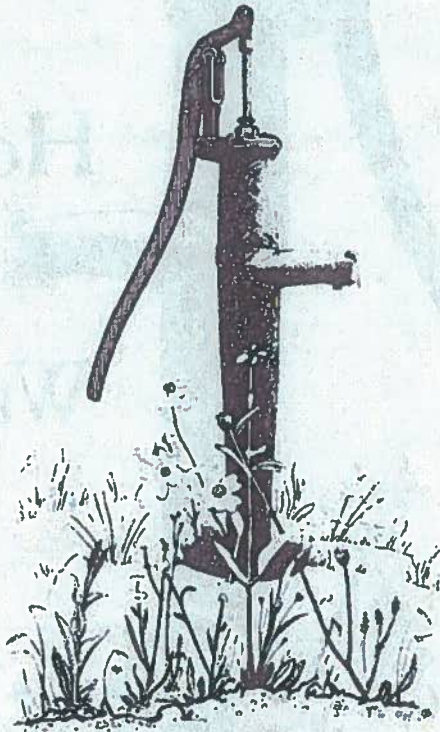


The
Rural
Homeowner's
Water Guide



THE RURAL HOMEOWNER'S WATER GUIDE

June 1991



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THE PERFECT HOMESITE

“Three acres on gently rolling hills covered with piñon and juniper trees. Excellent views of the mountains to the west and south. Large area for a garden and horses. Close to town. Friendly neighbors nearby but secluded enough to ensure quiet and privacy. Affordably priced.”

Sounds perfect—and it may be. However, before you sign a contract to buy land for your dream homesite, be sure you learn about your future water supply—where it will come from and how good it is—or the perfect piece of property may turn out to be a bad investment or, even worse, a nightmare you’ll wish you never had.

Many persons buying land for a home have always used municipally supplied water and sewer services. You turn on the faucet and the water is there; you flush the toilet and the waste is gone. In rural areas the situation is different. Instead of the community being responsible for these services, it is the individual who must provide the water and dispose of the sewage. State and local government regulations may govern the installation of these services, but landowners must take care of tasks such as drilling a well and installing a septic tank. If the well or the septic tank does not function properly, the owner is responsible for making the adjustments necessary for their correct operation. Ongoing maintenance is also part of the owner’s responsibility.

The landowner has many decisions to make about utilities, such as where to drill a well, which well driller to hire, what kind of septic system will work best for the particular site, who should install the system, and what kind of water and wastewater treatment may be needed to assure safe drinking water for the household. Making these decisions wisely is important because mistakes can cost a lot of money and result in water or sewage facilities that do not operate properly. This, in turn, can cause inconveniences and potential health and pollution problems. Making wise choices requires that the potential buyer become informed about water resources.

So, before land is purchased, the smart buyer first researches the property and the area surrounding it to determine if (1) a water supply is available at a reasonable cost, (2) whether the water is of a quality suitable for domestic use, and (3) what kind of sewage disposal will be required to best suit the property and residents.

This booklet has been prepared to help current and potential landowners find the information they need to make wise choices about water supply, water rights, well drilling, sewage disposal, water testing, acequias or community ditch associations, flood protection and problem prevention.

In addition, the booklet contains a checklist of questions to answer before making a commitment to purchase land or a particular type of water or sewage system. There is also a list of government agencies to contact for further information regarding specific water issues. The discussion focuses on rural land bought for the purpose of building homes. Buyers of property for commercial agricultural operations must meet different requirements regarding their water supply. Although the booklet is written with the land buyer in mind, the information can also be valuable to a current homeowner who wants to re-evaluate an existing water supply or sewage disposal system.

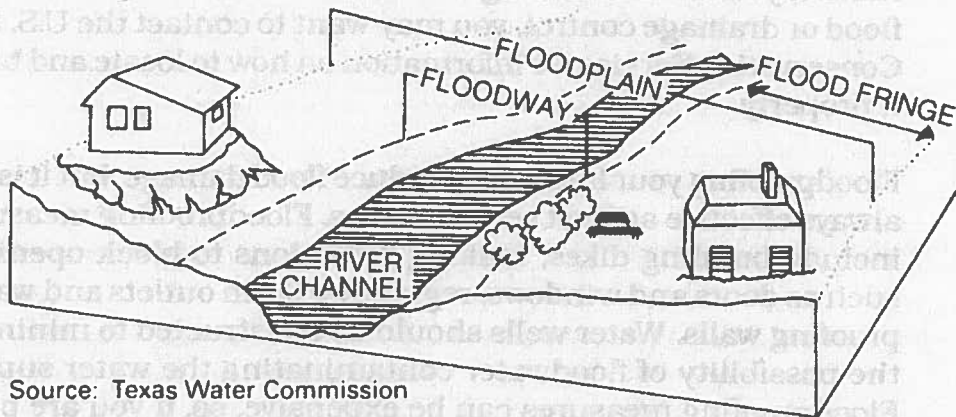
Take some time to read this booklet, use the checklist, and contact others for additional information that may be needed. It will be time that's well spent because it will help provide you with an adequate, long-term supply of clean water to use in your new home.

Providing Adequate Drainage and Flood Protection

One might think that a rural homeowner need not worry about drainage or flooding problems in a state that receives only about 13 inches of rain per year. But floods and inadequate drainage can cause significant property damage in many parts of New Mexico. Homes built in floodplains, relatively flat areas adjacent to rivers, can be flooded by river overflows during heavy rains or rapid snowmelt. High groundwater levels, slow soil permeability, and improperly sloped building sites can cause ponding or erosion problems.

Early settlers were attracted to floodplains as building sites because of their fertile soil and nearby waterways, which provided transportation, power, food and plentiful water for everyday use. Today millions of people live on floodplains and millions of acres of floodplains are farmed. In the 1960s and 1970s, the federal government enacted legislation to provide flood insurance protection in flood-prone areas such as floodplains. In New Mexico, about 60 percent of the state's unincorpo-

rated areas participate in the flood insurance program. Local governments may remain in the program as long as they follow requirements set by the Federal Emergency Management Agency.



Source: Texas Water Commission

PERSPECTIVE VIEW OF 100-YEAR FLOODPLAIN

Flood insurance, which can be purchased through the Federal Emergency Management Agency, provides only partial damage protection. If your property is located in what you think might be a flood-prone area, contact either the county government, the New Mexico State Engineer Office or the Federal Emergency Management Agency for more specific information about flood insurance. Maps of flood-prone areas in New Mexico can be obtained from these agencies.

Some areas of the state have more flood control protection, such as upstream dams, than others. Use care in locating a building site near a streambed even when there is a dam located upstream. If large releases of water have to be made from the dam, extra channel capacity may be needed to move the water downstream. Even if your property is located outside the nearby boundary of a floodplain, you should be cautious. You might want to check with the U.S. Soil Conservation Service, your neighbors, or city and county government agencies to find out what flood control structures exist nearby and to seek advice about locating your house to avoid flood damage.

