

# *Annual Water Quality Report*

Water testing  
performed in 2011

6332 CLARK ROAD  
PARADISE, CA 95969



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## Your water— Clean. Fresh. Pure.

*Paradise Irrigation District*

*Este informe contiene información muy importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.*

***Save money and stop worrying—tell us how to contact you and we'll notify you if you have a leak!***

Leave your phone number and/or e-mail address with us and we'll have it on file in case our automated leak monitoring system detects a leak at your home or business.

We'll contact you as soon as we know about the leak so you can save money and water from going down the drain!

Call our friendly customer service representatives (530/877-4971) or include the information when you mail in your next bill. Your information will remain confidential and will only be used by Paradise Irrigation District.



# Our community has great water!

We're proud to present our annual water quality report covering all testing performed between Jan. 1 and Dec. 31, 2011.

At Paradise Irrigation District we're committed to delivering the best-quality drinking water possible and we remain vigilant in meeting the challenges of new regulations, water source protection, water conservation and community outreach and education while continuing to serve the needs of our water users.

Thank you for allowing us to continue providing you and your family with quality drinking water.

Please share your thoughts with us on the information in this report. And, if you have any questions or concerns, we're here to help. Call George Barber at 530/877-4971.



## Paradise Irrigation District is something special — it belongs to all of us

Do you have questions about the water you drink and use? You don't have to go to a huge utility company to get the answers you need—Paradise Irrigation District is a public agency. It is operated to benefit water consumers in our area and governed by local people we've elected.

Unlike privately-owned utility companies, PID makes all of its decisions right here in our community. PID actively seeks citizen input—both by attending meetings as well as participating on the water district's board of directors. Board members represent one of five divisions in our service area and are elected in November every two years (terms are four years and rotate).

Keeping our water supply clean and plentiful is our community's responsibility; it's our water and our water district.

### Good to know:



Prudent oversight means every time PID covers its payroll, the district has met their employee retirement liability.

PID employees are not part of the state's PERS benefit program.

## Have you noticed the progress at PID's corporate yard?

Construction on the "corporation yard" continues at Paradise Irrigation District's 6332 Clark Road location; plans are for the facility to be fully functional by the end of 2012.

While PID's main office has been at Clark Road for the past few years, the agency's facilities for equipment and many of its "in the field" employees was across town, on Black Olive (near the Paradise Police Station). With a swap of land and construction at Clark Road, though, all of the agency's operations will be at one central location—making PID more efficient and better able to respond to consumer needs.

Creation of the 4.5-acre corporate yard included a drainage rechannel as well as cut and fill excavation to create about 2.5 acres of a level pad. Retention storm water basins are in place under the parking area where they can collect the excess water but not waste the flat space.

Located on the pad will be two buildings (one for an office/employees and one for a maintenance and operations shop) as well as parking for employee and customer vehicles. While most equipment will be stored in the shop, larger piping will be stored outside the shop.

Landscaping and plantings along the Clark Road frontage—as well as the lowered height of the building area on that end of the corporation yard—means there will be minimal visual impact of the corporation yard from Clark Road.



The "old" PID corporation yard on Black Olive (above); it will soon be replaced by a corporate yard being built at the PID facility on Clark Road (right).



# Paradise fourth graders learn about our water— where it's from, how it's processed and why to conserve

It's a lovely May morning and the excitement is contagious as Paradise fourth graders gather on a school field for the day's event—the Wet Festival sponsored by Paradise Irrigation District.

Sure, it may look like a lot of plain old fun with water brigades, lots of "accidental" splashing and even a craft project to make a bracelet. But a lot more is happening than simple fun.

The day-long event includes activity centers featuring information about water sources, the water cycle, conservation, water treatment and even a try at repairing a leaky PID pipe.

It's hands-on learning of the best type, says Wendy Rickards, who's coordinated the school activity for the past five years. Rickards and her team of PID colleagues work closely with local fourth grade teachers to provide background and suggested pre-activities as well as the instruction on the day of the event.

"Kids think of it as one of the highlights of their school year and teachers appreciate all the work that goes into supporting state curriculum standards," says Rickards. "Those of us with PID really enjoy educating a new generation of water users about the importance of our water resource."

"The kids learn a lot and, in the long run, our whole community will benefit," she adds. "It's a great program."

California fourth graders already study the water cycle; the Water Education for Teachers (WET) curriculum develops that further, weaving in science, social studies and geography.

