RIVERSIDE PUBLIC UTILITIES

2019 PUBLIC WATER SYSTEM REPORT ON PUBLIC HEALTH GOALS

California Health and Safety Code
Section 116470(b)

The City of Riverside Public Utilities (RPU) submits the following public water system report on Public Health Goals (PHGs) to satisfy the requirements of the California Health and Safety Code Section 116470(b). An excerpt from the California Health and Safety Code describing the requirements for the PHG report is detailed in Exhibit 1.

Purpose

The purpose of the PHG report is to provide our customers information in addition to the Annual Consumer Confidence Report (CCR) mailed to each customer in June. The PHG report provides additional information on the levels of constituents below the enforceable mandatory Maximum Contaminant Level (MCL) and an estimate of the cost to eliminate any trace of the constituents from drinking water regardless of the level of risk. The PHG report was prepared from data listed in the annual CCRs, which is attached in Exhibit 2. A table of regulated constituents and corresponding MCLs, PHGs, or Maximum Contaminant Level Goals (MCLGs) is provided in Exhibit 3.

RPU is proud to provide its customers with water that meets all federal and state drinking water standards. The PHG report specifies the constituents in RPU drinking water that are above their respective state PHG or federal (MCLG) during calendar years 2016 to 2018. Both the PHG and MCLG represent non-enforceable goals, at which a theoretical minimal risk to public health is expected. These goals are useful tools for establishing drinking water standards. The PHG report elaborates on the following three important realities of drinking water safety:

- Drinking water in full compliance with existing water quality standards may expose customers to some level of risk, although very low in comparison with other sources of health risk.
- There can be significant costs and technology limitations associated with water treatment to reduce such low risks.
- No large public water system can meet all PHGs and MCLGs.

Definitions

The following definitions are provided to assist in the understanding of this report.

Maximum Contaminant Level or MCL is defined as the highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to their respective PHG or MCLG as is economically and technologically feasible.

Maximum Contaminant Level Goal or MCLG is the level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs are non-enforceable health goals.

Public Health Goal or PHG is the concentration of a drinking water contaminant that poses no significant health risk if consumed for a lifetime, based on current risk assessment principles, practices,

and methods. PHGs are established by the Office of Environmental Health Hazard Assessment (OEHHA) pursuant to Health & Safety Code §116365(c) for contaminants with MCLs, and for those for which MCLs will be adopted.

Treatment Technology or TT is defined as a required process intended to reduce the level of a contaminant in drinking water.

Action Level or AL is defined as the level at which additional action, as defined by State Water Resources Control Board Division of Drinking Water (DDW), to reduce copper and lead levels and optimize corrosion control.

Detection Limits for purposes of Reporting or DLR is the state designated minimum level at or above which any analytical finding of a contaminant in drinking water resulting from required monitoring.

Best Available Technologies or BAT is defined as the best available technology, treatment techniques, and/or other means available for achieving compliance with the MCL.

ND stands for non-detect. The constituent is below the value set for DLR.

Numeric Health Risk is determined by OEHHA. The risk level is based on long term exposures to low levels of contaminants in drinking water. It is usually stated in terms of additional cancer risk per a stipulated population, e.g., 1×10^{-6} means one excess cancer case per million population.

Part Per Billion or ppb is the weight of a chemical dissolved in a volume of water. One part per billion would be equal to one second in 31 years.

Part Per Trillion or ppt is the weight of a chemical dissolved in a volume of water. One part per trillion would be equal to one second in 31,000 years.

Granular Activated Carbon or GAC is a treatment process using granular activated carbon to remove organic contaminants from water by adsorption.

Ion Exchange or IX is a treatment process in which ion contaminants are removed from a liquid phase by contacting a resin that is coated with other ions.

Applicable PHG or MCLG

There are four constituents found in the RPU drinking water, which do not meet the applicable PHG or MCLG based on compliance monitoring data from 2016 to 2018, which are summarized in Table 1.

Table 1. PHG or MCLG Exceedance

Constituent, unit	MCL or (AL)	RPU Average/ (Range)	DLR Detection Limit	PHG or MCLG	Health Risk Category	Numeric Risk @ PHG	Numeric Risk @ MCL	Sources	BAT
Arsenic, ppb	10	<2/ (ND-2.9)	2	0.004 ppt	Cancer	1×10^{-6} (one per million)	2.5×10^{-3} (2.5 per thousand)	Erosion of natural deposits	IX
Coliform Bacteria, % Positive	5% positive	ND (ND-1%)	Presence	0	Non-Cancer	NA	NA	Naturally present	Disinfection
Uranium, pCi/L	20	7.8/ (3.1-12)	1	0.43	Cancer	1×10^{-6}	5×10^{-5} (five per hundred thousand)	Erosion of natural deposits	IX
Copper 90% Household Tap, ppb	1300	450/ (<50-730)	50	300	Gastro-intestinal effects	NA	NA	Natural/ Home plumbing	TT

Arsenic

The range of arsenic in RPU's water is non-detect (ND) to 2.9 ppb. The average arsenic level is ND or below the detection limit for reporting (DLR). Arsenic is found in water due to erosion of natural deposits in the soil. Compliance with arsenic MCL is achieved by blending water containing ND to low levels of arsenic with waters that have higher levels of arsenic. Arsenic levels are frequently monitored before and after blending and before being distributed to consumers.

The category of health risk associated with arsenic, and the reason that a drinking water standard was adopted for it, is that people who drink water containing arsenic above the MCL throughout their lifetime could experience an increased risk of getting cancer.

U**ranium**

The average uranium level in RPU water is 7.8 pCi/L. Uranium is found due to erosions of natural deposits in the soil. Compliance with the uranium MCL is achieved by blending. Uranium is analyzed on a weekly basis at a designated compliance location.

The category of health risk associated with uranium, and the reason that a drinking water standard was adopted for it, is that people who drink water containing uranium above the MCL throughout their lifetime could experience an increased risk of getting cancer.

Copper

RPU delivers drinking water, which has no detectable level of copper before it is served to homes. Since 1992, RPU has participated in EPA's Lead and Copper First Flush Household Tap Monitoring Program and demonstrated compliance with the Action Levels for lead and copper. This monitoring occurs every three years and requires testing from customer's indoor water faucets. The most recent results showed a copper level of 450 ppb.

The category of health risk for copper is gastrointestinal irritation. According to OEHHA no cancer risk is calculated for chemicals considered "non-carcinogens." For non-carcinogens, an exact numerical public health risk cannot be calculated.