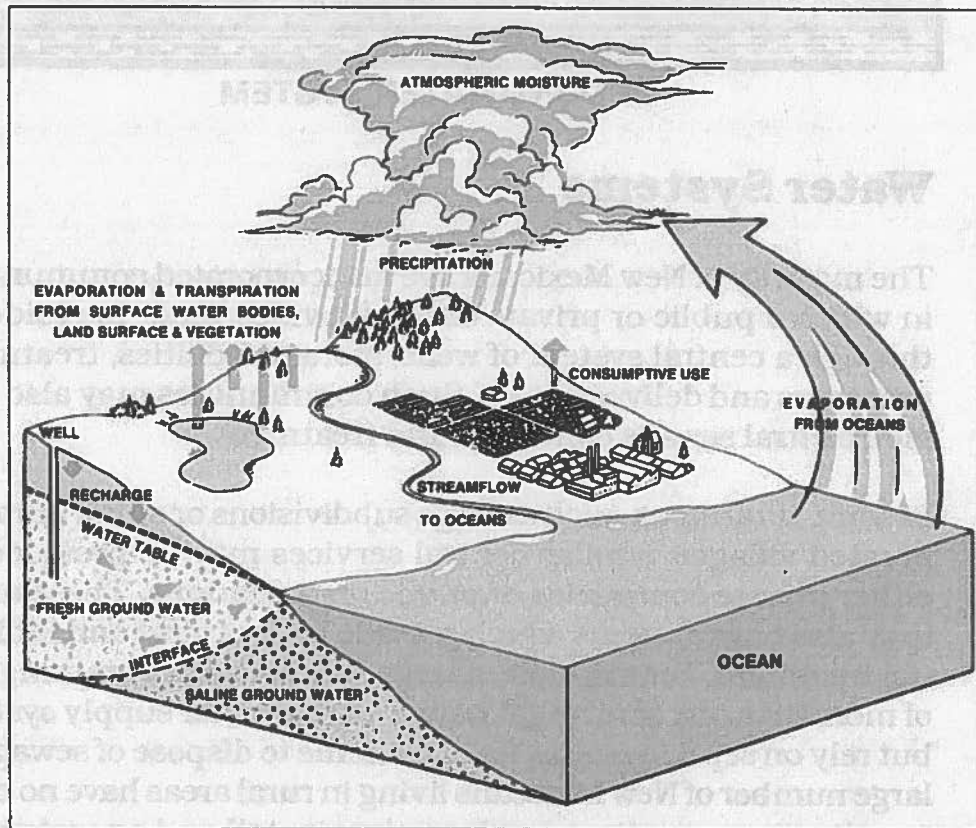
In addition to floodplains, flooding can occur if your house is built in the path of a natural drainageway or in a site that is lower than the surrounding area. A drainageway or low area may appear safe in dry weather but carry significant runoff water during heavy rains. Housing developments and roads can alter

the natural drainage patterns of the land, so look for areas of development near your property which might affect drainage. Although it is sometimes easier to drill a well in an arroyo or other low lying area, it is not wise to do so. The well could be flooded, contaminated and otherwise damaged during heavy rains. If you are considering the construction of a small dam for flood or drainage control, you may want to contact the U.S. Soil Conservation Service for information on how to locate and build it properly.

Floodproofing your house may reduce flood damage, but it is not always effective against severe storms. Floodproofing measures include building dikes, making provisions to block openings such as doors and windows, regulating drain outlets and waterproofing walls. Water wells should be constructed to minimize the possibility of floodwater contaminating the water supply. Floodproofing measures can be expensive, so, if you are planning to build a home, be sure the site is not likely to flood. If you decide to floodproof your home, you may want to contact the Technical Division of the New Mexico State Engineer Office for more information.

WATER SUPPLY

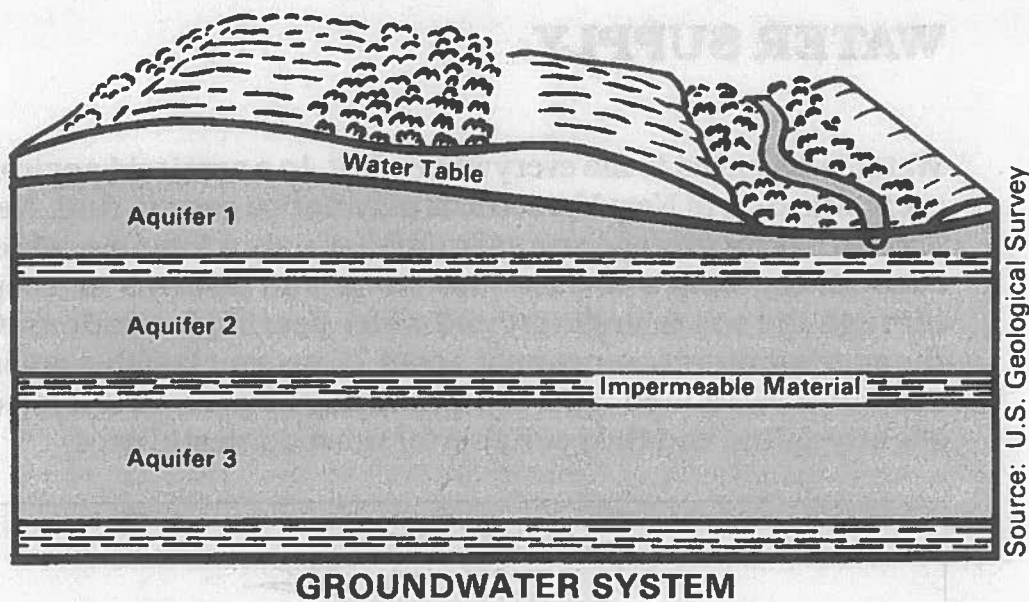
Water is essential to life everywhere, but, in a semiarid environment like that of New Mexico's, it may not be easy to find. New Mexico has an average annual rainfall of only 13 inches, which runs off the land's surface into rivers and streams or seeps through the soil to underground water bearing formations. Of the state's groundwater supply, about 75 percent is saline and fit only for a few limited uses; the remaining 25 percent is fresh or slightly saline and thus suitable for most domestic uses.



Source: U.S. Geological Survey

HYDROLOGIC CYCLE

Although some land sold for homesites has surface water available for irrigation purposes and sometimes for indoor home use, 87 percent of New Mexicans rely on ground water for their drinking water. Located in underground water bearing formations called aquifers, this water is sometimes found only a few feet below the land surface; other times it may be buried hundreds of feet deep. While some locations may have adequate water that is easily attainable, others (sometimes the most scenic areas) have little or none, or at least none that can be obtained at a reasonable cost.



