

For water testing
performed in 2018

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YOUR WATER DISTRICT:
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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, 2018, 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.

6332 CLARK ROAD PARADISE, CA 95969 530/877-4971

Information about your community's water post-Camp Fire:

The Camp Fire changed Paradise in multiple ways—and that includes our community's water district. While Paradise Irrigation District's Treatment Plant has continued operations from the day of the fire forward, the district's distribution system was affected in multiple ways.



This Consumer Confidence Report, required annually of water districts, reflects testing done during 2018; the majority of the sampling reflected here was completed before the Camp Fire.

As part of the recovery process for our community's water system, PID has consulted with national and regional experts. The district continues its widespread water sampling process to provide the feedback needed to restore the community's water distribution system.

Until official notice, please be aware that the **water in Paradise remains non-potable** (non-drinkable).

We've included current water quality informa-

tion in a dedicated section of PID's website: <https://pidwater.com/wqadvisory>

Alternative sources for potable water include:

Bottled Water Distribution - Paradise Irrigation District Customers (must confirm residency)

- Hope Center / Re-entry Center - 311 Circlewood (Corner of Skyway and Neal Road behind the Paradise Sign)

One case of water per day per household

Hours: 9 am - 4 pm Monday-Saturday

Self-Serve Potable Water Fill Station (Up to 5 gallon containers)

- PID Treatment Plant - 13888 Pine Needle Drive (Near the intersection of Skyway and Coutolenc Road), Magalia

Bring Your own Containers

Hours: 7 am - 4 pm Monday-Friday

- Hope Center / Re-entry Center - 311 Circlewood (Corner of Skyway and Neal Road behind the Paradise Sign)

Hours: 9 am - 4 pm Monday-Saturday

Health information for medically-vulnerable residents

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>.

Where does your water come from?

Customers of the Paradise Irrigation District are fortunate because we enjoy a high-quality water supply from the upper portion of the Little Butte Creek Watershed (about 7,400 acres). Water which falls within this watershed (mostly via rain, though a little from snow) flows into either Paradise Lake and/or Magalia Reservoir. These two reservoirs are owned and operated by the District for the purpose of storing water for the residents of the District.

The PID treatment plant draws water primarily from Paradise Lake throughout the year, and secondarily from Magalia Reservoir for short periods throughout the year when needed; together they hold a total of 12,293 acre-feet of water. Runoff is collected over 11.8 square miles of watershed located primarily north of Paradise Lake and Magalia Reservoir. This watershed is heavily forested and sparsely populated, which contributes to the high-quality water we serve. PID's water treatment plant provides average flows in the winter and summer of 3 million gallons per day (MGD) and 8 MGD, respectively.

The District drilled and developed a ground water source at the D Tank site. This well produces up to 450 gallons per minute (gpm) and is used as a drought management and emergency source. Water quality testing has been done to qualify it as an approved source.

How is your water treated?

Untreated "raw" water is conveyed from Paradise Lake or Magalia Reservoir to the water treatment plant (located just below Magalia Dam) via either the Magalia Reservoir Bypass Pipeline, which is water from Paradise Lake, or the intake structure at Magalia Reservoir. Typically the majority of the water treated at the plant comes from the Bypass Pipeline; Magalia Reservoir is used for short periods of time, typically in the fall and winter, but could be any time.

The treatment process consists of pre-chlorine addition for disinfection, followed by coagulation, up-flow clarification, gravity filtration, and chlorine contact time.

1. Chlorine is added (1.5 to 1.7 ppm) to kill or inactivate disease-causing organisms which may be present in the water (disinfection), control the growth of algae and assist with coagulation.
2. Coagulation consists of adding aluminum sulfate, aluminum chlorhydrate and two polymers to the raw water to chemically bond very small particles (turbidity) into larger particles (floc).
3. Most of these larger floc particles are removed from the raw water as they pass through a bed of coarse, granulated media in the up-flow clarifiers.
4. The clarified water then flows downward

through tri-media filters (consisting of anthracite, sand and fine garnet) to remove additional (turbidity and floc) particles which may still be in the water.

5. After the two filtration processes the water is well below the State requirements for turbidity (0.2 NTU). The water is routed through a treated water storage tank which provides sufficient chlorine contact time to thoroughly disinfect the water. A minimum amount of chlorine remains (1.0 ppm) in the treated water to ensure the California health requirements are met in the distribution system so the potable water is delivered properly to the consumer at all times.
6. Finally, as the treated water leaves the plant, zinc orthophosphate (a corrosion inhibitor) is added. This is added to minimize corrosion of the District's steel pipelines, and minimize lead and copper leaching from customers' pipes and faucets.

