community drinking water, with an average of 0.9 ppm. At this range, fluoride has been proven to be effective in preventing tooth decay.

For more information about fluoridation, oral health, and current issues, please visit PWPweb.com/WaterQualityFAQ.

Lead and Copper

Under the Lead and Copper Rule (LCR), PWP tests the water at the tap of dozens of its customers every three years.

Most testing occurs at the source of drinking water, such as wells, streams, and lakes. LCR samples are collected at the tap because lead and copper are almost never found in source waters

and they occur most frequently in tap water because of the corrosion of household fixtures, such as brass in faucets.

The results of our testing indicate that that the water being tested does not exceed the Action Levels set in the LCR.

If you are concerned about the presence of lead or copper in your tap water, you can minimize the potential for lead exposure by flushing your tap for 5 seconds before using water for drinking or cooking.



Nitrates

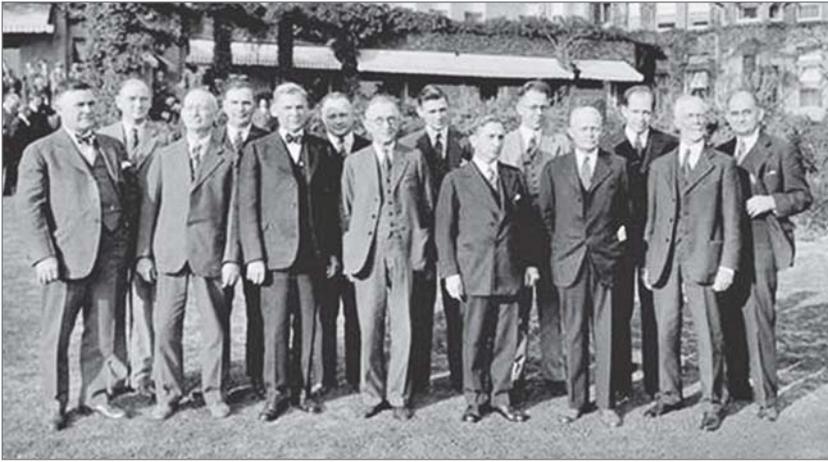
Nitrate in drinking water at levels above 45 mg/L is a health risk for infants of less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness 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.

Hardness

Water becomes hard as it passes over or through certain geological formations that contain calcium or magnesium. For example, groundwater becomes hard as it percolates down to the water table through limestone deposits containing calcium, or through dolomite and other magnesium bearing minerals that dissolve into water. Surface water imported to Pasadena is hard because it has passed over similar formations as it flows hundreds of miles from the Colorado River and Northern California. Hard water causes white, scaly deposits on plumbing fixtures, cooking utensils, and dishwashers. It reduces the cleaning power of soap and detergent and causes buildup in hot water heaters, thus reducing its effective lifetime. PWP's water hardness ranged from 152 to 456 ppm or 8.9 to 20.0 grains per gallon in 2016. The average is 300 ppm or 17.6 grains per gallon.

Though hardness causes aesthetic disadvantages, our bodies require calcium and magnesium and therefore there is no known negative health effect that is caused by hard water.





75 Years of Water Delivery in Pasadena

In June 2016, the Metropolitan Water District of Southern California (MWD) celebrated 75 years of delivering water from the Colorado River Aqueduct to its member agencies. This was especially significant to the City of Pasadena, as Pasadena Water and Power (PWP) was the first of the member agencies to receive water from MWD through the Aqueduct.

In 1905, Pasadena residents voted to approve a series of bond measures that included purchase agreements for water rights to three major water systems on the San Gabriel River near Whittier, CA. Pasadena continued to seek ways to access water from a further distance 250 miles north, but also recognized the value in partnering with local communities and nearby water agencies to develop a new water supply. On December 29, 1928, MWD held its first board meeting in Pasadena at the Huntington Hotel (currently The Langham Huntington Hotel).

From there, MWD was established with 13 member agencies including Pasadena. All of the original member agencies received a special proclamation from MWD to commemorate the historic event at a unique program called "Turning On The Tap" held near MWD's headquarters.

For more information, visit PWPweb.com/75years.

Important Information

This report contains important information about your drinking water. Translate it, or speak with someone who understands it.

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

Mahalaga ang impormasyon na nilalaman nito. Mangyaring ipasalin ito.