After building their own miniature water filters at the WET Festival, students visit PID's treatment plant in Magalia.

"We provide everything so the program doesn't cost the school district or teachers anything," Rickards notes. "In addition to the curriculum, the projects and the take-home items like pencils and booklets, we cover the cost of the school bus up to the treatment plant."

In past years, PID has even brought in a state teaching expert to provide continuing education for teachers in the area of water studies.

Rickards says teaching students about local water and how to conserve it is information that continues beyond the day's event.

"We hear from teachers that students are much more aware of where their water comes from and the importance of conservation," she says. "When the student shares what they've learned with their family, we realize that what we're doing in the program can carry throughout the whole community."

In 2012, more than 240 Paradise fourth graders participated in two Wet Festivals. Participating schools included Paradise Elementary, Ponderosa Elementary and Achieve Charter.



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## Draft plan finished



PID's draft Strategic Business Plan will be presented at the June board meeting; attend to hear the details and offer input. The plan is a framework for district decision-making.

## Where does my water come from?

Customers of the Paradise Irrigation District are fortunate because we enjoy a high-quality water supply from a surface water source.

The PID treatment plant draws water from Magalia Reservoir and Paradise Lake, which hold a total of 12,293 acre-feet of water. The water treatment plant was constructed in 1995 and provides an average flow of 7.5 million gallons per day. Runoff is collected over 11.2 square miles of watershed located north and east of Magalia Reservoir. This watershed is heavily forested and sparsely populated, which contributes to the high-quality water we serve.

The District drilled and developed a ground water source at the D Tank reservoir site. This well produces up to 450 gallons per minute (gpm) and is used as a drought management and emergency source. This source was used during six of the twelve months in 2011; water quality testing has been done to qualify it as an approved source.

## Does your water smell or taste a bit “off” sometimes?

If you turn on the tap in the late fall and early winter months you might notice a bit of a musty odor or an earthy “flavor” to your usually sparkling glass of PID water.

While water quality tests tell us our water is safe to drink and meets all EPA standards, we’re not any happier than you are with water that doesn’t meet our usual high flavor standards.

Two compounds released from soil and algae, methylisoborneol (MIB) and Geosmin, can be detected by humans at levels of less than 10 parts per trillion (one part per trillion would compare to one inch in 16 million miles).

MIB is most commonly found in the bottom layers of lakes; Geosmin is the same substance that gives soil its “dirt” smell. Together, these two lend a temporary and undesirable “bouquet” to our PID water when levels are high in the water we use from Magalia Reservoir. Paradise Lake, because it’s deeper, hasn’t so many issues because the water is colder and therefore “fresher” in odor and taste.

When the seasonal rains begin in late fall, the District goes to work at refilling our reservoirs. It becomes a complex balancing act of slowing the discharge from Paradise Lake (so it can refill for the next year) and using a blend of water from the lake as well as Magalia Reservoir to supply the treatment plant—and our users.

When we have an early rainstorm, the runoff water entering the bypass pipeline overwhelms the amount of water and changes its chemistry to a lower alkaline level. State health standards force us to use water from the reservoir (which remains treatable due to its alkalinity) but there are taste and odor issues even though the water is safe to drink and use.



## PID uses four-step process to treat your water

“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.

Coagulation consists of adding alum and polymer to the water to chemically bond very small particles in the water into larger particles.

Coagulated water is then passed through a bed of coarse, granulated media in the adsorption 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; this removes remaining particulates and polishes the finished water.

A minimum amount of chlorine is in the finished water to meet California’s requirements. Chlorine is added to the raw water prior to filtration. 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 treated water is then routed to off-site reservoirs for distribution to Paradise residents.

## Health information our medically-vulnerable residents need

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking 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>.

## 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 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 California Department of Public Health (Department) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that must provide the same 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.

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 Plan now available

PID's 2011 Source Water Assessment Plan is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources.

**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.

*A copy of the complete assessment may be viewed at CDPH Valley District Office, 364 Knollcrest Drive, Suite 100, Redding, CA 96002, Attention: Reese Crenshaw, (530) 224-4861, or Paradise Irrigation District Office, 6332 Clark Road, Paradise, CA 95969, Attention: George Barber, (530) 877-4971.*



## Lead and drinking water

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. We are 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 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

### DEFINITIONS USED IN THIS REPORT:

**AL (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 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 appearance of 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—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.

