

Year 2022 Water Quality Report

Fort Irwin routinely monitors for constituents in the drinking water according to Federal and State laws. Fort Irwin would like to present to you a summary of last year's sampling results. This document also explains the results and provides contact information.

## It is important to Fort Irwin that the customers be informed about water quality on the Installation.

**MUY IMPORTANTE**

## Este informe contiene informacion muy importante sobre su agua potable. Traduzcalo 'o hable con alguien que lo entienda bien.

If you have questions concerning this report contact: Water and Wastewater Manager, Fort Irwin DPW, 760-380-5044.

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# Water Quality Monitoring

It is important to keep customers informed about the water quality and services delivered over the past year. Fort Irwin’s goal is to provide a safe and dependable supply of drinking water. Fort Irwin completed construction of a new water treatment plant, Irwin Water Works (IWW), in 2016. All water provided at Fort Irwin is treated at IWW and is fully potable. The old Reverse Osmosis (RO) plant is still currently present at Fort Irwin but it is no longer in operation.

This report which covers the requirement for a Consumer Confidence Report (CCR). Last year, we conducted more than 2,746 tests for 46 different contaminants. This report covers monitoring from 1 January 2022 through 31 December 2022. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.

Some of the data presented in this report, though representative, is more than one year old.

# Should Customers be Concerned?

In order to ensure that tap water is safe to drink, United States Environmental Protection Agency (USEPA) and the California, State Water Resources Control Board, Division of Drinking Water (DDW) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. These limits are called Maximum Contaminant Levels (MCL). MCL’s are set at very stringent levels. To understand the risk of possible health effects described for regulated contaminants, customers should know that a person would have to drink 2 liters of water every day at the MCL level during a lifetime to have a one-in-a-million chance of having the described health issues. DDW regulations also establish limits for contaminants in bottled water that must provide the same protection for public health.

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. More information about contaminants and potential health effects can be obtained by calling the EPA’s safe drinking water hotline at 1-800-426-4791 or at their web site [www.epa.gov/safewater/.](http://www.epa.gov/safewater/)

Microbial contaminants are not a significant concern in Fort Irwin's water. 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. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

# Fort Irwin's Water Source and Treatment

The source of our water is groundwater that comes from a combination of three sources located at Fort Irwin: 1) Bicycle Lake Basin, located approximately 2 miles northeast of the cantonment area adjacent to Barstow Road; 2) Langford Lake Basin, located approximately 2 miles southeast of the cantonment area adjacent to Langford Lake Road; and 3) Irwin Basin, located underneath the cantonment area. These aquifers are very similar to underground lakes bordered by the rising bedrock surrounding each basin and form the hills visible on the surface. Fort Irwin pumped about 600 million gallons of water out of the ground last year. All of Fort Irwin’s water was treated at the IWW. Fort Irwin's water system provides water to approximately 16,000 customers daily.

A source water assessment was completed in 1997 in the form of a document entitled "Ground Water Hydrology and Water Quality of Irwin Basin at Fort Irwin and the National Training Center, California." (https://pubs.er.usgs.gov/Publication/wri974092) The assessment was conducted by US Geological Survey Information Services (USGS-IS). The address of the USGS-IS is Box 25286, Federal Center, Denver, CO 80255. Source water assessments for Langford Lake and Bicycle Lake Basins are not available. A copy of the Irwin Basin Assessment can be viewed at the Drinking Water Division, District 13 - San Bernardino, 464 West 4th Street, Suite 437, San Bernardino, CA 92401. You may request a summary of the assessment be sent to you by contacting the DDW District Engineer at (909) 383- 4328.

# System Improvements

Fort Irwin continues to complete improvements to the water system designed to further protect public health and to continue to improve the water system’s capabilities to protect property during emergencies.

Fort Irwin has also contracted with the United States Geological Survey (USGS) to conduct surveys of potential water resources. This effort will take many years. But the final products will identify future water resources. We are currently working on improving the efficiency in IWW.

# Water Conservation

Conserving water at Fort Irwin is as important to the installation as breathing the air. Without water, there is no Fort Irwin. Fort Irwin is supported by our own water wells located above underground aquifers or basins. Results from environmental engineering reports show a finite supply of available water in these basins. Our basins are replenished by the small amount of rain Fort Irwin receives annually. Fort Irwin pumps out much more water than received in rainfall which results in an overdraft, more being pumped out than replenished.