Այս գեկուցագիրը պարունակում է շատ կարևոր տեղեկություններ խմելու ջրի վերաբերյալ. Թարգմանեք կամ խոսացեք որևիցե անձի հետ որը կլիտասկանա գեկուցագիրը.

この情報は重要です。翻訳を依頼してください。

此份有關你的食水報告,內有重要資料和訊息,請找他人為你翻譯及解釋清楚。

यह सूचना महत्वपूर्ण है । कृपा करके किसी से :सका अनुवाद कराये ।

이 안내는 매우 중요합니다. 본인을 위해 번역인을 사용하십시오.

Данный рапорт содержит важную информацию о вашей питьевой воде. Переведите его или проконсультируйтесь с тем, кто его понимает.

Pasadena's Non-Potable Water Project

As the City of Pasadena grows, the demand for potable water increases, putting a strain on both our groundwater and imported water sources. Recycled water, however, provides a dependable, locally-controlled water supply for non-potable use such as landscape irrigation and dust control.

PWP is developing plans to construct a new distribution system to bring non-potable water from the Los Angeles-Glendale Water Reclamation Plant (LAG) to the City of Pasadena. The proposed project could provide more than 3,000 acre-feet of non-potable water annually for citywide use, meeting nearly 10% of the City's total water demand. One acre-foot of water is approximately 326,000 gallons.

This non-potable water is treated through a three-step procedure imitating nature's own cleaning processes. The LAG plant produces 20 million gallons of non-potable water each day. This non-potable water is shared between the Los Angeles Department of Water and Power and the City of Glendale. Glendale uses it as cooling water for its city-run Grayson Power Plant and for irrigation of freeway landscaping, in local cemeteries, and at nearby golf courses and parks.

To learn more, please visit PWPweb.com/recycledwater.

City of Pasadena 2016 Groundwater and MWD Treated Surface Water Data

Parameter	MCL	PHG / MCLG / AL	DLR / MRL	Pasadena Wells		MWD Weymouth Plant		MCL Violation	Typical Source of Contaminant
				Typical	Range	Typical	Range		
Primary Standard (Monitored for health concerns)									
Radiologicals (pCi/L)⁽¹⁾									
Gross Alpha Particle Activity	15	n/a	3	6.7	ND – 17	ND	ND – 4	No	Erosion of natural deposits
Gross Beta Particle Activity ⁽²⁾	50	n/a	4	4.4	3.2 – 6.1	5	4 – 6	No	Decay of natural and man-made deposits
Uranium	20	0.43	1	7.3	4.2 – 15	3	2 – 3	No	Erosion of natural deposits
Volatile Organic Compounds									
Carbon Tetrachloride (ppt) ⁽³⁾	500	100	500	230.0	ND – 1290	ND	ND	No	Discharge from chemical plants and other industrial activities
cis-1,2-Dichloroethylene (c-1,2-DCE) (ppb)	6	100	0.5	ND	ND – 1.76	ND	ND	No	Major biodegradation by-product of TCE and PCE groundwater contamination
Tetrachloroethylene (PCE) (ppb)	5	0.06	0.5	1.3	ND – 4.97	ND	ND	No	Discharge from factories, dry cleaners, and autoshops
Trichloroethylene (TCE) (ppb)	5	1.7	0.5	1.9	ND – 6.4	ND	ND	No	Discharge from metal degreasing sites and other factories
Inorganic Compounds									
Aluminum (ppb)	1000	600	50	ND	ND – 170	Highest RAA=159	77 – 220	No	Erosion of natural deposits
Arsenic (ppb)	10	0.004	2	ND	ND – 2	ND	ND	No	Erosion of natural deposits, runoff from orchards & industrial process
Barium (ppb)	1000	2000	100	64.2	22 – 150	144	144	No	Erosion of natural deposits
Chromium (ppb)	50	100	0.2	3.6	NDR – 5.4	ND	ND	No	Erosion of natural deposits
Chromium VI (ppb)	10	0.02	1	3.2	1.8 – 4.9	ND	ND	No	Erosion of natural deposits, industrial waste discharge
Fluoride (ppm)	2	1	0.1	0.9	0.4 – 1.5	0.7	0.6 – 1.2	No	Water additive for dental health, erosion of natural deposit
Nitrate (ppm) ⁽⁴⁾	45	45	0.4	26.8	14 – 57.3	ND	ND	No	Runoff and leaching from fertilizer use, erosion of natural deposits
Perchlorate (ppb) ⁽⁵⁾	6	1	4	8.6	ND – 14.4	ND	ND	No	Industrial waste discharge
Secondary Standard (Monitored for aesthetic qualities such as taste, color, odor)⁽⁴⁾									
Chloride (ppm)	500	n/a	n/a	43.0	16.1 – 98.43	103	103	No	Runoff and leaching from natural deposits
Color (Units)	15	n/a	n/a	1.7	0 – 4	1	1	No	Naturally-occurring organic materials
Odor (Units)	3	n/a	1	ND	ND – 2	2	2	No	Naturally-occurring organic materials
Specific Conductance (µS/cm)	1600	n/a	n/a	671.0	495 – 844	1035	1020 – 1050	No	Substances that form ions when in water
Sulfate (ppm)	500	n/a	0.5	73.1	16.5 – 162.4	258	256 – 259	No	Runoff and leaching from natural deposits
Total Dissolved Solids (ppm)	1000	n/a	n/a	412.5	276 – 568	655	650 – 659	No	Runoff and leaching from natural deposits
Turbidity (NTU)	5	n/a	0.1	0.4	0.05 – 0.9	ND	ND	No	Soil runoff
Other Parameters									
123-Trichloropropane (ppt)	n/a	n/a	5	ND	ND – 11.5	NA	NA	No	Industrial waste discharge
Alkalinity (ppm)	n/a	n/a	n/a	168.0	116 – 202	118	115 – 124	No	n/a
Calcium (ppm)	n/a	n/a	n/a	59.0	37.9 – 86.2	77	75 – 79	No	n/a
Corrosivity (LSI)	n/a	n/a	n/a	0.11	-0.13 – 0.34	12.5	12.4 – 12.5	No	n/a
Magnesium (ppm)	n/a	n/a	n/a	59.5	35.7 – 88.2	26	25 – 27	No	n/a
pH (pH Units)	n/a	n/a	n/a	7.6	7.3 – 7.9	8.1	8.1	No	n/a
Potassium (ppm)	n/a	n/a	n/a	2.6	1.5 – 3.3	5.1	5.0	No	n/a
Sodium (ppm) ⁽⁵⁾	n/a	n/a	n/a	31.3	23 – 36	105	104 – 106	No	n/a
Total Hardness (ppm)	n/a	n/a	n/a	271.0	157 – 411	300	293 – 306	No	n/a

