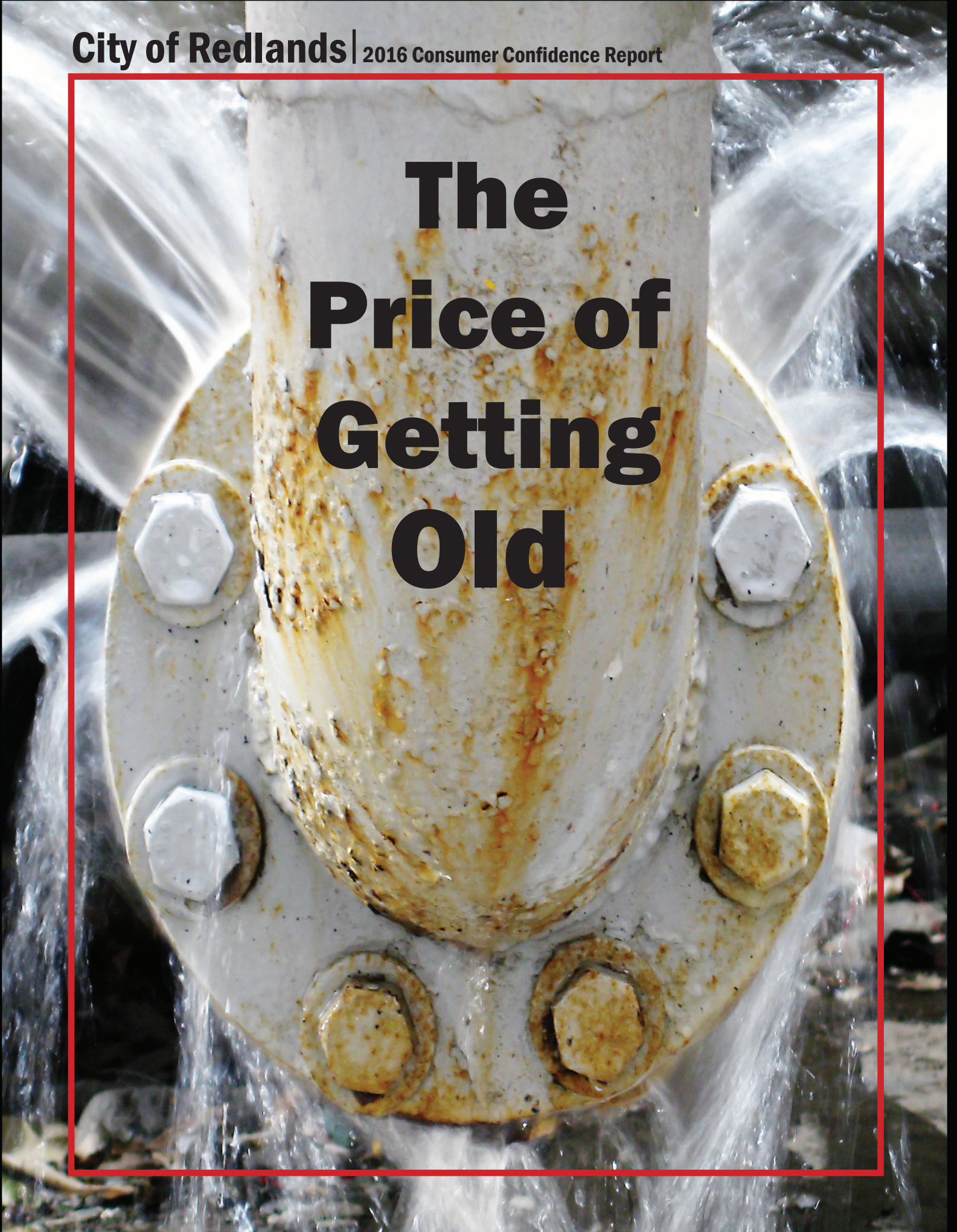


The Price of Getting Old





Penny Wise, Pound Foolish

Throughout its early years, Redlands was a quiet city with only moderate development activity. In the decade leading up to World War II the population hovered at just over 14,000 residents with a slight dip in 1940 as the war took its toll on growth.

