

**NAWS China Lake (NAWSCL)
South Range Public Water System (PWS)
2023 Consumer Confidence Report
CA1503678**



BLUF

NAWSCL South Range Public Water System had no violations and no exceedance of any primary or secondary water quality standards during 2023 calendar year

NAWSCL sampled for 29 different PFAS compounds in August 2023 at both South Range PWS production wells with no detection of these compounds

Water System Information

- **Name:** China Lake Naval Air Weapons Station South Range Public Water System CA1503678
- **Report Date:** May 16, 2024
- **Water Source:** Groundwater from two wells
- **Name and General Locations:** Well 24 and Well 25. Located at NAWSCL South Range, Echo Main Site, San Bernardino County, California

About This Report

We test the drinking water quality for many constituents/contaminants as required by federal and state regulations. This report shows results of our monitoring for the period January 1 to December 31, 2023 and may include earlier monitoring data

Drinking Water Sources

Drinking water sources (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells (groundwater). As water travels over land surface or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from animals present or from human activity.

NAWSCL source water is raw groundwater which is considered non-potable until after all treatment and disinfection processes have taken place. Contaminants that may or may not be present in all raw source waters include:

- Microbial contaminants, such as viruses and bacteria, 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, may come from a variety of sources such as agriculture, urban storm water runoff, and residential use
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, agricultural application, and septic systems
- Radioactive contaminants can be naturally-occurring or be the result of oil and gas production and mining activities

Drinking Water Source Assessment and Protection (DWSAP)

NAWSCL source assessments were conducted in 2003. Since no significant changes have taken place in or around source waters that would change source assessments or protection

- Well 24: is not considered to be vulnerable to contamination
- Well 25: is not considered to be vulnerable to contamination

Regulation of Drinking Water and Bottled Water Quality

In order to ensure tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) and the State Water Resources Control Board (SWRCB) prescribe regulations that limits the number of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration (FDA) regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health

Terms used in this report

Term	Definition
Level 1 Assessment	A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
Level 2 Assessment	A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an <i>E. coli</i> MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.
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.
Maximum Contaminant Level Goal (MCLG)	The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (U.S. EPA).
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.
Primary Drinking Water Standards (PDWS)	MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
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.
Regulatory Action Level (AL)	The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
Secondary Drinking Water Standards (SDWS)	MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.
Treatment Technique (TT)	A required process intended to reduce the level of a contaminant in drinking water.

Term	Definition
Variances and Exemptions	Permissions from the State Water Resources Control Board (State Board) to exceed an MCL or not comply with a treatment technique under certain conditions.
ND	Not detectable at testing limit.
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 picogram per liter (pg/L)
pCi/L	picocuries per liter (a measure of radiation)

Notes on detected drinking water contaminants

Presence of water contaminants does not necessarily indicate the water poses a health risk. EPA and SWRCB allows us to monitor for certain contaminants less than once per year because concentrations of these contaminants do not change frequently (groundwater). Some data (though representative of the water quality) can be more than year old

Monitoring Results

Coliform Bacteria

Coliform bacteria has not been detected in PWS distribution system, including *E. coli*. Samples are pulled monthly from key locations throughout distribution system

Lead and Copper

Ten lead and copper sites were sampled within distribution system in June 2022. None of these sites exceeded the Regulatory Action Level. State Water Resources Control Board (SWRCB) requires triennial sampling for all lead and copper sites, next sampling cycle is summer 2025

Information for Violation of MCL or Monitoring/ Reporting Requirement and Revised Total Coliform Rule Level 1/ Level 2 Assessment Requirements

There were no MCL or Groundwater violations for this system in 2023 and no Revised Total Coliform Rule Level 1 or Level 2 Assessments required for this water system in 2023.