Wastewater is generated during the daily cleaning of the up-flow clarifiers and gravity filters. About eight to ten percent of the daily raw water is used to clean the clarifiers and filters (about 600 acre-feet per year). The wastewater is stored temporarily in a holding tank at the plant, dechlorinated and a polymer is

added. This water is transferred to the settling ponds for liquid/solids separation. Clarified water is discharged to the Magalia Reservoir,

and is regulated with a National Pollutant Discharge Elimination System (NPDES) permit. The settled solids in the ponds are dried when the ponds are taken out of service and drained. Dried solids are analyzed per landfill requirements and transported by the District to the local Neil Road Landfill.

The treatment plant was constructed in 1994 and went online in 1995. The plant has the flexibility to operate with computer or manual control. The automated operating system includes over 40 different alarms to monitor and advise the plant operators of unusual conditions. Operating information is archived both as part of the computer control system and recording charts. The plant includes an emergency generator that will operate the plant during a power outage. The treatment plant has plenty of capacity (flow tested at 22.8 million gallons/day) to meet current maximum daily and future demand.

At times water is treated and delivered to the Del Oro Water Company, using water that they added to Paradise Lake.



**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.



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/Food-SafetyProgram/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.

Lead and copper and your drinking water

Federal regulations require Paradise Irrigation District to sample for lead and copper in your drinking water every three years and then the state reviews those samples for compliance. Based on the sampling results, there is no reason for concern. The samples show no lead and only minimal results for copper—and those

levels are well below the action level for concern. However, if you are concerned about lead and/or copper in your water, you may wish to have your water tested. Information on lead and copper in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline

or a Quick Reference Guide at <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=60001N8P.txt> or call the district at 530/877-4971.

New regulations require the district to test for lead in the drinking water at all Paradise public schools or if requested.

DEFINITIONS USED IN THIS REPORT:

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.

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

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.

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. *Note that this is the report for sampling in 2018; most of the sampling was done before the Camp Fire on Nov. 8, 2018.*

PRIMARY HEALTH STANDARDS		Surface Water Supply			Groundwater Supply			MAJOR SOURCE IN DRINKING WATER
SUBSTANCE (UNIT OF MEASURE)	MCL	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	
INORGANIC								
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.
CLARITY								
Turbidity (NTU) (prior to treatment)	~	2018	0.75	0.33-3.45	2016	0.18	0.18	Soil runoff.
Turbidity (NTU) (TT) (treated water)	0.2	2018	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.								
RADIOLOGICAL								
Radium 228 (pCi/L)	5	2017	2.2	2.2	2017	2.9	2.9	Erosion of natural deposits.
DISINFECTANT								
Chlorine, Free Residual as Cl ₂ (ppm) (TT)	4	2018	0.67	0.49-0.89	NA	NA	NA	Water additive used to control microbes.
DISINFECTANT BY-PRODUCTS								
Bromodichloromethane (ppb)	~	2018	2.5	.1-3	NA	NA	NA	Drinking water disinfection.
Chloroform (Trichloromethane) (ppb)	~	2018	25.6	21-30	NA	NA	NA	Drinking water disinfection.
Trihalomethanes, Total (ppb)	80	2018	28.25	23-33	NA	NA	NA	Drinking water disinfection.
Dichloroacetic Acid (DCAA) (ppb)	~	2018	11.3	8.2-19	NA	NA	NA	Drinking water disinfection.
Trichloroacetic Acid (TCAA) (ppb)	~	2018	16	12-32	NA	NA	NA	Drinking water disinfection.
Haloacetic Acids, Total (ppb)	60	2018	28.5	21-51	NA	NA	NA	Drinking water disinfection.
DISINFECTANT BY-PRODUCT PRECURSOR								
Total Organic Carbon (prior to treatment)	~	2018	1.1	0.9-1.2	NA	NA	NA	Decay of natural organic matter.

BENZENE

SUBSTANCE (UNIT OF MEASURE)	MCL	YEAR SAMPLED	AVERAGE DETECTED	RANGE LOW-HIGH	SAMPLING NOTES
Benzene (ppb)	1	2018	0.12	ND-1.1	Nine samples were taken for benzene in 2018 after the Camp Fire.

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 TH %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.

PID seeks community participation

You're invited to participate in our public meetings and voice your concerns about your drinking water, or any matter of concern. Your PID Board of Directors meets the third Wednesday of each month, beginning at 6:30 pm, at 6332 Clark Road, Paradise. Each meeting is also streamed live (and archived) on the district's Facebook page ([facebook.com/PIDwater](https://www.facebook.com/PIDwater)) As always you can call the District Manager any time if you have any questions regarding District business, any concern or complaint at (530) 877-4971.



For the latest information about water testing within Paradise Irrigation District, go to PIDWater.com

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.
CORROSIVITY								
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.

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)	2017	26	19 - 36	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	2018	7.2	7.1 - 7.3	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.

This Consumer Confidence Report (CCR) reflects changes in drinking water regulatory requirements during 2018. 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 (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.