

# Good example of research paper on water supplies and water quality in sun valley,...

[Science](#), [Biology](#)



\n[[toc title="Table of Contents"](#)]\n

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1. [Water Supplies in Sun Valley, AZ](#) \n \t
2. [Water Quality of Water Sources](#) \n \t
3. [Conclusion](#) \n \t
4. [Works Cited](#) \n

\n[/toc]\n \n

## **Water Supplies in Sun Valley, AZ**

Sun Valley is located in Arizona. It is situated along interstate 40. It is 31. 56 square miles. Sun Valley has different water supply options. Some of these options are groundwater, surface water and reclaimed water. Groundwater is water found beneath the ground. They are usually in rocks and pores of the soil. Sun Valley is supplied by Arizona's water supply. Groundwaters that supply Sun Valley are aquifers and wells. Main aquifers in Arizona are stream alluvial and basins fill. Ground water can also be sourced from sedimentary rock. Basin Fills are of three type's namely carefree formation, those interbedded with basalt and normal basin fill. Sedimentary rocks sourced for underground water are called conglomerate (Arizona Department of Water Resources, paras. 1-3a).

Wells are also sources of groundwater in Sun Valley Arizona. Most of these wells are located in Phoenix. Total amount of water yielded by these wells are 1000gpm. The diameter of one well is 55m. Median range of these wells is 1, 280. According to Arizona department of water resources, there are more than 2, 397 wells in Arizona. These wells are located in storage

facilities in various parts of the State. Sun Valley Arizona is also supplied by Coconino aquifer. From the aquifer, the water is then pumped to several wells located in Mc Laws Road. The water is then pumped to the city tanks (Arizona Department of Water Resources, paras. 1-3b). Other than supplying Phoenix, these wells supply Sun Valley.

Sun Valley is also supplied by surface water sources. Surface water sources supplying Sun Valley are lower Agua Fria River, Lower Gila River sub-basin, Lake Pleasant, lower Hassayampa River, Middle Hassayampa, Tribby Wash and Adobe Dam. In Sun Valley, Agua River sub-basin is located near Peoria. Agua River sub-basin is regarded as one of the major suppliers of surface water in Sun Valley. Lower Gila River sub-basin is the main supplier of surface water in Sun Valley. Lower Gila Sub-basin is located in the Northwest of Sun Valley. Lower Gila Sub-basin has a conglomerate, which is filled with sandstones and mudstones. It contributes over 35% of Sun Valley's surface water (Tree People, paras. 7-9).

Other than ground water, Sun Valley is supplied by reclaimed water.

Reclaimed water is defined as wastewater that has been put to use.

Examples of reclaimed water are floods, sewage water, and storm water.

Studies reveal that Sun Valley is susceptible to storms and floods. Therefore, reclaimed water is water that has been harvested and put into use.

Reclaimed waters in Sun Valley are located in Sun Valley Park, Tuxford Green, and Elmer Avenue. Sun Valley park basin was established in 2006.

The main function of this basin is to trap storm water and direct it to bigger basins. In this infiltration basin, the water is naturally filtered then drained into aquifers, which are used to supply water. Tuxford Green reclamation site

was completed in 2007. Tuxford Green watershed was constructed because of chronic floods in the junction of San Fernando Road and Tuxford Street. Tuxford Green has flood control system. This system enables floodwater to flow underground (Tree People, paras. 7-9).

In order to maintain a constant supply of water, sources of this water must be dependable. Their recharge must be reliable and constant. Sun Valley in Arizona receives 14 inches of rain every year. Sun Valley in Arizona has 60 days of precipitation. Precipitation is high in July and low in January. Sun Valley experiences rainstorms and floods regularly. When these floods are harvested, they can be used as natural recharges. As a result of the high level of recharging, aquifers and surface water can be said to be reliable sources of water (Sparling, para. 1).

## **Water Quality of Water Sources**

A water source is said to have quality water when it is in line with the stipulated standards and law. According to research, Arizona carries out routine measurement of water quality regularly. Arizona Department of Water Resources sets the standard required for water to be labeled as quality (Arizona Department of Water Resources, paras. 1-3b).

Sun Valley Arizona has three sources of water. These sources are groundwater, surface water and reclaimed water. Sources of groundwater are wells and aquifers. Sources of surface water are rivers, lakes, dams, and basins. Reclaimed water, on the other hand, are sourced from floods and sewage water. Research shows that State of Arizona does routine monitoring of water quality. According to 2007 water quality data report, total Coliform

Bacteria, fecal Coliform and Ecoli, alpha emitters and combined radium were not found in water sources. Probable sources of contamination of these bacteria are the animal fecal waste and erosion (City of Holbrook, paras. 1-3).

Water sources can also be contaminated by inorganic contaminants.

Examples of these contaminants are antimony, arsenic, asbestos, barium, Beryllium, chromium, cadmium, copper, and cyanide. Sources of antimony are petroleum and electronics. Sources of Asbestos and Arsenic are cement decays and natural deposits respectively. According to the report, none of these elements were found in Sun Valley water sources (City of Holbrook, paras. 1-3).

