

QUESTIONNAIRE

Either true/false or multiple choice questions are presented. Circle your answer to each question.

1. A groundwater aquifer is a porous formation below ground that will yield enough water for economical use. **TRUE** or **FALSE**
2. The groundwater aquifer beneath the northern Sacramento Valley can best be described as a:
 - a. A large underground reservoir of freshwater, about 2500 feet deep, ranging from Red Bluff in the north to the Sutter Butte mountain range in the south.
 - b. Different geological formations. Some are porous sands and gravel layers that yield groundwater abundantly. Others are fine clay layers that yield much less water. These formations extend from Red Bluff in the north to the Sutter Butte mountain range in the south. Both freshwater and saline water can be found.
 - c. A series of underground freshwater streams and rivers networked together into one aquifer that extends from the Red Bluff in the north to the Sutter Butte mountain range in the south.
3. The Sacramento River is a barrier to the flow of groundwater across the valley. **TRUE** or **FALSE**.
4. Some reasons for monitoring groundwater conditions are to:
 - a. Detect, as early as possible, declining groundwater levels, unwanted changes in water quality, or evidence of land subsidence.
 - b. Assure that all groundwater users pump equal quantities of water.
 - c. Determine groundwater flow directions and investigate factors that affect groundwater drawdown and recharge.
 - d. Both answers a and c.
5. Most irrigation and domestic wells can be used to monitor groundwater levels but the information is more useful if it is known at what depth the well perforations or screens are located. **TRUE** or **FALSE**
6. E-log is an abbreviation for electric log and it is a device used by well drillers to:
 - a. Locate buried electrical lines before well drilling begins and prevent accidental injury.
 - b. Record the well drilling progress such as drilling depth, borehole diameter, and the vertical angle of the borehole.
 - c. Measure the electrical resistivity of different water bearing strata in the borehole. The device identifies the most porous, highest water bearing depths for installing well screens.
 - d. None of the above answers are correct.
7. The cable tool drilling method is the preferred method of well drilling while rotary and reverse rotary drilling are considered to be out-dated drilling methods. **TRUE** or **FALSE**
8. Effective water well development involves:
 - a. Properly locating the well site and using the most appropriate drilling method.
 - b. Repairing damage to the aquifer formation around the well screens or perforations caused by drilling and from fine materials in the gravel pack.
 - c. Using a dowsing rod to locate reliable and abundant sources of underground water.
9. A repair such as an impeller adjustment that improves the pumping plant efficiency of a motor driven pump from 50 % to 60 % will undoubtedly reduce your monthly power bill. **TRUE** or **FALSE**
10. A pump appears to be pumping less water than it once did. Valid reasons that may explain this decline in pump discharge include:
 - a. A worn or mismatched pump
 - b. An encrusted well screen or plugged well perforations
 - c. Declining groundwater levels
 - d. All of the above answers

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TEST YOUR KNOWLEDGE ABOUT GROUNDWATER, WATER WELLS, AND PUMPING PLANTS

This questionnaire is the beginning of a one-year educational effort on groundwater, water wells, and pumping plants coordinated by the University of California Cooperative Extension in Tehama County. Readers are asked to evaluate their knowledge of these subjects. Complete this questionnaire, keep a copy for yourself, and return the original to the University of California Cooperative Extension. Re-fold the completed questionnaire so that the Cooperative Extension mailing address is visible and seal it with tape. Please note that postage is required.

Over the next 10 months, a series of fact sheets will follow, one fact sheet approximately every six to eight weeks. Articles will discuss topics touched upon in this questionnaire. At the end of this informational series, this same questionnaire will be re-distributed to re-evaluate your knowledge of groundwater, water wells, and pumping plants. Hopefully, as a result of this information, each reader will have added knowledge and understanding about the groundwater resource in the northern Sacramento Valley.

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