Coliform Bacteria

The MCL for coliform bacteria allows no more than five percent of all water samples collected to be positive for coliform bacteria in any given month. The MCLG is zero percent positives. During this reporting period (2016-2018) 7,229 samples were collected and analyzed. A total of eleven samples were coliform positive, but found negative when retested. The MCL for coliform bacteria was never exceed.

Meeting the coliform bacteria drinking water standard minimizes the possibility of the presence of waterborne disease pathogens. A numeric health risk for coliform bacteria has not been established because coliform bacteria only serves as an indicator of the potential presence of pathogens. Coliform bacteria are naturally present in the environment and are not generally considered harmful. Approximately 200 coliform bacteria samples are collected and analyzed each month. If a positive sample is detected, it indicates a potential problem that needs to be investigated and requires follow up sampling. It is not at all unusual for a system to have an occasional positive sample. It is difficult, if not impossible, to ensure that a system will never get a positive sample.

Several measures are taken by RPU to reduce the potential for coliform bacteria from occurring. These measures include an effective cross-connection control program, maintenance of a chlorine disinfectant residual, an effective distribution and source monitoring program, and maintaining positive pressure in the distribution system. RPU also practices the BATs to achieve compliance with total coliform MCL as described in Article 12 section 64447 of the California Title 22 Code of Regulations.

Treatment Options and Cost

RPU has not developed a plan to provide treatment and reduce levels of arsenic, gross alpha particle, uranium, coliform bacteria, and copper in its drinking water to zero. Staff will develop plans and a cost benefit analysis on how to reduce the levels of these constituents should new regulations be developed.

Arsenic

Ion Exchange (IX) treatment is one of several best available technologies (BATs) for arsenic treatment. The estimated cost to install and operate a centralized IX treatment system that would reliably reduce arsenic levels to zero would be approximately $56.2 million a year. This would result in an assumed increased cost for each customer of $860 per year.

Uranium

Ion Exchange (IX) treatment is one of several BATs for uranium treatment. The estimated cost to install and operate a centralized IX treatment system that would reliably reduce uranium levels to zero would be approximately $56.2 million a year. This would result in an assumed increased cost for each customer of $860 per year.

Copper

Our water is in full compliance with the Federal and State Lead and Copper Rule and deemed to have "optimized corrosion control," RPU is following the BAT for copper. Therefore, RPU will continue to monitor our water quality parameters that relate to corrosivity, such as pH, hardness, alkalinity, and total dissolved solids. Thus, no estimate of cost has been included.

Numeric Health Risk
The numeric public health risk associated with the MCL for each contaminant identified and the numeric public health risk associated with the PHG for that contaminant are to be determined by the Office of Environmental Health Hazard and Assessment (OEHHA) pursuant to California Health and Safety Code Section 113670.

According to OEHHA, the cancer risk level is based on a theoretical 70-year lifetime excess cancer risk at the statistical confidence limit. Actual cancer risk may be lower or zero. Cancer risk is stated in terms of excess cancer cases per million (or fewer) populations, e.g., 1×10^{-4} means one hundred excess cancer cases per million constituents.

For more information on health risk please contact the OEHHA website at http://www.calepa.cahwnet.gov/oehha. Also the Safe Drinking Water Hotline at 1.800.426.4791 offers additional information for customers on drinking water.

Category of Risk to Public Health
The category of risk to public health is summarized in Table 1 and discussed briefly in the sections for each constituent.

Health Effects Language
The State Water Resources Control Board DDW provides an explanation of potential adverse health effects for synthetic organic and inorganic chemicals pursuant to Section 64465. RPU provides this information for your knowledge and benefit for the constituents, which did exceed the PHG or MCLG.

Arsenic: "Some people who drink water containing arsenic in excess of the MCL over many years may experience skin damage or circulatory system problems, and may have an increased risk of getting cancer."

Coliform Bacteria: "Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

Uranium: "Some people who drink water containing uranium in excess of the MCL over many years may have kidney problems or an increased risk of getting cancer."

Copper: "Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time may experience gastrointestinal distress. Some people who drink water containing in excess of the action level over a period of years may suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor."

Best Available Technology (BAT)
Section 64447.4 Title 22 California Code of Regulations lists the best available technology (BAT), treatment technologies, or other means available for achieving compliance with the MCLs for organic

chemicals. Section 64671 lists the TT for Copper. The BATs and TT are listed for the constituents of concern in Table 1.

Recommendations for Further Action

The drinking water quality provided by RPU meets all Federal and State drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are already significantly below the health-based MCLs established to provide "safe drinking water," additional costly treatment processes would be required. The effectiveness of the treatment processes to provide any significant reductions in constituent levels at these already low values is uncertain. Therefore, no action is proposed.

Source Water Assessment

In May 2013, RPU completed a comprehensive Source Water Assessment of its drinking water sources, which is available to the public. The continual development and implementation of protective measures and policies is a standard practice conducted by RPU to preserve our valuable drinking water resources for future generations.

Exhibit 1
Excerpt from California Health and Safety Code Section §116470(b)

Health and Safety Code §116470.

(b) On or before July 1, 1998, and every three years thereafter, public water systems serving more than 10,000 service connections that detect one or more contaminants in drinking water that exceed the applicable public health goal, shall prepare a brief written report in plain language that does all of the following:

(1) Identifies each contaminant detected in drinking water that exceeds the applicable public health goal.

(2) Discloses the numerical public health risk, determined by the office, associated with the maximum contaminant level for each contaminant identified in paragraph (1) and the numerical public health risk determined by the office associated with the public health goal for that contaminant.

(3) Identifies the category of risk to public health, including, but not limited to, carcinogenic, mutagenic, teratogenic, and acute toxicity, associated with exposure to the contaminant in drinking water, and includes a brief plainly worded description of these terms.

(4) Describes the best available technology, if any is then available on a commercial basis, to remove the contaminant or reduce the concentration of the contaminant. The public water system may, solely at its own discretion, briefly describe actions that have been taken on its own, or by other entities, to prevent the introduction of the contaminant into drinking water supplies.

(5) Estimates the aggregate cost and the cost per customer of utilizing the technology described in paragraph (4), if any, to reduce the concentration of that contaminant in drinking water to a level at or below the public health goal.

(6) Briefly describes what action, if any, the local water purveyor intends to take to reduce the concentration of the contaminant in public drinking water supplies and the basis for that decision.

(c) Public water systems required to prepare a report pursuant to subdivision (b) shall hold a public hearing for the purpose of accepting and responding to public comment on the report. Public water systems may hold the public hearing as part of any regularly scheduled meeting.

(d) The department shall not require a public water system to take any action to reduce or eliminate any exceedance of a public health goal.

(e) Enforcement of this section does not require the department to amend a public water system's operating permit.

