City of
Newport Beach
Municipal Operations Department

2013
Water Quality Report

Your 2013 Water Quality Report

Drinking Water Quality

Since 1990, California public water utilities have been providing an annual Water Quality Report to their customers. This year's report covers calendar year 2012 drinking water quality testing and reporting. Your City of Newport Beach Municipal Operations Department (City) vigilantly safeguards its water supply and, as in years past, the water delivered to your home meets the quality standards required by federal and state regulatory agencies. The U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) are the agencies responsible for establishing and enforcing drinking water quality standards.

In some cases, the City goes beyond what is required by testing for unregulated chemicals that may have known health risks but do not have drinking water standards. For example, the Orange County Water District (OCWD), which manages the groundwater basin, and the Metropolitan Water District of Southern California (MWDSC), which supplies imported treated surface water to the City, test for unregulated chemicals in our water supply. Unregulated chemical monitoring helps USEPA and CDPH determine where certain chemicals occur and whether new standards need to be established for those chemicals.

Through drinking water quality testing programs carried out by OCWD for groundwater, MWDSC for treated surface water and the City for the distribution system, your drinking water is constantly monitored from source to tap for regulated and unregulated constituents.

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.

We Go to Great Lengths to Ensure the Continued Quality of Your Water

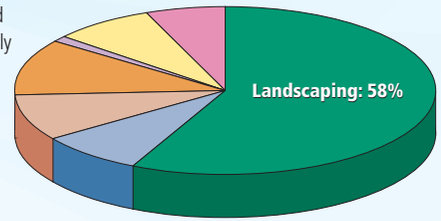
Sources of Supply

Orange County's water supplies are a blend of groundwater managed by OCWD and water imported from Northern California and the Colorado River by the Municipal Water District of Orange County (MWDOC) via the MWDSC. Groundwater comes from a natural underground aquifer that is replenished with water from the Santa Ana River, local rainfall and imported water. The groundwater basin is 350 square miles and lies beneath north and central Orange County from Irvine to the Los Angeles County border and from Yorba Linda to the Pacific Ocean. More than 20 cities and retail water districts draw from the basin to provide water to homes and businesses.

How Residential Water is Used in Orange County

Outdoor watering of lawns and gardens makes up approximately 60% of home water use. By cutting your outdoor watering by 1 or 2 days a week, you can dramatically reduce your overall water use.

Visit www.bewaterwise.com for water saving tips and ideas for your home and business.



Orange County's Water Future

For years, Orange County has enjoyed an abundant, seemingly endless supply of high-quality water. However, as water demand continues to increase statewide, we must be even more conscientious about our water supply and maximize the efficient use of this precious natural resource.

OCWD and MWDOC work cooperatively to evaluate new and innovative water management and supply development programs, including water reuse and recycling, wetlands expansion, recharge facility construction, ocean and brackish water desalination, surface storage and water use efficiency programs. These efforts are helping to enhance long-term countywide water reliability and water quality.

A healthy water future for Orange County rests on finding and developing new water supplies, as well as protecting and improving the quality of the water that we have today. Your local and regional water agencies are committed to making the necessary investments today in new water management projects to ensure an abundant and high-quality water supply for our future.

Basic Information About Drinking Water Contaminants

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 layers of the ground it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animal and human activity.

Contaminants that may be present in 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, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production or mining activities.
- Pesticides and herbicides, which 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, which are by-products of industrial processes and petroleum production, and can also come from gasoline stations, urban stormwater runoff, agricultural application and septic systems.

In order to ensure that tap water is safe to drink, USEPA and the CDPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. CDPH regulations also establish limits for contaminants in bottled water that must provide the same protection for public health. 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 at (800) 426-4791.

About Lead in Tap Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking.

