City of Rio Vista
Water Quality Report for Calendar Year 2011
Prepared July 2012

This is the annual report on the quality of water delivered to you by the City of Rio Vista during calendar year 2011. The City of Rio Vista vigilantly safeguards its water supplies and distribution system. We are proud to report that this year, as in years past, all distributed drinking water for 2011 met all State and Federal drinking water health standards.

This report provides a snapshot of the quality of the water that we provided this year. Included are details about where your water comes from, what it contains, and how it compares to State and Federal standards. For more information about your water, you may call Dave Melilli, City of Rio Vista Public Works Director at (707) 374-6451.

The St. Francis Way and Virginia Drive Water Main Replacement Project was completed in 2011. Projects that were started in 2011 include the Water Main Replacement Project on Logan, 2nd, 3rd, 6th and Bruning Streets, and the design and bid for the Water Tank Repair Project.

Your water comes from 10 sources located at various locations within the city: Well 7, Well 9, Well 10, Well 11, Well 13, Well 14, Well 15 and Booster Station. During the past year 712,240,000 gallons of water were pumped from these wells for residential, commercial and industrial uses.

NOTE: Well 10, with high arsenic levels, which were not used in 2011, will only be used as back up and for fire protection.

Type of water sources(s) in use: According to DHS records, Wells 07, 09, 10, and 11 are Groundwater. This Assessment was done using the Default Groundwater System Method. This info is not available for Wells 13, 14, 15, and Booster Station, as they do not have a completed assessment on file. Please see the Drinking Water Source Assessment Information section located at the end of this report for more details.

For more information about this report, or for any questions relating to your drinking water, please call (707) 374-6451 and ask for David Melilli, or visit our website at www.rio-vista-ca.com

The water distribution system includes over 18 miles of pipe and two reservoir tanks, each with a capacity of two million gallons.

Well water is cleaner than surface (river and lake) water. This is because the rains and irrigation fall on the land and percolate through the soil and porous rock until it collects in an aquifer. This may take weeks, months or years, depending on the geologic conditions and frequency of rainfall. So by the time it's pumped from an aquifer, nature has done an excellent job of cleaning it up.

However, as water travels over the surface of the land and through the ground, it dissolves naturally occurring minerals and, in some cases, substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban water runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.

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, and septic systems.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Radioactive contaminants, which can be naturally occurring or the result of oil production and mining activities

Because of these possible contaminants, and i**n order to ensure that tap water is safe to drink,** the U.S. Environmental Protection Agency (USEPA) and the California Department of Health Services (Department) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

Tables 1, 2, 3, 4, 5 and 6 list all of the drinking water contaminants that were detected during the most recent sampling for the constituents. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The Department allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old.

TABLE 1 - SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER

Lead and Copper (complete if lead or copper detected in the last sample set)	**No. of Samples Collected**	**90th Percentile Level**	**No. Site Exceeding AL**	**AL**	**PHG**	**Typical Sources of Contaminant**
Lead (Pb) (ppb)	20 (2010)	5.80	0	15	0.2	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers, erosion of natural deposits
Copper (ppm)	20 (2010)	0.071	0	1.3	.17	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

TABLE 2 - SAMPLING RESULTS FOR SODIUM AND HARDNESS

Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG)**	**Typical Sources of Contaminant**

TABLE 2 - SAMPLING RESULTS FOR SODIUM AND HARDNESS						
Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG)**	**Typical Sources of Contaminant**
Sodium (ppm)	2011	164	153 - 181	none	none	Salt present in the water and is generally naturally occurring
Hardness (ppm)	2011	60	54 - 67	none	none	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

A hardness of 60 is considered slightly hard and a hardness of 120 is considered moderately hard. There is no convincing evidence that water hardness causes adverse health effects. It is primarily a nuisance problem resulting in difficulty in cleaning and laundering tasks, and decreased efficiency of water heaters.

TABLE 3 - DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD						
Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG) [MRDLG]**	**Typical Sources of Contaminant**
Aluminum (Al) ppm	2010	0.003	ND - 0.01	1	0.6	Erosion of natural deposits; residue from some surface water treatment processes
Arsenic (As) ppb	2011	9.4	ND - 22	10	n/a	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes
Barium (Ba) ppm	2010	0.03	0.03 - 0.04	1	2	Discharge from oil drilling wastes and from metal refineries; erosion of natural deposits
Chromium (Total Cr) ppb	2010	1	ND - 2	50.0	n/a	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (F) ppm	2011	0.4	0.4 - 0.4	2	1	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.
Nickel Ppb	2010	0.3	ND - 1	100	12	Erosion of natural deposits; discharge from metal factories

TABLE 3 - DETECTION OF CONTAMINANTS WITH A PRIMARY DRINKING WATER STANDARD						
Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG) [MRDLG]**	**Typical Sources of Contaminant**
Nitrate (NO3) ppm	2011	5.2	1 - 10	45	45	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Nitrate + Nitrite as N ppm	2010	1.5	ND - 2.6	10	10	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Selenium (Se) ppb	2010	9.3	2 - 19	50	30	Discharge from petroleum, glass, and metal refineries; erosion of natural deposits; discharge from mines and chemical manufacturers; runoff from livestock lots(feed additive)
Gross Alpha pCi/L	2010	1.5	1 - 2	15	n/a	Erosion of natural deposits.
Total Radium 228 pCi/L	2010	0.43	ND - 0.9	5	n/a	Erosion of natural deposits

Any violation of MCL, AL or MRDL is shaded. Additional information regarding the violation is provided later in this report.

