



LASSEN VOLCANIC NATIONAL PARK

2018 WATER QUALITY CONSUMER CONFIDENCE REPORT

HEADQUARTERS WATER FILTRATION PLANT



Public Water System
ID. No. 5210503

Date of Report
June 3, 2019

HQ. Water Treatment Operators
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Chief Operator
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Drinking water for the headquarters residential, park support area is derived from the Martin Creek Watershed. The intake consists of a diversion dam with an infiltration galley and two screened settling boxes.

In the summer of 2019 a new raw water intake system will be constructed. It will be an underground Streambed filtration System. This new system will greatly reduce yearly maintenance cost and create a much needed raw water clarification process.

This new intake along with the microfiltration plant and new raw water main coupled with the ongoing new water main construction completes a 10yr. drinking water development period for the HQ system.

The intake is managed by NPS Water Treatment Operators. The source water is then delivered to the Headquarters Filtration Plant via 3 miles of underground water main. The source water is then filtered through two micro filtration membrane arrays. The final treatment is disinfection prior to been stored in an underground reservoir for coolness. We test the quality of this water supply for a variety of constituents as required by California State Regulations and the National Park Service (Public Health Service).

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

This report includes water quality data from January 1 - December 31, 2018.

Source Water Assessment



Source: Martin Creek - Mineral, Ca.

(Surface water)

Date of Last

Water Source Assessment: May, 2003

A copy of the complete assessment may be viewed at:

CWRCB Valley District Office
364 Knollcrest Drive, Suite 101
Redding, Ca. 96002
Reese Crenshaw, 530.224.4845

or

Lassen VNP Headquarters
P.O. Box 100
Mineral, Ca. 96063
Graham A. Dobson, 530.595.6227

The Martin Creek Watershed is located on National Forest Land and is managed by the National Forest Service (NFS). In 2003 the NPS and San Jose State University Engineering division developed a "Drinking Water Source Assessment". The Drinking Water Source Assessment determined that the highest level threat to the source water is "Managed Forest Practices" (Typically logging, herbicides, cattle grazing etc.). We have met with NFS representatives and submitted a copy of the "Drinking Water Source Assessment". The Forest Service has been cooperative in their management practices.

The Drinking Water Source Assessment created safe distance zones in the Martin Creek Watershed. These zones protect the source water supply from possible contamination caused by "Managed Forest Practices".

The following are fixed distances of zero "Managed Forest Practices" in each zone.

Zone A: 400 feet from primary stream boundaries.
200 feet from tributaries.

Zone B: 2,500 foot radius around the intake structure.

DROUGHT EFFECTS

In 2016 the Headquarters (Martin Creek) was heavily impacted by drought. The surface water level at Martin Creek was approximately 15% of normal for the year. This however, was enough flow to continue supplying an adequate amount of drinking water to the Headquarters Area, Mineral and Battle Creek Ranch. Lassen also recently created an upgrade to the Martin Creek raw water return system at the diversion site.

In past drought years we have experienced a complete dewatering of Martin Creek at the Headquarters drinking water intake. In such an occurrence we have excavated the creek at the diversion dam intake and rehabilitated the underground infiltration galley. This ensures a 100% capture of the raw water source that is piped into the raw water system. The unused raw water is returned to the creek bed. This was our plan if the Martin Creek surface flow receded underground prior to the diversion dam intake. We were lucky enough to survive the summer drought without a shortage of water.

2017 brought a nice recovery to the Martin Creek Watershed. Plans are in place in 2019 to develop a new intake at the existing Martin Creek Dam.

The following were our water conservation measures undertaken during 2016/17.

1. Installation of sink aerators throughout the HQ area.
2. Installation of low flush toilets in the majority of residences.
3. The washing machines are newer energy star units.
4. We discontinued all irrigation in the HQ, Ball field & RV areas starting 2 years ago.
5. We have a line item project for the HQ area that will eliminate all water leaks and install water meters at every structure.
6. We have a project PMIS for the replacement of the Martin Creek intake with a new stream bed infiltration system that does not rely on surface water as the source. Also the replacement / installation of a new raw water main from the intake to the new HQ Water Filtration Plant.
7. We have abandoned riparian rights to the upper meadow spring in the HQ area thus guaranteeing a continual flow to Battle Creek without diversion.
9. We distributed water conservation pamphlets - 20 ways to conserve water.
10. We constructed a new Membrane Microfiltration plant in the HQ area in 2011. This technology not only creates the purest drinking water possible but reduces the amount of drinking water sent to waste during the production runs. This system reduced the amount of water discharged by 80%. That amounts to 130,000 Gal. / yr.
11. Over the last 5 years we have reduced summer water consumption in the HQ area by 22%. Winter water consumption has been reduced by 24%. At the completion of the above mentioned line item project (#5) we will have reduced water consumption by 50%.