Water Systems

The majority of New Mexicans live in incorporated communities in which a public or private entity provides water to residents through a central system of wells, storage facilities, treatment processes and delivery pipes. Such communities may also provide central sewage collection and treatment.

In some rural areas, such as large subdivisions or small unincorporated villages, similar central services may be provided by either private companies or public organizations. These areas may also have systems which provide both central and individual treatment. For example, a large subdivision containing lots of more than one acre might have a central water supply system, but rely on septic systems for each home to dispose of sewage. A large number of New Mexicans living in rural areas have no community water or sewer services; they install and operate their own household systems for both water delivery and sewage disposal. Most residents operate these for their own household; some may share a well with one or two neighbors.

If a community water system is available, choosing to hook up to that system is usually the wise choice. Operators of community systems are required by the federal Safe Drinking Water Act to periodically test their water supply to make sure it is free of contaminants. The results of these tests must be submitted to the New Mexico Environment Department. That state agency regularly inspects community systems to ensure that they are properly operated. If the tests reveal that the water quality violates national and state drinking water standards, the water supplier

must not only take action to correct the situation but must also notify water users of the violation. Because of these government regulations, residents using community water systems are reasonably assured of receiving adequate, clean water.

Becoming part of a community water system usually means paying an initial hookup charge. There is also the cost of the monthly water (and usually sewer) bill to consider. It can take weeks, months, or sometimes even years, to obtain a water hookup. The charges and time required vary with each community system. In 1990, the costs for hooking up to a water system ranged from \$300 to \$600 in rural areas. Monthly water charges ran from \$15 to \$25, or more.

Water Supply Information

It is crucial for landowners planning to install their own water systems to analyze their water needs accurately, to install a system that will perform well, and to obtain clean water. Since community water systems are governed by local, state and federal government regulations for both water quantity and quality, residents on these systems are more assured of receiving a clean, adequate supply of water. However, even though you might be connected to a community system, it pays to become informed about your water supply.

COMMUNITY WATER AND SEWER

If you are building a home in an incorporated community, you might want to visit the water department to get information on the following topics:

- community ordinances about water use or waste
- rate structures
- age and condition of water system
- metering
- amount of outstanding debt for water system
- current water quality information
- water treatment methods
- setback requirements for septic tanks or wells
- history of water rationing
- amount of water provided for fire protection

By taking the time to obtain this information, you will know not only how much you can expect your water bill to cost, but also if

rates are expected to increase in the future and if you must adjust your water or sewage practices to meet the community's regulations.

If you are part of a central water supply system in an unincorporated rural community, you can ask for the same kind of information from the water and sanitation district, mutual domestic water association or water cooperative that operates the water system. You may want to ask the organization for copies of its articles of incorporation, bylaws, regulations and policies which affect you as a water consumer. Find out what the source of the water supply is and what the organization's long-range plans are for system replacement or refurbishment.

Before you buy a lot in a rural subdivision, find out if provisions have been made, or are planned, for water delivery and sewage disposal. County subdivision regulations govern both, although they vary from county to county. Also check to see if there are any restrictions on water use in the subdivision, such as a limit on the amount of irrigated garden or landscaped area that you may have. You should also find out what kind of fire protection is available in the area.

For certain types of subdivisions (categorized according to the number of lots and lot sizes), the subdivider must provide a disclosure statement to the buyer which outlines plans for delivering water to the homes. The statement must say whether the system is to be a community one or if individual homeowners will be expected to provide their own water. In addition, for certain types of subdivisions, the New Mexico State Engineer Office must review the subdivider's water supply plan to determine if the plan conforms to county subdivision regulations and if the subdivider has adequate water rights to serve the residents as planned. If questions remain after reading the subdivider's disclosure statement, obtain further information from the county planning office or the New Mexico State Engineer Office.

State regulations establish minimum lot sizes for lots where septic tanks are to be installed. Local subdivision regulations may require lot sizes larger than those mandated by the state. These requirements help ensure that individual sewage systems will not pollute ground water, which is often the drinking water source for the area.

ON-SITE WATER AND SEWER

A person who is planning to install water and sewage facilities for an individual household must research water supply and sewage disposal options. He or she must make all the decisions regarding what kind of water supply or sewage system to use and assume the responsibility for making sure it works properly.

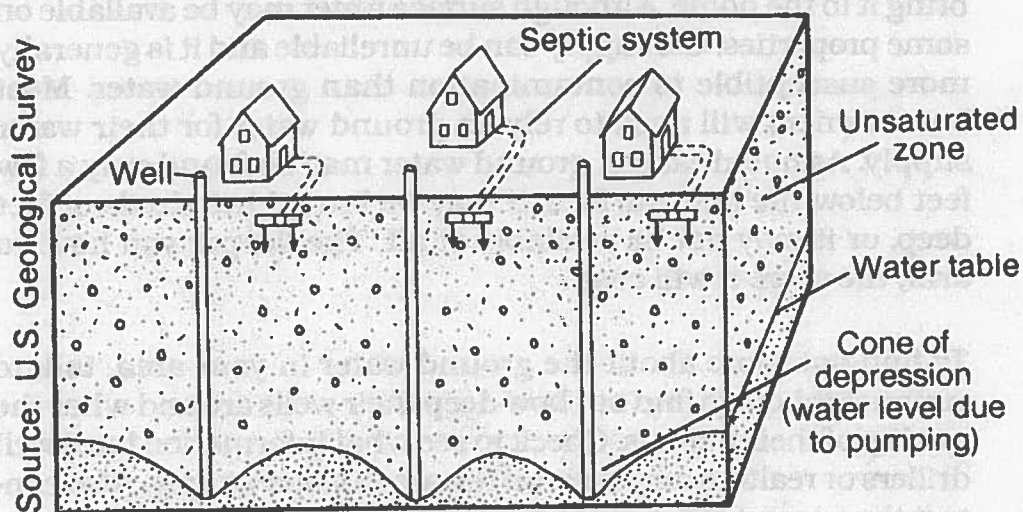
The first thing a prospective homeowner needs to determine is if water is available on the land, and, if so, what it will cost to bring it to the home. Although surface water may be available on some properties, the supply can be unreliable and it is generally more susceptible to contamination than ground water. Most homeowners will need to rely on ground water for their water supply. As noted earlier, ground water may be found only a few feet below the land surface, it may be buried hundreds of feet deep, or it may not be available at all. The deeper you have to drill, the more it will cost.

To find out more about the ground water in your area, talk to your neighbors to find out how deep their wells are and what the quality of their water is. Check to see what information local well drillers or realtors may have on the area's water supply. Also contact the nearest office of the New Mexico State Engineer Office to get additional information on water formations and the water levels of wells in your area. These offices contain data from the drilling records of wells in specific locations. The U.S. Geological Survey also maintains data on water levels in wells throughout New Mexico.

