

# 2018 Consumer Confidence Report

Water System Name: Lawrence Livermore National Laboratory- Site 300 Report Date: June 24, 2019

*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, 2018 and may include earlier monitoring data.*

**Este informe contiene información muy importante sobre su agua para beber. Tradúzcalo ó hable con alguien que lo entienda bien.**

Type of water source(s) in use: Groundwater wells

Name & general location of source(s): Well No. 20 (primary) and Well No. 18 (backup) located west of the General Services Area (GSA)

Drinking Water Source Assessment information: An assessment was completed of the Well 18 and Well 20 water sources for the Lawrence Livermore National Laboratory (LLNL) Site 300 Drinking Water System in October 2001. A copy of the complete assessment is available at the LLNL Site 300 Facilities and Infrastructure Office. You may request that a summary of the assessment be sent to you by contacting the Site 300 Facilities & Infrastructure Office at 925-423-5211. Both Well 18 and Well 20 are considered to be most vulnerable to existing known contaminant plumes shallow aquifers that currently are being addressed at Site 300 under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The vulnerability ranking for both wells was 13. No constituents associated with past events resulting in contamination of the shallow aquifers 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 ground water contamination at Site 300 (1994).

Time and place of regularly scheduled board meetings for public participation: N/A

For more information, contact: Stephanie Diaz Phone: (925) 423-1219

## TERMS USED IN THIS REPORT

**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).

**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.

**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.

**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.

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

**Variances and Exemptions:** State Board permission to exceed an MCL or not comply with a treatment technique under certain conditions.

**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.

**N/A:** not applicable

**ND:** not detectable at testing limit

**NTU:** Nephelometric Turbidity Unit

**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)

**umhos:** micromhos

**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.

**In order to ensure that tap water is safe to drink**, the U.S. EPA and the State Water Resources Control Board (State Board) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

**Tables 1, 2, 3, 4, 5, and 6 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 COLIFORM BACTERIA**

Microbiological Contaminants (complete if bacteria detected)	Highest No. of Detections	No. of Months in Violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria (state Total Coliform Rule)	(In a month) 0	0	1 positive monthly sample	(0)	Naturally present in the environment
Fecal Coliform or <i>E. coli</i> (state Total Coliform Rule)	(In the year) 0	0	A routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or <i>E. coli</i> positive	(0)	Human and animal fecal waste
<i>E. coli</i> (federal Revised Total Coliform Rule)	(In the year) 0	0	(a)	(0)	Human and animal fecal waste

(a) Routine and repeat samples are total coliform-positive and either is *E. coli*-positive or system fails to take repeat samples following *E. coli*-positive routine sample or system fails to analyze total coliform-positive repeat sample for *E. coli*.

**TABLE 2 – SAMPLING RESULTS SHOWING THE DETECTION OF LEAD AND COPPER**

Lead and Copper (complete if lead or copper detected in the last sample set)	Sample Date	No. of Samples Collected	90 <sup>th</sup> Percentile Level Detected	No. Sites Exceeding AL	AL	PHG	No. of Schools Requesting Lead Sampling	Typical Source of Contaminant
Lead (ppb)	9/12/2017	5	11.4	1 <sup>b</sup>	15	0.2	N/A	Internal corrosion of household water plumbing systems; discharges from industrial manufacturers; erosion of natural deposits
Copper (ppm)	9/12/2017	5	0.0605	0	1.3	0.3	N/A	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

<sup>b</sup>The one site that exceeded the AL was resampled on 10/10/2017 and the result was ND for lead in the resample.

**TABLE 3 – 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)	1/2/2018	178	144 to 212	N/A	N/A	Salt present in the water and is generally naturally occurring
Hardness (ppm)	1/2/2018	45.3	12.5 to 78	N/A	N/A	Sum of polyvalent cations present in the water, generally magnesium and calcium, and are usually naturally occurring

**TABLE 4 – 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
Chlorine (Cl) (ppm)	Monthly	0.99	0.2 to 2.4	4 (as Cl <sub>2</sub> )	4 (as Cl <sub>2</sub> )	Drinking water disinfectant added for treatment
Fluoride (F) (Natural Source) (ppm)	1/2/2018	0.3	0.2 to 0.4	2	1	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Total Trihalomethanes (TTHMs) (ppb)	1/2/2018 4/3/2018 7/3/2018 10/2/2018	31.25	3 to 56	80	N/A	By-product of drinking water disinfection
Haloacetic Acids (Five) (HAA5) (ppb)	1/2/2018 4/3/2018 7/3/2018 10/2/2018	8.50	0 to 12	60	N/A	By-product of drinking water disinfection
Gross Alpha Particle Activity (pCi/L)	6/5/2018	2.65	2.22 to 3.07	15	(0)	Erosion of natural deposits
Gross Beta Particle Activity (pCi/L)	6/5/2018	8.56	3.31 to 13.8	50	(0)	Decay of natural and man-made deposits
Uranium (pCi/L)	6/5/2018	0.388	0.211 to 0.564	20	0.43	Erosion of natural deposits
Strontium – 90 (pCi/L)	6/5/2018	0.662	0.174 to 1.15	8	0.35	Decay of natural and man-made deposits

**TABLE 5 – DETECTION OF CONTAMINANTS WITH A SECONDARY DRINKING WATER STANDARD**

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	MCL	PHG (MCLG)	Typical Source of Contaminant
Iron (Fe) (ppb)	1/2/2018	85	ND to 170	300	N/A	Leaching from natural deposits; industrial wastes
Manganese (Mn) (ppb)	1/2/2018	29	ND to 70 <sup>c</sup>	50	N/A	Leaching from natural deposits
Odor (threshold)	1/3/2018	1	1 to 1	3	N/A	Naturally-occurring organic materials
Turbidity, Laboratory (NTU)	1/3/2018	0.9	0.3 to 1.5	5	N/A	Soil runoff
Chloride (ppm)	1/2/2018	66	59 to 73	500	N/A	Runoff/leaching from natural deposits
Specific Conductance (E.C.) (umhos)	1/2/2018	921	831 to 1010	1600	N/A	Substances that form ions when in water, seawater influence
Sulfate (SO <sub>4</sub> ) (ppm)	1/2/2018	151	131 to 170	500	N/A	Runoff/leaching from natural deposits, industrial wastes
Total Dissolved Solids (TDS) (ppm)	1/2/2018	605	550 to 660	1000	N/A	Runoff/leaching from natural deposits

<sup>c</sup>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.

TABLE 6 – DETECTION OF UNREGULATED CONTAMINANTS

Chemical or Constituent (and reporting units)	Sample Date	Level Detected	Range of Detections	Notification Level	Health Effects Language

### 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 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 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>.

### Summary Information for Violation of a MCL, MRDL, AL, TT, or Monitoring and Reporting Requirement

VIOLATION OF A MCL, MRDL, AL, TT, OR MONITORING AND REPORTING REQUIREMENT				
Violation	Explanation	Duration	Actions Taken to Correct the Violation	Health Effects Language
None				

### For Water Systems Providing Groundwater as a Source of Drinking Water

TABLE 7 – SAMPLING RESULTS SHOWING  
FECAL INDICATOR-POSITIVE GROUNDWATER SOURCE SAMPLES

Microbiological Contaminants (complete if fecal-indicator detected)	Total No. of Detections	Sample Dates	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
<i>E. coli</i>	(In the year) 0	monthly	0	(0)	Human and animal fecal waste
Enterococci	(In the year)		TT	N/A	Human and animal fecal waste
Coliphage	(In the year)		TT	N/A	Human and animal fecal waste