Understanding the Water Quality Chart

As in previous years, the Water Quality Report compares the quality of your tap water to state and federal drinking water standards. The report includes information on all regulated and unregulated drinking water contaminants that were detected during calendar year 2016. More than 100 regulated contaminants that were tested for, but not detected, are not included in this report. A number of regulated chemicals and other compounds do not require annual monitoring. Their most recent test results and corresponding test year are footnoted, if applicable. DDW allows PWP 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.

Maximum Contaminant Level (MCL): 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 USEPA.

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 highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

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

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Detection Limits for Purposes of Reporting (DLR): The DLR is a parameter that is set by regulation for each reportable analyte. It is not laboratory specific and it is independent of the analytical

method used (in cases where several methods are approved). It is expected that a laboratory can achieve a Reporting Limit that is lower than or equal to the DLR set by the DDW. This is also known as the Minimum Reporting Level (MRL).

NA: Contaminant or property was not analyzed.

n/a: Not applicable.

ND: Contaminant was not detected. The contaminant is less than the DLR.

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

Units of Measurement:

ppm = parts per million **ppb** = parts per billion
ppt = parts per trillion **pCi/L** = picocuries per liter
LSI = Langelier Saturation Index
µS/cm = microsiemens per centimeter
NTU = Nephelometric Turbidity Units.

City of Pasadena Water Distribution System and MWD Treated Surface Water Data

Parameter	MCL	PHG / MCLG / AL	DLR / MRL	Pasadena Water System		MWD Weymouth Plant		MCL Violation	Typical Source of Contaminant
				Typical	Range	Typical	Range		
Disinfection By-Products and Disinfectant Residuals (D/DBP)⁽⁶⁾									
TTHM [Total Trihalomethanes] (ppb)	80	n/a	n/a	Highest Avg. (RAA) = 45	ND – 66.7	Highest Avg. (RAA) = 42	26 – 61	No	By-products of drinking water disinfection
HAA5 [Haloacetic Acids] (ppb)	60	n/a	n/a	Highest Avg. (RAA) = 14.5	ND – 23.0	Highest Avg. (RAA) = 14	4.5 – 25	No	By-products of drinking water disinfection
Total Chlorine Residual (ppm)	MRDL = 4	MRDLG = 4	n/a	Highest Avg. (RAA) = 1.26	ND – 2.9	Highest Avg. (RAA) = 2.4	0.9 – 3.1	No	Drinking water disinfectant added for treatment
Microbiological (%)									
Total Coliform Bacteria (%)	5	(0)	n/a	Highest Monthly Avg. = 2.6%	0 – 2.6	ND	ND	No	Naturally present in the environment

