# 2009 Annual Drinking Water Quality Report For

**Public Water System Name: City of Show Low**
**Public Water System Number: AZ09026**

We are pleased to present to you this year's water quality report. Our constant goal is to provide you with a safe and dependable supply of drinking water.

## General Information About Drinking Water

All 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. 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 of 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.

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 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. 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, which 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*** that 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 byproducts of industrial processes and petroleum production, and also may 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.

In order to ensure that tap water is safe to drink, the Arizona Department of Environmental Quality prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

## Our Water Source(s)

The system's sources of water are listed below.

| | | | | |
|---|---|---|---|---|
| Well 4 55-620772 | Well 5 55-620773 | Well 7 55-620775 | Well 8 55=570999 | Well 9 55-574775 |
| Well 10 55-579465 | Well 11 55-205825 | Well 12 55-512470 | Show Low Bluffs Well 13 | |

Source Water Assessments on file with the Arizona Department of Environmental Quality are available for public review. If a Source Water Assessment is available, you may obtain a copy of it by contacting the Arizona Source Water Coordinator at (602) 771-4641.

Potential sources of contamination in our source water area come from**: The aquifer that supplies Water to the City of Show Low is about 400 feet underground and is geologically protected from sources of contamination.**

The Source Water Assessment Report provides a screening-level evaluation of potential contamination that **could** occur. It does not mean that the contamination **has or will** occur. We can use this information to evaluate the need to improve our current water

treatment capabilities and prepare for future contamination threats. This can help us ensure that quality finished water is delivered to your homes. In addition, the source water assessment results provide a starting point for developing a source water protection plan.

Please contact Ken Wilcock at ( 928) 532-4096 to learn more about what you can do to help protect your drinking water sources, any questions about the annual drinking water quality report, to learn more about our system, or to attend scheduled public meetings. We want you, our valued customers, to be informed about the services we provide and the quality water we deliver to you every day.

## Terms and Abbreviations

To help you understand the terms and abbreviations used in this report, we have provided the following definitions:

- ***Parts per million (ppm) or Milligrams per liter (mg/L)*** - one part per million corresponds to one minute in two years or a single penny in $10,000.
- ***Parts per billion (ppb) or Micrograms per liter (µg/L)***- one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
- ***Parts per trillion (ppt) or Nanograms per liter (nanograms/L)*** - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in $10,000,000,000.
- ***Parts per quadrillion (ppq) or Picograms per liter (picograms/L)*** - one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in $10,000,000,000,000.
- ***Picocuries per liter (pCi/L)*** - picocuries per liter is a measure of the radioactivity in water.
- ***Nephelometric Turbidity Unit (NTU)*** - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
- ***Action Level*** **(AL) -** the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- ***Action Level Goal (ALG*****) -** The "Goal" is the level of a contaminant in drinking water below which there is no known or expected risk to health. The ALG allows for a margin of safety.
- ***Treatment Technique (TT)*** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.
- ***Maximum Contaminant Level Goal*** **(MCLG) -** The "Goal" is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- ***Maximum Contaminant Level*** **(MCL)-** The "Maximum Allowed" is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- ***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.
- ***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.
- ***Running Annual Average (RAA):*** An average of monitoring results for the previous 12 calendar months.

# Water Quality Data

We routinely monitor for contaminants in your drinking water according to Federal and State laws. The State of Arizona requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. Some of our data, though representative, may be more than one year old.

**These tables show the results of our monitoring for the period of January 1 to December 31, 2009 unless otherwise noted.**

## Lead and Copper

| Contaminant | MCL | MCLG | Units | 90th Percentile | Number of Sites over AL | Violation (Yes or No) | Sample Date/Year | Likely Source of Contamination |
|---|---|---|---|---|---|---|---|---|
| Copper | 1.3 | 1.3 | mg/L | 0.43 | 20 | No | 4/3/09 | Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives |
| Lead | 0.015 | 0 | mg/L | .001 | 20 | No | 4/1/09 | Corrosion of household plumbing systems, erosion of natural deposits |