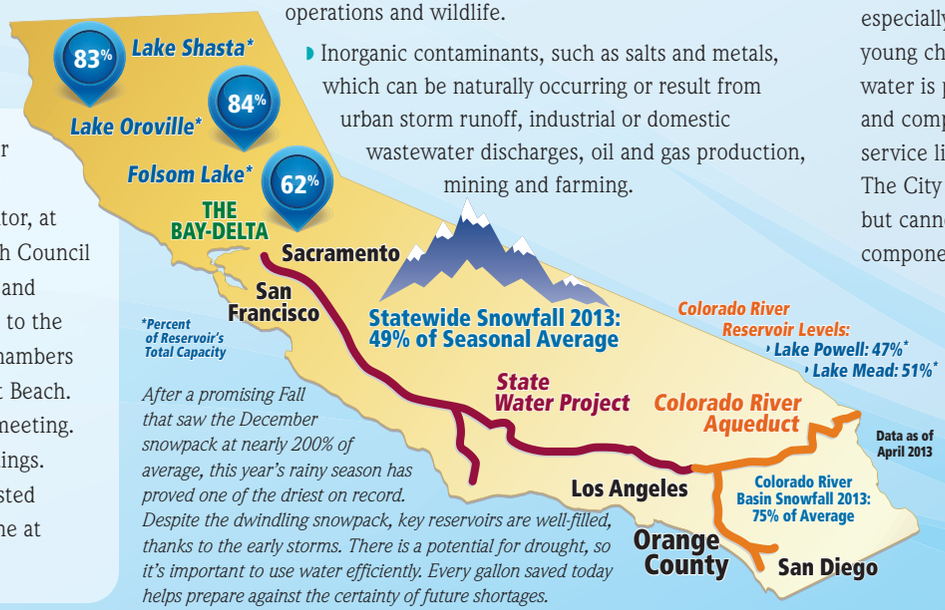
If you are concerned about lead in your water, you may wish to have your water tested.

Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at: www.epa.gov/safewater/lead.

Questions about your water? Contact us for answers.

For information about this report or your water quality information in general, please contact Gary Tegel, Water Quality Coordinator, at (949) 718-3412. The City of Newport Beach Council meetings begin at 7:00 p.m. on the second and fourth Tuesday of each month and are open to the public. Meetings are held at the Council Chambers located at 100 Civic Center Drive, Newport Beach. Matters from the public are heard at each meeting. Please feel free to participate in these meetings.

For more information about the health effects of the listed contaminants in the following tables, call the USEPA hotline at (800) 426-4791.



After a promising Fall that saw the December snowpack at nearly 200% of average, this year's rainy season has proved one of the driest on record. Despite the dwindling snowpack, key reservoirs are well-filled, thanks to the early storms. There is a potential for drought, so it's important to use water efficiently. Every gallon saved today helps prepare against the certainty of future shortages.

Information You Should Know About the Quality of Your Drinking Water

Immuno-Compromised People

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people, such as those with cancer who are undergoing chemotherapy, persons who have had organ transplants, people with HIV/AIDS or other immune system disorders, some elderly persons and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

The USEPA and the federal Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from USEPA's Safe Drinking Water Hotline at (800) 426-4791 between 10 a.m. and 4 p.m. Eastern Time (7 a.m. to 1 p.m. in California).

Chloramines

The City imports water from MWDSC which produces water that is treated with chloramines, a combination of chlorine and ammonia, as its drinking water disinfectant. Chloramines are effective killers of bacteria and other microorganisms that may cause disease. Chloramines form fewer disinfection by-products and have no odor when used properly. People who use kidney dialysis machines may want to take special precautions and consult their physician for the appropriate type of water treatment. Customers who maintain fish ponds, tanks or aquaria should also make necessary adjustments in water quality treatment, as these disinfectants are toxic to fish.

For further information or if you have any questions about chloramines please call (949) 718-3412.

1,4-Dioxane

1,4-Dioxane is a chemical contaminant primarily used as an industrial stabilizer to enhance performance of solvents in many manufacturing processes. It is found in foods (shrimp, chicken, tomatoes, etc.) and food additives and ordinary

What are Water Quality Standards?

Drinking water standards established by USEPA and CDPH set limits for substances that may affect consumer health or aesthetic qualities of drinking water. The chart in this report shows the following types of water quality standards:

- **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.
- **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.
- **Secondary MCLs** are set to protect the odor, taste, and appearance of drinking water.
- **Primary Drinking Water Standard:** MCLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.
- **Regulatory Action Level (AL):** The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

How are Contaminants Measured?

Water is sampled and tested throughout the year. Contaminants are measured in:

- parts per million (ppm) or milligrams per liter (mg/L)
- parts per billion (ppb) or micrograms per liter (μg/L)
- parts per trillion (ppt) or nanograms per liter (ng/L)

What is a Water Quality Goal?

In addition to mandatory water quality standards, USEPA and CDPH have set voluntary water quality goals for some contaminants. Water quality goals are often set at such low levels that they are not achievable in practice and are not directly measurable. Nevertheless, these goals provide useful guideposts and direction for water management practices. The chart in this report includes three types of water quality goals:

- **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 USEPA.
- **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.
- **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.

