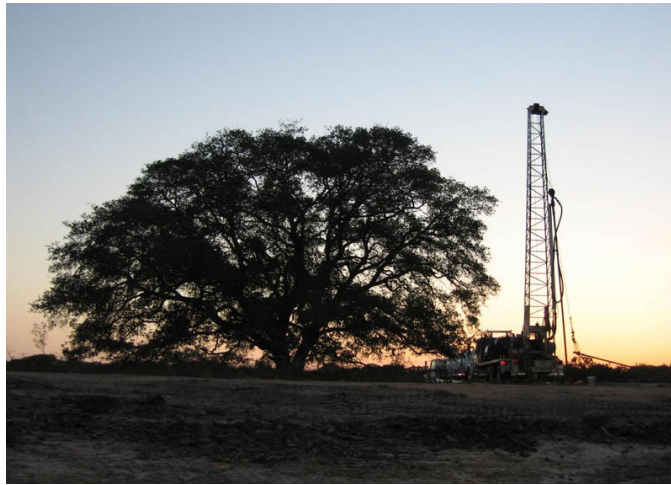


Well Owner's Guide

Bernalillo County Office of Environmental Health



**A comprehensive guide
to help maintain your
well and keep your
drinking water safe**



Bernalillo County Office of Environmental Health

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Introduction

Many residents in Bernalillo County rely on private wells for drinking water. While the Office of the State Engineer and the Bernalillo County Office of Environmental Health regulate private wells, those regulations are not as stringent as regulations governing public water supplies like that of the City of Albuquerque. Therefore, private well owners must be vigilant about assuring that their water supply is safe. The purpose of this guide is to provide well owners with information needed to maintain clean and safe drinking water systems.



Possible Sources of Contamination

Most water contamination in New Mexico occurs in shallow aquifers such as in the Rio Grande River Valley. However, deeper aquifers such as those in North Albuquerque Acres and the East Mountain Area can also be affected. The most likely sources of ground water contamination found in Bernalillo County are as follows:

- Septic system disposal fields
- Petroleum product spills, improper disposal or leaking storage tanks
- Active or abandoned mines and mills and related activity
- Commercial, industrial, and domestic sewage facilities, seepage pits, ponds, lagoons or other storage areas for liquid waste
- Solid waste disposal sites such as landfills and illegal dumps
- Pesticides, fertilizers, confined animal operations
- Storm water runoff
- Improperly constructed or abandoned wells

A properly placed and constructed well can minimize the risk of contamination from the sources listed above. Bernalillo County Office of Environmental Health can provide homeowners and well drillers with information regarding possible areas of contamination, known areas of contamination and flood zones to ensure the safest placement of newly constructed wells.

Problem Indicators

Biological Contaminants

Biological contaminants include organisms such as bacteria, algae, fungi, molds, viruses, protozoa and parasitic worms. With the exception of algae, these contaminants are near impossible to detect without laboratory testing. Bernalillo County Office of Environmental Health recommends that biological testing for both total and fecal coliform be performed on a regular basis to ensure the safety of your water supply. See the water sampling section for further information.



Chemical Contaminants



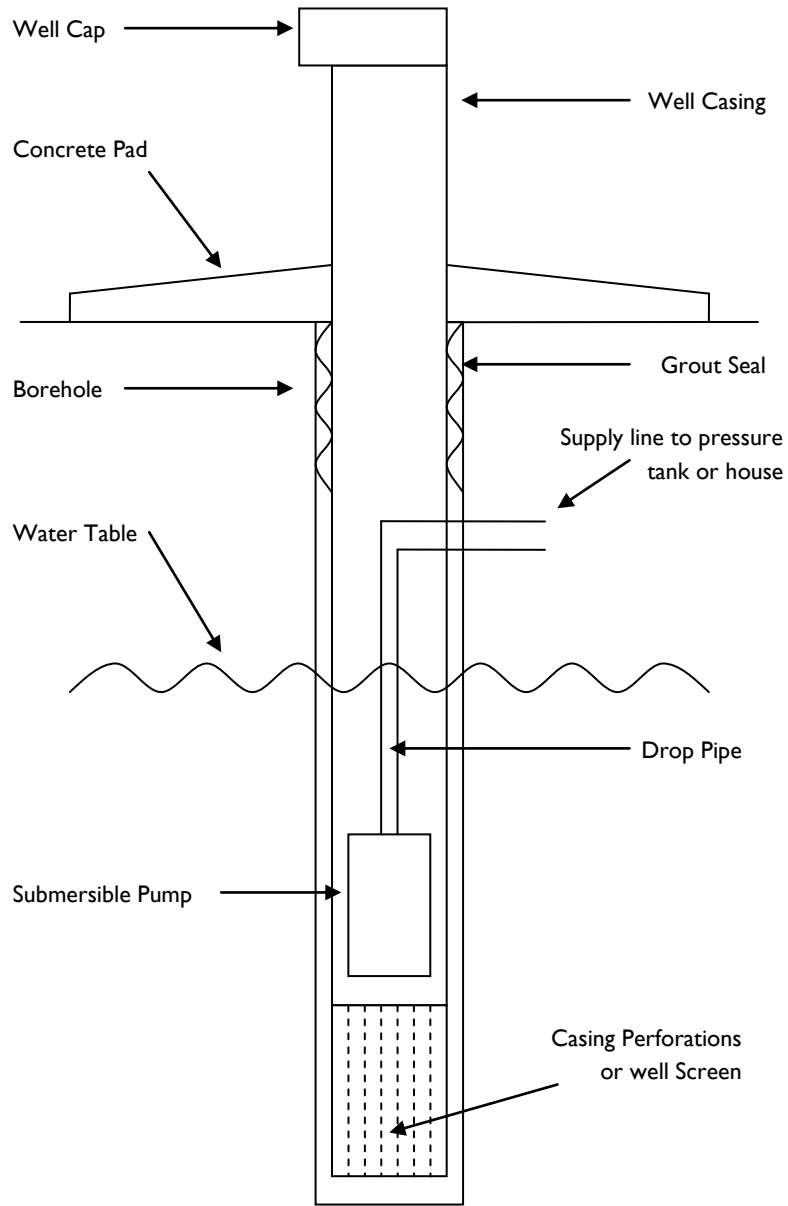
Numerous chemicals and chemical compounds can contaminate your water. Some chemical compounds such as nitrate and nitrite from fertilizer runoff and failing septic systems can cause very serious health problems. In order to ensure that your water supply is kept safe it is important to ensure that your well is properly pro-

