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Infrastructure Replacements; What's Really at Issue

The integrity of the nation's water infrastructure is critical to public health, environmental quality, and economic vitality across the country. Water infrastructure refers primarily to transmission and distribution pipelines that bring potable water to consumers. It also includes dams, reservoirs, water intakes, pipelines, pump stations, fire hydrants, water treatment facilities and buildings, and the roads that lead to these facilities.

The water utility industry is one of the most capital-intensive due to the cost of the components that make up the water system. Most people do not realize the magnitude of the capital investment required to develop the vast network of distribution pipes and other facilities that make clean and safe water available at the turn of a tap. Water infrastructure is literally a buried treasure beneath our streets.

According to experts from the United States Environmental Protection Agency (USEPA), the nation's drinking water and wastewater systems face increasing challenges over the next several decades. The growing need for infrastructure replacements, improvement, expansion, and security will place competing demands on public resources. A recent study by the American Water Works Association concluded that the investment needed for drinking water infrastructure modernization is likely to be close to \$250 billion over

20 years. A similar USEPA study estimates that national repair and replacement costs range between \$745 billion and \$1 trillion for water and wastewater combined. Whatever number is correct, the dollars are huge!

However, there is nothing new or particularly complicated about the issue of infrastructure replacement. No matter what we do to extend the useful lives of pumps, pipes, treatment facilities, and hydrants, ultimately they wear out and have to be replaced. This basic, fundamental physical characteristic of any utility system is nothing other than a daily routine—albeit a routine that requires huge investments. At Apple Valley Ranchos Water Company (AVRWC), a major portion of your water bill goes to assuring reliable water delivery by replacing old distribution system components and maintaining the system.

Providing for a sustainable water infrastructure is everybody's business. AVRWC is currently up-to-date in its maintenance schedules and continues to take the steps necessary to secure reliable service for its customers.

AVRWC has a long history of reinvestment in infrastructure. See the chart below for details on our most recent activities.



Capital Improvements from 1992- 2002 Apple Valley Ranchos Water Company			
Length of Water Main Installed (feet)	Number of Fire Hydrants Installed (each)	Amount of Water Main Fire Hydrant and Services Installed (\$)	Amount of Source of Supply Improvements (\$)
353,308	241	\$13,384,380	\$3,005,351

Apple Valley Ranchos Water Company's 2003 Capital Budget totals \$3,115,000.

APPLE VALLEY RANCHOS WATER COMPANY ANNUAL WATER QUALITY REPORT 2002/2003



2002/2003 Annual Water Quality Report

Apple Valley Ranchos Water Company

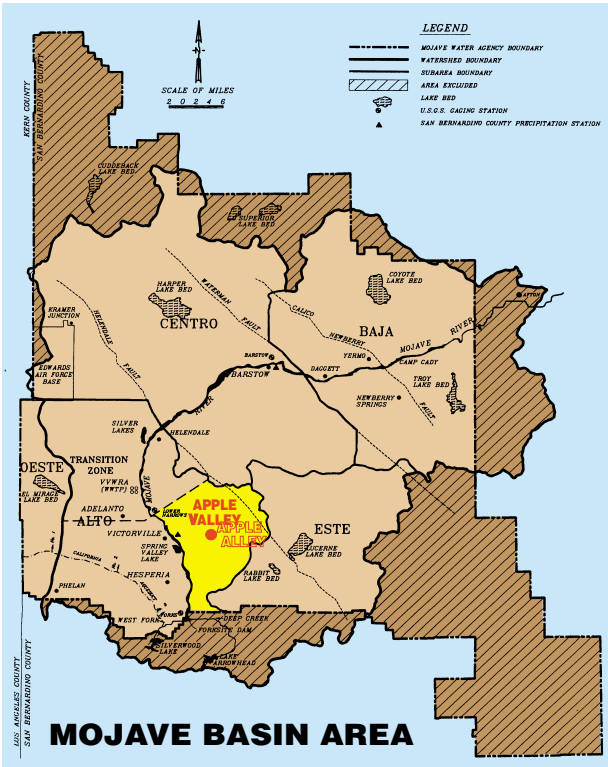
Sources

Apple Valley Ranchos Water Company is pleased to provide you with our annual water quality report for 2002/03. This report is a summary of the quality of water provided in 2002. It reflects the many resources, both human and capital, required to bring you water that satisfies all of the requirements of the state and federal Safe Drinking Water Acts.