Everything changed as young servicemen returned home after their tours of duty, many sinking roots and starting families in the region. During the two decades from 1950 to 1970, the City's population more than doubled its pre-war footprint, blooming to 36,000 residents. With the growth in population came a concomitant boom in development and with development came infrastructure; miles of steel water pipeline in particular.

In those years, steel pipeline was state-of-the-art having only been perfected in the 1930s and 1940s. Machining and production techniques brought back from Germany after the war further improved quality and reduced costs, and for utilities across the nation steel pipeline served as a staple.

Today approximately seventeen percent of the City's 400 plus miles of water mains are steel, much of it installed in the post war years, and all of it aging.

Over the last 20 years, starting with a pair of back-to-back rate cuts in 1995 and 1996, water rates were kept artificially low. The rate adjustments that were approved barely kept pace with inflation and outright ignored the ballooning costs to maintain the already old pipelines first installed during the post-war growth years. Each year as the proverbial can was kicked a little farther down the road, the problem got worse with an ever growing share of the City's water utility budget going toward maintenance costs and an ever smaller share going towards badly needed infrastructure improvements. As residents saved on their water bills, the infrastructure crumbled.

Wells which were recommended for major overhaul every several years were left unrepaired for decades, many falling completely out of service and pipeline that should have been replaced as it aged beyond its service life was left to rot in the ground but still expected to deliver quality water across the City.

With a productive service life of around 65 years and an average age of 60 years (with some pipe sections well over 85 years old), the City's steel pipe infrastructure was past due for replacement and the City's budget was feeling the strain. Where the installation of one mile of pipe might cost the City around \$165 a foot for quality work that includes resurfacing the street after trenching, repair

jobs can run anywhere from as much as \$2500 for a single spot patch to more than a quarter million for one recent 40 foot section repair (including costs to repair damage to the road and surrounding properties caused by the leaking main).

To address this growing problem, City staff began preemptively tackling the backlog of pipeline. Through careful planning and tight cost controls, the City replaced more than 43 miles of old pipe, 10 percent of the system, over the last nine years along with rehabilitating 16 wells and repairing 10 reservoirs. Staff initially planned to continue this work until the water infrastructure was brought up to standard but Mother Nature had other ideas.

Years of Drought

With dramatically reduced rainfall in 2012, California entered a period of sustained drought from which it has not emerged. While the 2016 El Niño conditions helped to alleviate the drought's impact bringing significant rain to the northern part of the state, Southern California has still received substantially less than average rainfall. Sixty three percent of the state still faces severe to exceptional drought leading Governor Brown to make permanent some of his earlier water use restrictions while warning residents to get used to a new drier "normal." Over the last four years, Redlands has aggressively worked to do its share to conserve water and meet mandated reduction targets.

City landscaping has been retrofitted with water-wise plants, rebates encouraged consumer conservation, and numerous educational programs promoted responsible water use city wide. These efforts largely worked, but while the City is very proud of its progress, water reduction has come at a cost. Understanding why requires a closer look at how the utility is financed.



Paying for Delivery, Not Water

In California, as a matter of state policy, water belongs to the citizens and is entirely free. In Redlands, not one penny of rate payer money goes to buy water. What does cost money is delivery of that water to customers. From the wells that draw the water out of the basin, to the pipes that carry the water to treatment, to the filters used to purify the water, to the staff that manage the system, production and delivery has a significant cost.

This distinction is critical because it is the reason that water conservation does not lead to substantive cost decreases for the utility, especially in the short term.

Once a pipeline is laid in the ground, a reservoir built, or a well drilled, the cost to operate that part of the infrastructure is essentially a fixed cost. While infrastructure build-out is designed to match projected need, events such as California's sustained drought conditions, and the associated drastic cuts in water consumption, are inherently unpredictable.



Across the water utility, approximately eighty five percent of costs are fixed. This means that those costs remain the same whether customers use one hundred percent of available delivery capacity or stop using water entirely. Those costs are simply required just to maintain the infrastructure in a safe working condition. Put another way, even an imaginary one hundred percent reduction in water usage would only impact the fifteen percent of the budget that represents variable costs (things like electricity).