protected and that hazardous materials are always disposed of at the appropriate facilities. Properly constructed wells should be grouted to an appropriate depth, be protected by a 6x6' cement pad and have a securely fastened cap to ensure that the risk of chemical contamination is minimized.

Aesthetic Qualities

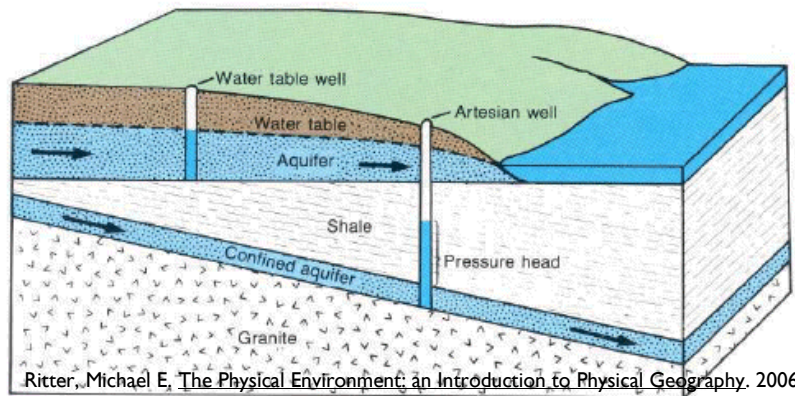
Pure water is clear and odorless. It is common that problems with your water supply can be detected by a change in color or odor as perceived by your senses. If you notice a change in the color or odor of your water you should contact the Bernalillo County of Environmental Health for instructions to ensure that your water supply is indeed safe.

Typical Construction of a Water Well



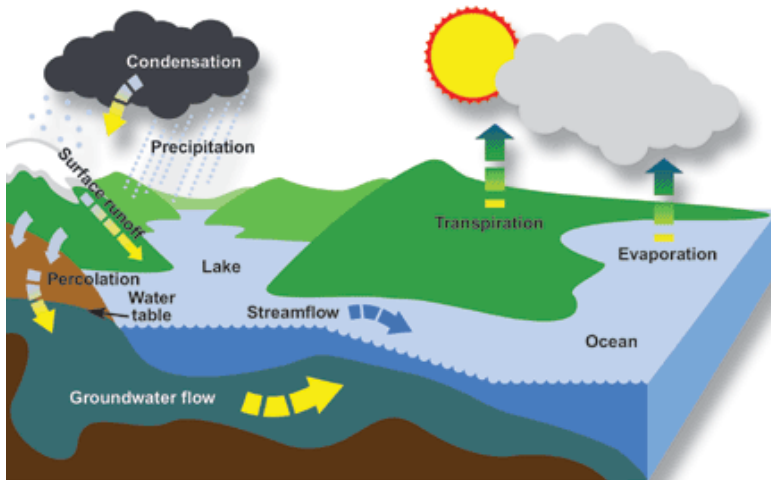
NOT DRAWN TO SCALE

Sources of Groundwater



Groundwater usually occurs in either confined (artesian well) or unconfined aquifers (water table well), depending upon the geology found in any particular area. The geology of the bedrock in any area will also determine the quality of water produced by wells drilled there.

The Hydrologic Cycle



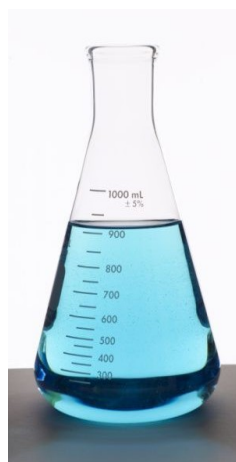
Source: Environment Canada

Water Sampling

If you are unsure if your well is safe from contamination, or if you suspect one of the problem indicators discussed earlier, a water test is the surest way to assess your water quality.