(f) Pending adoption of a public health goal by the Office of Environmental Health Hazard Assessment pursuant to subdivision (c) of Section 116365, and in lieu thereof, public water systems shall use the national maximum contaminant level goal adopted by the United States Environmental Protection Agency for the corresponding contaminant for purposes of complying with the notice and hearing requirements of this section.

(g) This section is intended to provide an alternative form for the federally required consumer confidence report as authorized by 42 U.S.C. Section 300g-3(c).

Exhibit 2
Consumer Confidence Reports (CCR)
for
2016, 2017, and 2018

RIVERSIDE PUBLIC UTILITIES 2016 WATER QUALITY REPORT

PRIMARY STANDARDS: MANDATORY HEALTH-RELATED STANDARDS

CONTAMINANT	STATE MCL	STATE PHG	RIVERSIDE PUBLIC UTILITIES AVERAGE	RIVERSIDE PUBLIC UTILITIES RANGE	SOURCES IN DRINKING WATER
MICROBIOLOGICAL					
Total Coliform (P/A) (a)	>5%	0 (MCLG)	0%	0 - 0.5%	Naturally present in environment
CLARITY					
Turbidity (John W. North Treatment Plant)	TT	NS	0.06 NTU (Highest)	100% Meeting turbidity limits	Soil runoff
REGULATED ORGANIC					
Total Trihalomethanes "TTHMs"	80 ppb	NS	5.5 ppb	1.9 - 7.2 ppb	By-product of drinking water disinfection
Chlorine	4.0 ppm as Cl_2 (MRDL)	4 ppm as Cl_2 (MRDLG)	0.57 ppm	0.49 - 0.63 ppm	Drinking water disinfectant added for treatment
REGULATED INORGANIC					
Arsenic	10 ppb	4 ppt	ND	ND - 2.4 ppb	Erosion of natural deposits
Fluoride	2.0 ppm	1 ppm	0.5 ppm	0.5 - 0.6 ppm	Naturally present in environment
Nitrate (as nitrogen, N)	10 ppm	10 ppm	4.9 ppm	4.4 - 5.4 ppm	Naturally present in environment
Perchlorate	6 ppb	1 ppb	ND	ND	Inorganic chemical used in variety of industrial operatives
Hexavalent Chromium	10 ppb	0.02 ppb	2.1 ppb	1.7 - 2.7 ppb	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits
RADIOLOGICAL					
Uranium	20 pCi/L	0.43 pCi/L	7.4 pCi/L	3.1 - 11 pCi/L	Erosion of natural deposits
LEAD/COPPER (AL) (90% Household Tap)					
Copper (b)	1,300 ppb	300 ppb	450 ppb	<50 - 730 ppb	Internal corrosion of home plumbing

REGULATED CONTAMINANTS WITH NO MCLS	NOTIFICATION LEVEL	STATE PHG OR MCLG	RIVERSIDE AVERAGE	RIVERSIDE RANGE
Vanadium	50 ppb	NS	6.9 ppb	6.5 - 7.5 ppb
Boron	1000 ppb	NS	123 ppb	110 - 130 ppb
Chlorate	800 ppb	NS	61 ppb	56 - 66 ppb
Molybdenum	NS	NS	4.1 ppb	4.0 - 4.2 ppb
N-Nitroso-di-n-butylamine	NS		<2 ppt	<2 - 2.4 ppt
Strontium	NS		495 ppb	490 - 500 ppb

Definitions

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 (USEPA).

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

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

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

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.

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.

Millirem (mrem) is a unit used to account for various radiations that have an effect on humans.

Parts Per Million (ppm) One part per million corresponds to one minute in two years or one penny in $10,000.

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

Parts Per Billion (ppb) One part per billion corresponds to one minute in 2,000 years or one penny in $10,000,000.

Parts Per Trillion (ppt) One part per trillion corresponds to one minute in two million years or one penny in $10,000,000,000.

Picocuries Per Liter (pCi/L) A measure of the radioactivity in water.

Nephelometric Turbidity Units (NTU) A measure of suspended material in water.

Micromhos (µMHOS) A measure of conductivity (electric current) in water.

NL Notification level.
ND Not detected at the detection limit for reporting.
NS No standard.
GPG Grains per gallon of hardness (1 gpg = 17.1 ppm).
< Less than the detectable levels.

(a) Results of all samples collected from the distribution system during any month shall be free of total coliforms in 95% or more of the monthly samples. This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2016. All water systems are required to comply with the state Total Coliform Rule. Beginning April 1, 2016, all water systems are also required to comply with the federal Total Coliform Rule. The new federal rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The U.S. EPA anticipates greater public health protection as the new rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurences are required to conduct an assessment to determine if any sanitary defects exist. If found these must be corrected by the water system.

(b) The Lead and Copper Rule requires that 90 percent of samples taken from drinking water taps in the program homes must be below the action levels. Monitoring is required every 3 years. In 2016, 52 homes participated in the monitoring program. No lead was detected in the 90th percentile samples. The average value listed for copper is the 90th percentile result. No home exceeded the action level for either lead or copper. The next monitoring program is scheduled for 2019.

Additional Regulatory Information

Fluoride - The State Water Resources Control Board (State Board) has established an "optimal" fluoride level for water at 1 ppm. Riverside has naturally occurring fluoride levels at 0.5 ppm and is not planning to add fluoride to its water by artificial means.

Lead - 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. Riverside Public Utilities 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 two 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.

Nitrate - In drinking water at levels above 10 ppm 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 an infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 ppm 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 about nitrate levels from your health care provider.

Riverside provides drinking water that on average is at 4.9 ppm and has a range from 4.4 ppm to 5.4 ppm during the year. The State Board has set the MCL for nitrate at 10 ppm. Riverside has 53 wells that are blended to comply with drinking water standards. The city conducts extensive monitoring of the blend operations. Seasonal variation in demand and flow, in addition to system maintenance and repair, impact the nitrate levels during the year.

Perchlorate - Perchlorate is a regulated drinking water contaminant in California. The maximum contaminant level for perchlorate is 6 parts per billion. Perchlorate salts were used in solid rocket propellants and other industrial applications.

Monitoring Unregulated Contaminants
This monitoring helps USEPA to determine where certain contaminants occur and whether the contaminants need to be regulated. Data is available at www.epa.gov/ogwdw.