PUBLIC PARTICIPATION

Lassen Park Water Systems hold bi-annual meetings each year. We discuss the ongoing 5-year plan as well as all EPA, California Water Resource Control Board and Public Health Service rules and regulations as they pertain to the Lassen Park drinking water systems. If you would like to view the meeting agenda's or meeting notes please contact us at the above LAVO address.

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. The water can also pick up substances resulting from the presence of animal or human activity.

CONTAMINANTS THAT MAY BE PRESENT IN SOURCE WATER INCLUDE:

- ❖ **Microbial Contaminants**, such as viruses and bacteria, which 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, forest practices, urban storm-water runoff and residential uses.
- ❖ **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals that are byproducts of industrial processes and petroleum production. Other sources are gas stations, urban storm-water runoff, agricultural application and septic systems.
- ❖ **Radioactive Contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.

The following are definitions of some of the terms used in this report:

MAXIMUM CONTAMINANT LEVEL (MCL): The highest and lowest level of a contaminant allowed in drinking water.

PRIMARY DRINKING WATER STANDARDS: Includes MCLs for contaminants that effect health, surface water treatment requirements, and the monitoring and reporting requirements for required constituents.

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.

PUBLIC HEALTH GOAL (PHG): The level of a contaminant in drinking water below which there is no known or expected risk to health as established by the California Environmental Protection Agency.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health as established by the Federal Environmental Protection Agency.

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 U.S. Environmental Protection Agency.

TREATMENT TECHNIQUE (TT): A required process intended to reduce the level of a contaminant in drinking water.

REGULATORY ACTION LEVEL (LL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

VARIANCES AND EXEMPTIONS: Department permission to exceed and MCL or not comply with a treatment technique under certain conditions.

NTU: Nephelometric Turbidity Unit (a measure of water clarity).

MG/L: Milligrams per liter or parts per million.

UG/L: Micrograms per liter or parts per billion.

ng/l: Nanograms per liter or parts per trillion.

ND: Non-detectable at testing limit.

TDS: Total dissolved solids

pCi/l: Picocuries per liter (a measure of radiation)



Microbiological Water Quality

The Public Health Service (PHS) and California State Water Resources Control Board Division of Drinking Water (WRCBDDW) Regulations require testing for bacteriological contaminants. Filtered-untreated water (1/month) is required by the (PHS). Analysis of the raw creek water (2/month) and distribution system analysis (2/Month) is required by the (PHS) and the (WRCBDDW). The sampling is performed regularly to verify that the water is free from Coliform bacteria.

The 2017 minimum number of distribution Coliform tests required per month for this water system, when a coliform bacterium is not present is (2). All analysis is performed at a California State Certified Laboratory. The Headquarters water system complied with drinking water standards for microbiological quality for 12 months during 2017.

Minimum number of distribution samples for the presence of Coliform bacteria required per year: 24

Number of distribution samples for the presence of Coliform bacteria conducted during the last year: 24

Number of distribution samples, which were found to contain Coliform bacteria during the year: 0

Individual tap monitoring for lead & copper

Monitoring of individual taps from locations within the water system is performed for lead & copper. This monitoring is done to verify that the delivered water does not contain lead or copper.

Typical Sources of Contamination

LEAD: Internal corrosion of household water plumbing systems; discharges from industrial manufacturing; erosion of natural deposits.

COPPER: Internal corruptions of household water plumbing systems; erosion of natural deposits; leaching from wood preservatives.

This table summarizes the most recent monitoring for these constituents in micrograms per liter (ug/l):

Note that both lead and copper samples taken are below the MCL.

	Date of most recent samples	Number of samples collected	Number of samples required	Level detected 90th percentile (ug/l)	Action level (ug/l)
LEAD ==>	2018	5	5	12.5	15
COPPER ==>	2018	5	5	331.5	1,000

DISINFECTION BYPRODUCTS TESTING RESULTS

Generally speaking, Disinfection Byproducts are the results of over chlorination. Disinfection byproducts testing of water from individual locations in the distribution system is required by Calif. State regulations. The table below summarizes the most recent sampling for disinfection byproducts.

	Year Tested	Level detected (ppb)	MCL (ppb)	PHG
Trihalomethanes	2018	29.5	80	none
Haloacetic Acids	2018	38.2	60	none

Inorganic Chemical Water Quality

These values are expressed in micrograms per liter (**ug/l**) unless otherwise indicated. Micrograms per liter are equivalent to parts per billion (ppb). The symbol "<" indicates less than. The letters "ND" mean that no detectable level of this chemical was found in the samples taken. Please note that not all sampling is required annually, so in some cases our results are more than one year old.