Alternative means to acquire water to meet Fort Irwin's requirements would be very expensive. Fort Irwin is very reliant on you, the consumer, to conserve this natural resource. Below are some tips on how to conserve water and help extend our water supply on Fort Irwin. Other conservation tips can be found at [http://www.bewaterwise.com/.](http://www.bewaterwise.com/)

**Wash only full loads of laundry** in your washing machine or full loads of dishes in your dishwasher. You'll not only save our water, but conserve energy as well.

**Turn the water off.** Minimize faucet use when shaving, brushing teeth and washing dishes. If your faucets or showerheads are leaking, call the housing office to report it.

**Shorten your shower time by one minute.** Cut back on your shower time and you will save big time on water use. Or limit your showers to 5 minutes. This not only saves water but energy as well.

**Don't pre-rinse your dishes.** Check to see if you dishwasher can clean dishes without pre-rinsing them. Most new dishwashers don't require pre-rinsing.

**Reuse clean household water.** Collect all the water that is wasted while waiting for the hot water to reach your faucet or showerhead by filling a plant waterer or jug. Use this to water your houseplants or outdoor planters. Do the same with water that is used to boil eggs and steam vegetables.

**Use a car wash that recycles water.** The car wash on Fort Irwin recycles water. Or if you wash your car at home use a nozzle that shuts off when not in use.

**Call in water breaks.** If you have a water leak, or notice a water problem, please call the appropriate number on Fort Irwin to report it:

* Water/leaks found outside: **(760) 386-7906**, Jacobs (CH2MHILL)
* Indoor leaks in Housing: **(855) 646-6420**, RCI
* Indoor leaks in Cantonment: Either armymaintenance.com/arma or **(760) 386-3539**, High Desert Support Services (HDSS)

# Definitions

On the following pages are table containing summarized results of our monitoring. To understand these terms, Fort Irwin has provided the following definitions:

Non-Detects (ND) - Laboratory analysis indicates that the constituent is not present at or above the minimum detection limit for the analytical method.

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.

Nephelometric Turbidity Unit (NTU) - Nephelometric turbidity units are a measure of the clarity of water. Turbidity in excess of 5 NTU is just barely noticeable to the average person.

Regulatory Action Level (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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 (USEPA).

Public Health Goal (PHG) - The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency. Primary Drinking Water Standard (PDWS) - MCL's for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Safe Drinking Water Act (SDWA) - Federal law which sets forth drinking water regulations. 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. MRDLGs are set by the (USEPA).

Electro-Dialysis Reversal (EDR) - is a water purification process that uses large Direct Current (DC) voltages to pull the charged ions dissolved in the water across semi-permeable membranes. This concentrates the ions in one stream while purifying the other stream, frequently (every 15 minutes) the voltages are swapped to self-clean the membranes.

Disinfection Byproducts - Results from adding chlorine to the water to kill or suppress bacteria and other harmful organics. When chlorine is added it reacts with the organic material forming byproducts that the USEPA and CA DDW believe are harmful.

# Sources of Contaminants

Source 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, that 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, urban storm water 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 storm water runoff, and septic systems.
* Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities

# Water Quality Result Tables

The following tables present the results of our monitoring for the calendar year 2022. These results are representative of the water provided today. In reading the tables, compare the MCL column to the Average Level Detected column.

## Microbial Monitoring

Microbial Monitoring is conducted on a weekly basis on Fort Irwin. This monitoring uses the coliform bacteria as an indicator for all microbial contaminants. Coliform is used because it is present in the environment, it is more resistant than other bacteria and it is easy to detect. Table 1 has the results from bacteria monitoring.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 1: Microbial Monitoring** | | | | | | |
| Analyte | Unit | Drinking Water | | Maximum Contaminant Level (MCL) | Maximum Contaminant Level Goal (MCLG) | Source of Contamination |
| Highest Number of Positive Results | Number of Months exceeding MCL |
| Total Coliform Bacteria | Positive Samples per month\* | 1 | 0 | More than 1 positive sample in a month | No Positive | Naturally present in the environment |
| \*Total coliform was tested with “Present” results on 2/22/2022, 05/11/2022, 7/6/2022, and 09/20/2022, respectively. The positive results were just anomalies that were corrected with disinfection and flushing. | | | | | | |