SECONDARY STANDARDS
AESTHETIC STANDARDS

	STATE MCL	RIVERSIDE PUBLIC UTILITIES AVERAGE	RANGE	SOURCES IN DRINKING WATER
Odor Threshold	3 Units	2 Units	1 - 2 Units	Naturally present in environment
Chloride	500 ppm	34 ppm	31 - 36 ppm	Naturally present in environment
Sulfate	500 ppm	64 ppm	56 - 73 ppm	Naturally present in environment
Total Dissolved Solids "TDS"	1,000 ppm	369 ppm	330 - 420 ppm	Naturally present in environment
Specific Conductance	1,600 µmho	580 µmho	540 - 620 µmho	Substances form ions in water
pH Units	NS	7.4 Units	6.9 - 8.1 Units	Naturally present in environment
Hardness ($CaCO_3$)	NS	188 ppm (12 gpg)	170 - 200 ppm	Naturally present in environment
Alkalinity ($CaCO_3$)	NS	155 ppm	150 - 160 ppm	Naturally present in environment
Sodium	NS	43 ppm	38 - 44 ppm	Naturally present in environment
Calcium	NS	61 ppm	56 - 65 ppm	Naturally present in environment
Potassium	NS	2.9 ppm	2.5 - 3.2 ppm	Naturally present in environment
Magnesium	NS	9.1 ppm	8.2 - 10 ppm	Naturally present in environment
Turbidity	5.0 NTU	<0.1 NTU	0.065 - 0.18 NTU	Naturally present in environment

Monitoring Report 2016

Riverside Public Utilities tests for more than 200 regulated and unregulated contaminants in our water system. This report provides data from sampling conducted in calendar year 2016. Only those contaminants detected in our water system are listed here. The state allows us to monitor for some contaminants less than once per year because concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. For a listing of additional chemical tests, please contact our Water Quality Division at (951) 351-6370.

Water Resources

RPU met all of its water supply needs in 2016 by utilizing groundwater sources located in the San Bernardino Bunker Hill Basin and the Riverside Basin. RPU directly treats some of its wells and blends all water sources at a central location before entering into distribution. All data provided are from samples collected in the distribution system or at the entry point to the system.

Water Compliance & Monitoring Program

In 2016, we collected more than 23,629 water samples to test for a variety of potential contaminants. Samples were collected at water sources, along transmission pipelines, throughout the distribution system, including reservoirs and booster stations, and treatment plants to ensure water quality from its source to your meter.

The Utility uses state certified independent laboratories to perform water tests. This ensures that an independent set of experts test your water from the source to your meter. Last year, we spent more than $500,000 on compliance laboratory costs.

Riverside Public Utilities 2016 Water Sampling Data

6,387 - Samples collected to test for bacteria.

6,137 - Samples collected for source and system compliance and monitoring.

11,105 - Samples collected for treatment plant compliance and monitoring.

23,629 - Total samples collected.

We are pleased to report that our water met or surpassed all state and federal drinking water quality standards in 2016. We welcome you to attend our Board of Public Utilities meetings in the Art Pick Council Chamber at 3900 Main Street, Riverside, held at 6:30 p.m. on the second and fourth Mondays of each month. You can also visit our website at BlueRiverside.com for more information.

WATER | ENERGY | LIFE

CITY OF RIVERSIDE PUBLIC UTILITIES

Water Quality Report 2016

An important message about drinking water sources from the USEPA

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 materials, and can pick up substances resulting from the presence of animals or human activity. 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,** 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 gas stations, urban storm water runoff, agricultural application, and septic systems. **Radioactive Contaminants,** which can be naturally occurring or be the result of oil and gas production and mining activities.

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

Important Health Information: 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 people, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Center 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 Hot Line. 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 USEPA's Safe Drinking Water Hotline at 1(800) 426-4791.

Water Sources: Riverside obtains its water supply from groundwater stored in the Bunker Hill and Riverside groundwater basins. An assessment of these drinking water sources for the City of Riverside was completed in May 2013. These sources are considered most vulnerable to historical contamination from industrial and agricultural operations.

A copy of the complete assessment is available at State Board District Office, 1350 Front Street, Room 2050, San Diego, CA 92101 or at Riverside Public Utilities (RPU) offices at 3750 University Ave. 3rd Floor, Riverside, CA 92501. You may request a summary of the assessment be sent to you by contacting the State Board district engineer or a RPU water system representative at (951) 351-6370.

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

SPANISH
Este reporte contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien. Para más información por favor llame (951) 351-6370.

CHINESE
此份有关你的食水报告，内有重要资料和讯息，请找他人为你翻译及解释清楚。

JAPANESE
この情報は重要です。
翻訳を依頼してください。

TAGALOG
Mahalaga ang impormasyong ito.
Mangyaring ipasalin ito.

VIETNAMESE
Chi tiết này thật quan trọng.
Xin nhờ người dịch cho quý vị.

KOREAN
이 안내는 매우 중요합니다.
본인을 위해 번역인을 사용하십시요.

WATER | ENERGY | LIFE

CITY OF RIVERSIDE PUBLIC UTILITIES

WATER QUALITY REPORT 2017

An important message about drinking water sources from the USEPA

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 materials, and can pick up substances resulting from the presence of animals or human activity. 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,** 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 gas stations, urban storm water runoff, agricultural application, and septic systems. **Radioactive Contaminants,** which can be naturally occurring or be the result of oil and gas production and mining activities.

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

Important Health Information: 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 people, and infants, can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Center 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 Hot Line. 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 USEPA's Safe Drinking Water Hotline at 1(800) 426-4791.

Water Sources: Riverside obtains its water supply from groundwater stored in the Bunker Hill and Riverside groundwater basins. An assessment of these drinking water sources for the City of Riverside was completed in May 2013. These sources are considered most vulnerable to historical contamination from industrial and agricultural operations.

A copy of the complete assessment is available at State Board District Office, 1350 Front Street, Room 2050, San Diego, CA 92101 or at Riverside Public Utilities (RPU) offices at 3750 University Ave. 3rd Floor, Riverside, CA 92501. You may request a summary of the assessment be sent to you by contacting the State Board district engineer or a RPU water system representative at (951) 351-6370.

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

SPANISH

Este reporte contiene información muy importante sobre su agua potable. Tradúzcalo ó hable con alguien que lo entienda bien. Para más información por favor llame (951) 351-6370.

CHINESE

此份有关你的食水报告,内有重要资料和讯息,请找他人为你翻译及解释清楚。

JAPANESE

この情報は重要です。
翻訳を依頼してください。

TAGALOG

Mahalaga ang impormasyong ito.
Mangyaring ipasalin ito.

VIETNAMESE

Chi tiết này thật quan trọng.
Xin nhờ người dịch cho quý vị.

KOREAN

이 안내는 매우 중요합니다.
본인을 위해 번역인을 사용하십시요.