APPLE VALLEY RANCHOS WATER COMPANY SOURCES

AVRWC pumps 100% of our source water from 22 deep wells located throughout the community. These wells draw water from the deep Alto subunit of the Mojave ground water basin. This high quality aquifer is recharged from snowmelt from the San Bernardino Mountains to the south and the Mojave River to the west. Also, the Mojave Water Agency imports water from the California State Water Project to spread in the Mojave River to help recharge the ground 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. The tables in this report indicate which minerals and substances have been detected in the water provided by AVRWC. More information about contaminants and potential health effects can be obtained by calling the United States Environmental Protection Agency (EPA) Safe Drinking Water Hotline at 1-800-426-4791.



New MIOX disinfection technology is being installed at AVRWC wells. This advanced, mixed oxidant system makes low, non-hazardous concentrations of chlorine disinfectant from salt on-site. Superior disinfection is achieved with lower doses and with less taste and odor to the customer. This process also improves worker safety by eliminating the need to handle large quantities of liquid chlorine.



The job above involved replacing 480 feet of six-inch diameter water main, replaced on Haida Rd. While this job was an emergency replacement, AVRWC has a master plan to prioritize and schedule infrastructure replacement.

Source Water Assessment Completed and Available

Some of the water we pump has been age-dated close to 10,000 years old by the United States Geologic Survey. This means it has been protected and naturally filtered for a long time.

The 1996 Safe Drinking Water Act amendments required states to perform an assessment of potentially contaminating activities near drinking water sources of all water utilities. In California, the Department of Health Services (DHS) required the utilities to perform the assessments themselves. AVRWC completed the Source Water Assessment in December of 2002. AVRWC's wells (sources) are considered most vulnerable to the following activities associated with contaminants detected in the water supply: high density housing, high and low density septic systems, parks, irrigated crops, golf courses, and sewer collection systems. Additionally, AVRWC wells are considered potentially vulnerable to the following activities: gas stations, transportation corridors (roads, streets, and railroads), storm water injection wells, storm drain discharge points, storm water detention facilities, agricultural/irrigation and water supply wells, historic grazing, historic waste dumps or landfills, machine shops, high density septic systems, and leaking underground storage tanks.

A copy of the complete assessment is available at Apple Valley Ranchos Water Company and at the DHS San Bernardino office. You may request a summary of the assessment be sent to you by contacting Scott Weldy of Apple Valley Ranchos Water Company at 760-247-6484 or by calling the DHS office at 909-383-4328.

DID YOU KNOW . . .

- AVRWC attempts to inform its customers at least 24 hours prior to a **planned** interruption of water service to explain the reason, and how long they can expect the water to be off.
- AVRWC continually meets all state and federal water quality standards. Its Consumer Confidence Report, mailed annually, gives detailed test results.
- AVRWC has trained staff in Water Conservation and Residential Water Auditing, and provides information on ways to conserve both inside and outside your home.
- AVRWC follows state prescribed methods for water safety and water testing procedures.
- AVRWC has piloted new technologies for continuous water quality measurements.
- Additional lighting and motion detectors have been installed at well sites and reservoirs for increased security.
- AVRWC rate fillings provide a detailed explanation for an increase in water rates.
- Residential service bills are generated every other month. An explanation of all taxes and charges on your water bill can be easily obtained from one of our friendly Customer Service representatives.

For more information contact our
Customer Service Department at
(760) 247-6484

Have You Ever Wondered What Comprises Your Water Rates?

Water rates are made up of a service charge and a commodity charge. The service charge, also known as the "readiness to serve" charge, is based on your meter size and appears on your bill whether you use any water or not. It is to insure that water is readily and conveniently available for your personal use. Fixed cost are those costs to the utility to provide service that do not change with the amount of water used. Maintenance expenses, insurance and property taxes are some examples of fixed costs. The California Public Utilities Commission requires that the service charge be set to recover only up to 50% of a utility's fixed costs.

The commodity charge is based on the amount of water you use. It is set to make up the remainder of a utility's fixed cost plus all variable costs. Variable costs are those costs to the utility to provide service that vary with the amount of water used. The energy cost to pump well water and the cost of chemicals used for disinfecting the water are examples of variable costs.

