2022 Consumer Confidence Report

Water System Information

Water System Name: Lawrence Livermore National Laboratory (LLNL) – Site 300, System No. 3910025

Report Date: July 1, 2023

Type of Water Sources in Use: purchased surface water, groundwater wells

Name and General Location of Sources:

- Surface Water:
  - Since March 2020, the primary water source at Site 300 is Hetch Hetchy surface water purchased from the San Francisco Public Utilities Commission (SFPUC) via the Thomas Shaft Line.
  - SFPUC Source: San Francisco Regional Water System's major drinking water supply to LLNL systems consists of water stored in the Hetch Hetchy Reservoir, which is well protected and carefully managed by the SFPUC. The Hetch Hetchy water is exempt from state and federal filtration requirements. To meet drinking water standards for consumption, this surface water source receives the following treatment: pH adjustment for optimum corrosion control, ultraviolet light and chlorine disinfection, and fluoridation for dental health protection.
  - Site 300 filters the purchased surface water at a Granular Activated Carbon (GAC) treatment facility located in the General Services Area (GSA).
- Groundwater:
  - Well 20 is the primary well and Well 18 is the backup well; both are located west of the GSA.

Drinking Water Source Assessment (DWSA) Information: In October 2001, assessments were completed for the two drinking water supply wells – Well 18 and Well 20 – at the Site 300 Drinking Water System. In June 2022, these assessments were updated, and an additional assessment was conducted for a proposed new well – Well 21. All three wells are considered vulnerable to existing known contaminant plumes in shallow aquifers that are currently being addressed at Site 300 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). For over 13 years, no constituents of concern associated with past events resulting from contamination of the shallow aquifers have been detected above reporting limits in the regional aquifer (Lower $Tnbs_1$ hydrostratigraphic unit [HSU]) where Well 18 and Well 20 are screened and where Well 21 will be screened. The Upper and Lower $Tnbs_1$ HSUs are hydraulically isolated from the shallow aquifers by a confining layer, or aquiclude, in the $Tnsc_1$ stratigraphic unit. The Final Site-Wide Remedial Investigation (SWRI) Report for Site 300 provides a detailed evaluation of groundwater contamination at Site 300 (Webster-Scholten et al. 1994).

A copy of the assessments is on file with the Environmental Functional Area at LLNL. You may request a copy from Elyse Will (925-758-3659).

Time and Place of Regularly Scheduled Board Meetings for Public Participation: N/A

For More Information, Contact: Elyse Will, 925-758-3659

About This Report

We test the drinking water quality for many constituents as required by state and federal regulations. This report shows the results of our monitoring for the period of January 1 to December 31, 2021 and may include earlier monitoring data.

Importance of This Report Statement in Five Non-English Languages (Spanish, Mandarin, Tagalog, Vietnamese, and Hmong)

Language in Spanish: Este informe contiene información muy importante sobre su agua para beber. Favor de comunicarse LLNL – Site 300 a 15999 West Corral Hollow Road, Tracy, CA 95376, 925-422-9386 para asistirlo en español.

Language in Mandarin: 这份报告含有关于您的饮用水的重要讯息。请用以下地址和电话联系 LLNL – Site 300 以获得中文的帮助: 15999 West Corral Hollow Road, Tracy, CA 95376, 925-422-9386.

Language in Tagalog: Ang pag-uulat na ito ay naglalaman ng mahalagang impormasyon tungkol sa inyong inuming tubig. Mangyaring makipag-ugnayan sa LLNL – Site 300, 15999 West Corral Hollow Road, Tracy, CA 95376 o tumawag sa 925-422-9386 para matulungan sa wikang Tagalog.

Language in Vietnamese: Báo cáo này chứa thông tin quan trọng về nước uống của bạn. Xin vui lòng liên hệ LLNL – Site 300 tại 15999 West Corral Hollow Road, Tracy, CA 95376, 925-422-9386 để được hỗ trợ giúp bằng tiếng Việt.

Language in Hmong: Tsab ntawv no muaj cov ntsiab lus tseem ceeb txog koj cov dej haus. Thov hu rau LLNL – Site 300 ntawm 15999 West Corral Hollow Road, Tracy, CA 95376, 925-422-9386 rau kev pab hauv lus Askiv.

Terms Used in This Report

Term	Definition
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.

Term	Definition
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 Standard (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.
N/A	Not applicable.
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)
pCi/L	Picocuries per liter (a measure of radiation)
µS/cm	microSiemens per centimeter
NTU	Nephelometric Turbidity Units
cyst/L	Cysts per liter

Sources of Drinking Water and Contaminants that May Be Present in Source Water

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, that 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, that are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

Regulation of Drinking Water and Bottled Water Quality

In order to ensure that tap water is safe to drink, the U.S. EPA and the State Board prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration regulations and California law also establish limits for contaminants in bottled water that provide the same protection for public health.

About Your Drinking Water Quality

Drinking Water Contaminants Detected

Tables 1 - 5 list all of the drinking water contaminants that were detected during the most recent sampling for the constituent. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The State Board allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative of the water quality, are more than one year old. Any violation of an AL, MCL, MRDL, or TT is asterisked. Additional information regarding the violation is provided later in this report.

Table 1. Sampling Results Showing the Detection of Lead and Copper

Complete if lead or copper is detected in the last sample set.