Inorganic Chemical	Date of Test	Level Detected	MCL (ug/L)	Notes
Aluminum	09/13	ND	1000	
Antimony	09/13	ND	6	
Arsenic	09/13	ND	50	
Asbestos	09/14	ND	7 mfl	
Barium	09/13	4.5ppb	1000	
Beryllium	09/13	ND	4	
Boron	08/12	ND		

Inorganic Chemical	Date of Test	Level Detected	MCL (ug/L)	Notes
Cadmium	09/13	ND	5	
Chromium	09/13	ND	50	
Cyanide	01/03	ND	200	
1,2,3-Trichloropropane	4 Qtrs, 2018	ND	0.005	
Copper	08/12	ND		1000 ug/l (PHG=170 ug/l)
Fluoride	08/05	ND	2 mg/l	MCLG=1mg/l
Iron	08/16	ND	300	
Lead	09/13	ND	0.5	PQL
Manganese	08/12	ND	50	
PERCHLORATE	09/18	ND	6	
MTBE	08/02	ND	13	
Mercury	09/13	ND	2	
Nickel	09/13	ND	100	
Selenium	09/13	ND	50	
Thallium	09/13	ND	2	MCLG = 0.5
Zinc	08/12	ND	5000	

Radiological Water Quality

The following are the Result of water sample analysis performed to measure radiological constituents. Headquarters water system is in compliance if the level does not exceed 5 Pico Curies per liter (pCi/l). Note: Pico Curies are the units used for the measurement of radiological activity.

Results of most recent test for radiological constituents.

Name of constituent	Date of Test	Level Detected	MCL
Gross Alpha	07/16	ND	15

General Mineral and Physical Water Quality

The following constituents are not considered a health hazard but are monitored to determine consumer acceptance quality:

Name of constituent	Date of test	Level detected	MCL
Apparent-Color (unfiltered)	09/13	ND	15 units
Odor - Threshold	09/14	ND	3 T.O.N.
MBAS(foaming agents)	08/12	ND	0.5 mg/l
Turbidity	DAILY	0.02 Avg.	.10 NTU
Zinc	10/95	0.014	5000 ug/l
Nitrate	08/18	ND	45 mg/l
Nitrite	08/18	ND	3300 ug/l
PH	DAILY	7.00 Avg.	
Fluoride	08/12	ND	2 mg/l
Iron	08/16	ND	.3 mg/l

Name of Constituent	Date of Test	Level Detected	Recommended Level	Short Term Upper Level
Total Dissolved solids	08/12	60	500 mg/l	1,500 mg/l
Specific Conductance	DAILY	66 AVG.	900 ohms/cm	2,200 ohms/cm
Calcium	08/12	5 mg/l	none	none

Name of Constituent	Date of Test	Level Detected	Recommended Level	Short Term Upper Level
Chloride	08/12	ND	250 mg/l	600 mg/l
Sulfate	08/12	ND	250 mg/l	600 mg/l
Hardness	08/12	16.6	none	none
Sodium	08/12	3	1500mg/l	1500mg/l
TOC	08/11	0.6	-	-

GENERAL INFORMATION ON DRINKING 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 individuals, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The USEPA/Center for disease control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline at (1.800.426.4791).

ADDITIONAL GENERAL INFORMATION ON DRINKING WATER

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contamination 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 USEPA's Safe Drinking Water Hotline (1-800-426-4791)

"This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2017. All water systems are required to comply with the state Total Coliform Rule. Beginning April 1, 2016, all water systems are also required to comply with the federal Revised Total Coliform Rule. The new federal rule maintains the purpose to protect public health by ensuring the integrity of the drinking

water distribution system and monitoring for the presence of microbials (i.e., total coliform and E. coli bacteria). The U.S. EPA anticipates greater public health protection as the new rule requires water systems that are vulnerable to microbial contamination to identify and fix problems. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment to determine if any sanitary defects exist. If found, these must be corrected by the water system."

Surface Water Treatment Compliance Information

The highest single day NTU on the year was **.05**. Regulations require treated water from the type of filtration system provided (Micro-Filtration) at this water system to meet a standard of 0.10 NTU or less, in 95% of the samples taken during the month. The Headquarters Plant met this standard in 100% of the samples taken during the year. The yearly average was **.02** NTU. The treatment plant met the standard for all months in 2018.

Turbidity of the filtered water must:

1. Be less than or equal to **.10** NTU in 95% of measurements in a month.
2. Not exceed **1.0** NTU at any time.

If you have any questions or inquiries in regard to this report, please contact Graham A. Dobson at 595-6227.

Prepared by Graham A. Dobson, WTO
June 4, 2019