Such a reduction would eliminate only that fifteen percent variable cost figure. However, because water rates are charged by volume delivered, that same one hundred percent reduction in use would equal a one hundred percent reduction in revenue thereby eliminating the entire operating budget for the utility. Under this scenario, the utility would still face the eighty five percent of its usual budget that represents fixed costs but bring in no revenue from which to pay those costs. In practice, even a relatively small reduction in consumption has a large impact on the budget. A twenty five percent cut like the one realized during the current drought is, from a budget perspective, catastrophic.

While the City holds some utility funds in reserve, they are nowhere near large enough to cover the actual twenty five percent reduction the City has achieved. In any case, operating on reserves, no matter how large the fund, can only go on for so long.

To exacerbate the situation, if the City were to attempt to operate under that kind of financial situation, things like pipeline replacement and

well rehabilitation would likely have to be scaled back or eliminated entirely, quickly leading to the rapid degradation of the infrastructure and associated increases in maintenance costs.

In the long run, this option would likely collapse the utility and leave the City's water customers without adequate service or water supplies.

A Post Drought Future?

Planning for the future is a difficult task. Experts are unsure what to expect of the ongoing drought. Is this the new normal as the Governor suggests, or is a year of heavy rainfall just around the corner? Ultimately only time will tell, but in the meantime, the City has a responsibility to act as a good steward of the water utility resources. For now, that means ensuring the continued availability of adequate supplies of safe water for every user. Accordingly, City staff proposed, and the Council recently passed, an increase in City water rates which reflects a balanced approach taking into account ongoing infrastructure needs, drought conditions, and expected increase in consumption after the drought. The new rates are carefully structured to adequately cover the utility's fixed costs during the current year's drought conditions

while taking a middle of the road approach by assuming a modest improvement in the drought, and resulting increase in water consumption, in future years.

Under this plan, the City will be able to continue investment in much needed pipeline replacement while simultaneously weathering ongoing conservation required during the drought. Under the new rates, the backlog of aging pipeline will be reduced year-over-year as both already obsolete and aging pipes are replaced. Careful cost controls and thoughtful planning will still be required to fully address the many miles of steel pipe installed during the post-war development years, but as the work progresses residents can be proud of the investment they are making in the City's future. 🍊

...What About PARIS?

To avoid potential duplication of effort and maximize the return on invested City resources, the PARIS street resurfacing program is carefully coordinated with water pipeline repair and replacement. Before any street is programmed for inclusion in that year's PARIS cycle, a careful analysis of the underlying pipe is completed. If steel pipe runs under any street needing a grind and overlay or other more extensive repair, that pipe section will be replaced before paving work is begun. In some cases lighter street repairs such as a slurry seal, which has a useful life of about five years, can be completed without pipe replacement. In such cases, the pipeline is expected to last as long as the slurry seal and the sealing process itself does not significantly damage the pipe the way a deeper repair might. Through this careful coordination, staff are able to ensure adequate funding for all pipe replacements required by the PARIS schedule and keep both projects moving as planned.

Water-Wise Landscaping at City Fire Stations

Leading by example, the City recently converted the landscaping at all City fire stations, to a more water-wise and appropriate landscape, given California's persistent drought. The decision to convert was in response to not only the drought but Governor Brown's April 2015 Executive Order calling for a 25 percent statewide reduction in water use.

Each fire station was designed to display a different plant palette, each highlighting a specific theme. Fire Station #261, was coined the "Califriendly" palette, using a variety of California-friendly plants with variations in color and textures that are easily attainable at local nurseries. Fire Station #262 incorporates a Mediterranean palette, rich in green foliage and herbs that thrive in dry-summer climates. Identifiable by their fragrance, herbs such as Lavender and Rosemary adorn the landscape. Fire station #263 mirrors our local foothills. Designed to include dry riverbeds and California shrubs such as California Lilacs and Matilija Poppy, this landscape is sure to please your neighbors and reduce your water usage. An even drier look can be found at Fire Station #264 which exhibits a desert palette, highlighting plants found in the most arid regions such as Ocotillo, Palo Verde, agaves and aloes, which are all surrounded by different and colorful decomposed granites. By utilizing these different plant palettes, residents are exposed to a variety of different water-wise plant options that suite different landscape tastes and styles.