Raw groundwater at Well 24 and 25 tested positive for coliform between January 2023 and April 2023. Well 24 was taken out of service and was pulled, casing was brushed and new equipment installed then put back into this service. Well 25 was disinfected and flushed, with both actions removing bacteria from well casings. These efforts were coordinated with SWRCB Division of Drinking Water Sanitary Engineers to ensure raw groundwater compliance was met

Primary Drinking Water Standards (PDWS) Contaminant Detection

These are legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting levels of contaminants in drinking water

Primary Chemical or Constituent (reporting units)	Sample Date	Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Arsenic (ug/L - ppb)	Sampled Weekly	4.5	2.4 – 6.6	10	4	Erosion of natural deposits
Gross Alpha Particle (pci/L) (picocuries per liter)	12/2020	.48	.41 - .55	15	none	Decay of natural and man-made products
Nitrate (mg/l -ppm)	11/2023	3.7	2.8 – 4.6	10	10	Erosion of natural deposits
Fluoride (mg/l -ppm)	11/2023	.37	..35 - .38	2	1	Erosion of natural deposits
Uranium (pCi/L) (picocuries per liter)	12/2020	3.7	2.9 – 4.4	20	.43	Erosion of natural deposits
Chromium (Ug/l – ppb)	12/2020	2.5	0 - 5	50	100	Erosion of natural deposits
Vanadium (Ug/L – ppb)	12/2020	20	18-22	None	21	Erosion of natural deposits
Residual Chlorine (mg/l –ppm)	Sampled Weekly	1.13	.44 - 1.82	4	4	Disinfection Process
Total Trihalomethanes TTHM (ug/l - ppb)	8/2023	77.4	77.4	80	N/A	By-product of drinking water disinfection
Total Haloacetic Acids - HAA5 (ug/l - ppb)	8/2023	8.7	8.7	60	N/A	By-product of drinking water disinfection

Secondary Drinking Water Standards (SDWS) Contaminant Detection

Secondary Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water. There are no PHGs, MCLGs, or mandatory standard health effects language for these constituents because secondary MCLs are set on the basis of aesthetic concerns (such as taste, odor or color)

Secondary Chemical or Constituent (reporting units)	Sample Date	Average Level Detected	Range of Detections (from two wells)	SMCL	Typical Source of Contaminant
Color (Units)	11/2017	1	1 - 2	15	Naturally occurring organic materials
Foaming Agent (MBAS) (mg/l – ppm)	11/2017	.15	.10 - .20	.50	Naturally occurring breakdown of waste (organic) products
Chloride (mg/l –ppm)	11/2017	41	38-43	500	Runoff and leaching from natural deposits and seawater influence
Specific Conductance (uS/ cm) (microsiemens per centimeter)	11/2017	602	556-647	1600	Substances that form ions when in water and/ or seawater influence Note: Specific conductance is reported in microsiemens per centimeter at 25 degrees Celsius (µS/cm at 25 °C).

					Siemens per centimeter are the equivalent of mhos per centimeter.
Total Dissolved Solids (mg/l –ppm)	11/2017	360	309 - 410	1000	Runoff and leaching from natural deposits
Turbidity (NTU) (nephelometric turbidity unit)	11/2017	.23	0.22 - .24	5	Soil runoff, turbidity is measure of cloudiness of water. We measure this because it is a good indicator of water quality Note: NTU stands for Nephelometric Turbidity unit, i.e. the unit used to measure the turbidity of a fluid or the presence of suspended particles in water. The higher the concentration of suspended solids in the water is, the dirtier it looks and the higher the turbidity is
Sulfate (mg/l –ppm)	11/2017	42	39-44	500	Runoff and leaching from natural deposits
Odor Threshold (ton)	11/2017	1	1	3	Naturally occurring organic materials

Sampling Results for Sodium and Hardness

Chemical or Constituent (reporting units)	Sample Date	Level Detected	Range of Detections	MCL	Typical Source of Contaminant
Sodium (mg/l-ppm)	11/2017	101	82-120	None	Salt present in the water, generally naturally occurring
Hardness (mg/l-ppm)	11/2017	97	73 - 120	None	Sum of polyvalent cations present in the water, generally magnesium and calcium, naturally occurring

All other sampled constituents/ contaminants were below required reporting level threshold and are not included in this report, more information for CA1503678 can be found at SWRCB Drinking Water Watch site:

[Water System Details \(ca.gov\)](http://www.waterboards.ca.gov)

https://sdwis.waterboards.ca.gov/PDWW/JSP/WaterSystemDetail.jsp?tinwsys_is_number=14504&tinwsys_st_code=CA

Additional information on specific primary constituents/ contaminants

Lead: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. NAWSCSCL Utilities and Energy Management 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. If you do so, you may wish to collect the flushed water and reuse it for another beneficial purpose, such as watering plants. 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/lead>

Arsenic: While your drinking water meets federal and state arsenic standard, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water. The U.S. Environmental Protection Agency continues to research 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

Nitrate: Nitrate in drinking water at levels above 10 mg/L is a health risk for infants less than six months of age. Such nitrate levels in drinking water can interfere with the capacity of the infant’s blood to carry oxygen, resulting in serious illness; symptoms include shortness of breath and blueness of the skin. Nitrate levels above 10 mg/L may also affect the ability of blood to carry oxygen in other individuals, such as pregnant women and those with specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider

Additional Drinking Water Information

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. U.S. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791)

What are per- and polyfluoroalkyl substances and where do they come from?

Per- and polyfluoroalkyl substances (PFAS) are a group of thousands of man-made chemicals. PFAS have been used in a variety of industries and consumer products around the globe, including in the U.S., since the 1940s. PFAS have been used to make coatings and products that are used as oil and water repellents for carpets, clothing, paper packaging for food, and cookware. They are also contained in some foams (aqueous film-forming foam or AFFF) currently used for fighting petroleum fires at airfields and in industrial fire suppression processes. PFAS chemicals are persistent in the environment, and some are persistent in the human body – meaning they do not break down and they can accumulate over time

Is there a regulation for PFAS in drinking water?

On April 10, 2024, the US EPA established MCLs for a subset of PFAS chemicals. EPA requires implementation of sampling in accordance with the new MCLs within three years of the publication date and implementation of any required treatment within five years. These limits did not apply for the 2023 calendar year because they had not been published. However, the DoD proactively promulgated policies to monitor drinking water for PFAS at all service owned and operated water systems at a minimum of every two years. The DoD policy states that if water sampling results confirm that drinking water contains PFOA and PFOS at individual or combined concentrations greater than the 2016 EPA health advisory (HA) level of 70 ppt, water systems must take immediate action to reduce exposure to PFOS or PFAS. For levels less than 70 ppt but above the 4 ppt level (draft at the time of policy publication), DoD committed to planning for implementation of the levels once EPA’s published MCLs take effect

Chemical	Maximum Contaminant Level Goal (MCLG)	Maximum Contaminant Level (MCL)
PFOA	0	4.0 ppt
PFOS	0	4.0 ppt
PFHxS	10 ppt	10 ppt
HFPO-DA (GenX chemicals)	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
Mixture of two or more: PFHxS, PFNA, HFPO-DA, and PFBS	Hazard Index of 1 (unitless)	Hazard Index of 1 (unitless)

Has NAWSCS tested its water for PFAS in 2023?

Yes. In August 2023 samples were collected from NAWSCS South Range Public Water System. We are pleased to report that drinking water testing results were below Method Reporting Limit (MRL) for all 29 PFAS compounds covered by EPA method 553 and 537 including PFOA and PFOS. This means PFAS were not detected in your drinking water system. In accordance with DOD policy, the water system will be resampled every two years for your continued protection

Please contact Michael Bizon, Water Compliance Program (michael.e.bizon.civ@us.navy.mil) if you have any questions about this consumer confidence report or if you have any water quality questions or concerns

Commanding Officer Comments:

Water is our most important resource and it directly supports the critical mission of this Navy Installation. NAWS China Lake has carefully and professionally managed our drinking water and I am proud of the contents of this report. As you’ll read, there were no violations and no exceedance of any primary or secondary water quality standards during this reporting period including zero detection of 29 PFAS compounds. This report continues an impressive trend of zero violations or exceedance in over a decade of testing.

J. T. Vaughan
CAPT USN
Commanding Officer