2020 Consumer Confidence Report

Water System Information

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

Report Date: July 1, 2021

Type of Water Source(s) in Use: purchased surface water, groundwater wells

Name and General Location of Source(s):

- 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 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 Information: In October 2001, an assessment was completed of the Well 18 and Well 20 water sources for the LLNL Site 300 Drinking Water System. A copy of the complete assessment is available at the Mechanical Utilities Division Office. You may request that a summary of the assessment be sent to you by contacting the Mechanical Utilities Division Office at 925-423-5247. Both Well 18 and Well 20 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). The vulnerability ranking for both wells was 13. Although past events have resulted in contamination of the shallow aquifers, no constituents have been detected in the regional aquifer (Lower Tnbs1) where Wells 18 and 20 are screened. The Lower Tnbs1 is isolated from the shallow aquifers by a confining layer in the Tnsc1. The *Final Site-Wide-Remedial-Investigation Report* for Site 300 provides a detailed evaluation of groundwater contamination at Site 300 (1994).

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, 2020 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, 925-422-938 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, 925-422-938 rau kev pab hauv lus Askiv.

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 *E. coli* 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.

Term	Definition
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.
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.
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, 2, 3, 4, 5, 6, and 8 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	90th Percentile Level Detected	No. Sites Exceeding AL	AL	PHG	No. of Schools Requesting Lead Sampling	Typical Source of Contaminant
Lead (µg/L)	9/6/2020 9/7/2020 9/8/2020	10	6.9	**1***	15	0.2	N/A	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (mg/L)	9/6/2020 9/7/2020 9/8/2020	10	0.082	0	1.3	0.3	N/A	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

(*) The restroom in Building 872 had a lead result of 31.4 µg/L, which exceeded the action level of 15 µg/L. However, the 90th percentile level of all 10 lead samples was below the action level.

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 (mg/L)	2020[a]	119.5	2.4 – 212	None	None	Salt present in the water and is generally naturally occurring
Hardness (mg/L)	2020[a]	32.8	8 – 78	None	None	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

(a) LLNL Site 300 data is from 2018 and SFPUC data is from 2020.

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
Gross Alpha Particle Activity (pCi/L)	6/5/2018	2.65	2.22 – 3.07	15	0	Erosion of natural deposits.
Gross Beta Particle Activity (pCi/L)	6/5/2018	8.56	3.31 – 13.8	50	0	Decay of natural and man-made deposits
Uranium (pCi/L)	6/5/2018	0.388	0.211 – 0.564	20	0.43	Erosion of natural deposits.
Strontium-90 (pCi/L)	6/5/2018	0.662	0.174 – 1.15	8	0.35	Decay of natural and man-made deposits
Fluoride (mg/L)	2020[a]	0.43	0.2 – 0.7[b]	2	1	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Chlorine (mg/L)	Monthly	1.28[c]	ND – 3.3	4 (as Cl_2)	4 (as Cl_2)	Drinking water disinfectant added for treatment
Total Trihalomethanes (TTHMs) (µg/L)	1/7/2020 4/7/2020 7/7/2020 10/6/2020 10/7/2020	26.75	4 – 45	80	N/A	Byproduct of drinking water disinfection.
Haloacetic Acids (Five) (HAA5) (µg/L)	1/7/2020 4/7/2020 7/7/2020 10/6/2020 10/7/2020	10.25	ND – 11	60	N/A	Byproduct of drinking water disinfection.

Total Organic Carbon[(d)] (mg/L)	2020	1.2	0.9 – 2.9	N/A	N/A	Various natural and man-made sources
Turbidity – Unfiltered Hetch Hetchy Water (NTU)	2020	1.3	0.2 – 0.5[(e)]	TT	N/A	Soil runoff
Giardia lamblia (cyst/L)	2020	0.01	0 – 0.05	TT	(0)	Naturally present in the environment

(a) LLNL Site 300 data is from 2018 and SFPUC data is from 2020.
(b) 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 SWRCB recommended an optimal fluoride level of 0.7 ppm be maintained in the treated water.
(c) Highest running annual average value.
(d) Total organic carbon is a precursor for disinfection byproduct formation. There is neither a 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.
(e) These are monthly average turbidity values measured every 4 hours daily at Tesla Portal, which is located upstream of LLNL turnout.

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
Iron (µg/L)	1/2/2018	85	ND – 170	300	N/A	Leaching from natural deposits; industrial wastes
Manganese (µg/L)	1/2/2018	29	ND – 70[(a)]	50	N/A	Leaching from natural deposits
Odor (threshold)	1/3/2018	1	1 – 1	3	N/A	Naturally-occurring organic materials
Turbidity (NTU)	2020[(b)]	0.67	0.2 – 1.5	5	N/A	Soil runoff
Total Dissolved Solids (mg/L)	1/2/2018	605	550 – 660	1,000	N/A	Runoff/leaching from natural deposits
Specific Conductance (µS/cm)	2020[(b)]	624	30 – 1,010	1,600	N/A	Substances that form ions when in water; seawater influence
Chloride (mg/L)	1/2/2018	66	59 – 73	500	N/A	Runoff/leaching from natural deposits; seawater influence

Sulfate (mg/L)	2020[b]	101	1.1 – 170	500	N/A	Runoff/leaching from natural deposits; industrial wastes

(a) In January 2018, the manganese concentration at Well No. 18 was 60 ppb, which exceeded the MCL. Quarterly sampling for manganese at Well No. 18 during 2018 resulted in a mean concentration of 58 ppb. Since Well No. 18 is the backup source well with limited use, the Division of Drinking Water did not require additional sampling.
(b) LLNL Site 300 data is from 2018 and SFPUC data is from 2020.

Table 5. Detection of Unregulated Contaminants

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	Notification Level	Health Effects Language
Chlorate[a] (µg/L)	2020	67	67	800	Animal studies demonstrated that chlorate exposure in rats caused adverse effects to the pituitary and thyroid glands.

(a) The detected chlorate in the treated water is a degradation product of sodium hypochlorite used by SFPUC for water disinfection.

For Systems Providing Surface Water as a Source of Drinking Water

Table 6. Sampling Results Showing Treatment of Surface Water Sources

Chemical or Constituent (and reporting units)	Treatment Technique	SFPUC Purchased Water
		Highest Measurement
Turbidity[a] (NTU)	For SFPUC: Max 5 NTU	1.3

(a) Turbidity (measured in NTU) is a measurement of the cloudiness of water and is a good indicator of water quality and filtration performance. Turbidity results which meet performance standards are considered to be in compliance with filtration requirements.

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).

Lead-Specific Language: 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. LLNL – Site 300 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 (1-800-426-4791) or at http://www.epa.gov/lead.

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 and/or flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the U.S. EPA Safe Drinking Water Hotline (1-800-426-4791).