

For water testing  
performed in 2019

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# Paradise Irrigation District *Annual Consumer Confidence Report*



## Our water. Our future.

Paradise Irrigation District

*Este informe contiene información muy importante sobre su agua potable. Tradúzcalo, o hable con alguien que lo entienda bien.*

## **Learn about our community's water quality**

*This annual "consumer confidence" water quality report covers all Paradise Irrigation District testing performed between Jan. 1 and Dec. 31, 2019, or earlier. The State Water Board allows certain chemicals to be monitored less than on a yearly basis because the concentrations of the substances are not expected to change significantly. In these cases, the most recent sample data are included, along with the year in which the sample was taken. Both "regulated" and "unregulated" contaminants are tested for; this report provides results only for contaminant's detected in PID's system—tests with non-detected (ND) results are not listed.*

*For information, contact Bill Taylor at (530) 877-4971 or visit PID at 6332 Clark Road, Paradise; we are open from 9 am to 4 pm, Monday - Friday.*

## **Resources for you: [PIDWater.com/recovery](http://PIDWater.com/recovery)**

*Paradise Irrigation District offers a wealth of resources for customers as our community works to recover from the 2018 Camp Fire. The district's recovery page ([PIDWater.com/recovery](http://PIDWater.com/recovery)) includes a map showing properties with potable water where the water advisory has been lifted, a reference guide to help property owners understand the process for receiving potable water, an overview of the district's service lateral replacement project and how to request restoration of water service.*

## **PID's water treatment process from start to your home:**

Raw water from Magalia Reservoir or Little Butte Creek through the Magalia Bypass is treated before being distributed to Paradise residents. The treatment process consists of coagulation, clarification, filtration and disinfection. The coagulation process consists of adding alum and polymer to the water to chemically bond very small particles in the water into larger particles. Coagulated water is passed through a bed of coarse granulated media in the absorption clarifiers. Coarse media in the clarifier removes most of the coagulated particles.

Clarified water flows downward through tri-media filters consisting of anthracite, sand, and fine garnet to remove the remaining particulates and "polish" the finished water. A minimum amount of chlorine is added to the finished water to meet California state requirements. Chlorine can be added either to the raw water prior to filtration or to the filtered water. Filtered water is routed through a treated water storage tank to provide sufficient time for the chlorine to kill any bacteria remaining in the water. This water is then routed to off-site reservoirs for distribution to Paradise residents.

## **Health information for the medically-vulnerable**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking treated water from their health care providers.

The US EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants



are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2019. All water systems are required to comply with the state Total Coliform Rule. Beginning April 1, 2016, all water systems were 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 (e.g., 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.

## Substances that could be in drinking 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 plants, animals or from human activity.

To make sure our tap water is safe to drink, the U.S. Environmental Protection Agency (US EPA) and the State Water Resources Control Board (State Board) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. State Board regulations also establish limits for contaminants in bottled water that must provide the same level of protection for public health. 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 water poses a health risk. 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. Additional information on bottled water is available on the California

Department of Public Health website (<https://www.cdph.ca.gov/Programs/CEH/DFDCS/Pages/FDBPrograms/FoodSafetyProgram/Water.aspx>).

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 can 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, which are by-products of industrial processes and petroleum production and which can also come from gas stations, urban stormwater runoff, agricultural applications, and septic systems;

**Radioactive Contaminants**, that can be naturally occurring or can be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

### Source Water Assessment available at PID office

PID's 2016 Source Water Assessment is a report of the area of influence around our listed "raw" water sources through which contaminants, if present, could reach our source water. It includes an inventory of potential sources of contamination within the area and a determination of the water supply's susceptibility to contamination by the identified potential sources including:

**Ground Water Supply (Well at D Tank):** High-density septic systems and automobile repair shops.

**Surface Water Supply (Little Butte Creek Watershed):** High-density septic systems and historic mining operations.

The Source Water Assessment is also available at the State Water Resources Control Board Division of Drinking Water (Redding office): 364 Knollcrest Dr., Suite 101; Redding, CA 96002; (530) 224-4800

## Lead and copper

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. PID 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 [Optional: 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>.

### DEFINITIONS USED:

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

**µS/cm (microsiemens per centimeter):** A unit expressing the amount of electrical conductivity of a solution.

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. Primary (health-related) MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs (SMCLs) are set to protect the odor, taste and aesthetic appearance and use of the drinking water.

**MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the USEPA.

**MFL (million fibers per liter):** A measure of the presence of asbestos fibers that are longer than 10 micrometers.

**MRDL (Maximum Residual Disinfectant Level):** 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.

**MRDLG (Maximum Residual Disinfectant Level Goal):** 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.

**NA:** Not applicable.

**ND (Not detected):** The substance was not found by laboratory analysis.

**NS:** No standard.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity/cloudiness—or turbidity—of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**PDWS (Primary Drinking Water Standard):** MCLs and MRDLs for contaminants that affect health, along with their monitoring and reporting requirements and water treatment requirements.