Arizona water department also did an analysis on the amount of synthetic organic elements present in water sources. Examples of synthetic organic contaminants measured were Chlordane, Dalapon, and Carbonfuran. The report revealed that none of the synthetic organic compounds were present in the water sources (City of Holbrook, paras. 1-3).

Therefore, common contaminants of water sources in Sun Valley are biological contaminants, inorganic contaminants, synthetic organic contaminants and volatile organic contaminants. Volatile organic contaminants are carbon tetrachloride, Benzene, Chlorine, o-Dichlorobenzene, Chlorobenzene, p-Dichlorobenzene, 1,2-Dichlorobenzene, 1,1-Dichlorobenzene and Dichloromethane. Main source of Benzene are discharges from industries. Other sources are landfills and storage tank. Sources of Chlorobenzene, p-Dichlorobenzene, 1,2-Dichlorobenzene and 1,1-Dichlorobenzene are ejections from chemical factories. Source of

dichloromethane, on the other hand, is refuse from pharmaceuticals (City of Holbrook, paras. 1-3).

Biological contaminants are also a source of water pollution in Sun Valley Arizona (United States Environmental Protection Agency, para. 1). Unlike other types of contaminants, biological contaminants are living organisms. They are able to move by themselves. Some are naturally found in the environment. Example of biological contaminants is Coliform Bacteria, alpha emitters and combined radium. Coliform bacteria are found naturally in the environment. Alpha emitters come from erosion of deposits (City of Holbrook, paras. 1-3).

Other than biological and synthetic contaminants, inorganic contaminants are also a source of water contamination in Sun Valley Arizona. Example of inorganic contaminants are thallium, sodium, Selenium, Nitrite, Nitrate, Nickel, Mercury, lead 2 and fluoride. The main source of inorganic contaminants is erosion of deposits. Main sources of mercury are emissions from refineries and run-off from landfills. Nickel comes from factory emissions. Nitrate and nitrite are constituents of fertilizers. They are washed off and transported by run-off water. They can contaminate underground water through leaching. They can also be sourced from sewage and septic tanks. Selenium, on the other hand, comes from petroleum emissions. Selenium is also found in electronics. Sources of Sodium and Thallium are emissions from electronics and leaching of natural elements. Thallium can be naturally found in the environment. Moreover, it is an element used to make electronics. Sodium, on the other hand, can be found in food and drinking water (City of Holbrook, paras. 1-3).

Last contaminant of water sources in Sun Valley is synthetic organic contaminants. Examples of synthetic organic elements are toxaphene, simazine, picloram, pentachlorophenol, oxamyl, and Lindane. Toxaphene is an element that was used to make pesticides. When environmental conditions are good, toxaphene may be washed into run-off water, which then contaminates underground water (Department of Environmental Protection, para. 30).

Similar to toxaphene, simazine is one of the chemicals used to make herbicides. Simazine contaminates underground or surface water when it is washed away by rain. The chemical is then carried in run-off to surface or underground water (Department of Environmental Protection, para. 29).

Picloram is an organic chemical present in most herbicides. It contaminates the water through run-off (Department of Environmental Protection, para. 27). Oxamyl, on the other hand, is found in pesticides. Oxamyl contaminates surface and underground water through run-off and leaching (Department of Environmental Protection, para. 26).

Sun Valley maintains high quality of water through implementation of policies. Research reveals that Arizona's underground water is threatened by mining. Arizona has a policy of pumping water underground. The States policy is to pump water to 1000ft. Arizona also has a program that requires industries to treat wastewater to the required standard. Demonstrated Controlled Technology is used as a standard measure. This technology provides regulatory level of nitrogen. The technology also has the responsibility of measuring pathogen level in the water (Sharon et al. 237).

## **Conclusion**

Sun Valley Arizona has three sources of water. These sources are groundwater, surface water and reclaimed water. Examples of groundwater are wells and aquifers. Water from aquifers are pumped to tanks and then to gallons near the city. Surface waters in Sun Valley are lower Agua Fria River, Lower Gila River sub-basin, Lake Pleasant, lower Hassayampa River, Middle Hassayampa, Tribby Wash and Adobe Dam. Reclaimed waters come from floods and sewage water.

According to the department of water resources, Sun Valley has quality water. Contaminants of water are inorganic contaminants, synthetic, organic, and biological. Examples of biological are Coliform Bacteria, fecal Coliform and Ecoli, alpha emitters and combined radium. Examples of inorganic contaminants thallium, sodium, Selenium, Nitrite, Nitrate, Nickel, Mercury, lead 2 and fluoride. Examples of synthetic contaminants are toxaphene, simazine, and picloram. Other sources of synthetic contaminants are the pentachlorophenol, oxamyl, and Lindane.

Water quality in Arizona is maintained through enactment of policies.

Arizona's water is first pumped further underground. When the water is 1000ft, it is then pumped to machines, which filter the water. The machines then pump water from the wells to city storage facilities. Sun Valley then supplies the water to city residents.

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