For more information, contact our customer service department at 760-247-6484.

EMERGING CONTAMINANTS & ISSUES

PERCHLORATE

In 2002, we saw water utilities all over the country finding high levels of the solid rocket fuel component perchlorate in their groundwater. Communities as close as the San Gabriel Valley, Riverside and San Bernardino found themselves facing steep rate increases to pay for the removal of this contaminant.

Perchlorate interferes with the ability of the thyroid gland to utilize iodine and produce hormones. Thyroid hormones are needed for normal prenatal and postnatal growth and development, and for normal metabolic function in adults.

While perchlorate is not yet regulated, both USEPA and the state of California are evaluating perchlorate for possible regulatory action. California has set an Action Level at 4 parts per billion (ppb) and a Public Health Goal at 4 ppb. All AVRWC wells were monitored for perchlorate in 2002. **Perchlorate has not been detected in water delivered to AVRWC customers.**

To learn more about perchlorate, you can visit the DHS website at www.dhs.ca.gov/ps/ddwem/chemicals/perch/perchlindex.htm.

ARSENIC

The new USEPA drinking water standard for arsenic lowers the maximum contaminant level (MCL) from 50 ppb to 10 ppb and will take effect in January of 2006. **There are no AVRWC wells that exceed the new MCL of 10 ppb.** AVRWC wells ranges from "not detected" to 7 ppb in arsenic, with an average of 2 ppb.

California is in the process of adopting this regulation and must either accept the federal standard or adopt a lower value. State law requires this to be done by June 30, 2004. The first step in this process is the setting of a Public Health Goal (PHG) by California's Office of Health Hazard Assessment. A PHG is a risk assessment that does not take into consideration analytical or treatment technology. The arsenic PHG was proposed in March of 2003 at 4 parts per trillion (ppt). This level is 1,000 times below current laboratory analytical capabilities. Current treatment technologies are also not capable of assuring removal of arsenic to these levels. The DHS is required to set the arsenic standard as close to the PHG as is technologically and economically feasible.

While no AVRWC wells exceed the new arsenic MCL, we want to assure our customers that we are considering all the possibilities to reduce arsenic in our drinking water. This includes reducing pumping of wells with detectable levels of arsenic and drilling a new well with very low arsenic. Because we have detected arsenic at or above one-half of the new drinking water standard in two of our twenty-two wells, both USEPA and the DHS require that we publish the health effects information below:

While your drinking water meets the current standard for arsenic, it does contain low levels of arsenic. The standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The California Department of Health Services continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.



The AVRWC pilot arsenic removal plant is being used to demonstrate the capability of new technologies to effectively and economically remove arsenic from well water.

WHAT KINDS OF CONTAMINANTS MIGHT BE FOUND IN DRINKING WATER?

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. In order to ensure that tap water is safe to drink, USEPA and the California Department of Health Services (DHS) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The federal Food and Drug Administration (FDA) and DHS regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health.

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

This report describes those contaminants that have been detected in the analysis of almost 200 different potential contaminants, nearly 100 of

which are regulated by USEPA and DHS. AVRWC is proud to tell you that there have been no contaminants detected that exceed any federal or state drinking water standards. Hundreds of samples every month and thousands every year by AVRWC and are analyzed by state certified laboratories assure that all primary (health related) and secondary (aesthetic) drinking water standards are being met. See the tables on the following page to see how your water quality rates.

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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/ Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection of *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

This report is intended to provide information for all water users. If received by an absentee landlord, a business, or a school, please share the information with tenants, employees or students. We will be happy to make additional copies of this report available. Complete records of water quality analyses are open for inspection by the public upon request. You may also access this report on the AVRWC web page at www.avrwater.com.

**If you would like more information about water quality, please call:
Marc Mullen at (760) 247-6484.**

AVRWC on The World Wide Web
This report along with other useful consumer and resource information can be obtained from the Internet.
Find us at www.avrwater.com.
And as usual, your comments are welcomed.