You may also want to contact the local office of the New Mexico Environment Department to obtain regional water quality data. If it is possible to take a water sample from the property, have the water tested for potential water quality problems. The Environment Department has a listing of certified water analysis laboratories in New Mexico. If no certified laboratory is located nearby, consider having your water tested at an Environment Department water fair, if scheduled for your area soon. Otherwise, check the yellow pages of the phone book for other water testing options.

As a beginning step to avoid future water pollution problems, the homeowner should check the area around his or her land for past, present and future land uses. If your homesite is situated on a former landfill, your well could become contaminated by the old refuse. If an industrial facility is planned for a nearby

location, check it out. Depending upon the type of work to be done there, its water use or wastes could pose a potential threat to water sources. Other land uses to be wary of include gasoline stations and other fuel storage areas, research laboratories, chemical storage facilities, mining operations, areas of heavy fertilizer or pesticide applications, military bases, and subdivisions with closely spaced houses using individual wells and septic tanks. Check with the nearest office of the New Mexico Environment Department for more information on potential water pollution sources and what contaminants to test for.



EFFECT OF CONCENTRATED HOUSING ON GROUND WATER

SHARED WELL SYSTEMS

You and a group of neighbors may want to consider drilling a single well to provide a private water supply for all of you. (A private system is one that serves less than 15 connections, or less than 25 people. It is subject to less stringent government regulation than public systems.) Sharing a well among neighbors is a way to reduce the cost of drilling and maintaining a well, which can sometimes be substantial; however, it brings some additional considerations.

First, the group should seriously consider developing a written, legally valid agreement, signed by all the participants, governing the construction and maintenance requirements of the well. Such an agreement ensures that everyone understands what his or her share of the joint responsibility is, and having everything agreed to in writing at the beginning of the project helps avoid misunderstandings later on. The agreement should be binding on future owners of the properties.

The group should also check with the nearest offices of the State Engineer Office to learn about their requirements for a shared well system. State regulations governing well and septic tank placement must be followed. Shared wells, which require a water right permit from the State Engineer Office, must be metered and the meter readings submitted to the nearest State Engineer Office location.

WATER RIGHTS

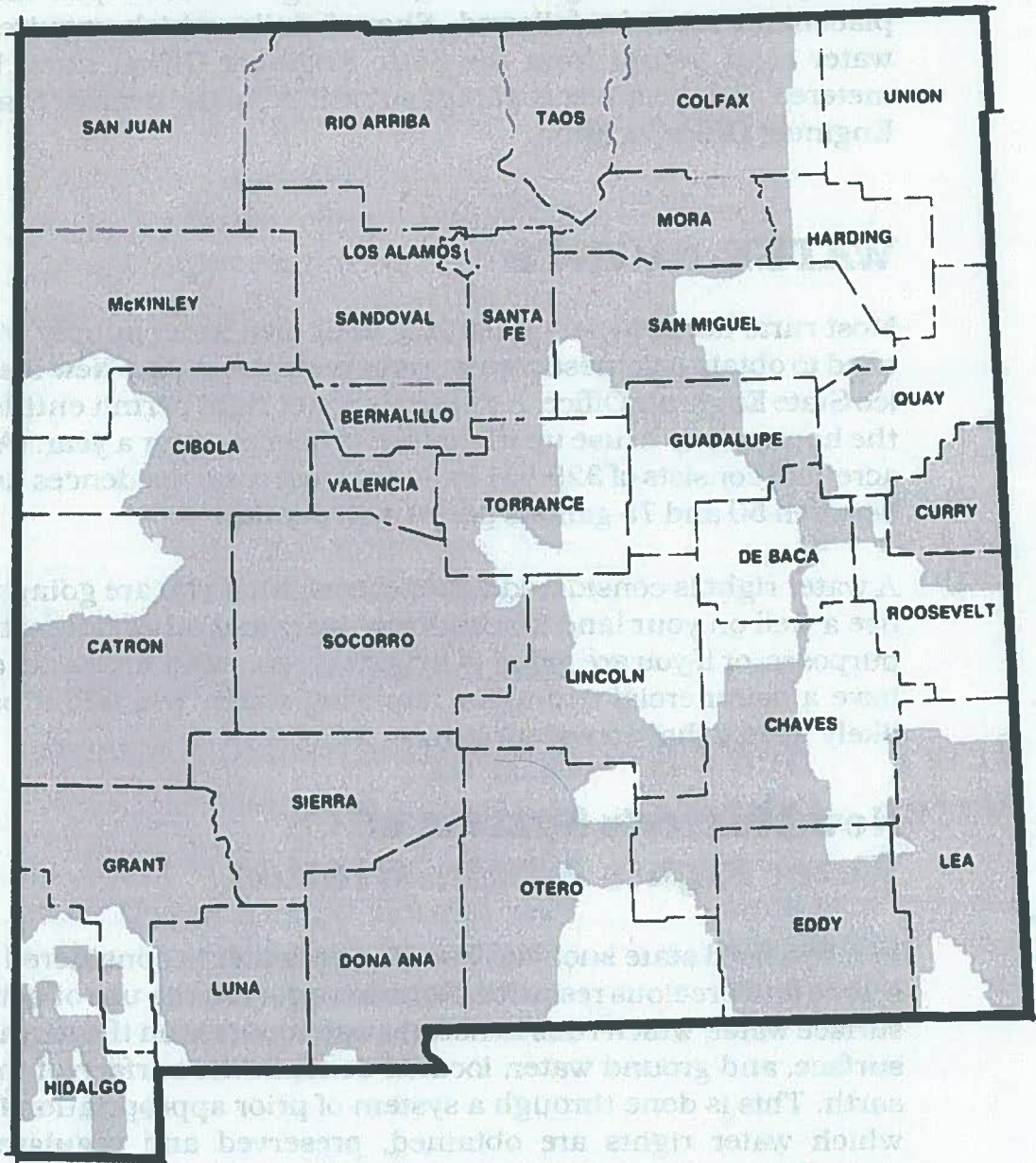
Most rural homeowners providing their own water supply will need to obtain a domestic water right permit from the New Mexico State Engineer Office. A domestic water right permit entitles the homeowner to use up to three acre-feet of water a year. (An acre-foot consists of 325,851 gallons.) Most rural residences use between 50 and 75 gallons per person per day.

A water right is considered a property right. If you are going to use a well on your land for drinking water and other domestic purposes, or if you are going to irrigate crops, water livestock, or have a commercial operation requiring water, you will most likely need to have a water right.