When arsenic levels exceed the MCL of 10 parts per billion from wells 11 and 14, water from these wells are blended with water from wells with arsenic levels low enough to reduce the overall level below 10. The Trilogy two million gallon reservoir tank is used for blending. The following table illustrates the variation of test results from each well and indicates the data necessary to properly blend water from multiple sources to assure the delivered level meets State requirements. Well 10, with high arsenic levels, cannot be blended with other city wells.

ARSENIC LEVELS AT EACH WELL			
WELL	**MINIMUM**	**MAXIMUM**	
7	7	9	
9	6	9	
10	16	22	
11	5	9	
13	8	11	
14	10	12	
15	8	9	
Tank # 1	8	11	Amador Circle Storage Tank
Tank # 2	8	10	Trilogy Storage Tank

Arsenic levels vary at each well from minimum to maximum values depending upon many factors including pumping rate and conditions within the aquifer. Many tests are run to assure accurate data when blending water from different wells to assure the overall level is below 10.

(10 parts per billion is about equal to 45 drops in a 60,000 gallon swimming pool.)

TABLE 4 - DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD

Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG)**	**Typical Sources of Contaminant**
Chloride ppm	2011	68	60 - 78	500	n/a	Runoff/leaching from natural deposits; seawater influence
Iron (Fe) ppb	2011	30	ND - 80	300	n/a	Leaching from natural deposits; Industrial wastes
Manganese (Mn) ppb	2011	20	ND - 30	50	500	Leaching from natural deposits
Specific Conductance umhos/cm	2011	722	661 - 813	1600	n/a	Substances that form ions when in water; seawater influence
Sulfate (SO4) ppm	2011	36	25 - 54	500	n/a	Runoff/leaching from natural deposits; industrial wastes
TDS ppm	2011	424	350 - 470	1000	n/a	Runoff/leaching from natural deposits

TABLE 5 - DETECTION OF UNREGULATED CONTAMINANTS

Chemical or Constituent (and reporting units)	**Sample** Date	**Level Detected**	**Range of Detections**	**Notification Level**	**Health Effects Language**
Boron ppm	2011	1	0.9 - 2 (2011)	1	The babies of some pregnant women who drink water containing boron in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.
Vanadium ppm	2010	0.001	ND - 0.004 (2010)	0.05	The babies of some pregnant women who drink water containing vanadium in excess of the action level may have an increased risk of developmental effects, based on studies in laboratory animals.

TABLE 6 - DETECTION OF FEDERAL DISINFECTANT/DISINFECTANT BYPRODUCT RULE

Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG)**	**Typical Sources of Contaminant**
Total Trihalomethanes (TTHMs) ppb	2011	11.4	ND - 15.4	80	n/a	By-product of drinking water disinfection

TABLE 6 - DETECTION OF FEDERAL DISINFECTANT/DISINFECTANT BYPRODUCT RULE						
Chemical or Constituent (and reporting units)	**Sample Date**	**Level Detected**	**Range of Detections**	**MCL (MRDL)**	**PHG (MCLG)**	**Typical Sources of Contaminant**
Haloacetic Acids (five) ppb	2011	0.5	ND - 2	60	n/a	By-product of drinking water disinfection

Additional General Information on Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA`s Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised 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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care provider. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791)

For Lead (Pb), 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. *City of Rio Vista* is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

Summary Information for Contaminants Exceeding an MCL, MRDL, or AL, or a violation of Any Treatment Technique or Monitoring and Reporting Requirement

For Arsenic (As) results above 5 ppb up to and including 10 ppb: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Drinking Water Source Assessment Information

Assessment Info

A source water assessment was conducted for the WELL 07, WELL 09, WELL 10, and WELL 11 of the CITY OF RIO VISTA water system in December, 2002. According to the Drinking Water Source Assessment and Protection Program`s Source Water Assessments Public Access web page, the Public Water Sources WELL 13, WELL 14, and WELL 15 of the CITY OF RIO VISTA water system number 4810004, do not have a completed Source Water Assessment on file.

Well 07 - The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Historic gas stations
Known Contaminant Plumes

Well 09 - The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Sewer collection systems
Wells - Oil, Gas, Geothermal

Well 10 - The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Septic systems - high density [>1/acre]

Well 11 - The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Golf courses
Housing - high density [>1 house/0.5 acres]
Wells - Water supply

Well 13 - No completed TurboSWAP Assessment on file.

Well 14 - No source code, State ID pending. No completed TurboSWAP Assessment on file.

Well 15 - No source code, State ID pending. No completed TurboSWAP Assessment on file.

Booster Station - No source code. No completed TurboSWAP Assessment on file.

Discussion of Vulnerability

All wells in the City of Rio Vista water system are currently on line. Assessment summaries are not available for some sources. This is because:

- The Assessment has not been completed. Contact the local Department of Health Services (DHS) Drinking Water field office or the water system to find out when the Assessment is scheduled to be done.
- The source is not active. It may be out of service, or new and not yet in service.
- The Assessment was not submitted electronically. The site used to obtain Assessments only provides access to Assessment summaries submitted electronically.

Acquiring Info
A copy of the complete assessment may be viewed at:
City of Rio Vista, Department of Public Works
One Main Street
Rio Vista, Ca 94571

You may request a summary of the assessment be sent to you by contacting:
Dave Melilli
Director of Public Works
(707) 374-6451

For more info you may visit http://swap.ice.ucdavis.edu/TSinfo/TSintro.asp or contact the health department in the county to which the water system belongs.

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Rio Vista, CA
94571

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