Routine Sampling

Bernalillo County Office of Environmental Health recommends that your well water be tested annually for nitrates and coliform bacteria. However, if your well serves infants, small children, pregnant women, elderly, and/or chronically ill individuals more frequent sampling may be necessary, as these individuals are more susceptible to contaminants in drinking water. Considerations should also be made in areas that are near industrial areas, heavy agricultural operations, landfills, or a dense concentration of septic systems.



Water testing should be done by one of the laboratories certified for drinking water analysis by the New Mexico Environment Department. There are five labs within Bernalillo County that have been properly certified.

- Albuquerque Water Quality (505) 873-6249
- Assagai Analytical Laboratories (505) 345-8964
- Hall Environmental Analysis (505) 345-3975
- Kramer & Associates Inc. (505) 881-0243
- Pinnacle (505) 344-3777

To take a water sample, contact one of the certified labs. The laboratory will provide you with sample containers, packaging and sampling instructions. Remember, it is important to avoid touching the inner surface of the sample container as this can contaminate the sample.

Newly constructed or modified wells must be sampled for the following per Water Well Ordinance 2005-19 Sec. 42-544.C: total coliform, TKN, NH₃, NO₃, NO₂, Na, K, Ca, Mg, Cl₂, HCO₃, TDS, SO₄ and pH.

Interpreting Results

Bernalillo County Office of Environmental Health can help you interpret the results of your water test. Also, a publication entitled "Human Health and Your Well Water Sample" is available to you on the Environmental Health website at <http://www.bernco.gov> in the safe water section.

Water Treatment

In the event that your water supply is indeed contaminated, there are several options available to you in order to eliminate or minimize potential health risks. These methods include, but are not limited to, ultraviolet light, filtration, water softening, reverse osmosis, molecular stripping, deionization, and carbon treatment.

Reverse Osmosis

Reverse osmosis is the purification method of choice for the water bottling industry. The process relies on pressurized water being forced through a semipermeable membrane that excludes contaminants while allowing pure water molecules to pass. Reverse osmosis, while relatively expensive, is the most effective method of removing a wide array of contaminants from water. Systems are available in both a whole house and under sink applications depending upon your individual needs and resources.

Chlorination: "Shock Chlorination"

This method of disinfection is effective at removing bacteria from your water supply in the event of bacterial contamination. All newly constructed wells are required to be shock chlorinated before use and older wells should be shock chlorinated if a bacteria test comes back positive. Contact Bernalillo County Office of Environmental Health for further information regarding shock chlorination.

Other Methods

All water produced from wells is not equal. It is important to select a method that will address the potential problems, if any, found in your water supply.

Wellhead and Water Supply Protection

Protecting your water supply is always more economical than treating it. Wellhead protection is an easy way to prevent pollution from entering your well water supply. Properly constructed wells and the wise use of land and chemicals are very effective ways to reduce the potential for pollutants to reach your aquifer.

Construction and Placement

A strategically placed well is a surefire way to protect your aquifer from pollution. When deciding where to place your well it is important to identify potential sources of contamination that exist within as well as outside the boundaries of your property. Are there septic systems nearby? Livestock pens? Agricultural operations? Flood zones? These are all important factors to consider when choosing the location of your new or replacement well. Bernalillo County Office of Environmental Health can help you identify and locate potential problems and provide recommendations for proper well placement.

The construction of your well is also a very useful tool for protecting your water supply. When choosing a licensed well driller it is important to assure that they use the following measures to provide an adequately protected wellhead.

- Ensure that well casing has a sufficient grout seal (20' minimum)
- The casing rises at least 18" above grade
- A securely fastened well cap is installed
- A cement pad at least 6x6' is poured around the well casing and graded to drain surface water away from well casing

Daily Activities: What Can You Do?

- Learn what sort of chemicals you are using both indoors and in the garden. Are there safer alternatives that could be used?
- Always dispose of hazardous materials properly
- Never store chemicals, fertilizers, pesticides or allow solid waste to accumulate around your well.
- Properly maintain your on-site wastewater septic system in order to minimize the potential for failure which could lead to contamination of your aquifer.

Important Contacts

Bernalillo County Office of Environmental Health

111 Union Square St. SE, Suite 300
Albuquerque, NM 87102
(505) 314-0310

City of Albuquerque Environmental Health Dept.

One Civic Plaza NW, Room 3023
P.O. Box 1293
Albuquerque, NM 87103
(505) 768-2600

New Mexico Office of the State Engineer

Water Rights District I
121 Tijeras NE, Suite 2000
Springer Square Bldg.
Albuquerque, NM 87102
(505) 764-3888

New Mexico Environment Department Drinking Water Bureau

District I Office: Albuquerque
5500 San Antonio Dr NE
Albuquerque NM, 87109
(505) 222-9500

U.S. Environmental Protection Agency, Region 6

1445 Ross Avenue, Suite 1200
Dallas, TX 75202
(214) 665-6444

Albuquerque Bernalillo County Water Utility Authority

One Civic Plaza NW, Room 5012
Albuquerque, NM 87102
(505) 768-2500



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