

Annual Water Quality Report 2017

Published: June 2018

Green Valley Water District, (520) 625-9112

Green Valley Water District strives to conserve and protect your water. If you need to contact us call (520) 625-9112.

Introduction

The U.S. Environmental Protection Agency established the Consumer Confidence Report (CCR) Rule, published in the FEDERAL REGISTER on August 19, 1998.

The rationale for CCRs is that consumers should know the sources of their water and that all groundwater is expected to contain substances. Some of these substances are

beneficial to humans, and some are not. This Quality Report will help consumers to understand the quality of their water as well as the challenge of delivering quality drinking water.

Green Valley Water District is pleased to present to you this year's Annual Quality Report. This Report details where your water comes from, what it contains and

how it compares to standards set by regulatory agencies. It includes information we have collected from January 2017 through December 2017.

We believe educated consumers are more likely to help protect drinking water resources and to understand the true costs of providing quality drinking water.

Your Water and Its Source

The three elements of the water flow system in the Green Valley Water District Service Area and vicinity are riverbed recharge, underflow and mountain front recharge. In the Green Valley Area, the groundwater flow system coincides with the general northerly direction and path of the Santa Cruz River. Numerous investigators including Anderson (1972) and Davidson (1973) from the U.S. Geological Survey have discussed the flow system. OsterKamp (1973) provided a map of the Upper Santa Cruz Basin, including Green Valley, which estimates volumetric inputs to the flow system. Travers and Mock (1984) used most of these estimates for a groundwater model of

the Upper Santa Cruz and Avra Valleys.

Although the Santa Cruz and its tributaries are dry for long periods each year, during the monsoon summer season and the winter rains, significant amounts of river and stream runoff infiltrate the stream beds and recharge our aquifer. Hydrologists have reported this phenomenon as substantial and unique. Estimates of river recharge along the Santa Cruz River in the Green Valley vicinity are as much as 300-400 Acre-feet per mile per year (AF/yr) of river.

The amount of water entering our basin from aquifer flow from the south near the Santa Cruz County line is significant.

Some estimates are as high as 10,000 AF/yr over all.

Our aquifer is also recharged along the perimeter of the Santa Rita and Sierrita Mountains from cracks, joints and the many small stream channels that empty the mountains during storms. This mountain front recharge has been estimated to be as high as 6,000 AF/yr in the area supplying the Green Valley Water District's four active wells. Two of the District's wells provide safe drinking water to our customers. The third and fourth wells are irrigation wells which do not require testing to meet safe drinking water standards. The District currently used **2133** AF/yr this last year.

Individual Highlights

Source Water Assessment	2
What's in My Water	3
Test Results	4-6

A message to our “part-time” residents:

If you are one of our part time residents, we urge you to update your phone number with us in the event we need to contact you while you are out of town. During the year if our staff finds your water consumption has gone up dramatically or we find a leak we always try to contact our homeowners in a timely manner. Having good contact phone numbers assist us in getting the job done more efficiently

Thank You



*Pay attention to your water bill & become familiar with your water meter. Use them to track your water usage & detect leaks.

*Our meters record in gallons and we round the usage off to the nearest 100 gallons.

*Know where your master shut-off valve is located. This could save water & damage to your home.

Did you know?

At many households the single-biggest water user is the automated irrigation system. These drip systems can account for 60 percent or more of the water used in a household.
Source: Handbook of Water Use and Conservation, Amy Vickers

The depth of water to the Green Valley Water District's wells varies from 248-267 feet below land surface (bls), depending upon their proximity to

the Santa Cruz River. All of our wells are drilled to depth of 600 ft. or greater. The Green Valley Water District well water levels are

monitored periodically throughout the year so we can monitor the water balances in our area and assess long term trends.

Source Water Assessment Summary

In 2004, the Arizona Department of Environmental Quality completed a source water assessment for the two wells used by Green Valley Water District. The Assessment reviewed the adjacent land uses that may pose a potential risk to the sources. These risks include, but are not limited to, gas stations,

landfills, dry cleaners, agriculture fields, waste water treatment plants, and mining activities.

Once ADEQ identified the adjacent land uses, they were ranked as to their potential to affect the water source. The result of the assessment was there was a **low risk** to source water of our District.

The complete Assessment is available for inspection at the Arizona Department of Environmental Quality, 1110 W. Washington, Phoenix, Arizona 85007, between the hours of 8:00 a.m. and 5:00 p.m. Electronic copies are available from ADEQ at www.azdeq.gov/enviroment/water/dw/swap.html

Do I Need to Take Special Precautions?