Water Results

Apple Valley Ranchos Water Co. -- 2002 / 2003 Annual Water Quality Report

Water Quality Parameters Detected in Apple Valley Ranchos Sources (Wells)

PRIMARY STANDARDS --Mandatory (health-related)	State MCL	PHG or (MCLG)	Units of Measurement	AVR Range (including highest value)	Average for AVR Wells (a)	(b) AVR Date of Last Measurement	Potential Sources of Contamination
INORGANIC CHEMICALS							
Arsenic	50 (10*)	none	ppb	< 2 - 7	2	2000/01/02	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes
Chromium (total)	50	none	ppb	< 1 - 5	ND	2002	Erosion of natural deposits; discharge from steel and pulp mills and chrome plating operations
Copper	AL = 1.3#	0.17	ppm	< 0.05 - 0.159	0.051	2001	Internal corrosion of household plumbing; erosion of natural deposits; leaching from wood preservatives
Fluoride	2.0	1.0	ppm	0.26 - 1.2	0.7	2000/01/02	Erosion of natural deposits; discharge from fertilizer and aluminum factories; water additive that promotes strong teeth (not added by AVR)
Nitrate (as NO3)	45	45	ppm	< 2.0 - 14.5	5.55	2002	Erosion of natural deposits; runoff and leaching from fertilizer use; leaching from septic tanks and sewers
Nitrite/Nitrate (as N)	10.0	10.0	ppm	< 0.4 - 3.2	1.19	2002	Erosion of natural deposits; runoff and leaching from fertilizer use; leaching from septic tanks and sewers

RADIONUCLIDES							
Gross Alpha	15	(0)	pCi/L	< 1 - 11	3.13	99/2000/01/02	Erosion of natural deposits
Radium 226/Radium 228	5	(0)	pCi/L	NA*** or 0 - 1.8	NA***	99/2000/01/02	Erosion of natural deposits
Uranium	20	0.5	pCi/L	NA**** or <2- 7.4	NA****	99/2000/01/02	Erosion of natural deposits

Water Quality Parameters Measured in the Distribution System

DISTRIBUTION SYSTEM	State MCL	PHG or (MCLG)	Units of Measurement	AVR Range (including highest value)	Average for AVR Wells (a)	(b) AVR Date of Last Measurement	Potential Sources of Contamination
Chlorine residual	MRDL = 4	MRDLG = 4	ppm	0.01 - 1.05	0.42	weekly	Added for disinfection purposes
Microbiological (c)	5% positive	(0)	% positive	0.00%	0.00%	weekly	Naturally present in the environment
E. coli / Fecal coliform (c)	0	(0)	positive/negative	0	0	weekly	Human and animal fecal waste
Heterotrophic Plate Count Bacteria	NS	none	colony forming units	< 1 - 320	13	weekly	Naturally present in the environment
Color	15##	none	units	< 1 - 19	0.32	monthly	Naturally occurring organic materials
Odor-Threshold	3##	none	units	< 1	< 1	monthly	Naturally occurring organic materials
Turbidity	5##	none	NTU	0.06 - 1.65	0.097	monthly	Soil run-off
Total Trihalomethanes (TTHMs)	80	none	ppb	< 0.5 - 6	2.2	quarterly	By-product of drinking water disinfection
Haloacetic Acid (HAA-5)	60	none	ppb	< 0.5	ND	quarterly	By-product of drinking water disinfection

Definitions

Public Health Goal (PHG):

The level of a contaminant in drinking water below which there is no known or expected risk to health. PHG's are set by the California Environmental Protection Agency.

Maximum Contaminant Level (MCL):

The highest level of a contaminant that is allowed in drinking water. Primary MCL's are set as close to the PHG's (or MCLG's) as is economically and technologically feasible. Secondary MCL's 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. MCLG's are set by the U.S. Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL):

The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

Maximum Residual Disinfectant Level Goal (MRDLG):

The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDL's are set by the U.S. Environmental Protection Agency.