## Lead and Copper

Fort Irwin tests for lead and copper at selected taps in our water system. Results from the lead and copper testing indicate the corrosiveness of water. Lead and copper are leached from the plumbing inside the buildings. After you go on a long vacation, it is a good idea to run the tap for a few minutes to flush the water lines. Table 2 contains the result from monitoring of lead and copper. Compare the 90% level to the Action level.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 2: Lead and Copper Monitoring** | | | | | | | |
| Analyte Unit | | Drinking Water | | | Maximum Contaminant Level (MCL) | Maximum Contaminant Level Goal (MCLG) | Source of Contamination |
| Maximum Detected | 90 %  Level\* | Sites Tested |
| Lead (Pb) | µg/L | ND | ND | 35 | AL\*\* = 15 | 2 | Internal corrosion of household water plumbing systems |
| Copper (Cu) | mg/L | ND | ND | 35 | AL\*\* = 1.3 | 0.17 |

All results for lead and copper are from 2021.

\*90% or more of the monitoring results were below this result.

\*\*AL or regulatory action level is set by the California DDW. If exceeded preventive treatment is required, equivalent to a MCL.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. 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. If you are concerned about lead in your water, you may wish to have your water tested. 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 [http://www.epa.gov/safewater/lead.](http://www.epa.gov/safewater/lead)

## Regulated and Non-regulated Contaminants:

Fort Irwin is required each year (or other period) to test for Contaminants the EPA and CA DDW are concerned about. Fort Irwin test our water for other indicators that allow us to provide the best water possible. Table 3 contains the; monitoring results from 2022 and previous years

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 3: Regulated and Non-regulated Contaminants** | | | | | | |
| Analyte | Unit | Drinking Water | | Maximum Contaminant Level (MCL) | Maximum Contaminant Level Goal (MCLG) | Source of Contamination |
| Range Detected | Average |
|  | EPA and State Regulated | | | | | |
| Arsenic (As) | µg/L | 1.8 - 5 | 2.8 | 10 | 0.004 | Erosion of natural occurring deposits |
| Boron (B)\* | µg/L | 690-890 | 773 |  | 1000 | State Regulated, No MCL: Erosion of natural occurring deposits |
| Chloride (Cl) | mg/L | NA*17* | 0.77*17* | 250 |  | Secondary Drinking Water Standard: Natural occurring |
| Hexalvent Chromium (Cr), Chromium VI | µg/L | ND*17* | ND*17* |  |  |  |
| Fluoride (F)\*\* | mg/L | 1.0 – 1.6 | 1.3 | 4 | 4 | Erosion of natural occurring deposits, Can promote strong teeth; |
| Haloacetic Acids (HAA5) | µg/L | ND | ND | 60 |  | Disinfection byproducts |
| Dibromoacetic Acid | µg/L | ND | ND |  |  | Part of HAA5 |
| Dichloroacetic Acid | µg/L | ND | ND |  |  | Part of HAA5 |
| Monobromoacetic Acid | µg/L | ND | ND |  |  | Part of HAA5 |
| Monochoroacetic Acid | µg/L | ND | ND |  |  | Part of HAA5 |
| Trichloroacetic Acid | µg/L | ND | ND |  |  | Part of HAA5 |
| Nitrite (NO2) as Nitrogen (ppm)\*\*\* | mg/L | 1 – 5 | 3.2 | 10 | 10 | Runoff and leaching from fertilizer use; leaching from septic tanks and sewer systems; erosion of natural deposits |
| Nitrate (NO3) as Nitrogen (ppm)\*\*\* | mg/L | ND | ND | 10 | 10 | Runoff and leaching from fertilizer use; leaching from septic tanks and sewer systems; erosion of natural deposits |
| Specific Conductance | µS/cm | 140 - 210 | 166.5 | 1600 |  | Substances that form ions when in water |

\* The babies of some pregnant women who drink water containing boron in excess of the notification level may have an increased risk of developmental effects, based on studies in laboratory animals.

\*\* Some people who drink water containing fluoride in excess of the Federal MCL of 4 mg/L over many years may get bone disease, including pain and tenderness of the bones. Children who drink water containing fluoride in excess of the State MCL of 2 mg/L may get mottled teeth.