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. 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 providers. For more information

about contaminants and potential health effects, or to receive a copy of the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and microbiological contaminants call the EPA *Safe Drinking Water Hotline* at 1-800-426-4791.

Why Are There Contaminants In My Water?

Drinking water, including bottled water, may reasonably be expected to contain at least some 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 EPA's Safe Drinking Water

Hotline at (800) 426-4791 or visit their website at www.epa.gov/safewater 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 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, EPA prescribes regulations, which limit the amount of certain contaminants in potable water provided by public water systems. Food and Drug Administration (FDA) Regulation established limits for contaminants in bottled water, which must provide the same protection for public health.

Detailed Information on Substances Detected

Nitrate and Nitrite – These are normally introduced to water from one or more of the following sources:

- Runoff from fertilizers used
- Leaching from septic tanks or sewer systems
- Erosion of natural deposits

Health effects of Nitrate or Nitrite – Nitrate or Nitrite in drinking water at levels above 10 mg/L can pose a health risk for infants of less than six months of age.

The possibility of “Blue Baby Syndrome” exists if the level exceeds the MCL.

Sulfate – Is a substance that occurs naturally mostly causing an aesthetic effect in drinking water. Some people who drink water with

high concentrations of sulfate over many years could experience discoloration of skin and teeth.

Total Dissolved Solids – Occurs naturally through erosion mostly causing an aesthetic effect in drinking water.

Disinfectant Byproducts – Occurs through the breakdown of the disinfectant that is used to eliminate microorganisms from the drinking water. In high concentrations over a prolonged period these byproducts could cause problems with the liver, kidney or central nervous system; also an increased risk of cancer.

Arsenic – EPA 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. Major sources of arsenic in drinking water are erosion of natural deposits, run-off from orchards, and run-off from glass and electronics production wastes. The EPA recently revised its arsenic Maximum Contaminant Level from 50 ppb to 10 ppb with full compliance required by January 23, 2006. What this means to the District's consumers is that our water, which contains arsenic in the range of 13-15 ppb, needs to be treated before delivery to them. The District maintains our arsenic treatment facility at our primary well site.

Contaminants That May Be Present In Water May Include

Microbial Contaminants: Such as viruses and bacteria that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife

Inorganic Contaminants: Such as salts and metals that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming

Pesticides and Herbicides: Such as agriculture, urban storm water runoff, and residential uses that may come from a variety of sources

Organic Chemical Contaminants: Such as synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and also may come from gas stations, urban storm water runoff, and septic systems.

Radioactive Contaminants: That can be naturally occurring or be the result of oil and gas production and mining activities.

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

Level 1 Assessment: A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria was present

Level 2 Assessment: A very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria was present

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment, or other requirements

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in 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

Maximum Residual Disinfectant Level (MRDL): The level of disinfectant added for water treatment that may not be exceeded at the consumer's tap

Maximum Residual Disinfectant Level Goal (MRDLG): The level of disinfectant added for treatment at which no known or anticipated adverse effect on health of persons would occur

Minimum Reporting Limit (MRL): The smallest measured concentration of a substance that can be reliably measured by a given analytical method

Millirems per year (MREM): A measure of radiation absorbed by the body

Not Applicable (NA): Sampling was not completed by regulation or was not required

Not Detected (ND or <): Not detectable at reporting limit

Nephelometric Turbidity Units (NTU): A measure of water clarity

Million fibers per liter (MFL)

Picocuries per liter (pCi/L): Measure of the radioactivity in water

ppm: Parts per million or Milligrams per liter (mg/L)

ppb: Parts per billion or Micrograms per liter (µg/L)

ppt: Parts per trillion or Nanograms per liter (ng/L)

ppq: Parts per quadrillion or Picograms per liter (pg/L)

ppm x 1000 = ppb

ppb x 1000 = ppt

ppt x 1000 = ppq

Substances Detected in the Water

<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>Location</u>	<u>Test Results</u>	<u>MCL</u>	<u>MCGL</u>	<u>Trigger Value</u>
03/02/17	Nitrate	Well #1	1.20 mg/L	10 mg/L	10 mg/L	5 mg/L
03/10/16	Nitrate	Well #2	1.97 mg/L	10 mg/L	10 mg/L	5 mg/L
01/12/17	Arsenic	Well #1	5.8 ppb	10 ppb	10 ppb	2 ppb
04/14/17	Arsenic	Well #1	4.3 ppb	10 ppb	10 ppb	2 ppb
07/18/17	Arsenic	Well #1	5.0 ppb	10 ppb	10 ppb	2 ppb
10/16/17	Arsenic	Well #1	7.2 ppb	10 ppb	10 ppb	2 ppb