RIVERSIDE PUBLIC UTILITIES 2017 WATER QUALITY REPORT

PRIMARY STANDARDS: MANDATORY HEALTH-RELATED STANDARDS

CONTAMINANT	STATE MCL	STATE PHG	RIVERSIDE PUBLIC UTILITIES AVERAGE	RIVERSIDE PUBLIC UTILITIES RANGE	SOURCES IN DRINKING WATER
MICROBIOLOGICAL Total Coliform (P/A) (a)	5%	0 (MCLG)	0.2%	0 - 1%	Naturally present in environment
CLARITY Turbidity (John W. North Treatment Plant)	TT	NS	0.07 NTU (Highest)	100% Meeting turbidity limits	Soil runoff
REGULATED ORGANIC Total Trihalomethanes "TTHMs"	80 ppb	NS	4.3 ppb	1.4 - 7.6 ppb	By-product of drinking water disinfection
Chlorine	4.0 ppm as Cl2 (MRDL)	4 ppm as Cl2 (MRDLG)	0.62 ppm	0.55 - 0.62 ppm	Drinking water disinfectant added for treatment
Control of DBP Precursors-TOC	TT	NS	0.25 ppm	0 - 0.37 ppm	Various natural and man-made sources
REGULATED INORGANIC Arsenic	10 ppb	4 ppt	2 ppb	1.7 - 2.2 ppb	Erosion of natural deposits
Fluoride	2.0 ppm	1 ppm	0.5 ppm	0.5 - 0.6 ppm	Naturally present in environment
Nitrate (as nitrogen, N)	10 ppm	10 ppm	5.1 ppm	4.3 - 5.7 ppm	Naturally present in environment
Perchlorate	6 ppb	1 ppb	ND	ND	Inorganic chemical used in variety of industrial operatives
Hexavalent Chromium	10 ppb*	0.02 ppb	2.2 ppb	1.9 - 2.4 ppb	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits *This MCL was withdrawn on 9/11/17
RADIOLOGICAL Uranium	20 pCi/L	0.43 pCi/L	7.4 pCi/L	4.1 - 11 pCi/L	Erosion of natural deposits
LEAD/COPPER (AL) (90% Household Tap)					
Copper (b)	1,300 ppb	300 ppb	450 ppb	<50 - 730 ppb	Internal corrosion of home plumbing

UNREGULATED CHEMICALS	NOTIFICATION LEVEL	STATE PHG OR MCLG	RIVERSIDE AVERAGE	RIVERSIDE RANGE	
Vanadium	50 ppb	NS	6.9 ppb	6.5 - 7.5 ppb	
Boron	1000 ppb	NS	123 ppb	110 - 130 ppb	
Chlorate	800 ppb	NS	61 ppb	56 - 66 ppb	Data from UCMR3 - 2013
Molybdenum	NS	NS	4.1 ppb	4.0 - 4.2 ppb	Data from UCMR3 - 2013
Strontium	NS	NS	495 ppb	490 - 500 ppb	Data from UCMR3 - 2013
Radon	NS	NS	340 pCi/L	N/A	

Definitions

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 (USEPA).

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

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

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

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.

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.

Millirem (mrem) is a unit used to account for various radiations that have an effect on humans.

Parts Per Million (ppm) One part per million corresponds to one minute in two years or one penny in $10,000.

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

Parts Per Billion (ppb) One part per billion corresponds to one minute in 2,000 years or one penny in $10,000,000.

Parts Per Trillion (ppt) One part per trillion corresponds to one minute in two million years or one penny in $10,000,000,000.

Picocuries Per Liter (pCi/L) A measure of the radioactivity in water.

Nephelometric Turbidity Units (NTU) A measure of suspended material in water.

Micromhos (µMHOS) A measure of conductivity (electric current) in water.

UCMR3 Third Unregulated Contaminant Monitoring Rule

NL Notification level

ND Not detected at the detection limit for reporting.

NS No standard.

GPG Grains per gallon of hardness (1 gpg = 17.1 ppm).

< Less than the detectable levels.

(a) Results of all samples collected from the distribution system during any month shall be free of total coliforms in 95% or more of the monthly samples. This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2016. All water systems are required to comply with the state Total Coliform Rule. Beginning April 1, 2016, all water systems are also required to comply with the federal revised Total Coliform Rule. The new federal rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The U.S. EPA anticipates greater public health protection as the new rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found these must be corrected by the water system.

(b) The Lead and Copper Rule requires that 90 percent of samples taken from drinking water taps in the program homes must be below the action levels. Monitoring is required every 3 years. In 2016, 52 homes participated in the monitoring program. No lead was detected in the 90th percentile samples. The average value listed for copper is the 90th percentile result. No home exceeded the action level for either lead or copper. The next monitoring program is scheduled for 2019. In 2017, 8 schools have requested lead sampling.

Additional Regulatory Information

Fluoride - The State Water Resources Control Board (State Board) has established an "optimal" fluoride level for water at 1 ppm. Riverside has naturally occurring fluoride levels at 0.5 ppm and is not planning to add fluoride to its water by artificial means.

Lead - 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. Riverside Public Utilities 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 two 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 EPA.gov/SafeWater/Lead.

Nitrate - Nitrate in drinking water at levels above 10 ppm 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 an infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 ppm 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 about nitrate levels from your health care provider.

Riverside provides drinking water that on average is at 5.1 ppm and has a range from 4.3 ppm to 5.7 ppm during the year. The State Board has set the MCL for nitrate at 10 ppm. Riverside has 53 wells that are blended to comply with drinking water standards. The city conducts extensive monitoring of the blend operations. Seasonal variation in demand and flow, in addition to system maintenance and repair, impact the nitrate levels during the year.

Perchlorate - Perchlorate is a regulated drinking water contaminant in California. The maximum contaminant level for perchlorate is 6 parts per billion. Perchlorate salts were used in solid rocket propellants and other industrial applications.

Radon - Radon is a carcinogenic, radioactive gas, found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation, and can also be released from tap water from household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Breathing air containing radon can lead to lung cancer, while drinking water containing radon may increase the risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple and cost-effective ways to fix a radon problem. For additional information, call your State radon program (1-800-745-7236), the U.S. EPA Safe Drinking Water Act Hotline (1-800-426-4791), or the National Safety Council Radon Hotline (1-800-767-7236).

Turbidity A measure of the cloudiness of the water. Turbidity is a good indicator of the effectiveness of our filtration system.

Monitoring Unregulated Contaminants
This monitoring helps USEPA to determine where certain contaminants occur and whether the contaminants need to be regulated. Data is available at EPA.gov/ogwdw.

