

# WELLHEAD PROTECTION & WELL MAINTENANCE

JANUARY 2018

Wellhead protection practices are to help prevent the movement of contaminants into a well. Unprotected wellheads can transmit contaminants from the surface into groundwater. This handout provides information about practices for wellhead protection and well maintenance.

## PREVENT SURFACE WATER FROM ENTERING THE WELLHEAD.

Practices include:

- Maintain well casings free of holes and cracks, and keep the casing anchored. You should not be able to move the casing by hand (Figure 1).
- Maintain watertight caps and plugs at all openings and access points to the well (Figure 2).
- Install air vents above the flood level with down-turned and screened “U” bends. (Figure 3).
- Place a seal at the top of the casing. Check the seal and replace it if it is disturbed.
- Maintain a watertight seal or gasket between the pump discharge head and the discharge line; or, in the event of a below-ground discharge, between the discharge pipe and discharge line.
- Maintain a concrete base that is free of holes and cracks, and that forms a watertight seal with contacts between the base and annular seal, base, and well casing.
- Maintain a slope away from the wellhead to prevent water from flowing toward the well. The base should slope away from the well casing for at least two feet in all directions, from the outside of the well boring. If it is not feasible to maintain a slope away from the wellhead, diversions and/or berms should be put in place.
- Avoid standing water around the wellhead. Address leaks or any areas of ponding.



1

**CRACKED WELL CASING.** A cracked well casing may allow surface water and contaminants into the well. Consult a water quality professional, such as a licensed well driller, to repair or replace the cracked casing. Source: CA State Water Resources Control Board, [https://www.waterboards.ca.gov/gama/docs/wellowner\\_guide.pdf](https://www.waterboards.ca.gov/gama/docs/wellowner_guide.pdf).



2

**MISSING WELL PLUG.** Many wells have a small plug located at the top of the well casing. The plug may degrade over time and sometimes fall off. If the plug is missing, the well is directly open to potential contamination. Replacing a missing plug is an effective way to reduce potential contamination. Source: CA State Water Resources Control Board, [https://www.waterboards.ca.gov/gama/docs/wellowner\\_guide.pdf](https://www.waterboards.ca.gov/gama/docs/wellowner_guide.pdf).

## PREVENT THE INTRODUCTION OF CONTAMINANTS INTO GROUNDWATER.

Practices include:

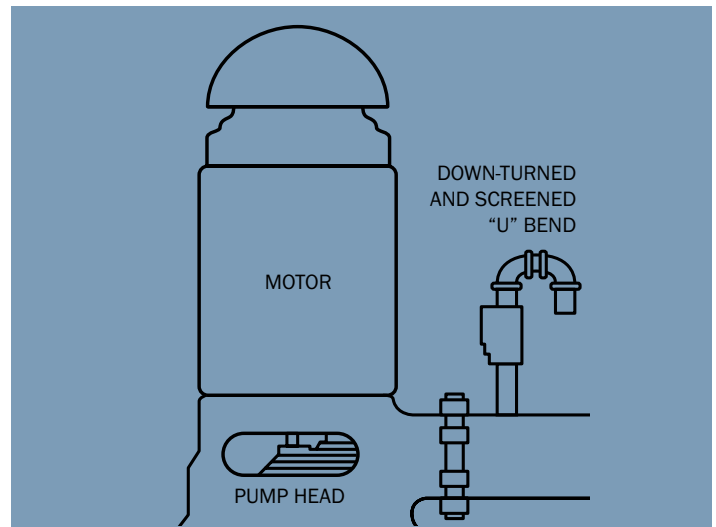
- Maintain good housekeeping practices, including the removal of trash, debris, excess vegetation, and any empty containers.
- Ensure contamination sources are not near the wellhead, including animal enclosures and storage of pesticides, fertilizer, or petroleum products.
- Prevent backflow and the introduction of potentially contaminated water back into the well:
  - Air gaps should be maintained on non-pressurized systems to prevent backflow. The air gap is an unobstructed vertical distance between the lowest opening from any pipe, faucet, or hose and the flood level rim of container (Figure 4). A common guideline is to have a two-pipe-diameter gap between the well discharge pipe and the standpipe.
  - A backflow prevention check valve or comparable device should be installed for pressurized systems, especially those that have been modified to employ chemical feeds or injectors.

## MAINTENANCE AND SERVICE.

Practices include:

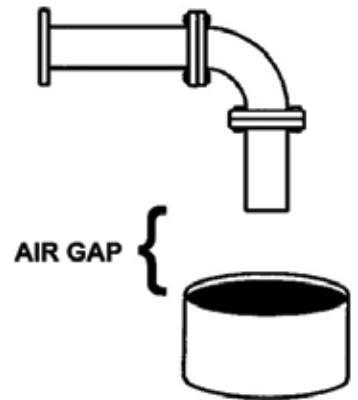
- Perform a pump test, service, or adjustment at least once every 5 years.
- Perform a specific-capacity test and assess pump performance annually.
- Test water quality to inform your maintenance program, specifically regarding mineral deposition.

For additional information, please refer to the California Department of Water Resources Bulletin 74–90 and the California State Water Resources Control Board’s list of well and water protection practices in its 2015 publication, “A



**3** **EXAMPLE “U” BEND.** Air vents should be protected against the entrance of foreign material by installation of down-turned and screened “U” bends. Source: graphic recreated from DWR Bulletin 74-81 ([http://www.water.ca.gov/pubs/groundwater/water\\_well\\_standards\\_bulletin\\_74-81/ca\\_well\\_standards\\_bulletin74-81\\_1981.pdf](http://www.water.ca.gov/pubs/groundwater/water_well_standards_bulletin_74-81/ca_well_standards_bulletin74-81_1981.pdf)).

**4** **AIR GAP.** An air gap is a vertical, physical separation between the end of a water supply outlet and the flood-level rim of a receiving vessel. An air gap is considered the maximum protection available against backpressure backflow. Source: American Backflow Prevention Association, <http://www.abpa.org>.



Guide for Private Domestic Well Owners” ([https://www.waterboards.ca.gov/gama/docs/wellowner\\_guide.pdf](https://www.waterboards.ca.gov/gama/docs/wellowner_guide.pdf)). The publication provides additional information about well construction and destruction, water quality protection, testing, and water treatment.



### SSJV MPEP COMMITTEE COALITIONS

Buena Vista Coalition	661-324-1101	<a href="http://bv20.com/">http://bv20.com/</a>
Cawelo Water District Coalition	661-393-6072	<a href="http://www.cawelowd.org/">http://www.cawelowd.org/</a>
Kaweah Basin Water Quality Association	559-302-1620	<a href="http://www.kaweahbasin.org/">http://www.kaweahbasin.org/</a>
Kern River Watershed Coalition Authority	661-616-6500	<a href="http://www.krwca.org/">http://www.krwca.org/</a>
Kings River Water Quality Coalition	559-365-7958	<a href="http://kingsriverwqc.org/">http://kingsriverwqc.org/</a>
Tule Basin Water Quality Coalition	559-733-2948	<a href="http://tbwqc.com/">http://tbwqc.com/</a>
Westside Water Quality Coalition	661-762-7316	<a href="http://www.wwqc.org/">http://www.wwqc.org/</a>

Please visit <https://agmpep.com> for more information.



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