**PHG (Public Health Goal):** 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 EPA.

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter). Imagine one ping-pong ball in an Olympic-sized swimming pool.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter). Imagine one ping pong ball in 1,000 Olympic-sized swimming pools.

**pCi/L (picocuries per liter):** A measurement of radioactivity.

**TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

**Sampling results** Paradise Irrigation District has taken thousands of regulated and unregulated water samples during the past years to determine the presence of any radioactive, biological, inorganic, volatile and synthetic organic contaminants and monitor the treatment process. The tables below show only those contaminants that were detected in the water; some that were not detected are listed because our customers may be interested in seeing the results. The State Water Resources Control Board (State Board) requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change significantly. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

**PRIMARY HEALTH STANDARDS**

SUBSTANCE (UNIT OF MEASURE)	MCL	Surface Water Supply			Groundwater Supply			MAJOR SOURCE IN DRINKING WATER
		YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	
<b>INORGANIC</b>								
Chromium (Total) (ppb)	50	2013	ND	ND	2014	3.4	3.4	Erosion of natural deposits.
Hexavalent Chromium (ppb)	None	2015	0.11	0.11	2014	2.5	2.5	Erosion of natural deposits.
<b>CLARITY</b>								
Turbidity (NTU) (prior to treatment)	~	2019	1.28	0.35-12.78	2016	0.18	0.18	Soil runoff.
Turbidity (NTU) (TT) (treated water)	0.2	2019	0.04	0.04-0.05	NA	NA	NA	Soil runoff.
Turbidity is a measurement of the cloudiness of the water. Turbidity measurement is a good indicator of the effectiveness of the filtration system. PID's permit with State Drinking Division requires PID to deliver water with no more than 0.2 NTU.								
<b>RADIOLOGICAL</b>								
Radium 228 (pCi/L)	5	2017	2.2	2.2	2017	2.9	2.9	Erosion of natural deposits.
<b>DISINFECTANT</b>								
Chlorine, Free Residual as Cl2 (ppm) (TT)	4	2019	0.95	0.43-1.44	NA	NA	NA	Water additive used to control microbes.
<b>DISINFECTANT BY-PRODUCTS</b>								
Bromodichloromethane (ppb)	~	2019	2	2-3	NA	NA	NA	Drinking water disinfection.
Bromoform (ppb)	~	2019	7	6-7	NA	NA	NA	Drinking water disinfection.
Chloroform (Trichloromethane) (ppb)	~	2019	30	21-40	NA	NA	NA	Drinking water disinfection.
Dibromochloromethane (ppb)	~	2019	2	2	NA	NA	NA	Drinking water disinfection.
Trihalomethanes, Total (ppb)	80	2019	34	23-43	NA	NA	NA	Drinking water disinfection.
Dichloroacetic Acid (DCAA) (ppb)	~	2019	14	7-21	NA	NA	NA	Drinking water disinfection.
Trichloroacetic Acid (TCAA) (ppb)	~	2019	19	13-24	NA	NA	NA	Drinking water disinfection.
Bromoacetic acid (ppb)	~	2019	3	3	NA	NA	NA	Drinking water disinfection.
Haloacetic Acids, Total (ppb)	60	2019	33	26-43	NA	NA	NA	Drinking water disinfection.
<b>DISINFECTANT BY-PRODUCT PRECURSOR</b>								
Total Organic Carbon (prior to treatment)	~	2019	1.1	0.8-1.4	NA	NA	NA	Decay of natural organic matter.

**UNREGULATED AND OTHER SUBSTANCES**

CHEMICAL (UNIT OF MEASURE)	Surface Water Supply			Groundwater Supply			MAJOR SOURCE IN DRINKING WATER
	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	
Alkalinity as CaCO3 (ppm)	2019	31	26 - 39	2014	81	81	Natural occurring substance.
Bicarbonate Alkalinity (ppm)	2017	29	29	2014	99	99	Natural occurring substance.
Calcium (ppm)	2017	4.5	4.5	2014	15	15	Natural occurring substance.
Magnesium (ppm)	2017	3.3	3.3	2014	9.3	9.3	Natural occurring substance.
Sodium (ppm)	2011	1.7	1.7	2014	5.1	5.1	Natural occurring substance.
Chlorate (ppb)	2015	260	120 - 400	NA	NA	NA	Sodium Hypochlorite used for disinfection.
pH	2019	7.1	7.0 - 7.2	2017	7.3	7.3	Slightly basic water.