Regulatory Action Level (AL):

The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

Primary Drinking Water Standard:

MCL's and MDRL's for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

SECONDARY STANDARDS --Aesthetic standards (non health-related) CHEMICAL PARAMETERS	State MCL	PHG or (MCLG)	Units of Measurement	AVR Range (including highest value)	Average for AVR Wells (a)	(b) AVR Date of Last Measurement	Potential Sources of Contamination
Chloride	500	none	ppm	3 - 310	56	2000/01/02	Runoff/leaching from natural deposits; seawater influence
Corrosivity (Langlier Index) (d)	non-corrosive	none	pos/neg	(-0.5) - (+0.5)	0.08	2000/01/02	Natural or industrially-influenced balance of hydrogen, carbon & oxygen in the water; affected by temperature and other factors
Foaming Agents (MBAS)	0.5	none	ppm	< 0.1 - 0.16	ND	2000/01/02	Municipal and industrial discharges
Specific Conductance	1,600	none	micromho/cm	148 - 1490	522	2000/01/02	Substances that form ions when in water; seawater influence
Sulfate	500	none	ppm	6 - 240	99	2000/01/02	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (TDS)	1,000	none	ppm	110 - 940	343	2000/01/02	Runoff/leaching from natural deposits

PHYSICAL PARAMETERS							
Color	15	none	units	< 1 - 3	ND	2000/01/02	Naturally occurring organic materials
Odor Threshold	3	none	units	< 1 - 1.0	0.8	2000/01/02	Naturally occurring organic materials
Turbidity/clarity	5.0	none	NTU	< 0.1 - 0.4	0.1	2000/01/02	Soil runoff

Detected Unregulated Chemicals That May be of Interest to Consumers^{##}

ADDITIONAL PARAMETERS --unregulated	State MCL	PHG or (MCLG)	Units of Measurement	AVR Range (including highest value)	Average for AVR Wells (a)	(b) AVR Date of Last Measurement
Aggressiveness Index (e)	NS	none	units	10.8 - 12.4	11.8	2000/01/02
Alkalinity (as Ca CO3)	NS	none	ppm	47 - 97	77	2000/01/02
Boron	NS	AL = 1,000	ppb	< 100 - 850	352	2002
Calcium	NS	none	ppm	11 - 120	38	2000/01/02
Hardness (Ca CO3)	NS	none	ppm	31 - 415	131	2000/01/02
Hardness (grains)	NS	none	grains	1.8 - 24.3	8	2000/01/02
Hexavalent Chromium	NS	none	ppb	< 1 - 7	4	2002
Magnesium	NS	none	ppm	1 - 28	8	2000/01/02
pH	6.5 - 8.5	none	units	7.3 - 8.7	8.0	2000/01/02
Potassium	NS	none	ppm	< 1 - 4.5	2.01	2000/01/02
Radon	NS	none	pCi/L	220 - 1920	447	1997/98
Sodium	NS	none	ppm	12 - 150	59	2000/01/02
Vanadium	NS	AL = 50	ppb	3 - 43	20	2002

KEY TO ABBREVIATIONS AND FOOTNOTES

MCL = Maximum Contaminant Level, a drinking water standard

AL = Action Level

ND = Not Detected

NS = No Standard

NA = Not Applicable at this time or not required to analyze for

NTU = Nephelometric Turbidity Units. This is a measure of the suspended material in water.

ppm = parts per million or milligrams per liter

ppb = parts per billion or micrograms per liter

pCi/L = picoCuries per liter

MPN = Most probable number

MRDL = Maximum Residual Disinfectant Level

MRDLG = Maximum Residual Disinfectant Level Goal

= Action Level measured at the consumer's tap, a primary standard. Compliance determined at the 90th percentile value. The value shown as the "average" for copper is the 90th percentile value for 30 samples. No samples exceeded the AL.

= a secondary (aesthetic) drinking water standard.

< = less than (essentially equivalent to ND)

* = revised federal primary drinking water standard effective January 2006

** = Unregulated contaminant monitoring helps EPA and the DHS to determine where certain contaminants occur and whether the contaminants need to be regulated.

(a) = The average is weighted according to the individual contribution in pumping by each well to the total (active wells only).

(b) = The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants in groundwater sources do not change frequently. Some of our data, though representative, are more than one year old.

(c) = Total Coliform MCL's: No more than 5.0% of monthly samples may be total coliform-positive. Fecal Coliform/E. coli MCL's: The occurrence of 2 consecutive total coliform- positive samples, one of which contains fecal coliform/E. coli, constitutes an acute MCL violation (none occurred in 2002).

(d) = A positive number Langlier Index indicates that the water is noncorrosive.

(e) = An aggressiveness index of 11 or greater indicates that the water is not aggressive (noncorrosive).