SECONDARY STANDARDS
AESTHETIC STANDARDS

	STATE MCL	RIVERSIDE PUBLIC UTILITIES AVERAGE	RIVERSIDE PUBLIC UTILITIES RANGE	SOURCES IN DRINKING WATER
Odor Threshold	3 Units	1.4 Units	1 - 2 Units	Naturally present in environment
Chloride	500 ppm	32 ppm	25 - 35 ppm	Naturally present in environment
Sulfate	500 ppm	72 ppm	63 - 77 ppm	Naturally present in environment
Total Dissolved Solids "TDS"	1,000 ppm	379 ppm	310 - 430 ppm	Naturally present in environment
Specific Conductance	1,600 µmho/cm	598 µmho/cm	540-630 µmho/cm	Substances form ions in water
pH Units	NS	8 Units	7.8 - 8.1 Units	Naturally present in environment
Hardness (CaCO3)	NS	203 ppm (12 gpg)	180 - 220 ppm	Naturally present in environment
Alkalinity (CaCO3)	NS	160 ppm	150 - 170 ppm	Naturally present in environment
Sodium	NS	44 ppm	42 - 46 ppm	Naturally present in environment
Calcium	NS	66 ppm	59 - 71 ppm	Naturally present in environment
Potassium	NS	3 ppm	2.8 - 3.3 ppm	Naturally present in environment
Magnesium	NS	9.5 ppm	7.9 - 11 ppm	Naturally present in environment
Turbidity	5.0 NTU	<0.1 NTU	0 - 0.51 NTU	Naturally present in environment

Monitoring Report 2017

Riverside Public Utilities tests for more than 200 regulated and unregulated contaminants in our water system. This report provides data from sampling conducted in calendar year 2017. Only those contaminants detected in our water system are listed here. The state allows us to monitor for some contaminants less than once per year because concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. For a listing of additional chemical tests, please contact our Water Quality Division at (951) 351-6370.

Water Resources

RPU met all of its water supply needs in 2017 by utilizing groundwater sources located in the San Bernardino Bunker Hill Basin and the Riverside Basin. RPU directly treats some of its wells and blends all water sources at a central location before entering into distribution. All data provided are from samples collected in the distribution system or at the entry point to the system.

Water Compliance & Monitoring Program

In 2017, we collected more than 25,237 water samples to test for a variety of potential contaminants. Samples were collected at water sources, along transmission pipelines, throughout the distribution system, including reservoirs and booster stations, and treatment plants to ensure water quality from its source to your meter.

The Utility uses state certified independent laboratories to perform water tests. This ensures that an independent set of experts test your water from the source to your meter. Last year, we spent approximately $500,000 on compliance laboratory costs.

Riverside Public Utilities 2017 Water Sampling Data

6,503 - Samples collected to test for bacteria.

6,150 - Samples collected for source and system compliance and monitoring.

12,584 - Samples collected for treatment plant compliance and monitoring.

25,237 - Total samples collected.

We are pleased to report that our water met or surpassed all state and federal drinking water quality standards in 2017. We welcome you to attend our Board of Public Utilities meetings in the Art Pick Council Chamber at 3900 Main Street, Riverside, held at 6:30 p.m. on the second and fourth Mondays of each month. You can also visit our website at BlueRiverside.com for more information.

WATER | ENERGY | LIFE

CITY OF RIVERSIDE PUBLIC UTILITIES

WATER QUALITY REPORT 2018

An important message about drinking water sources from the USEPA

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 materials, and can pick up substances resulting from the presence of animals or human activity. 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,** 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 gas stations, urban storm water runoff, agricultural application, and septic systems. **Radioactive Contaminants,** which can be naturally occurring or be the result of oil and gas production and mining activities.

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CHINESE

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RIVERSIDE PUBLIC UTILITIES 2018 WATER QUALITY REPORT

PRIMARY STANDARDS: MANDATORY HEALTH-RELATED STANDARDS

CONTAMINANT	STATE MCL	STATE PHG	RIVERSIDE PUBLIC UTILITIES AVERAGE	RIVERSIDE PUBLIC UTILITIES RANGE	SOURCES IN DRINKING WATER
MICROBIOLOGICAL Total Coliform (P/A) (a)	5%	0 (MCLG)	0.14%	0 - 0.6%	Naturally present in environment
CLARITY Turbidity (John W. North Treatment Plant)	TT	NS	0.07 NTU (Highest)	100% Meeting turbidity limits	Soil runoff
REGULATED ORGANIC Total Trihalomethanes "TTHMs"	80 ppb	NS	4.8 ppb	0.5 - 7.5 ppb	By-product of drinking water disinfection
Chlorine	4.0 ppm as Cl2 (MRDL)	4 ppm as Cl2 (MRDLG)	0.68 ppm	0.45 - 0.90 ppm	Drinking water disinfectant added for treatment
1,2,3-Trichloropropane	5 ppt	0.7 ppt	ND	ND	Various man-made sources
REGULATED INORGANIC Arsenic	10 ppb	4 ppt	1.1 ppb	0 - 2.9 ppb	Erosion of natural deposits
Fluoride	2.0 ppm	1 ppm	0.5 ppm	0.5 - 0.6 ppm	Naturally present in environment
Nitrate (as nitrogen, N)	10 ppm	10 ppm	5.4 ppm	4.6 - 6.2 ppm	Naturally present in environment
Perchlorate	6 ppb	1 ppb	ND	ND	Inorganic chemical used in variety of industrial operatives
Hexavalent Chromium	10 ppb*	0.02 ppb	2.2 ppb	2.0 - 2.4 ppb	Discharge from electroplating factories, leather tanneries, wood preservation, chemical synthesis, refractory production, and textile manufacturing facilities; erosion of natural deposits *This MCL was withdrawn on 9/11/17
RADIOLOGICAL Uranium	20 pCi/L	0.43 pCi/L	8.5 pCi/L	6.2 - 12 pCi/L	Erosion of natural deposits
LEAD/COPPER (AL) (90% Household Tap)					
Copper (b)	1,300 ppb	300 ppb	450 ppb	<50 - 730 ppb	Internal corrosion of home plumbing

UNREGULATED CHEMICALS	NOTIFICATION LEVEL	STATE PHG OR MCLG	RIVERSIDE AVERAGE	RIVERSIDE RANGE	
Vanadium	50 ppb	NS	6.4 ppb	6 - 6.8 ppb	
Boron	1000 ppb	NS	143 ppb	140 - 150 ppb	
Chlorate	800 ppb	NS	61 ppb	56 - 66 ppb	Data from UCMR3 - 2013
Molybdenum	NS	NS	4.1 ppb	4.0 - 4.2 ppb	Data from UCMR3 - 2013
Strontium	NS	NS	495 ppb	490 - 500 ppb	Data from UCMR3 - 2013

Definitions

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.