To prevent waste through overspray and runoff, existing spray irrigation was replaced with drip irrigation for trees, shrubs and groundcovers and subterranean irrigation was used for warm season grasses. Over 100 water-wise plant types outfit the previous 30,000 square feet of turf grass removed. In Southern California, water-wise plants use only 25 percent of the water consumed by traditional turf grass. Add to this the reduction in maintenance expenses and time and these examples are winners. Residents are encouraged to visit these demonstration gardens for ideas for their own water-wise landscape conversions.



Fire Station#261 Fully Grown!



Fire Station#262 I'm still growing!



Fire Station#263 I'm still growing!



Redlands 311 App

Did you know that you can report water waste from your smart phone?

With the Redlands 311 app, you can be the City's eyes and ears to quickly and easily report any problems you encounter with City infrastructure. The app allows you to send images and descriptions directly to City staff, including water waste violations.

Redlands 311 is available for iPhones, Androids, and Blackberries. Search for "Redlands 311" at the respective app store to find it.

No smartphone? Report online at: cityofredlands.org/311#Online, send an email to endwaterwaste@cityofredlands.org, or call our offices at 909-798-7527 ext. 2.



Be the City's eyes and ears!



Investigating Water Waste

As part of State mandated water restrictions, the City has hired three water waste investigators to respond to reports of water waste and enforce restrictions.

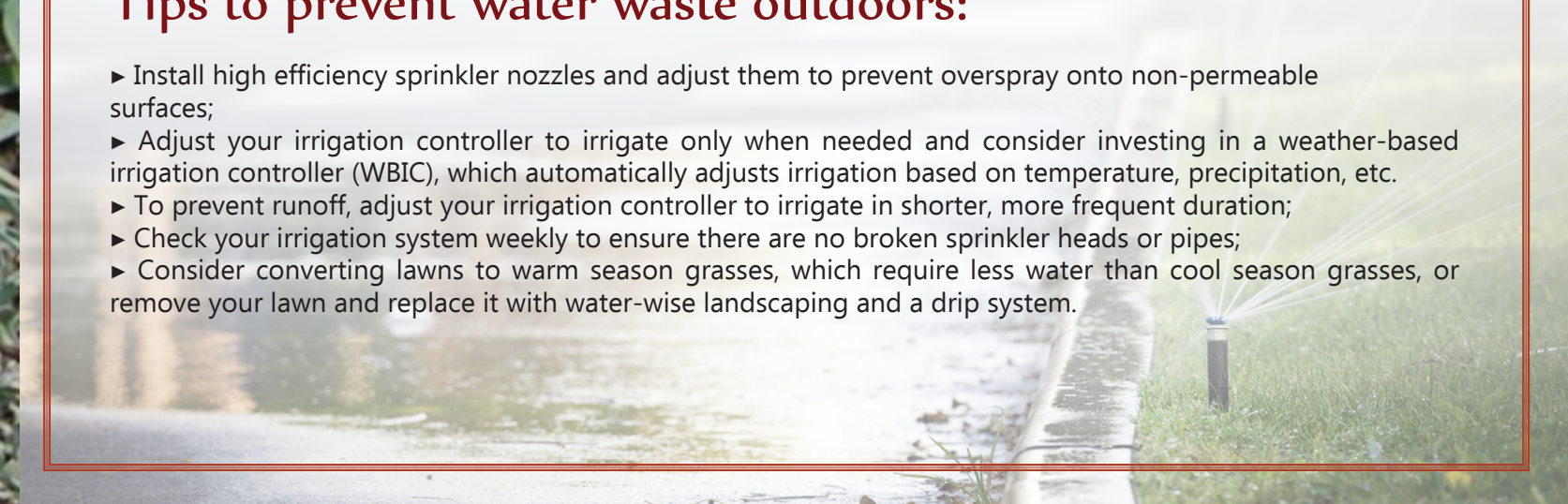
If investigators witness water waste, a violation notice is issued. Upon a third violation, a 25% surcharge of the customer's commodity (actual water used) charge is imposed on the customer's next water bill. The City does allow for sufficient time between violations for repairs and modifications to irrigation schedules. Please note it is not the intent to penalize customers for water waste, but rather, educate them on efficient irrigation and suitable landscape for Redlands' arid climate. Free water use analysis and irrigation timer assistance are available to customers. For more information or to schedule an appointment, please call 909-798-7527, extension 2.