\*\*\*\* Analysis for source water

***Italicized numbers*** indicate the year the data is from i.e. (*17* for 2017). If no number, the data is from 2022.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 3: Regulated and Non-regulated Contaminants (Cont.)** | | | | | | |
| Analyte | Unit | Drinking Water | | Maximum Contaminant Level (MCL) | Maximum Contaminant Level Goal (MCLG) | Source of Contamination |
| Range Detected | Average |
|  | EPA and State Regulated (Cont.) | | | | | |
| Sulfate (SO4)\* | mg/L | 0.42 - 120*10* | 3.62*10* | 250 |  | Secondary Drinking Water Standard: Erosion of natural occurring deposits |
| Total Dissolved Solids (TDS) | mg/L | –  51 – 140 | 121.1 | 500 |  | Secondary Drinking Water Standard |
| Total Trihalomethanes (TTHM) | µg/L | 4.5 – 17 | 10.8 | 80 |  | Disinfection byproducts |
| Bromo-dichloromethane | µg/L | ND – 1.2 | 1.2 |  |  | Part of TTHM |
| Bromoform | µg/L | 3.9 – 12.0 | 8.0 |  |  | Part of TTHM |
| Chloroform | µg/L | ND | ND |  |  | Part of TTHM |
| Dibromo- chloromethane | µg/L | 0.68 – 3.8 | 2.2 |  |  | Part of TTHM |
| Turbidity | NTU | 0.11 – 1.2 | 0.37 | 5 |  | Secondary Drinking Water Standard system. |
| Zinc\* | mg/L | ND21 | ND21 | 5 |  | Runoff/leaching from natural deposits; industrial wastes system. |
| Water Quality (Not Regulated) | | | | | | |
| Alkalinity, Total | mg/L as CaCO3 | –  57 - 78 | 66.6 |  |  | Erosion of natural occurring deposits |
| Ammonia as N | mg/L | ND - 1.6*10* | 0.08*10* |  |  |  |
| Bicarbonate (HCO3) | mg/L as CaCO3 | –  42 – 77 | 63.2 |  |  | Part of Alkalinity |
| Carbonate (CO3) | mg/L as CaCO3 | 5.2 – 32 | 10.6 |  |  | Part of Alkalinity |
| Calcium (Ca) | mg/L | 10 – 15 | 13.1 |  |  | Erosion of natural occurring deposits |
| Hardness, Total | mg/L as CaCO3 | –  26 – 39 | 33.6 |  |  | The sum of polyvalent cations, generally magnesium and calcium. Usually naturally occurring. |
| pH |  | 7.8 – 9.0 | 8.3 |  |  | Low pH: bitter metallic taste; corrosion High pH: slippery feel; soda taste; deposits |
|  |  |  |  |  |  |  |

***Italicized numbers*** indicate the year the data is from i.e. (*10* for 2010 and 21 for 2021). If no number, the data is from 2022. Back to Top

\* Analysis of source water

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 3: Regulated and Non-regulated Contaminants (Cont.)** | | | | | | |
| Analyte | Unit | Drinking Water | | Maximum Contaminant Level (MCL) | Maximum Contaminant Level Goal (MCLG) | Source of Contamination |
| Range Detected | Average |
|  | Water Quality (Not Regulated) | | | | | |
|  |  |  |  |  |  |  |
| Sodium\* (Na) | mg/L | 120 – 19021 | 158.821 |  |  | “Sodium” refers to the salt present and is generally naturally occurring. |
| Silica, Total | mg/L | 34 – 41 *16* | 37.5016 |  |  | Erosion of natural occurring deposits, interferes with treatment |
| Total Suspended Solids | mg/L | 110 -  2200*17* | 1155.00*17* |  |  | Measure of filterable solids, Generally interferes with treatment. |
| Odor (Threshold Odor Number) |  | ND | ND | 3 |  | “Rotten Egg,” musty or chemical smell |
| Iron (Fe)\* | ppb | ND – 2700 | ND | 300 |  | Secondary contaminant, Erosion of natural occurring deposits |
| Color (Apparent) (Color Units) |  | 5 | 5 | 15 |  |  |

***Italicized numbers*** indicate the year the data is from i.e. (*16* for 2016, *17* for 2017, and 21 for 2021). If no number, the data is from 2022. Back to Top

\* Analysis of source water

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