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Micromhos (µMHOS) A measure of conductivity (electric current) in water.

UCMR3 Third Unregulated Contaminant Monitoring Rule

NL Notification level

ND Not detected at the detection limit for reporting.

NS No standard.

GPG Grains per gallon of hardness (1 gpg = 17.1 ppm).

< Less than the detectable levels.

(a) Results of all samples collected from the distribution system during any month shall be free of total coliforms in 95% or more of the monthly samples. This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2016. All water systems are required to comply with the state Total Coliform Rule. Beginning April 1, 2016, all water systems are also required to comply with the federal revised Total Coliform Rule. The new federal rule maintains the purpose to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The U.S. EPA anticipates greater public health protection as the new rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found these must be corrected by the water system.

(b) The Lead and Copper Rule requires that 90 percent of samples taken from drinking water taps in the program homes must be below the action levels. Monitoring is required every 3 years. In 2016, 52 homes participated in the monitoring program. No lead was detected in the 90th percentile samples. The average value listed for copper is the 90th percentile result. No home exceeded the action level for either lead or copper. The next monitoring program is scheduled for 2019. In 2018, 53 schools have requested lead sampling.

Additional Regulatory Information

Fluoride - The State Water Resources Control Board (State Board) has established an "optimal" fluoride level for water at 1 ppm. Riverside has naturally occurring fluoride levels at 0.5 ppm and is not planning to add fluoride to its water by artificial means.

Lead - 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. Riverside Public Utilities 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 two 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 EPA.gov/SafeWater/Lead.

Nitrate - Nitrate in drinking water at levels above 10 ppm 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 an infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 ppm 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 about nitrate levels from your health care provider.

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Turbidity A measure of the cloudiness of the water. Turbidity is a good indicator of the effectiveness of our filtration system.

Monitoring Unregulated Contaminants

This monitoring helps USEPA to determine where certain contaminants occur and whether the contaminants need to be regulated. Data is available at EPA.gov/ogwdw.

SECONDARY STANDARDS
AESTHETIC STANDARDS

	STATE MCL	RIVERSIDE PUBLIC UTILITIES AVERAGE	RIVERSIDE PUBLIC UTILITIES RANGE	SOURCES IN DRINKING WATER
Odor Threshold	3 Units	0.65 Units	0 - 2 Units	Naturally present in environment
Chloride	500 ppm	35 ppm	32 - 38 ppm	Naturally present in environment
Sulfate	500 ppm	71 ppm	63 - 78 ppm	Naturally present in environment
Total Dissolved Solids "TDS"	1,000 ppm	383 ppm	310 - 430 ppm	Naturally present in environment
Specific Conductance	1,600 µmho/cm	614 µmho/cm	600 - 630 µmho/cm	Substances form ions in water
pH Units	NS	8 Units	7.6 - 8.4 Units	Naturally present in environment
Hardness (CaCO3)	NS	209 ppm (12 gpg)	190 - 220 ppm	Naturally present in environment
Alkalinity (CaCO3)	NS	176 ppm	160 - 200 ppm	Naturally present in environment
Sodium	NS	44 ppm	40 - 49 ppm	Naturally present in environment
Calcium	NS	68 ppm	62 - 73 ppm	Naturally present in environment
Potassium	NS	3 ppm	2.9 - 3.2 ppm	Naturally present in environment
Magnesium	NS	9.7 ppm	8.7 - 10 ppm	Naturally present in environment
Turbidity	5.0 NTU	<0.1 NTU	0 - 0.15 NTU	Naturally present in environment

Monitoring Report 2018

Riverside Public Utilities tests for more than 200 regulated and unregulated contaminants in our water system. This report provides data from sampling conducted in calendar year 2018. Only those contaminants detected in our water system are listed here. The state allows us to monitor for some contaminants less than once per year because concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. For a listing of additional chemical tests, please contact our Water Quality Division at (951) 351-6370.

Water Resources

RPU met all of its water supply needs in 2018 by utilizing groundwater sources located in the San Bernardino Bunker Hill Basin and the Riverside Basin. RPU directly treats some of its wells and blends all water sources at a central location before entering into distribution. All data provided are from samples collected in the distribution system or at the entry point to the system.

Water Compliance & Monitoring Program

In 2018, we collected more than 25,935 water samples to test for a variety of potential contaminants. Samples were collected at water sources, along transmission pipelines, throughout the distribution system, including reservoirs and booster stations, and treatment plants to ensure water quality from its source to your meter.

The Utility uses state certified independent laboratories to perform water tests. This ensures that an independent set of experts test your water from the source to your meter. Last year, we spent approximately $540,000 on compliance laboratory costs.

Riverside Public Utilities 2018 Water Sampling Data

6,807 - Samples collected to test for bacteria.

6,188 - Samples collected for source and system compliance and monitoring.

12,940 - Samples collected for treatment plant compliance and monitoring.

25,935 - Total samples collected.

We are pleased to report that our water met or surpassed all state and federal drinking water quality standards in 2018. We welcome you to attend our Board of Public Utilities meetings in the Art Pick Council Chamber at 3900 Main Street, Riverside, held at 6:30 p.m. on the second and fourth Mondays of each month. You can also visit our website at BlueRiverside.com for more information.

Exhibit 3
MCL and PHG

MCLs, DLRs, and PHGs for Regulated Drinking Water Contaminants

(Units are in milligrams per liter (mg/L), unless otherwise noted.)

Last Update: January 10, 2018

This table includes:

California's maximum contaminant levels (MCLs)

Detection limits for purposes of reporting (DLRs)

Public health goals (PHGs) from the Office of Environmental Health Hazard Assessment (OEHHA)

Also, the PHG for NDMA (which is not yet regulated) is included at the bottom of this table.