*Fluoride is not added to the District's drinking water; fluoride concentration in the raw water is not detectable.*

## SECONDARY AESTHETIC STANDARDS

CHEMICAL (UNIT OF MEASURE)	MCL	Surface Water Supply			Groundwater Supply			MAJOR SOURCE IN DRINKING WATER
		YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	
Chloride (ppm)	500	2011	2.5	2.5	2014	1.3	1.3	Natural occurring substance.
Hardness (ppm)	~	2016	28	28	2014	76	76	Natural occurring substance.
Total Dissolved Solids (ppm)	500	2016	43	43	2014	150	150	Natural occurring substance.
<b>CORROSIVITY</b>								
Specific Conductance (uS/cm)	1600	2016	77	77	2014	160	160	A measurement of water's conductance.
Langelier Saturation Index *	Non-Corrosive	2016	-1.7	-1.7	NA	NA	NA	Indicator of corrosiveness of water.
Aggressive Index	Non-Corrosive	2016	10	10	NA	NA	NA	Indicator of corrosiveness of water.
Zinc (ppm)(TT)	5	2017	0.39	0.29-0.56	2014	NA	NA	Water additive used to control corrosion.
Orthophosphate (ppm)(TT)	~	2017	1.11	0.92-1.41	NA	NA	NA	Water additive used to control corrosion.

\* The Langelier Saturation and Aggressive Indices and Specific Conductance are tests to measure the corrosivity of water. The results indicate that PID water is mildly corrosive. Zinc orthophosphate (ZOP) is added at the treatment plant to reduce the corrosiveness of the water on metallic pipes.

## LEAD & COPPER ANALYSES

Every three years PID is required to sample at the customers' faucets for lead and copper. This monitoring ensures our water is not too corrosive and does not leach unsafe levels of these metals into your drinking water. Compliance measurements are from the 90th percentile (the level measured at 90% of homes sampled). See "Corrosivity" section.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	VIOLATION?	AL	PHG (MCLG)	AMOUNT DETECTED (90 <sup>TH</sup> %TILE)	SCHOOLS REQUESTING SAMPLING	SITES ABOVE AL/ TOTAL SITES	TYPICAL SOURCE
Copper (ppm at the 90th percentile)	2017	No	1.3	0.3	0.01	0	0/30	Internal corrosion of household plumbing.
Lead (ppb at the 90th percentile)	2017	No	15	0.2	ND	0	0/30	Internal corrosion of household plumbing.

## TOTAL COLIFORM AND E.COLI SAMPLING IN 2019

MICROBIOLOGICAL CONTAMINANTS (AND REPORTING UNITS)	HIGHEST NUMBER DETECTED	# MONTHS IN VIOLATION	MCL	IN COMPLIANCE?	MAJOR SOURCE IN DRINKING WATER
Total Coliform	0	0	1 sample	Yes	Naturally present in environment.
Fecal Coliform or E.coli (State Total Coliform rule)	0	0	A routine sample and a repeat sample are total coliform positive, and one of these is also fecal coliform or E. coli positive	Yes	Human and animal fecal waste.
Fecal Coliform or E.coli (Federal Revised Total Coliform rule)	0	0	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	Yes	Human and animal fecal waste.

Discover the status of any main line in town: [PIDWater.com/recovery](http://PIDWater.com/recovery) (click on 'Mainline Sampling Map')

## **FIRE-RELATED SAMPLING OF NON-POTABLE WATER**

As part of the cleanup effort following the 2018 Camp Fire, Paradise Irrigation District began sampling water entering the Distribution system and then working our way systematically out into our system, eventually reaching every service line serving all the standing structures in the Town: PID will soon complete sampling all mains to the damaged lots.

Fire damage caused a potential for pipes to be contaminated with volatile organic compounds (VOCs) such as Benzene and others. High VOCs concentrations in water can cause acute reactions to skin and may even let off fumes into the air causing nausea and dizziness. VOCs are known carcinogens; even low levels of VOCs are dangerous over time. State and federal agencies have developed standards related to VOCs to protect our health and safety.

The results shown below are related to this massive sampling effort undertaken by the district. In order for a parcel (standing structure or new construction) to receive a clearance letter from PID, the service line to that parcel has been tested and verified to meet all state standards or it has been replaced with a new line. Additionally, all the main lines from that parcel tracing all the way back to the treatment plant must have been cleared. For a main line to be cleared it must have been sampled and shown to be non-detect (ND) for benzene and meet all state standards for VOCs (ND for benzene is stricter than state standards). Mains that did not meet these requirements were either thoroughly flushed and retested until clear or replaced. Currently all the flow-through mains in the Town of Paradise have been cleared; PID crews are working to clear the dead-end mains which remain.