New Mexico's System of Water Rights Administration

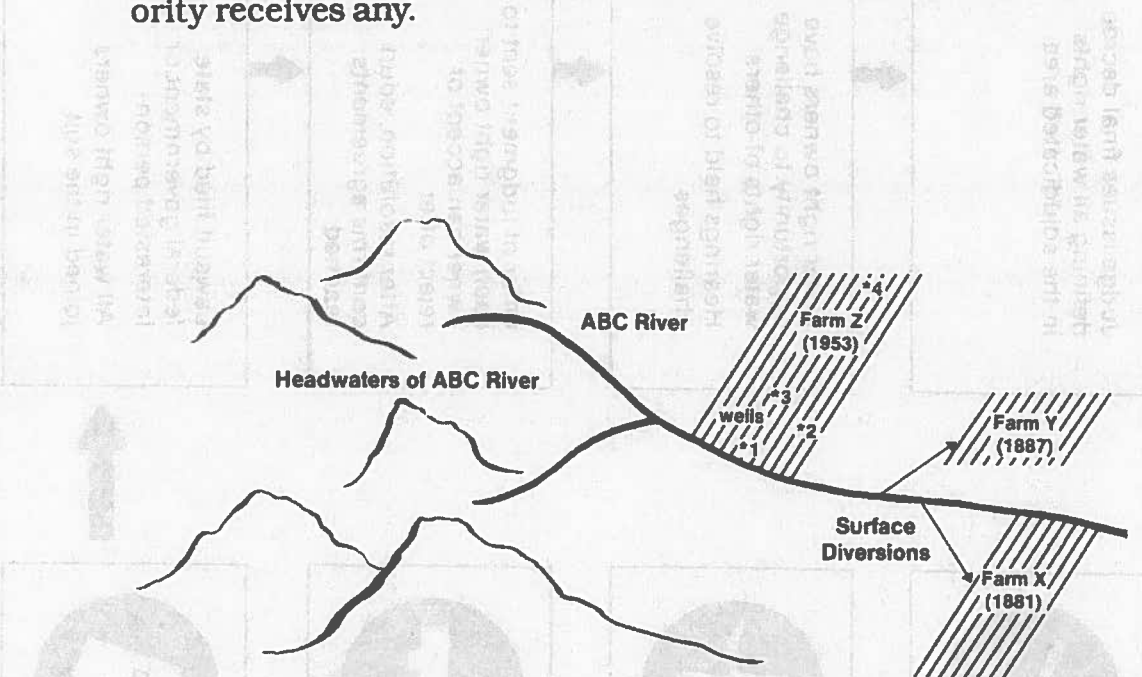
In a semiarid state such as New Mexico, water is considered a scarce and precious resource. State laws govern the use of both surface water, which runs in natural watercourses on the earth's surface, and ground water, located beneath the surface of the earth. This is done through a system of prior appropriation in which water rights are obtained, preserved and regulated through laws dating back to early Spanish and Indian water use practices.

Under this system, anyone who appropriates, or takes, surface water anywhere in the state for a beneficial use such as domestic, agricultural, recreational, industrial or stock watering purposes, must obtain a permit from the New Mexico State Engineer Office. The system for appropriating ground water is basically the same as that for surface water, except that permits are required only for those geographic areas designated by the state engineer as declared groundwater basins. These basins cover approximately 71 percent of the state.



**AREA OF STATE COVERED BY DECLARED
GROUNDWATER BASINS**
(Shown by shaded areas)

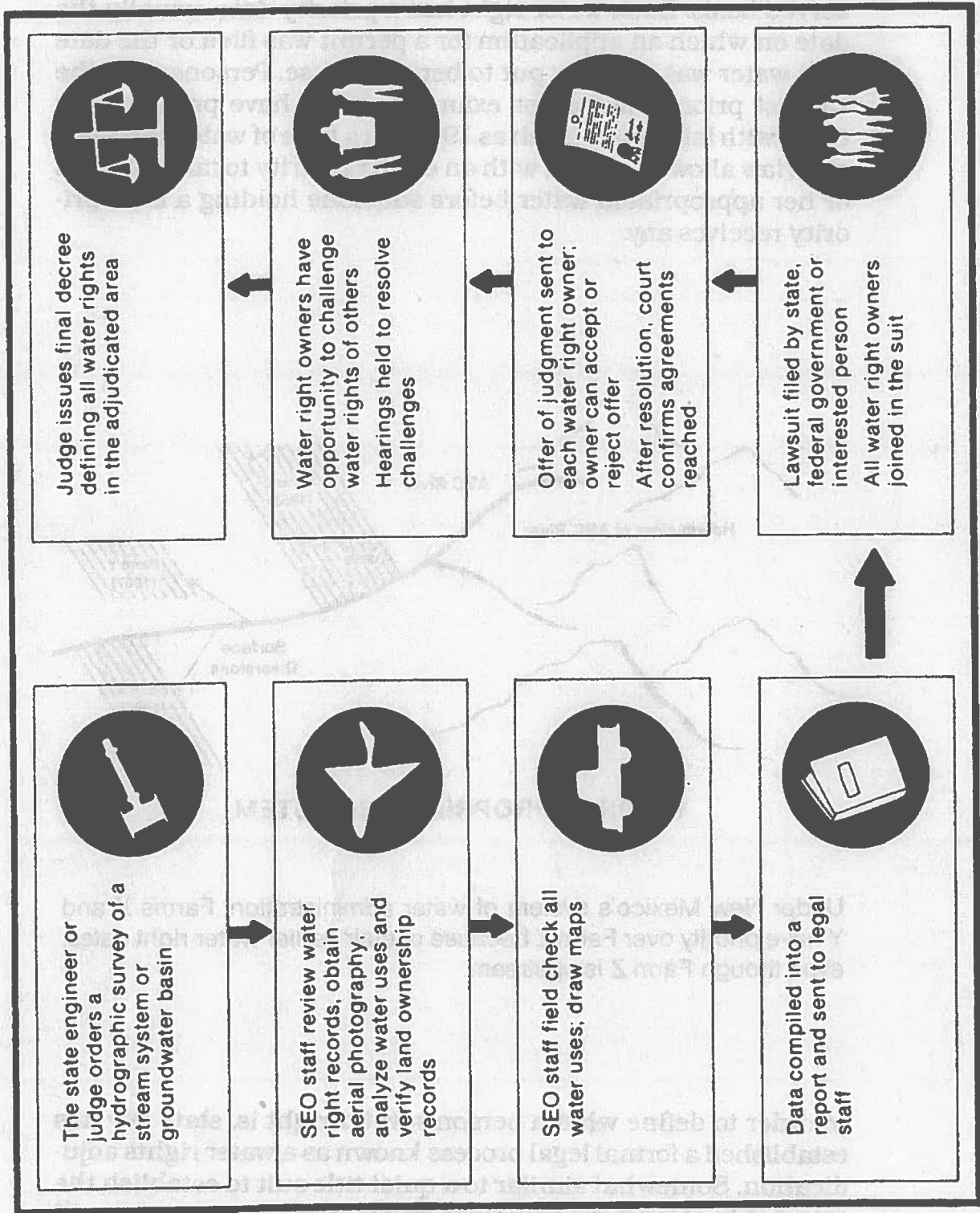
The prior appropriation system operates on a first-come, first-served basis. Each water right has a priority date, usually the date on which an application for a permit was filed or the date that water was actually put to beneficial use. Persons with the earliest priority dates (for example, 1876) have priority over those with later dates (such as 1974). In a time of water shortage, state law allows a person with an earlier priority to take all of his or her appropriated water before someone holding a later priority receives any.