For a complete list of current water restrictions, please visit www.cityofredlands.org/drought



Tips to prevent water waste outdoors:

- ▶ Install high efficiency sprinkler nozzles and adjust them to prevent overspray onto non-permeable surfaces;
- ▶ Adjust your irrigation controller to irrigate only when needed and consider investing in a weather-based irrigation controller (WBIC), which automatically adjusts irrigation based on temperature, precipitation, etc.
- ▶ To prevent runoff, adjust your irrigation controller to irrigate in shorter, more frequent duration;
- ▶ Check your irrigation system weekly to ensure there are no broken sprinkler heads or pipes;
- ▶ Consider converting lawns to warm season grasses, which require less water than cool season grasses, or remove your lawn and replace it with water-wise landscaping and a drip system.



AIR BUBBLES IN THE WATER

Tap water that appears cloudy could simply have air (bubbles) in the water. Some well sources produce water with dissolved air that remains pressurized in the distribution pipelines until reaching the consumer. When the water flows from the faucet, the air is released and may form tiny air bubbles. After filling a glass, these bubbles will slowly rise and disappear.

INFORMATION ABOUT RADON

Radon is a naturally occurring gas formed from the normal radioactive decay of uranium. In 2007 testing, radon was detected in our finished water supply. There are no regulatory limits prescribed for radon levels in drinking water – the pathway to radon exposure occurs primarily through its presence in the air. Exposure over a long period of time to air containing radon may cause adverse health effects. If you are concerned about radon in your home, testing is inexpensive and easy. For more information, call your State radon program (1-800-745-7236), the National Safe Council's Radon Hotline (1-800-SOS-RADON), or the EPA Safe Drinking Water Act Hotline (1-800-426-4791).

SAMPLING RESULTS SHOWING TREATMENT OF SURFACE WATER SOURCES

Turbidity is a measure of the cloudiness of water. We monitor turbidity because it is a good indicator of the effectiveness of our filtration system. Turbidity results, which meet performance standards, are considered to be in compliance with filtration requirements.

Treatment Technique: Conventional Filtration

Lowest Monthly % of Samples Meeting TPS No. 1: 100%

Highest single turbidity measurement during 2015: 0.23 NTU

Number of Violations to Any Surface Water Treatment Regulations: None

Turbidity Performance Standard No. 1 (TPS No. 1):

The turbidity level of the combined filter effluent 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 for more than one hour. Additionally, the turbidity level of the combined filter effluent shall not exceed 1.0 NTU for more than eight consecutive hours while the plant is operating.

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.

Contact Us

City of Redlands
Municipal Utilities and Engineering Department
PO Box 3005
35 Cajon Street, Suite 15A
Redlands, CA 92373
909-798-7698
www.cityofredlands.org/MUED/water

Water Source Protection

Redlands Municipal Utilities and Engineering Department is committed to protecting our water sources from possible contamination. Source water assessments have been completed for all of our drinking water supplies. You can view the source water assessments at our office: City of Redlands, 35 Cajon Street, Suite 15A, Redlands, CA 92373.

The assessments help to identify the vulnerability of drinking water supplies to contamination from typical human activities. These assessments are intended to provide basic information necessary for us to develop programs to protect our drinking water supplies. Possible contaminants can originate from: agricultural drainage, urban runoff, septic systems, sewer collection systems, junk/scrap/salvage operations, crop irrigation, underground storage tanks at automobile gas stations, and illegal dumping.