2012 City of Newport Beach Groundwater Quality

Chemical	MCL	PHG (MCLG)	Average Amount	Range of Detections	MCL Violation?	Most Recent Sampling Date	Typical Source of Contaminant
Radiologicals							
Uranium (pCi/L)	20	0.43	5.6	1.4 – 10	No	2012	Erosion of Natural Deposits
Inorganic Chemicals							
Arsenic (ppb)	10	0.004	<2	ND – 2.7	No	2012	Erosion of Natural Deposits
Fluoride (ppm)	2	1	0.38	0.33 – 0.46	No	2012	Erosion of Natural Deposits
Nitrate (ppm as NO_3)	45	45	6.5	ND – 15	No	2012	Fertilizers, Septic Tanks
Nitrate+Nitrite (ppm as N)	10	10	1.5	ND – 3.3	No	2012	Fertilizers, Septic Tanks
Secondary Standards*							
Chloride (ppm)	500*	n/a	47	16 – 75	No	2012	Erosion of Natural Deposits
Specific Conductance (µmho/cm)	1,600*	n/a	630	340 – 880	No	2012	Erosion of Natural Deposits
Sulfate (ppm)	500*	n/a	95	30 – 170	No	2012	Erosion of Natural Deposits
Total Dissolved Solids (ppm)	1000*	n/a	390	200 – 570	No	2012	Erosion of Natural Deposits
Turbidity (NTU)	5*	n/a	0.03	ND – 0.1	No	2012	Erosion of Natural Deposits
Unregulated Contaminants Requiring Monitoring							
Alkalinity, total (ppm as $CaCO_3$)	Not Regulated	n/a	160	110 – 200	n/a	2012	Erosion of Natural Deposits
Bicarbonate (ppm as HCO_3)	NL = 1,000	n/a	190	130 – 250	n/a	2012	Erosion of Natural Deposits
Boron (ppb)	Not Regulated	n/a	120	110 – 140	n/a	2012	Erosion of Natural Deposits
Calcium (ppm)	Not Regulated	n/a	68	24 – 110	n/a	2012	Erosion of Natural Deposits
Hardness, total (ppm as $CaCO_3$)	Not Regulated	n/a	210	71 – 350	n/a	2012	Erosion of Natural Deposits
Magnesium (ppm)	Not Regulated	n/a	11	2.4 – 19	n/a	2012	Erosion of Natural Deposits
pH (units)	Not Regulated	n/a	7.9	7.8 – 8.1	n/a	2012	Acidity, Hydrogen Ions
Potassium (ppm)	Not Regulated	n/a	2.9	2.0 – 4.1	n/a	2012	Erosion of Natural Deposits
Sodium (ppm)	Not Regulated	n/a	48	45 – 51	n/a	2012	Erosion of Natural Deposits
Vanadium (ppb)	NL = 50	n/a	4	3.3 – 4.4	n/a	2012	Erosion of Natural Deposits

ppb = parts-per-billion; **ppm** = parts-per-million; **pCi/L** = pico curies per liter; **NTU** = nephelometric turbidity units; **ND** = not detected; **n/a** = not applicable; **µmho/cm** = micromhos per centimeter; **MCL** = Maximum Contaminant Level; **(MCLG)** = federal MCL Goal; **PHG** = California Public Health Goal; **NL** = Notification Level; **<** = average is less than the reporting limit *Contaminant is regulated by a secondary standard to maintain aesthetic qualities (taste, odor, color).

2012 City of Newport Beach Distribution System Water Quality

Disinfection Byproducts	MCL (MRDL/MRDLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Total Trihalomethanes (ppb)	80	23	3.1 – 68	No	Byproducts of chlorine disinfection
Haloacetic Acids (ppb)	60	9	ND – 29	No	Byproducts of chlorine disinfection
Chlorine Residual (ppm)	(4 / 4)	2	0.3 – 3	No	Disinfectant added for treatment
Aesthetic Quality					
Odor (threshold odor number)	3*	0.009	ND – 1	No	Erosion of natural deposits
Turbidity (NTU)	5*	0.02	ND – 0.45	No	Erosion of natural deposits

Eight locations in the distribution system are tested quarterly for total trihalomethanes and haloacetic acids; thirty locations are tested monthly for color, odor and turbidity; color was not detected in 2012.
MRDL = Maximum Residual Disinfectant Level; **MRDLG** = Maximum Residual Disinfectant Level Goal; **NTU** = nephelometric turbidity units; **ND** = not detected
*Contaminant is regulated by a secondary standard.