PRIOR APPROPRIATION SYSTEM.

Under New Mexico's system of water administration, Farms X and Y have priority over Farm Z because of their earlier water right dates, even though Farm Z is upstream.

In order to define what a person's water right is, state law has established a formal legal process known as a water rights adjudication. Somewhat similar to a quiet title suit to establish the ownership of land, an adjudication determines the extent and ownership of each water right in a specific geographic area. At the end of the adjudication process, the court issues a decree identifying the specific characteristics of each right, documented by individual orders issued to each water right owner. Adjudications, which can take many years to complete, are occurring in several parts of the state.



THE WATER RIGHTS ADJUDICATION PROCESS

Establishing a Water Right

Considered legally associated with land, water rights can be bought and sold either with the land or separately. When a person considers the purchase of land, it is important that he or she determine if the property has a water right, and, if it doesn't, how to establish one.

EXISTING RIGHTS

If the seller of the land has water rights that the buyer expects to obtain with the property, the buyer should require that the water right be conveyed in the property deed and that all documents related to the water right be handed over to the buyer. Under a state law which became effective in 1991, the buyer must file a change of water right ownership at the county clerk's office.

Buyers should also ask the seller or contact the Legal Services Division of the State Engineer Office to find out if the water right has already been adjudicated or if it is currently under adjudication. They should become informed about any action they should take during the adjudication process to protect their right.

If the property being purchased has a surface water right which is associated with an acequia, or community irrigation ditch, the buyer should contact a ditch commissioner from the irrigation association and obtain a copy of the association's bylaws. Each association has its own system for allocating water among its members. Most associations charge members annual dues and also require members to participate in the annual spring cleaning of the acequia, or be assessed a fee to have someone else do the work for them. State laws affect the operation of acequia associations. For more information on these laws, contact the New Mexico State Engineer Office.

If the land being purchased has water rights associated with a larger, more formal irrigation or conservancy district, the buyer should contact the district regarding its rules and regulations.

OBTAINING A NEW RIGHT

If you are uncertain about whether the property has a water right, or if you know it does not, you should contact the New Mexico State Engineer Office nearest you. In these offices you can find information you may need from existing water right

records, as well as the proper forms to complete for a water right application. Before calling or visiting that office, there is some information you need to obtain beforehand.

You should first check the property to see if there are waterworks present, such as a well or an irrigation ditch. If there are, determine how the water is currently being used. If no current source of water is found, look for evidence of water being used in the past, such as abandoned fields or old irrigation ditches. If a source of water and evidence of water use are not discernible, then there may have never been a water right, or the water right may have been abandoned because of nonuse.

Next, you should locate a legal description of the property, which is usually in the deed to the land. The name of the stream from which the water is to be diverted or the groundwater basin in which a well is to be drilled is also helpful, as is the name of the current owner of the property. The names of previous owners may help in searching for an old water right.

Armed with this information, a visit or call to the State Engineer Office should involve a simple search of the files to find a fact you are seeking. If a water right is found to exist for the property, you will probably just need to complete a change of ownership form. If a water right does not exist, you will need to file an application for one.

Water rights fall into two basic categories. One is domestic use, which includes indoor household uses, irrigation for noncommercial gardens and orchards, and limited watering of livestock. In a few areas, outdoor water use may be restricted or not allowed at all. Permits for domestic water use are granted automatically upon application in an amount not to exceed three acre-feet per year.

The second category of water rights covers all other water uses: agricultural, commercial, industrial and municipal; and the application process for these is more complex. If your intended water use falls into this category, check with the nearest State Engineer Office for more information on how to obtain a water right.

Maintaining a Water Right

Other than keeping current on a water rights adjudication which could affect your water right, there are other things you need to do to maintain your water right in good standing.

FORFEITURE OR ABANDONMENT

By state law, water rights for which water is not beneficially used for four years are subject to forfeiture if the water is not put to use by one year after a notice is issued by the State Engineer Office. Water rights can also be deemed abandoned by a court if there is proof of prolonged nonuse coupled with intent to abandon. Water rights which are placed in certain water conservation programs designated by the state engineer are not subject to forfeiture while they remain in the program.

CHANGES IN USE OR INFORMATION

If changes are contemplated, such as a change in the place or purpose of water use, approval must first be obtained from the State Engineer Office. It is advisable to keep your water right records at the State Engineer Office up to date with name, address or any other changes.