CONSTITUENTS SAMPLED IN 2019	MCL	NL	TOTAL NUMBER OF DETECTIONS	AVERAGE DETECTION (PPB)	LOWEST DETECTION (PPB)	HIGHEST DETECTION (PPB)
Benzene	1.0	--	273	20.3	0.5	923.0
Bromodichloromethane	80.0	--	3588	2.6	0.5	12.0
Bromoform	80.0	--	2	0.5	0.5	0.5
tert-Butanol (TBA)	--	12.0	19	59.7	4.4	600.0
n-Butylbenzene	--	260.0	6	0.7	0.5	1.4
sec-Butylbenzene	--	260.0	2	0.7	0.5	0.8
tert-Butylbenzene	--	260.0	1	1	1.0	1.0
Carbon Disulfide	--	160.00	70	2.3	0.5	11.4
Carbon Tetrachloride	0.5	--	1	0.7	0.7	0.7
Chlorobenzene	70.0	--	11	1.9	0.5	5.0
Chlorodibromomethane	80.0	--	90	0.7	0.5	1.6
Chloroform	80.0	--	3792	31	0.7	200.0
2-Chlorotoluene	--	140.0	1	0.7	0.7	0.7
4-Chlorotoluene	--	140.0	3	1.5	1.0	1.8
1,2-Dibromo-3-chloropropane	0.2	--	0	0	0.0	0.0
1,2-Dibromoethane	0.1	--	0	0	0.0	0.0
1,2-Dichlorobenzene	600.0	--	1	0.5	0.5	0.5
1,4-Dichlorobenzene	5.0	--	0	0	0.0	0.0
Dichlorodifluoromethane (Freon 12)	--	1000.0	0	0	0.0	0.0
1,1-Dichloroethane	5.0	--	38	1.3	0.5	4.0
1,2-Dichloroethane	0.5	--	3	2.6	2.1	3.0
1,1-Dichloroethene	6.0	--	0	0	0.0	0.0
cis-1,2-Dichloroethene	6.0	--	0	0	0.0	0.0
trans-1,2-Dichloroethene	10.0	--	0	0	0.0	0.0
1,2-Dichloropropane	5.0	--	1	0.6	0.6	0.6
1,3-Dichloropropene (Total)	0.5	--	0	0	0.0	0.0
cis-1,3-Dichloropropene	0.5	--	0	0	0.0	0.0
trans-1,3-Dichloropropene	0.5	--	0	0	0.0	0.0
Ethylbenzene	300.0	--	157	9.2	0.5	730.0
Isopropylbenzene	--	770.0	69	2.9	0.5	34.0
Methyl-t-butyl Ether (MTBE)	13.0	--	2	1.4	0.7	2.2
Methylene chloride	5.0	--	342	5.8	0.5	34.0
4-Methyl-2-pentanone	--	120.0	1	11	11.0	11.0
Naphthalene	--	17.0	114	9.1	0.5	278.0
N-propylbenzene	--	260.0	15	1.6	0.5	3.9

*Fire-related sampling continued on next page*

CONSTITUENTS SAMPLED IN 2019	MCL	NL	TOTAL NUMBER OF DETECTIONS	AVERAGE DETECTION (PPB)	LOWEST DETECTION (PPB)	HIGHEST DETECTION (PPB)
Styrene	100.0	--	90	107.3	0.5	6800.0
1,1,2,2-Tetrachloroethane	1.0	--	0	0	0.0	0.0
Tetrachloroethene (PCE)	5.0	--	3	1.3	0.6	2.8
Toluene	150.0	--	189	16.4	0.5	1400.0
1,2,4-Trichlorobenzene	5.0	--	3	1.8	0.5	2.4
1,1,1-Trichloroethane	200.0	--	0	0	0.0	0.0
1,1,2-Trichloroethane	5.0	--	0	0	0.0	0.0
Trichloroethene (TCE)	5.0	--	0	0	0.0	0.0
Trichlorofluoromethane (Freon 11)	150.0	--	0	0	0.0	0.0
1,2,3-Trichloropropane	0.0	--	0	0	0.0	0.0
1,1,2-Trichlorotrifluoroethane (Freon 113)	1200.0	--	0	0	0.0	0.0
1,2,4-Trimethylbenzene	--	330.0	28	1.5	0.5	3.9
1,3,5-Trimethylbenzene	--	330.0	11	1.9	0.6	8.8
Vinyl Chloride	0.5	--	6	0.7	0.6	0.8
m-Xylene	1750.0	--	0	0	0.0	0.0
p-Xylene	1750.0	--	0	0	0.0	0.0
m and p-Xylene	1750.0	--	288	2.8	0.5	162.0
o-Xylene	1750.0	--	226	2.6	0.5	50.0
Xylenes (Total)	1750.0	--	349	4.1	0.5	175.0
Total Trihalomethanes	80.0	--	3793	33.4	0.7	200.0
<b>TOTAL VOC SAMPLES TAKEN IN 2019</b>	<b>4,469</b>					
<b>TOTAL NUMBER OF VOC SPECIES TESTED FOR IN 2019</b>	<b>262,205</b>					