Anyone interested in receiving a copy of the source water assessment should contact Bill Gane, utility operations manager at (909) 798-7588 ext. 1.

You can do your part to protect our precious water sources by properly disposing of household hazardous waste. To find out how to properly dispose of hazardous waste, so it does not contaminate groundwater, please phone our Customer Service office at (909) 798-7529, or visit www.cityofredlands.org/qol/recycling

Important Facts from the US EPA about Drinking Water

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. Contaminants that may be present in untreated source may 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, which 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, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems.
- ▶ Radioactive contaminants, which can be naturally occurring or the result of oil and gas production, and mining activities.

In order to ensure water is safe to drink, the United States Environmental Protection Agency (U.S. EPA) and the State Water Resources Control Board (SWRCB) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. SWRCB regulations also establish limits for contaminants in bottled water to provide the same protection for public health.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice from their health care providers about drinking water. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants, as well as more information about contaminants and their potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791 or visit water.epa.gov/drink/hotline.

CONSUMER CONFIDENCE REPORT

From January 1, 2015 to December 31, 2015, the City of Redlands conducted 16,600 water quality tests from samples taken at various locations throughout the water system in accordance with state and federal laws. The following tables list only those contaminants that were detected. It is important to note, that the presence of these contaminants, as detected in the water does not necessarily indicate that the water poses a health risk.

PRIMARY DRINKING WATER STANDARDS

CONTITUENT	YEAR	MCL (MRDL) [TT]	PHG (MCLG)	REDLANDS WATER	RANGE	SOURCE
MICROBIOLOGICAL CONSTITUENTS						
Total Coliform	2015	5%	0%	0.30%	-	Naturally present in the environment
INORGANIC CONSTITUENTS						
Aluminum (mg/L)	2014	1	0.6	0.01	ND-0.05	Erosion of natural deposits; residue from some surface water treatment processes
Barium (mg/L)	2014	1	2	0.018	0.013-0.037	Discharges of oil drilling wastes and from metal refineries; erosion of natural deposits
Chromium (ug/L)	2014	50	100	0.6	ND-5.3	
Fluoride (mg/L)	2014	2	1	0.64	0.34-0.94	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Hexavalent Chromium (ug/L)	2015	10	0.02	0.72	0.24-1.5	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate as N (mg/L)	2015	10	10	1.3	ND-8.7	Run-off and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Perchlorate (ug/L)	2015	6	1	1.16	ND-4.7	Environmental Contamination from historic aerospace or other industrial operations; found in solid rocket propellant, fireworks, explosives, flares, matches, and a variety of industries.
LEAD AND COPPER RULE						
Copper (mg/L)	2014	AL=1.3	0.3	0.21	31 sites	No violation. Internal corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives
Lead (ug/L)*	2014	AL=15	0.2	3.34	31 sites	No violation. Internal corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives
DISINFECTION BY-PRODUCTS, DISINFECTION RESIDUALS, DISINFECTION BY-PRODUCT PRECURSORS						
Total Trihalomethanes (ug/L)	2015	80	N/A	24	ND-74	Byproduct of drinking water disinfection
Haloacetic Acids (ug/L)	2015	60	N/A	12	ND-30	Byproduct of drinking water disinfection
Chlorine as Cl ₂ (mg/L)	2015	4	4	0.76	0.6-0.95	Drinking water disinfectant added for treatment
Total Organic Carbon (mg/L)	2015	[TT]	N/A	1.03	0.51-2.25	Various natural and manmade sources
RADIOACTIVE CONSTITUENTS						
Gross Alpha (pCi/L)	2015	15	0	1.53	ND-4.6	Erosion of natural deposits
Gross Beta (pCi/L)	2014	50	0	3.8	N/A	Decay of natural and man-made deposits
Total Tritium (pCi/L)	2007	20000	400	188	183-194	Decay of natural and man-made deposits

*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 of Redlands 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 (1-800-426-4791) or at <https://www.epa.gov/safewater/lead>

TERMS USED IN THIS REPORT

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 US Environmental Protection Agency (US EPA).