<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>Location</u>	<u>Test Results</u>	<u>MCL</u>
01/24/17	Sulfate	Well #1	30.1 mg/L	NO MCL
01/24/17	Sulfate	Well #2	39.2 mg/L	NO MCL
01/24/17	Total Dissolved Solids	Well #1	243 mg/L	NO MCL
01/24/17	Total Dissolved Solids	Well #2	293 mg/L	NO MCL
04/27/17	Sulfate	Well #1	31.6 mg/L	NO MCL
04/27/17	Sulfate	Well #2	37.4 mg/L	NO MCL
04/27/17	Total Dissolved Solids	Well #1	266 mg/L	NO MCL
04/27/17	Total Dissolved Solids	Well #2	288 mg/L	NO MCL
07/27/17	Sulfate	Well #1	26.3 mg/L	NO MCL
07/27/17	Sulfate	Well #2	38.6 mg/L	NO MCL
07/27/17	Total Dissolved Solids	Well #1	249 mg/L	NO MCL
07/27/17	Total Dissolved Solids	Well #2	290 mg/L	NO MCL
11/27/17	Sulfate	Well #1	27.2 mg/L	NO MCL
11/27/17	Sulfate	Well #2	37.5 mg/L	NO MCL
11/27/17	Total Dissolved Solids	Well #1	229 mg/L	NO MCL
11/27/17	Total Dissolved Solids	Well #2	269 mg/L	NO MCL

Note: These were not "Compliance" samples. Green Valley Water District took these samples to create a baseline for monitoring the effects of the Sulfate plume present in the Green Valley Area.

**Our water is tested by Legend Technical Service of Arizona,
an independent laboratory with offices in Tucson and Phoenix**

Disinfectant Byproducts

<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>Location</u>	<u>Test Results</u>	<u>MCL</u>
07/18/17	Chloroform	Various	<0.0005 mg/L to 0.0016 mg/L	NO MCL
	Bromodichloromethane	Various	0.0008 mg/L to 0.0037 mg/L	NO MCL
	Dibromochloromethane	Various	0.0016 mg/L to 0.0081 mg/L	NO MCL
	Bromoform	Various	0.0013 mg/L to 0.0112 mg/L	NO MCL
	Total Trihalomethanes (TTHM)	Various	0.0064 mg/L to 0.0246 mg/L	0.080 mg/L
07/18/17	Monochloroacetic Acid	Various	<0.0020 mg/L	NO MCL
	Dichloroacetic Acid	Various	<0.0010 mg/L	NO MCL
	Trichloroacetic Acid	Various	<0.0010 mg/L	NO MCL
	Monobromoacetic Acid	Various	<0.0010 mg/L	NO MCL
	Dibromoacetic Acid	Various	<0.0010 mg/L to 0.0022 mg/L	NO MCL
	Total Haloacetic Acid (HAA5)	Various	<0.0020 mg/L to 0.0022 mg/L	0.060 mg/L

5 Annual Water Quality Report 2017

<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>90th Percentile AND Number</u>	<u>Range of All Samples (L-H)</u>	<u>AL</u>	<u>ALG</u>
8/17/16	Copper	0.117 mg/L	0.026 mg/L - 0.227 mg/L	1.3 mg/L	1.3 mg/L
8/17/16	Lead	0.0017 mg/L	<0.001 mg/L - 0.0024 mg/L	15 mg/L	0

Lead Informational Statement: Lead, in drinking water, is primarily from materials and components associated with service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Green Valley Water District 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. 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.

Volatile Organic Compounds (VOC) Monitoring

<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>Location</u>	<u>MCL</u>	<u>Trigger Value</u>	<u>Test Results</u>
03/02/16	Benzene	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/02/16	Carbon Tetrachloride	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Chlorobenzene	Well #1	0.1 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	o-Dichlorobenzene	Well #1	0.6 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Styrene	Well #1	0.1 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	1,1-Dichloroethylene	Well #1	0.007 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	1,1,1-Trichloroethane	Well #1	0.2 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	1,1,2-Trichloroethane	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	1,2-Dichloroethane	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	1,2-Dichloropropane	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	cis-1,2-Dichloroethylene	Well #1	0.07 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Ethylbenzene	Well #1	0.7 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	p-Dichlorobenzene	Well #1	0.075 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Tetrachloroethylene	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Toluene	Well #1	1.0 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Trans-1,2-Dichloroethylene	Well #1	0.1 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Trichloroethylene	Well #1	0.005 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Vinyl Chloride	Well #1	0.002 mg/L	0.0005 mg/L	<0.0003 mg/L
03/12/16	Xylenes, total	Well #1	10.0 mg/L	0.0015 mg/L	<0.0005 mg/L
03/12/16	1,2,4-Trichlorobenzene	Well #1	0.07 mg/L	0.0005 mg/L	<0.0005 mg/L
03/12/16	Dichloromethane	Well #1	0.005 ma/L	0.0005 ma/L	<0.0005 ma/L