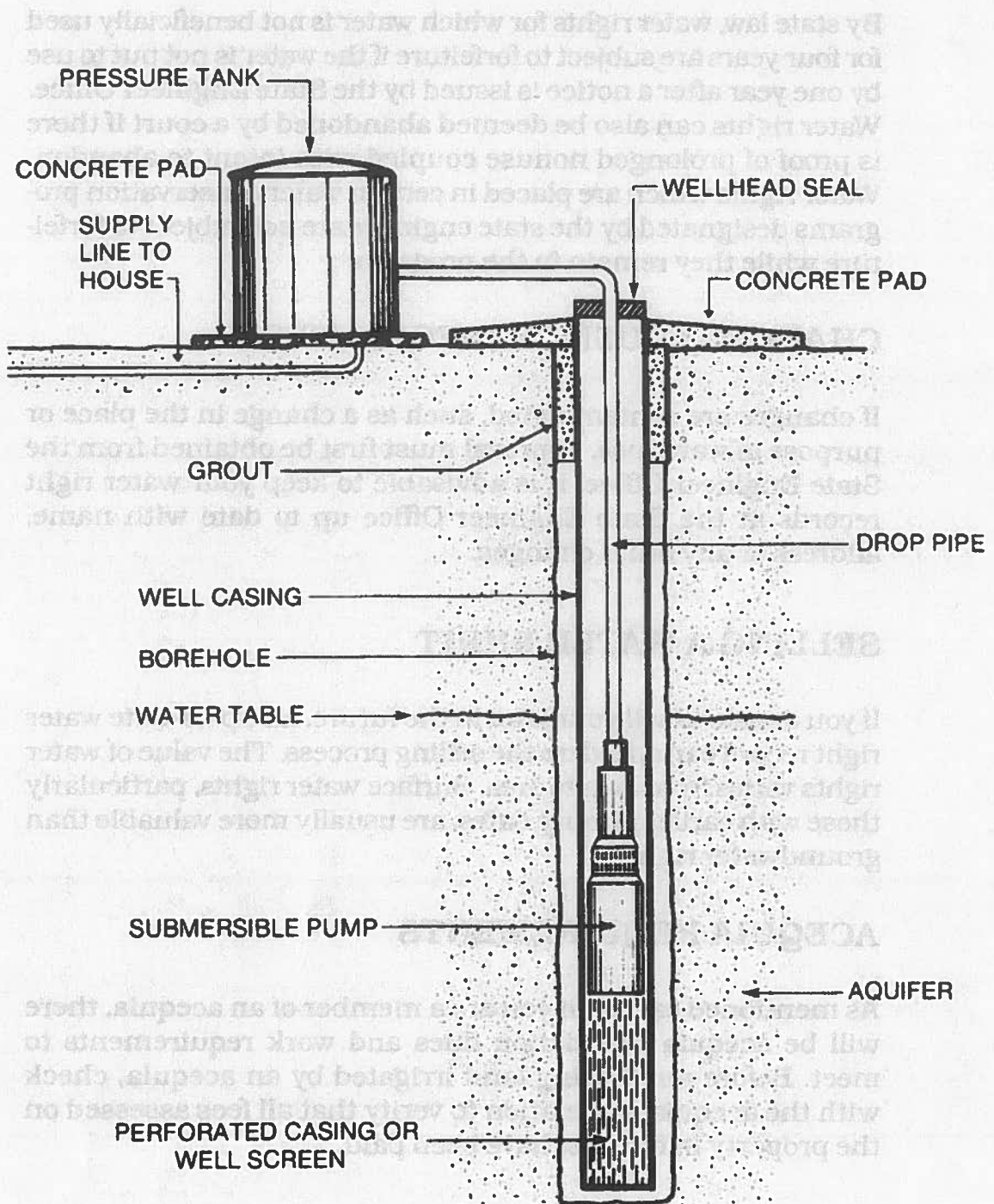
SELLING A WATER RIGHT

If you decide to sell your land in the future, an up-to-date water right record can speed up the selling process. The value of water rights varies from area to area. Surface water rights, particularly those with earlier priority dates, are usually more valuable than groundwater rights.

ACEQUIA REQUIREMENTS

As mentioned earlier, if you are a member of an acequia, there will be acequia association dues and work requirements to meet. Before purchasing land irrigated by an acequia, check with the acequia association to verify that all fees assessed on the property in the past have been paid.

TYPICAL WATER WELL CONSTRUCTION



NOTE: THIS DIAGRAM IS NOT TO SCALE

Source: Arizona Department of Water Resources

WATER WELLS

Ground water is the primary source of drinking water for rural residents in New Mexico. Although the state has vast amounts of ground water, it is not always found in adequate amounts, at reachable depths, or of a suitable quality to be used for a domestic water supply. Depending upon the location, groundwater quality, well depth and well yield may vary greatly.

Before drilling a well to tap ground water for your water supply, find out as much as you can about the ground water under your property. Contact the New Mexico State Engineer Office nearest you for information regarding the groundwater aquifers in your area. These offices usually have local well drilling records on file which contain data on well depths and well yields. Then contact the New Mexico Environment Department to see what information their records may contain about the water quality in your area.

Other sources of information are the U.S. Geological Survey, county extension offices, realtors, neighbors and well drillers. Keep in mind that local variations may be such that you may not find water at the same depth and of the same quality as your neighbors.

The Well

A well consists of a pipe extending into the ground through which ground water is drawn from its source to the land surface. A well casing supports the walls of the well so that rock and debris do not enter.

A well screen may be installed at the bottom of the casing to prevent small particles of sand or gravel from entering the well. A pump may be connected to the top of the well casing or submerged below the water level in the casing. The top of the casing should be designed to prevent contamination. To obtain an adequate water supply for most households, a well yield of at least five gallons per minute is preferred. If your well yield is lower than five gallons per minute, you should add more storage capacity to meet normal household demands.

The most common method for constructing wells in New Mexico is drilling. A drilled well can be installed in many types of

geologic formations. This method usually uses a drill bit to break up rocks and push through sand and gravel. Sometimes a drilling fluid is injected into the well and used to carry loosened material up to the surface. When drilling is completed, the well is cased, and the space between the upper portion of the casing and the hole wall may be filled with cement or bentonite grout.

The boring method, practical for shallow wells of less than 100 feet deep, uses an earth auger to move the earth and other materials to reach the ground water. Less often a driven well, also used in areas of shallow ground water, is constructed by driving a small diameter pipe into water-bearing sand or gravel. In older communities with shallow ground water, hand dug wells may exist. Hand dug wells are usually not recommended because they can be easily contaminated.

Although the landowner should not have to become a technical expert on the well drilling process, he or she should be familiar with some of the recommended design criteria for water wells. The New Mexico Environment Department has published a brochure on domestic water wells which outlines recommended design criteria for well casings, well screens, grouting, gravel packing, well development, testing and disinfection, pump house construction and proper venting. The brochure is available at Environment Department offices throughout the state.

The cost of a well is dependent upon several factors, including the depth to ground water, cost of pipe, characteristics of the soil and underlying materials, type of pump, and location of property. Some wells in river valleys are only 80 to 100 feet deep, while others in more mountainous areas can run 300 to 400 feet deep or more. Drilling costs in 1990 averaged approximately \$10 to \$15 per foot. The addition of a pump and power controls costs about as much as drilling the well. So, if you were drilling a 200-foot well at \$10 per foot, the drilling costs would amount to about \$2,000. The pump and power controls could cost another \$2,000, for a total cost of \$4,000. Additional costs for well development should be anticipated.

In addition to good well construction, the proper siting of a well is of primary importance to ensuring a safe drinking water supply. To prevent contaminated runoff water or other materials from entering a well, the well should be located on the highest suitable ground and as far from potential pollution sources as possible. Surface drainage should be directed away from the well site, and the well should not be located in an area subject to flooding.

According to regulations enforced by the New Mexico Environment Department, the minimum distances between private wells and various potential sources of pollution should be as shown on the following table.

REQUIRED MINIMUM DISTANCES (feet)

Pollution Source	Minimum Distance from Well
Septic tank, privy, other liquid waste treatment units	50
Septic tank drainfield	100
Existing or proposed sanitary landfill	1,200
Cattle yard	100
Buried fuel tanks	100
Municipal sewers	100
Sewage storage or treatment ponds, ridge and furrow or spray sewage disposal site	300
Existing or future grave site in cemetery	100
Sewer pipe (cast iron or plastic)	8
Sewer pipe (other materials)	25
Clear water drain (rainwater downspout or foundation drain)	10

Remember that these are the minimum setback distances for locating a domestic well site; these do not guarantee that pollution sources will not contaminate your well. Local geologic and hydrologic conditions should be seriously considered in conjunction with all possible pollution sources to determine the best location for a well site.