## Inorganic Contaminants

| Contaminant | MCL | MCLG | Units | Level Detected/ Range | Violation (Yes or No) | Sample Date | Likely Source of Contamination |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Arsenic | 0.010 | 0 | mg/L | .0049 | No | 4/3/09 | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes |
| Nickel | | | mg/L | <0.010 | No | 4/7/09 | Natural mineral formations in aquifer |
| Nitrate | 10 | 10 | mg/L | <0.1 | No | 4/3/09 | Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits |
| Selenium | 0.05 | 0.05 | mg/L | 0.011 | No | 4/2/09 | Natural Mineral formations in aquifer |
| Sodium | | | mg/L | 6.1 | No | 4/7/09 | Natural deposit erosion |
| Thallium | 0.002 | 0.0005 | mg/L | <0.0010 | No | 4/6/09 | Leaching from ore-processing sites; discharge from electronics, glass, and drug factories |
| Antimony | 0.006 | 0.006 | mg/L | <0.0030 | No | 4/3/09 | Discharge from petroleum refineries; fire retardants; ceramics; electronics, solder |
| Beryllium | 0.004 | 0.004 | mg/L | <0.0001 | No | 4/6/09 | Metal refinery and coal-burning factory discharge; electrical, aerospace & defense industries discharge |
| Fluoride | 4.0 | 4.0 | mg/L | <0.20 | No | 4/3/09 | Water additive that promotes strong teeth; natural deposit erosion; fertilizer & aluminum factor discharge |
| Barium | 2 | 2 | mg/L | <0.20 | No | 4/3/09 | Drilling waste discharge; metal refinery discharge; natural deposit erosion |
| Cadmium | 0.005 | 0.005 | mg/L | <0.0001 | No | 4/6/09 | Galvanized pipe corrosion; natural deposit erosion; metal refinery discharge; waste batteries & paint runoff |
| Chromium | 0.1 | 0.1 | mg/L | <0.0010 | No | 4/7/09 | Steel & pulp mill discharge; natural deposit erosion |
| Mercury | 0.002 | 0.002 | mg/L | <0.0005 | No | 3/31/09 | Natural deposit erosion; refinery & factory discharge; landfill & cropland runoff |
| Nitrite | 1 | 1 | mg/L | <0.10 | No | 3/25/09 | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| pH | 6.5-8.5 | 6.5-8.5 | pH Units | 7.1 | No | 3/25/09 | |
| Sulfate | 250 | 250 | mg/L | 57 | No | 3/31/9 | |

## Health Effects Information About the Above Tables

**Nitrate** in drinking water at levels above .1 mg/L is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods-of-time because of rainfall or agricultural activity. If you are caring for an infant, and detected nitrate levels are above .5 mg/L, you should ask advice from your health care provider.

If **arsenic** is less than the MCL, your drinking water meets EPA's standards. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. 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.

Infants and young children are typically more vulnerable to **lead** in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the EPA *Safe Drinking Water Hotline* at 1-800-426-4791.

## Monitoring of the City of Show Low's Drinking Water System

| Sampling Parameter | Frequency | Results | EPA Limit |
|---|---|---|---|
| Monthly Bacteriological Samples | More than 10 per month | No Detects | 0 colonies/100ml |
| Annual Nitrite/Nitrate | One sample per site | No Detects/ 0.11 mg/L | 1.0 mg/L  10.0 mg/L |
| Arsenic | Quarterly per site | 9.3 ugl/L – 7.4 ug/L | 10.0 ug/L |
| Selenium | Once every 9 years | 4.4 ug/L – 26.0 ug/L | 50 ug/L |
| Lead | Every three years | 7.7 ug/L | 15 ug/L |
| Copper | Every three years | 0.43 mg/L | 1.3 mg/L |

## Pharmaceuticals

In May of 2009 the City of Show Low completed a pharmaceutical analysis of the water from Well 5 which is fairly typical of all the City's wells pumping water out of the Coconino Aquifer. There were 85 different pharmaceuticals and personal care product derivatives tested for, and nothing was found. A study completed by the University of Arizona in the Fall of 2008 indicates that the water from the Coconino Aquifer has been protected under the surface of the earth for about 4,700 to 6,000 years. As such the water from the Coconino Aquifer has none of the contaminates in it that have been found in drinking waters throughout parts of Arizona and the United States due to new chemicals manufactured for drugs, pharmaceuticals and personal care products that have found their way into the water courses that supply drinking water to much of the United States.

## Arsenic Blending

As one of the City of Show Low's Drinking Water Well's has levels of arsenic that exceed the maximum contaminate level of 10 pars per billion, the City has carried out a water blending program so that no water that enters the distribution system will exceed that limit. This program has been ongoing since before the Arsenic rule took effect in January of 2006. By blending water from the City's other wells and with daily, monthly, and quarterly testing, City personnel insure that the water that reaches the customers taps never exceeds the EPA limits.

## Violations

The following violations were received by our water system or were ongoing in the calendar year 2007

| Type/Description | Compliance Period |
|---|---|
| No Violations | |

An explanation of the violation(s) in the above table, the steps taken to resolve the violation(s) and any required health effects information are required to be included with this report. (attach copy of Public Notice if available)