Microbiological (RTCR)	TT Violation Y or N	Number of Positive Samples	Positive Sample(s) Month & Year	MCL	MCLG
E. Coli	N	0	N/A	0	0
Fecal Indicator (coliphage, enterococci and/or E. coli)	N	0	N/A	0	0
Likely Source of Contamination	Human and animal fecal waste				

Disinfectants	MCL Violation Y or N	Running Annual Average (RAA)	Range of All Samples (Low-High)	MRDL	MRDLG
Chlorine/Chloramine (ppm)	N	0.71	0.53 – 0.88	4	0
Likely Source of Contamination	Water additive used to control microbes				

Date Analyzed	Contaminant Tested For	Location	Test Results	PQL	Units
04/20/17	Calcium	S-6	51	1.0	mg/L
04/20/17	Magnesium	S-6	7.4	1.0	mg/L
04/20/17	Potassium	S-6	2.9	1.0	mg/L
04/20/17	Sodium	S-6	31	1.0	mg/L
04/20/17	Calcium Hardness as CaCO ₃	S-6	130	2.5	mg/L
04/20/17	Magnesium Hardness as CaCO	S-6	31	4.1	mg/L
04/20/17	Total Hardness as CaCO ₃	S-6	160	4.1	mg/L
04/20/17	Total Alkalinity as CaCO ₃	S-6	169	10	mg/L
04/20/17	Bicarbonate Alkalinity	S-6	169	10.0	mg/L
04/20/17	Chloride	S-6	13.1	5.0	mg/L
04/20/17	Sulfate	S-6	36.2	5.0	mg/L

This is considered a Secondary Contaminant.

Health/Sanitary Significance: Hardness is a natural characteristic of water which can enhance its palatability and consumer acceptability for drinking purposes. Health studies in several countries in recent years indicate that mortality rates from heart diseases are lower in areas with hard water. Background Information: Originally taken to be the capacity of a water to destroy the lather of soap, hardness was determined formerly by titration with soap solution. Nowadays, the analysis comprises the determination of calcium and magnesium which are the main constituents of hardness. Although barium, strontium and iron can also contribute to hardness, their concentrations are normally so low in this context that they can be ignored. Thus, total hardness is taken to comprise the calcium and magnesium concentrations expressed as mg/l CaCO₃. The widespread abundance of these metals in rock formations leads often to very considerable hardness levels in surface and ground waters.

The following is one of several such arbitrary classifications of waters by hardness:

Soft up to 50 mg/l CaCO₃

Moderately Soft 51-100 mg/l CaCO₃

Slightly Hard 101 - 150 mg/l CaCO₃

Moderately Hard 151-250 mg/l CaCO₃

Hard 251-350 mg/l CaCO₃

Excessively Hard over 350 mg/l CaCO₃

District Business

This year the District will have openings on our Board of Directors.

Election Notice

The District notifies the registered voters of all precincts within their District (074,139,205,206) that three (3) vacancies will occur on the Green Valley Domestic Water Improvement District Board of Directors and will be on the ballot at the General Election on November 6, 2018.

Volunteers Needed

We need volunteers (who are customers of the District) to participate on two (2) of the most important committees of the Board, Finance and Technical.

Our committees meet once a month and review plans and make recommendations to the Board. For more information contact the District office.

The District office is located at 3290 S. Camino Del Sol. Our office hours are 7:00 am to 4:00 pm, Monday through Friday.

If you are interested in attending one of the Board of Directors meetings, they meet on the second Thursday of each month.

Board meeting and public notices pertaining to the operations of the District are posted outside the door of our office.

Please visit our website at www.gvwaterdistrict.com

Our customers will be able to find information on the District and conservation tips. There is a link provided to contact us through the website. Our customers also have the availability to sign up for alerts by email, cell phones or both.



Green Valley Water District

3290 S. Camino Del Sol
P.O. Box 623
Green Valley, AZ 85622

Phone

(520) 625-9112

Emergency Phone

After Hours

(520) 625-9281

Fax

(520) 648-5146

E-mail

GVWD521@AOL.COM

Website

gwaterdistrict.com

GREEN VALLEY WATER DISTRICT

P.O. BOX 623
GREEN VALLEY, AZ 85622

Presorted
First Class
Mail
U.S. Postage Paid
Green Valley, AZ
Permit No. 30