Lead and Copper Action Levels at Residential Taps

	Action Level (AL)	Public Health Goal	90th Percentile Value	Sites Exceeding AL / Number of Sites	AL Violation?	Typical Source of Contaminant
Copper (ppm)	1.3	0.3	0.15	0 / 30	No	Corrosion of household plumbing
Lead (ppb)	15	0.2	1.3	0 / 30	No	Corrosion of household plumbing

Every three years, 30 residences are tested for lead and copper at-the-tap. The most recent set of samples was collected in 2012.
Lead was detected in one home; none exceeded the regulatory action level. Copper was detected in 12 homes; none exceeded the action level.
A regulatory action level is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

household products (cosmetics, deodorants and shampoos). The USEPA has classified 1,4-dioxane as a probable human carcinogen. There is no federal or state drinking water standard or maximum contaminant level (MCL). The CDPH has established a Notification Level of 1 part per billion (1ppb) for 1,4-dioxane. The CDPH also recommends that drinking water sources with 1,4-dioxane in excess of 35 ppb be removed from service.

The City's wells were tested for 1,4-dioxane. Concentrations found in our 4 wells ranged from non-detect to 4.8 ppb. All levels were well below the CDPH's response level of 35 ppb. OCWD tests our wells quarterly as part of our monitoring program. Levels have dropped significantly since 2007 and have not exceeded 10 ppb in the last 5 years. We believe this is a direct result of the good management practices by OCWD.

Want Additional Information?

There's a wealth of information on the internet about Drinking Water Quality and water issues in general. A good place to begin your own research is the **City of Newport Beach** website:

www.newportbeachca.gov.

In addition to extensive information about your local water and the support and services we offer, you'll find links for many other local, statewide, and national resources.

Disinfectants and Disinfection Byproducts

Disinfection of drinking water was one of the major public health advances in the 20th century. Disinfection was a major factor in reducing waterborne disease epidemics caused by pathogenic bacteria and viruses, and it remains an essential part of drinking water treatment today.

Chlorine disinfection has almost completely eliminated from our lives the risks of microbial waterborne diseases. Chlorine is added to your drinking water at the source of supply (groundwater well or surface water treatment plant). Enough chlorine is added so that it does not completely dissipate through the distribution system pipes. This "residual" chlorine helps to prevent the growth of bacteria in the pipes that carry drinking water from the source into your home.

However, chlorine can react with naturally-occurring materials in the water to form unintended chemical byproducts, called disinfection byproducts (DBPs), which may pose health risks. A major challenge is how to balance the risks from microbial pathogens and DBPs. It is important to provide protection from these microbial pathogens while simultaneously ensuring decreasing health risks from disinfection byproducts. The Safe Drinking Water Act requires the USEPA to develop rules to achieve these goals.

Trihalomethanes (THMs) and Haloacetic Acids (HAAs) are the most common and most studied DBPs found in drinking water treated with chlorine. In 1979, the USEPA set the maximum amount of total THMs allowed in drinking water at 100 parts per billion as an annual running average. Effective in January 2002, the Stage 1 Disinfectants / Disinfection Byproducts Rule lowered the total THM maximum annual average level to 80 parts per billion and added HAAs to the list of regulated chemicals in drinking water. Your drinking water complies with the Stage 1 Disinfectants / Disinfection Byproducts Rule.

Stage 2 of the regulation was finalized by USEPA in 2006, which further controls allowable levels of DBPs in drinking water without compromising disinfection itself. A required distribution system evaluation was completed in 2008 and a Stage 2 monitoring plan has been approved by CDPH. Full Stage 2 compliance began in 2012.

