



Cahuilla Band of Indians
Tribal Environmental Protection Office
52701 CA-Highway 371* Anza, California 92539
Phone (951) 763-5549 Fax (951) 763-2808

CTEPO – Well Maintenance and Water Quality Information

- **WATER QUALITY PROTECTION**

- Preventing groundwater contamination is the best way to keep well water clean. Groundwater typically moves slowly, and contamination can take decades to naturally diminish. Under heavy precipitation, it has shown that some constituents, such as nitrate, may migrate up to 33 ft into the subsurface from the land surface.
- The US EPA recommends that private well owners establish a “**zone of protection**” around their well. This zone should be off limits to storing, mixing, spraying, spilling, burying, or dumping anything that may contaminate the water supply.
- There are several ways private domestic well owners can prevent degradation of their drinking water. The most important way is by observing setback distances from potential contamination points from the well. A common rule of thumb for setback distances follows three general categories: Low impact activities (0-50ft), Medium impact activities (50-100ft), High impact activities (100+ ft)
 - **Low impact activities** (0-50ft) may include recreation areas, outdoor furniture, play areas
 - **Medium impact activities** (50-100ft) may include garages, boats, and car parking
 - **High impact activities** (100+ ft) may include chemical storage, animal enclosures, manure/compost piles, machine/auto repair, septic systems

- **WATER TREATMENT**

- Depending on what is being treated and how. Water treatment equipment can be located at any stage within the well system. Water treatment equipment is usually installed at the point of use or at the point where water enters the house, treating all water.



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- **HOW TO KNOW IF I NEED WATER TREATMENT**

- The first step is to determine what kind of water quality issues you have. Aesthetic water quality problems are noticeable by taste, smell, or sight. However, some contaminants that present health risks have no odor, taste, or appearance.
- Second is to have your water tested by a certified laboratory. These labs can measure substances in parts per million or parts per billion. Water test results are important to providing the information necessary to select the right system for what you need to treat in your drinking water. CTEPO works directly with a contracted laboratory to analyze all samples collected by our department.
- Selecting a water treatment system begins with the results you receive from the Laboratory. Test results should be compared to the water treatment product specifications to ensure that the treatment system being considered is designed to treat:
 - The substance you want to treat
 - In the concentration at which they exist in your water
- There is no one-size-fits-all water treatment technology that addresses all water quality problems. In some cases, one treatment technology may meet all your specific needs.

- **MOST COMMON TYPES OF WATER TREATMENT**

- **Continuous disinfection**- Kills bacteria and other microorganisms. The most common approach is ultraviolet light (UV), which requires proper installation, pre-treatment of the water and maintenance.
- **Reverse Osmosis (RO)** – RO is a process for the removal of dissolved ions from water, where water is forced through a semipermeable membrane, retaining most ions while transmitting the water. When coupled with granular activated carbon filters before and after the RO treatment, this system can achieve a high degree of removal of many of the substances that cause water quality problems.



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- **Whole-house sediment filters** – Filters are installed in the main water line coming into the house. They remove particulates from the water to enhance water
- **Ion Exchange** - physical-chemical process in which ions are exchanged **between** a solution phase and a solid resin phase. Ion exchange is most used for water softening, but it also can be used for other purposes such as treating arsenic and nitrate in water.

• POSSIBLE PROBLEMS WITH YOUR WATER

PROBLEM	POSSIBLE CAUSE	POSSIBLE TREATMENT
Water has chemical smell or taste	Volatile or semi-volatile organic compounds or pesticides	Activated carbon filter, Reverse Osmosis
Water has a turpentine odor (super “clean” chemical smell)	Methyl tertiary butyl ether or other organic compounds	Activated carbon filtration
Water appears cloudy, frothy, or colored	Suspended particles, detergents, and sewage can cause water to appear cloudy, frothy, or colored	Water Softener, Water filter
Water smells like rotten eggs	Hydrogen sulfide (H ₂ S)	Oxidation, activated carbon filtration, shock chlorination, ion exchange, ozone treatment
Water is blue	High level of copper (Cu)	Reverse Osmosis
White spots on the dishes or white encrustation around fixtures	High levels of calcium (Ca) and magnesium (Mg) can cause hard water, which leaves spots	Water Softener
Water is orange or reddish brown	High levels of Iron (Fe)	Water softeners and iron filters



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Porcelain fixtures or laundry are stained brown or black	Manganese (Mn) and/or iron (Fe) can cause staining	Reverse osmosis, water softener/ion
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- **MAINTAINING THE AREA AROUND YOUR WELL**
 - Inspect the area around your well at least once a month or after heavy rain.
 - Remove leaves, weeds, grass clippings, dirt, spider webs and other debris from the concrete well pad.
 - Sweep off the concrete pad to prevent dirt from building up around the well casing.
 - Keep a 10ft clear area around the wellhead free of vegetation, mulch, and stored materials.
 - Make sure the ground slopes away from well so rainwater drains away instead of pooling around the well.
 - Check that the well cap is securely attached and not damaged or loose.
 - Look for cracks in the concrete pad or signs that the well casing is damaged or rusting.
 - Never use pesticides, herbicides, fertilizers, fuel or other chemicals near the wellhead.
 - Avoid parking vehicles near the well.
 - Make sure animals and livestock don't eat, sleep or defecate around the well



