

# Annual Water Quality Report 2015

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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 2015 through December 2015.

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 **2114** AF/yr this last year.

### Individual Highlights

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**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 165-261 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/environ/water/dw/swap.html](http://www.azdeq.gov/environ/water/dw/swap.html)

**Do I Need to Take Special Precautions?**

Some people may be more vulnerable to contaminants in drinking water than the general population. An immuno-compromised person, such as persons with cancer undergoing chemotherapy, persons

who have undergone organ transplants, persons 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. EPA and 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.

**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](http://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. The water is filtered through a series of vessels that contain a media to which the arsenic adheres.

## Contaminants That May Be Present In Water May 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 storm water 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, storm water runoff, golf course and residential uses.
  - ❖ **Organic Chemical Contaminants** – Including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production that generate synthetic & volatile organic chemicals. These contaminants can also originate in gas stations, urban storm water runoff and septic systems.
  - ❖ **Radioactive Contaminants** – Which can occur naturally in the soil or be the result of oil and gas production and mining activities.
- **Maximum Contaminant Level (MCL)** – The highest level of contamination that is allowed in drinking water. MCL’s are set as low as feasible using the best available treatment technology.
  - **Maximum Contaminant Level Goal (MCLG)** – The level of a contaminant in drinking water below which there is no known or expected health risk. MCLG’s allow for a margin of safety.
  - **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.
  - **Parts per Billion (ppb)** – Some constituents in water are measured in very small units. For example, one part per billion equates one second in time in 31.7 years.
  - **Milligrams per Liter (mg/L)** – Again using time to help us visualize this, one milligram per Liter equates to one second in time in 11.6 days.
  - **Trigger Values** – The concentration of a contaminant that, if exceeded, triggers a treatment or other requirement, which a water system must follow.
  - **Picocurie Per Liter (pCi/L)** – The quantity of radioactive material in one liter of water which produces 2.22 nuclear disintegrations per minutes.

## 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>
09/04/14	Nitrate	Well #1	1.20 mg/L	10 mg/L	10 mg/L	5 mg/L
12/18/14	Nitrate	Well #2	2.77 mg/L	10 mg/L	10 mg/L	5 mg/L
01/26/15	Arsenic	Well #1	7.1 ppb	10 ppb	10 ppb	2 ppb
04/20/15	Arsenic	Well #1	4.5 ppb	10 ppb	10 ppb	2 ppb
07/16/15	Arsenic	Well #1	4.4 ppb	10 ppb	10 ppb	2 ppb
10/21/15	Arsenic	Well #1	4.9 ppb	10 ppb	10 ppb	2 ppb

We also had over 150 Microbiological samples analyzed in 2015 for coliform bacteria, and we are pleased to report no coliform bacteria were found. Coliform bacteria is common in the environment and in the digestive tract of animals.

<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>Location</u>	<u>Test Results</u>	<u>MCL</u>
06/25/15	Sulfate	Well #1	31.0 mg/L	NO MCL
06/25/15	Sulfate	Well #2	47.4 mg/L	NO MCL
06/25/15	Total Dissolved Solids	Well #1	261 mg/L	NO MCL
06/25/15	Total Dissolved Solids	Well #2	268 mg/L	NO MCL
07/28/15	Sulfate	Well #1	30.7 mg/L	NO MCL
07/28/15	Sulfate	Well #2	43.6 mg/L	NO MCL
07/28/15	Total Dissolved Solids	Well #1	236 mg/L	NO MCL
07/28/15	Total Dissolved Solids	Well #2	284 mg/L	NO MCL
10/28/15	Sulfate	Well #1	31.6 mg/L	NO MCL
10/28/15	Sulfate	Well #2	47.0 mg/L	NO MCL
10/28/15	Total Dissolved Solids	Well #1	291 mg/L	NO MCL
10/28/15	Total Dissolved Solids	Well #2	350 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>
07/23/15	Chloroform	Various	0.0010 mg/L to 0.0018 mg/L	NO MCL
	Bromodichloromethane	Various	0.0060 mg/L to 0.0072 mg/L	NO MCL
	Dibromochloromethane	Various	0.0114 mg/L to 0.0132 mg/L	NO MCL
	Bromoform	Various	0.0068 mg/L to 0.0101 mg/L	NO MCL
	Total Trihalomethanes (TTHM)	Various	0.0282 mg/L to 0.0294 mg/L	0.080 mg/L
	07/23/15	Monochloroacetic Acid	Various	<0.0020 mg/L
Dichloroacetic Acid		Various	<0.0010 mg/L to	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 0.0014 mg/L	NO MCL
Total Haloacetic Acid (HAA5)		Various	<0.0020 mg/L to	0.060 mg/L

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<u>Date Analyzed</u>	<u>Contaminant Tested For</u>	<u>Location</u>	<u>MCL</u>	<u>Value</u>	<u>Trigger</u>	<u>Test Results</u>
5/11/15	Gross Alpha	Well #1	15 pCi/l	3 pCi/l		1.9 +/- 0.3 pCi/l *

\*Test results triggered a test for Combined Radium (226,228) with results of <0.7 pCi/l , below the MCL of 5 pCi/l.

**Adjusted Gross Alpha** – Is a measure of radioactivity due to naturally occurring minerals in groundwater. The MCL for gross alpha radioactivity is set as 15 picocuries per liter (pCi/l) . The Major source of radioactive minerals in water is from erosion in natural deposits. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

### Contaminants Tested For and Not Found:

Green Valley Water District also sampled for the following contaminants (SOC) in 2015, as required by safe water drinking standards. None of the following contaminants were detected.

#### Synthetic Organic Compounds (SOC) Monitoring

2, 4-D	2,4,5-T (Silvex)	Toxaphene	Alachlor	Atrazine	Carbofuran
Pentachlorophenol		Chlordane	Dibromochloropropane (DBCP)		Ethylene Dibromide (EDB)
Heptachlor	Heptachlor Epoxide	Lindane	Benzo(a)Pyrene	Dalapon	
Di(2-ethylhexyl)phthalate		Di(2-ethylhexyl)adipate	Dinoseb		2,3,7,8-TCDD(Dioxin)
Diquat	Endothall	Endrin	Glyphosate	Hexachlorobenzene	
Hexachlorocyclopentadiene	Oxamyl		Picloram	Simazine	Methoxychlor

#### Aroclor Monitoring

Aroclor 1016	Aroclor 1221
Aroclor 1232	Aroclor 1242
Aroclor 1248	Aroclor 1254
Aroclor 1260	

## District Administration

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.

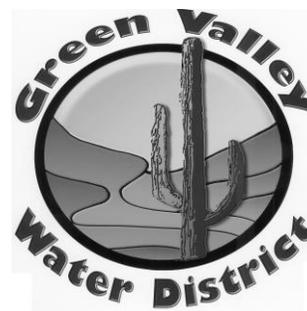
Board meeting and public notices pertaining to the operations of the District are posted outside the door of our office.

The District is pleased to announce we have launched a website. The address is: [www.gvwaterdistrict.com](http://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.

Please visit our website and feel free to send us suggestions on what you would like to see.



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