2012 Metropolitan Water District of Southern California Treated Surface Water

Chemical	MCL	PHG, or (MCLG)	Average Amount	Range of Detections	MCL Violation?	Typical Source of Contaminant
Radiologicals – Tested in 2011						
Alpha Radiation (pCi/L)	15	(0)	3	ND – 3	No	Erosion of Natural Deposits
Beta Radiation (pCi/L)	50	(0)	ND	ND – 4	No	Decay of Man-made or Natural Deposits
Uranium (pCi/L)	20	0.43	2	2	No	Erosion of Natural Deposits
Inorganic Chemicals – Tested in 2012						
Aluminum (ppm)	1	0.6	0.15	ND – 0.34	No	Treatment Process Residue, Natural Deposits
Fluoride (ppm) treatment-related	Control Range 0.7 – 1.3 ppm Optimal Level 0.8 ppm		0.8	0.7 – 0.8	No	Water Additive for Dental Health
Secondary Standards* – Tested in 2012						
Aluminum (ppb)	200*	600	150	ND – 340	No	Treatment Process Residue, Natural Deposits
Chloride (ppm)	500*	n/a	90	87 – 93	No	Runoff or Leaching from Natural Deposits
Color (color units)	15*	n/a	1	1	No	Naturally-occurring Organic Materials
Odor (threshold odor number)	3*	n/a	2	2	No	Naturally-occurring Organic Materials
Specific Conductance (µmho/cm)	1,600*	n/a	780	340 – 930	No	Substances that Form Ions in Water
Sulfate (ppm)	500*	n/a	160	160	No	Runoff or Leaching from Natural Deposits
Total Dissolved Solids (ppm)	1,000*	n/a	500	490 – 500	No	Runoff or Leaching from Natural Deposits
Unregulated Chemicals – Tested in 2012						
Alkalinity, total as $CaCO_3$ (ppm)	Not Regulated	n/a	98	53 – 120	n/a	Runoff or Leaching from Natural Deposits
Boron (ppb)	NL=1,000	n/a	130	130	n/a	Runoff or Leaching from Natural Deposits
Calcium (ppm)	Not Regulated	n/a	51	49 – 53	n/a	Runoff or Leaching from Natural Deposits
Hardness, total as $CaCO_3$ (ppm)	Not Regulated	n/a	210	84 – 270	n/a	Runoff or Leaching from Natural Deposits
Hardness, total (grains/gallon)	Not Regulated	n/a	12	4.9 – 16	n/a	Runoff or Leaching from Natural Deposits
Magnesium (ppm)	Not Regulated	n/a	21	21	n/a	Runoff or Leaching from Natural Deposits
pH (pH units)	Not Regulated	n/a	8.1	7.9 – 8.4	n/a	Hydrogen Ion Concentration
Potassium (ppm)	Not Regulated	n/a	4	4	n/a	Runoff or Leaching from Natural Deposits
Sodium (ppm)	Not Regulated	n/a	80	80 – 81	n/a	Runoff or Leaching from Natural Deposits
Total Organic Carbon (ppm)	TT	n/a	2.4	2.0 – 2.7	n/a	Various Natural and Man-made Sources

ppb = parts-per-billion; **ppm** = parts-per-million; **pCi/L** = picoCuries per liter; **µmho/cm** = micromhos per centimeter;
ND = not detected; **MCL** = Maximum Contaminant Level; **(MCLG)** = federal MCL Goal; **PHG** = California Public Health Goal;
NL = Notification Level; **n/a** = not applicable; **TT** = treatment technique * Contaminant is regulated by a secondary standard.

Turbidity – combined filter effluent Metropolitan Water District Diemer Filtration Plant	Treatment Technique	Turbidity Measurements	TT Violation?	Typical Source of Contaminant
1) Highest single turbidity measurement	0.3 NTU	0.04	No	Soil Runoff
2) Percentage of samples less than 0.3 NTU	95%	100%	No	Soil Runoff

Turbidity is a measure of the cloudiness of the water, an indication of particulate matter, some of which might include harmful microorganisms. **NTU** = nephelometric turbidity units
Low turbidity in Metropolitan's treated water is a good indicator of effective filtration. Filtration is called a "treatment technique" (TT).
A treatment technique is a required process intended to reduce the level of contaminants in drinking water that are difficult and sometimes impossible to measure directly.

Source Water Assessments

Imported (MWDSC) Water Assessment

Every five years, MWDSC is required by CDPH to examine possible sources of drinking water contamination in its State Water Project and Colorado River source waters.

In 2012, MWDSC submitted to CDPH its updated Watershed Sanitary Surveys for the Colorado River and State Water Project, which include suggestions for how to better protect these source waters. Both source waters are exposed to stormwater runoff, recreational activities, wastewater discharges, wildlife, fires, and other watershed-related factors that could affect water quality.

Water from the Colorado River is considered to be most vulnerable to contamination from recreation, urban/stormwater runoff, increasing urbanization in the watershed, and wastewater. Water supplies from Northern California's State Water Project are most vulnerable to contamination from urban/ stormwater runoff, wildlife, agriculture, recreation, and wastewater.

USEPA also requires MWDSC to complete one Source Water Assessment (SWA) that utilizes information collected in the watershed sanitary surveys. MWDSC completed its SWA in December 2002. The SWA is used to evaluate the vulnerability of water sources to contamination and helps determine whether more protective measures are needed.

A copy of the most recent summary of either Watershed Sanitary Survey or the SWA can be obtained by calling MWDSC at (213) 217-6850.

Groundwater Assessment

An assessment of the drinking water sources for the City was completed in December 2002. The groundwater sources are considered most vulnerable to the following activities not associated with detected contaminants: dry cleaners, gas stations, and known contaminant plumes.

A copy of the complete assessment is available at Department of Public Health Office of Drinking Water, Santa Ana District, 28 Civic Center Plaza, Room 325, Santa Ana, CA 92701. You may request a summary of the assessment by contacting the City at (949) 718-3412.

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.

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