City of Pasadena Water Distribution System – Lead and Copper Levels at Residential Taps⁽⁷⁾

Parameter	AL	PHG	DLR / MRL	Pasadena Water System		MWD Weymouth Plant		MCL Violation	Typical Source of Contaminant
				90th Percentile	Number of Sites Exceeding Action Level	90th Percentile	Number of Sites Exceeding Action Level		
Lead (ppb)	15	0.2	5	1.7	0 out of 54	n/a	n/a	No	Internal corrosion of household water plumbing system
Copper (ppm)	1.3	0.3	0.05	0.22	0 out of 54	n/a	n/a	No	Internal corrosion of household water plumbing system

Federal Unregulated Contaminants Monitoring Rule (UCMR 3)⁽⁸⁾

Parameter	MCL	PHG / MCLG / AL	DLR / MRL	Pasadena Water System		MWD Weymouth Plant		MCL Violation	Typical Source of Contaminant
				Average	Range	Average	Range		
N-Nitrosodimethylamine – NDMA (ppt)	NA	3	2	ND	ND – ND	ND	ND – 6.0	NA	By-product of drinking water chlorination
Chlorate (ppb)	NA	NA		61	61 – 130	104	91 – 147	NA	By-product of drinking water chlorination & Industrial processes
Molybdenum (ppb)	NA	NA		12	ND – 16	NA	NA	NA	Naturally present in the environment
Strontium (ppb)	NA	NA		351	300 – 440	NA	NA	NA	Naturally present in the environment
Vanadium (ppb)	NA	NA		11	6.8 – 15	ND	ND	NA	Naturally present in the environment

Footnotes:

- The results for Pasadena are taken from 2011-2015 monitoring. The MCL for Gross Alpha is based on adjusted gross alpha particle activity in which uranium and radon values are subtracted from gross-alpha particle activity. Once values are adjusted, Pasadena's wells are below the MCL.
- DDW considers 50 pCi/L to be the level of concern for beta particles. The results for Pasadena were taken in 2011-2013.
- Pasadena well water is either blended with MWD water or treated at the Monk Hill Treatment System before being delivered to the customers. Once blended or treated, the chemicals were well below the MCL.
- There are no PHGs, MCLGs, or mandatory standard health effects language for these constituents because secondary MCLs are set on the basis of aesthetics.
- Results are from 2014 sodium monitoring
- The MCL for TTHM and HAA5 and the MRDL for Total Chlorine Residual are based on a Running Annual Average (RAA).
- Lead and Copper are based on triennial monitoring within residential taps. Results are based on 2014 monitoring.
- Data from Pasadena Wells was collected in 2013 for Unregulated Chemical Monitoring Rule 3. For more information or questions about this report, or your water quality in general, please contact David E. Kimbrough, Ph.D. (626) 744-7315 (in English), or Tony Estrada (626) 744-3838 (en Español).

How to Read Your Residential Water Meter

Your water meter is usually located between the sidewalk and curb under a cement cover. Remove the cover by inserting a screwdriver in the hole in the lid and then carefully lift the cover. The meter reads straight across, like the odometer on your car. Read only the white numbers (0895).

If you are trying to determine if you have a leak, turn off all the water in your home, both indoor and outdoor faucets, and then check the red or black triangular dial for any movement of the low-flow indicator. If there is movement, that indicates a leak between the meter and your plumbing system.

- Low-Flow Indicator** — The low flow indicator will spin if any water is flowing through the meter.
- Sweep Hand** — Each full revolution of the sweep hand indicates that one cubic foot of water (7.48 gallons) has passed through the meter. The markings at the outer edge of the dial indicate tenths and hundredths of one cubic foot.
- Meter Register** — The meter register is a lot like the odometer on your car. The numbers keep a running total of all the water that has passed through the meter. The register shown here indicates that 89,505 cubic feet of water has passed through this meter.