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

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

SECONDARY DRINKING WATER STANDARDS

CONTITUENT	YEAR	SECONDARY MCL	REDLANDS WATER	RANGE	SOURCE
Aluminum (ug/L)	2014	200	10	ND-54	Erosion of natural deposits; residue from some surface water treatment processes
Chloride mg/L	2014	500	11.89	3.8-35	Runoff/leaching from natural deposits; seawater influence
Color (units)	2015	15	0.03	ND-10	Naturally occurring organic materials
Copper (mg/L)	2014	1	0.017	ND-0.2	Internal corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives
Iron (ug/L)	2014	300	57	ND-390	Leaching from natural deposits; industrial wastes
Manganese (ug/L)	2014	50	1.18	ND-5.6	Leaching from natural deposits
MBAS (Foaming Agents) (ug/L)	2009	500	0.003	ND-0.03	Municipal and industrial waste discharges
Odor - Threshold (TON)	2015	3	1.6	ND-17	Naturally-occurring organic materials
Specific Conductance (umhos/cm)	2014	1600	375	280-600	Substances that form ions when in water; seawater influence
Sulfate (mg/L)	2014	500	29	16-56	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids	2015	1000	235	180-378	Runoff/leaching from natural deposits
Turbidity, Laboratory (NTU)	2015	5	0.08	ND-0.63	Soil runoff

SAMPLING RESULTS FOR SODIUM AND HARDNESS

CONTITUENT	YEAR	MCL	PHG (MCLG)	REDLANDS WATER	RANGE	SOURCE
Sodium mg/L	2014	N/A	N/A	20	10-74	Generally naturally occurring
Hardness mg/L	2014	N/A	N/A	145*	100-190	Sum of polyvalent cations in the water, usually naturally occurring. *Equivalent to 8.5 grains per gallon

ADDITIONAL MONITORING FOR UCMR

CONTITUENT	YEAR	NOTIFICATION LEVEL	RANGE	SOURCE
Chlorate (ug/L)	2014	800	48-230	
Molybdenum (ug/L)	2014	N/A	ND-7.5	
Strontium (mg/L)	2014	N/A	ND-0.36	
Vanadium	2014	50	0.26-5.9	The babies of some pregnant women who drink water containing vanadium in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.

TERMS USED IN THIS REPORT

N/A: Not applicable

ND: Not detectable at testing limit.

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.

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

Units of Measure: Parts per million (ppm) or milligrams per liter (mg/L). Parts per billion (ppb) or nanograms per liter (ng/L). Picocuries per liter (pCi/L): a measure of radiation. Umhos/cm: A measure of conductivity in water.

Redlands Water: Water source site average for water supplied to customers.

Range of Detection: The range (lowest to highest) of detected constituents.

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

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

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

ADDITIONAL MONITORING CONSTITUENTS WITH NO MCLS

CONTITUENT	YEAR	NOTIFICATION LEVEL	REDLANDS WATER	RANGE
Alkalinity (mg/L)	2015	N/A	122	80-200
Bicarbonate (mg/L)	2014	N/A	153	110-190
Calcium (mg/L)	2014	N/A	44	30-58
Langelier Index at 25 C	2014	N/A	0.37	-0.13-0.7
Magnesium (mg/L)	2014	N/A	9	6.4-12
pH	2015	N/A	7.8	6.9-8.2
Potassium (mg/L)	2014	N/A	2.8	1.8-3.9

City of
REDLANDS

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Redlands, CA 92373**

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N. Enrique Martinez, City Manager

Chris Diggs, MUED Director

POSTAL CUSTOMER

ART, EDUCATION & WATER CONSERVATION

The Municipal Utilities & Engineering Department holds its annual water conservation poster art contest to engage local elementary school students in water conservation. Each year, the contest produces wonderful examples of art and water awareness in our community. We would like to thank all of the participants for their wonderful artwork and commitment to being water smart. The winner of this year's contest is displayed below.

“Help Out in the Drought and Trade Your Lawn Out.”

Sadie Spurlock, Grade 3, Crafton Elementary