Lead and Copper	Sample Date	No. of Samples Collected	90^{th} Percentile Level Detected	No. Sites Exceeding AL	AL	PHG	Typical Source of Contaminant
Copper (ppm)	7/12/2022	10	0.20	0	1.3	0.30	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

Table 2. Sampling Results for Sodium and Hardness

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Sodium (ppm)	2022*	109.8	3.5 – 193	None	None	Salt present in the water and is generally naturally occurring
Hardness (ppm)	2022*	31.8	9.1 – 73.8	None	None	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

(*) LLNL Site 300 data is from 2021 and SFPUC data is from 2022.

Table 3. Detection of Contaminants with a Primary Drinking Water Standard

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Turbidity						
Unfiltered Hetch Hetchy Water (NTU)	2022	3.4[(a)]	0.2 – 0.4[(b)]	5	N/A	Soil runoff
Disinfection Byproducts and Precursor						
Total Trihalomethanes (TTHMs) (ppb)	2022	21.9	1.2 – 31.4	80	N/A	Byproduct of drinking water disinfection
Haloacetic Acids (Five) (HAA5) (ppb)	2022	16.3	1.8 – 22.2	60	N/A	Byproduct of drinking water disinfection
Total Organic Carbon[(c)] (ppm)	2022	1.6	1.2 – 1.9	N/A	N/A	Various natural and man-made sources

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
Microbiological						
Giardia lamblia (cyst/L)	2022	0.01	0 – 0.04	TT	(0)	Naturally present in the environment
Inorganics						
Fluoride (ppm)	2022*	0.4	0.2 – 0.7(d)	2.0	1.0	Erosion of natural deposits; water additive to promote strong teeth
Chlorine (ppm)	2022	1.26(e)	0.40 – 2.30	MRDL = 4	MRDLG = 4	Drinking water disinfectant added for treatment
Radiological						
Gross Alpha Particle Activity (pCi/L)	2021	2.16	2.08 – 2.23	15	(0)	Erosion of natural deposits
Gross Beta Particle Activity (pCi/L)	2021	0.773	0.633 – 0.912	50	(0)	Decay of natural and man-made deposits
Strontium-90 (pCi/L)	2021	0.056	-0.267(f) – 0.378	8	0.35	Decay of natural and man-made deposits
Tritium (pCi/L)	2021	362	353 – 370	20,000	400	Decay of natural and man-made deposits

(*) LLNL Site 300 data is from 2021 and SFPUC data is from 2022.
(a) Maximum turbidity value.
(b) These are monthly average turbidity values measured every 4 hours daily at the Tesla Treatment Facility, which is located upstream of LLNL turnout.
(c) Total organic carbon is a precursor for disinfection byproduct formation. There is neither an MCL nor TT requirement for unfiltered water supply. Data indicated in this table were operational monitoring results at Tesla Portal for the Hetch Hetchy water and are for information only.
(d) Natural fluoride in the Hetchy Hetchy source was ND. The level shown in the table was the result of water fluoridation at Tesla Portal. The State Water Resources Control Board (SWRCB) recommended an optimal fluoride level of 0.7 ppm be maintained in the treated water.
(e) Highest running annual average value.
(f) A negative number means the sample radioactivity was less than the background radioactivity inside the measurement apparatus. The result is zero when the measured sample radioactivity is equal to the measured background radioactivity.

Table 4. Detection of Contaminants with a Secondary Drinking Water Standard

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	SMCL	PHG (MCLG)	Typical Source of Contaminant
Specific Conductance (µS/cm)	2022*	613	37 – 985	1,600	N/A	Substances that form ions when in water; seawater influence
Sulfate (ppm)	2022*	95	1.1 - 157	500	N/A	Runoff/leaching from natural deposits; industrial wastes
Turbidity (NTU)	2022*	0.17	0.1 – 0.2	5	N/A	Soil runoff
Chloride (ppm)	2021	62	55 – 68	500	N/A	Runoff/leaching from natural deposits; seawater influence
Iron (ppb)	2022*	77	24 – 130	300	N/A	Leaching from natural deposits; industrial wastes
Manganese (ppb)	2022*	26	2.4 – 50	50	N/A	Leaching from natural deposits
Color (units)	2022*	5	5	15	N/A	Naturally-occurring organic materials
Odor - Threshold (units)	2021	1	1	3	N/A	Naturally-occurring organic materials

(*) LLNL Site 300 data is from 2021 and SFPUC data is from 2022.

Table 5. Detection of Unregulated Contaminants

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	Notification Level	Health Effects
Boron (ppb)	2022*	509	28 – 800	1,000	Boron exposures resulted in decreased fetal weight (developmental effects) in newborn rats.
Chlorate (ppb)	2022	45	45	800	Animal studies demonstrated that chlorate exposure in rats caused adverse effects to the pituitary and thyroid glands.

(*) LLNL Site 300 data is from 2021 and SFPUC data is from 2022.

Additional General Information on Drinking Water

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 U.S. EPA's Safe Drinking Water Hotline (1-800-426-4791).

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 the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Per- and Polyfluoroalkyl Substances (PFAS): PFAS is a group of approximately 5,000 man-made, persistent chemicals used in a variety of industries and consumer products. SFPUC conducted two rounds of PFAS monitoring between 2019 and 2021. All results were below the SWRCB's Consumer Confidence Report Detection Levels in surface water and groundwater sources. For additional information about PFAS, you may visit SWRCB website ***waterboards.ca.gov/pfas***, SFPUC website ***PFAS_factsheet.pdf (sfpuc.org)***, and/or USEPA website ***epa.gov/pfas***.