For comparison:

Federal MCLs and Maximum Contaminant Level Goals (MCLGs) (US EPA)

	MCL	DLR	PHG	Date of PHG	MCL	MCLG
Chemicals with MCLs in 22 CCR §64431—Inorganic Chemicals						
Aluminum	1	0.05	0.6	2001	--	--
Antimony	0.006	0.006	0.001	2016	0.006	0,006
Arsenic	0.010	0.002	0.000004	2004	0.010	zero
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003	7 MFL	7 MFL
Barium	1	0.1	2	2003	2	2
Beryllium	0.004	0.001	0.001	2003	0.004	0.004
Cadmium	0.005	0.001	0.00004	2006	0.005	0.005
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999	0.1	0.1
Chromium, Hexavalent - 0.01-mg/L MCL & 0.001-mg/L DLR repealed September 2017	--	--	0.00002	2011	--	--
Cyanide	0.15	0.1	0.15	1997	0.2	0.2
Fluoride	2	0.1	1	1997	4.0	4.0
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*	0.002	0.002
Nickel	0.1	0.01	0.012	2001	--	--
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	1997	10	10
Nitrite (as N)	1 as N	0.4	1 as N	1997	1	1
Nitrate + Nitrite (as N)	10 as N	--	10 as N	1997	--	--
Perchlorate	0.006	0.004	0.001	2015	--	--
Selenium	0.05	0.005	0.03	2010	0.05	0.05
Thallium	0.002	0.001	0.0001	1999 (rev2004)	0.002	0.0005
Copper and Lead, 22 CCR §64672.3						
Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called "Action Levels" under the lead and copper rule						
Copper	1.3	0.05	0.3	2008	1.3	1.3
Lead	0.015	0.005	0.0002	2009	0.015	zero
Radionuclides with MCLs in 22 CCR §64441 and §64443—Radioactivity						
[units are picocuries per liter (pCi/L), unless otherwise stated; n/a = not applicable]						
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a	15	zero
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a	4 mrem/yr	zero

Radium-226	--	1	0.05	2006		
Radium-228	--	1	0.019	2006		
Radium-226 + Radium-228	5	--	--	--	5	zero
Strontium-90	8	2	0.35	2006	--	--
Tritium	20,000	1,000	400	2006	--	--
Uranium	20	1	0.43	2001	30 µg/L	zero
Chemicals with MCLs in 22 CCR §64444 —Organic Chemicals						
(a) Volatile Organic Chemicals (VOCs)						
Benzene	0.001	0.0005	0.00015	2001	0.005	zero
Carbon tetrachloride	0.0005	0.0005	0.0001	2000	0.005	zero
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)	0.6	0.6
1,4-Dichlorobenzene (p-DCB)	0.005	0.0005	0.006	1997	0.075	0.075
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003	--	--
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)	0.005	zero
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999	0.007	0.007
cis-1,2-Dichloroethylene	0.006	0.0005	0.1	2006	0.07	0.07
cis-1,2-Dichloroethylene	--	--	0.013	2017 draft	--	--
trans-1,2-Dichloroethylene	0.01	0.0005	0.06	2006	0.1	0.1
trans-1,2-Dichloroethylene	--	--	0.05	2017 draft	--	--
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000	0.005	zero
1,2-Dichloropropane	0.005	0.0005	0.0005	1999	0.005	zero
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)	--	--
Ethylbenzene	0.3	0.0005	0.3	1997	0.7	0.7
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999	--	--
Monochlorobenzene	0.07	0.0005	0.07	2014	0.1	0.1
Styrene	0.1	0.0005	0.0005	2010	0.1	0.1
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003	0.1	0.1
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001	0.005	zero
Toluene	0.15	0.0005	0.15	1999	1	1
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999	0.07	0.07
1,1,1-Trichloroethane (1,1,1-TCA)	0.2	0.0005	1	2006	0.2	0.2
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006	0.005	0.003
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009	0.005	zero
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014	--	--
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	1.2	0.01	4	1997 (rev2011)	--	--
Vinyl chloride	0.0005	0.0005	0.00005	2000	0.002	zero
Xylenes	1.75	0.0005	1.8	1997	10	10
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)						
Alachlor	0.002	0.001	0.004	1997	0.002	zero
Atrazine	0.001	0.0005	0.00015	1999	0.003	0.003
Bentazon	0.018	0.002	0.2	1999 (rev2009)	--	--
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010	0.0002	zero
Carbofuran	0.018	0.005	0.0007	2016	0.04	0.04
Chlordane	0.0001	0.0001	0.00003	1997 (rev2006)	0.002	zero
Dalapon	0.2	0.01	0.79	1997 (rev2009)	0.2	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.0000017	1999	0.0002	zero
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009	0.07	0.07
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003	0.4	0.4
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997	0.006	zero

Dinoseb	0.007	0.002	0.014	1997 (rev2010)	0.007	0.007
Diquat	0.02	0.004	0.006	2016	0.02	0.02
Endothal	0.1	0.045	0.094	2014	0.1	0.1
Endrin	0.002	0.0001	0.0003	2016	0.002	0.002
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003	0.00005	zero
Glyphosate	0.7	0.025	0.9	2007	0.7	0.7
Heptachlor	0.00001	0.00001	0.000008	1999	0.0004	zero
Heptachlor epoxide	0.00001	0.00001	0.000006	1999	0.0002	zero
Hexachlorobenzene	0.001	0.0005	0.00003	2003	0.001	zero
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014	0.05	0.05
Lindane	0.0002	0.0002	0.000032	1999 (rev2005)	0.0002	0.0002
Methoxychlor	0.03	0.01	0.00009	2010	0.04	0.04
Molinate	0.02	0.002	0.001	2008	--	--
Oxamyl	0.05	0.02	0.026	2009	0.2	0.2
Pentachlorophenol	0.001	0.0002	0.0003	2009	0.001	zero
Picloram	0.5	0.001	0.166	2016	0.5	0.5
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007	0.0005	zero
Simazine	0.004	0.001	0.004	2001	0.004	0.004
Thiobencarb	0.07	0.001	0.042	2016	--	--
Toxaphene	0.003	0.001	0.00003	2003	0.003	zero
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009	--	--
2,3,7,8-TCDD (dioxin)	$3x10^{-8}$	$5x10^{-9}$	$5x10^{-11}$	2010	$3x10^{-8}$	zero
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014	0.05	0.05
Chemicals with MCLs in 22 CCR §64533 —Disinfection Byproducts						
Total Trihalomethanes	0.080	--	0.0008	2010 draft	0.080	--
Bromodichloromethane	--	0.0010	--	--	--	zero
Bromoform	--	0.0010	--	--	--	zero
Chloroform	--	0.0010	--	--	--	0.07
Dibromochloromethane	--	0.0010	--	--	--	0.06
Haloacetic Acids (five) (HAA5)	0.060	--	--	--	0.060	--
Monochloroacetic Acid	--	0.0020	--	--	--	0.07
Dichloroacetic Adic	--	0.0010	--	--	--	zero
Trichloroacetic Acid	--	0.0010	--	--	--	0.02
Monobromoacetic Acid	--	0.0010	--	--	--	--
Dibromoacetic Acid	--	0.0010	--	--	--	--
Bromate	0.010	0.0050**	0.0001	2009	0.01	zero
Chlorite	1.0	0.020	0.05	2009	1	0.8
Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.						
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006	--	--

*OEHHA's review of this chemical during the year indicated (rev20XX) resulted in no change in the PHG.

**The DLR for Bromate is 0.0010 mg/L for analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0.