### UNITS WE USED FOR MEASUREMENT:

**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.

**Sampling results** Paradise Irrigation District has taken hundreds of water samples during the past year to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables here show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

**REGULATED SUBSTANCES**

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL (MRDL)	PHG (MCLG) [MRDLG]	Surface Water Supply		Groundwater Supply		VIOLA- TION?	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Asbestos (MFL)	2004	7	7	0.2	NA	NA	NA	No	Internal corrosion of asbestos cement water mains; erosion of natural deposits.
Chlorine (ppm)	2011	[4.0 (as Cl <sub>2</sub> )	[4 (as Cl <sub>2</sub> )]	0.72	0.41–0.92	NA	NA	No	Drinking water disinfectant added for treatment.
Chromium (ppb)	2011	50	(100)	NA	NA	12	NA	No	Discharge from pulp mills; erosion of natural deposits.
Haloacetic Acids (ppb)	2011	60	NA	25.5	22–29	NA	NA	No	Byproduct of drinking water disinfection.
THMs (Total Trihalomethanes) (ppb)	2011	80	NA	21.8	18–27	NA	NA	No	Byproduct of drinking water disinfection.
Turbidity <sup>1</sup> (NTU)	2011	TT	NA	0.04	0.04–0.06	NA	NA	No	Soil run-off.
Turbidity (Lowest monthly % of samples meeting limit)	2011	TT=95% of samples < 0.3	NA	100	NA	NA	NA	No	Soil run-off.

Tap water samples were collected for lead and copper analyses from sample sites throughout the community (lead was not detected at the 90th percentile).

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	PHG (MCLG)	AMOUNT DETECTED (90 <sup>TH</sup> %TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION?	TYPICAL SOURCE
Copper (ppm)	2011	1.3	0.3	0.201	0/30	No	Internal corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.

**SECONDARY SUBSTANCES**

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	PHG (MCLG)	Surface Water Supply		Groundwater Supply		VIOLATION?	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Chloride (ppm)	2011	500	NS	2.5	NA	NA	NA	No	Run-off/leaching from natural deposits; seawater influence
Odor-Threshold (units)	2007	3	NS	2	NA	NA	NA	No	Naturally-occurring organic materials.
Specific Conductance (µS/cm)	2010	1,600	NS	68	NA	170 <sup>3</sup>	NA <sup>3</sup>	No	Substances which form ions when in water; seawater influence.
Sulfate (ppm)	2011	500	NS	2.0	NA	NA	NA	No	Run-off/leaching from natural deposits; industrial wastes.
Total Dissolved Solids (ppm)	2002	1,000	NS	44	NA	142 <sup>2</sup>	NA <sup>2</sup>	No	Run-off/leaching from natural deposits.
Turbidity (NTU)	2011	5	NS	0.04	0.04–0.06	0.1	0.01–0.1	No	Soil run-off.
Zinc (ppm)	2011	5.0	NS	0.25	NA	NA	NA	No	Run-off/leaching from natural deposits; industrial wastes.

**UNREGULATED AND OTHER SUBSTANCES**

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Surface Water Supply		Groundwater Supply		TYPICAL SOURCE
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Boron (ppb)	2002	NA	NA	213	100-213	Run-off/leaching from natural deposits; seawater influence
Chromium VI (Hexavalent Chromium) (ppb)	2004	NA	NA	3.8	1.0–3.8	Naturally-occurring organic materials.
Hardness (ppm)	2011	28	NA	89.3 <sup>2</sup>	70.0–89.36 <sup>2</sup>	Substances which form ions when in water; seawater influence.
Vanadium (ppb)	2002	NA	NA	12.0	3.0–12.0	Run-off/leaching from natural deposits; industrial wastes.
Sodium (ppm)	2002	1.3	NA	5.3 <sup>2</sup>	NA <sup>2</sup>	Run-off/leaching from natural deposits.

<sup>1</sup> Turbidity is a measure of water's cloudiness. We monitor it because it's a good indicator of our filtration system's effectiveness.

<sup>2</sup> Sampled in 2005.

<sup>3</sup> Sampled in 2009.

**PID seeks community participation**

You're invited to participate in our public forum and voice your concerns about your drinking water. Your PID Board of Directors meets the third Wednesday of each month, beginning at 6:30 p.m., at 6332 Clark Road, Paradise.



For more information about this report—or for answers to questions about your drinking water—call the PID Water Treatment Plant at 530/877-3554.