Well Drillers

Most homeowners will want to get a licensed well driller to construct their well. State laws enforced by the New Mexico State Engineer Office require that any well drilled within a declared groundwater basin be drilled by a licensed well driller. A licensed driller is not required for driven wells, which are simple to construct, as long as the size of the well casing is limited to 2 $\frac{3}{8}$ inches. Outside a declared groundwater basin, only artesian wells must be drilled by licensed well drillers.

Homeowners should approach the choice of a well driller with care. Although well drillers are licensed by the state, the license

does not certify their competence and is issued only to ensure that drillers follow state regulations. The names of well drillers can be found in the yellow pages of telephone books, or you can obtain a list of licensed well drillers from the New Mexico State Engineer Office.

When selecting a well driller, consider the experience and reputation of the driller, the repair and emergency services offered, and the recommendations of previous customers. Ask for references and talk to neighbors who have had wells drilled to see who they might recommend. A driller who knows the area may be better informed about local water resources and be able to give a more accurate price estimate.

Before construction, the well driller should provide you with a detailed cost estimate, as well as the type and method of construction, expected depth and diameter of the well, anticipated yields, method of disinfection and sealing once completed, and water treatment requirements. The fee for well development (removal of turbid water and fine material) is usually separate from the well construction costs and can vary, depending upon the time it takes to get the water clear and clean. Be sure to get the rates for well development clearly established. Most drillers will also install a pump if requested, or you can hire a separate pump installer to do the job.

Well drillers should itemize costs and provide information on the type and extent of insurance they carry. Since no one can be certain at what exact depth water will occur, do not expect the well driller to guarantee water at a particular depth.

Homeowners should require a written contract specifying the work to be done, materials to be used, and the amount of payment. A written agreement helps avoid misunderstandings and provides protection for both the homeowner and the well driller. Finally, you should be present during portions of the well drilling to see that the actions and materials match contract specifications.

Existing Wells

Several precautions should be taken before you purchase property that already has a well. You should obtain written information from the present owner describing the location and construction of the well, along with the type and age of the well,

pump and pipe. Also look for obvious problems with the well itself, such as inadequate grout around the well casing and leakage around the point where the supply pipe to the house leaves the casing. The water should be tested by a reputable laboratory. A listing of certified water quality testing laboratories is available from the New Mexico Environment Department.

If you find an abandoned well on the property, or later decide to abandon a well, it should be properly sealed to avoid a threat to public health and safety and to prevent possible groundwater contamination. Contact the New Mexico State Engineer Office for more specific information regarding well plugging.

You may wish to consult an attorney to see if the land purchase agreement should be contingent, in writing, upon proof that the water supply system provides adequate amounts for domestic use, does not pose a health threat, and is acceptable to the buyer. This precaution could save you thousands of dollars and prevent unforeseen problems.

Water Testing and Treatment

There is usually a sigh of relief from the homeowner once he or she knows that the well driller has hit water and tests have determined that the water quantity is adequate for household needs. However, there is more to do before a household water supply is assured. The next step is to determine if the water is potable, or suitable for drinking.

WATER TESTING

As the well is being drilled, the homeowner should work with the well driller to have the quality of the water tested. If the water quality is good, then drilling can stop and the well can be completed. On the other hand, if a water quality problem is discovered during the drilling process, the well driller may want to drill deeper. Most contamination in New Mexico occurs in shallow ground water, so drilling deeper may produce water of better quality.

There are numerous water quality testing laboratories in New Mexico where the homeowner can take a water sample to be tested. A list of laboratories approved by the U.S. Environmental Protection Agency and certified by the New Mexico Environment Department can be obtained from the nearest Environment Department office.

Always contact the laboratory where you plan to have the water tested and ask them about sampling methods, containers, and packaging and delivery instructions. Be sure to use a clean container that does not retain any residue from previous contents and do not touch the inside of the container, as this may contaminate the water sample. Although the time in which the sample must be delivered to the laboratory will vary with the kind of tests being done, try to get the sample to the laboratory as soon as possible.

The type of test you will need to have done varies with the situation. For example, you may (1) simply be trying to determine if the water is safe, (2) be considering some kind of water treatment unit, (3) have a household with babies or small children requiring specific consideration, or (4) live in a geographic area of special concern. The initial water quality test, probably conducted while the well is being drilled, should check for the presence of chemical contaminants. These contaminants include nitrates (a special concern for infants), heavy metals such as arsenic, lead, mercury, silver or selenium, and organic solvents, an example of which is benzene, a constituent of oil and gasoline. Some of these contaminants can cause serious health problems, while others may change the color, taste or clarity of the water but have no harmful health effects.

Laboratories will test only for the specific contaminants requested, and the cost of the tests can vary greatly (from \$10 to \$2,500), so it is best to know which tests are prudent and which are unnecessary. If uncertain, you may ask the nearest office of the New Mexico Environment Department for assistance. Once the water system is completed, it should be disinfected to destroy any harmful bacteria that may be present. Either the well driller or you can do this. The Environment Department encourages homeowners to contact the department for additional guidance regarding disinfection.

Depending upon where you live, you may want to have either a bacterial or chemical test of your water conducted periodically. For most New Mexicans, this is not necessary. However, you should consider it if you live near an industrial area, heavy agricultural operations, or a dense concentration of septic tanks, as well as if you have infants or small children in your family or if several family members experience ongoing gastrointestinal illness with no obvious cause.

In addition to water quality laboratories, you may also have your water tested by Environment Department staff as they conduct water fairs periodically in communities across the state. Your water sample will be tested free of charge at these fairs. Check with your local Environment Department office to see when a water fair may be scheduled for your community.

WATER TREATMENT

If you find that your well is contaminated and unsuitable for use, there are four alternatives that may correct the problem. You can (1) hook up to a public water supply, (2) drill a deeper well, (3) purchase bottled water, or (4) install a water treatment unit.

Hooking up to a public system or drilling a deeper well, both of which have been discussed earlier, are usually preferable if available. They do not require as much ongoing attention as the purchase of bottled water or the use of a water treatment unit. The quality of bottled water varies according to the labeled description. Federal law requires that it be within the maximum contaminant levels set by the federal government. However, little monitoring is done, leaving it to the bottlers to comply with the standards.

Commercially available, small-scale treatment units are capable of removing selected contaminants from water. These units should be chosen carefully. No treatment unit can handle all situations, so the first step is to have a water test conducted to know what kind of contaminants are present in your water supply.

Water treatment devices can be "point-of-use" devices, which are attached to the faucet or under the counter. They can be used to purify water for drinking and cooking, but will not prevent health problems caused by bathing in water containing high levels of toxic chemicals. In such cases, it is necessary to use a "point-of-entry" device, which purifies the water before it enters the household system.

There are five common methods used by household treatment units to purify water: (1) activated carbon filtration, (2) disinfection, (3) distillation, (4) reverse osmosis and (5) water softeners (cation exchange system). Each of these methods is best suited for specific situations so, before buying a treatment system, check the method used in the unit you are considering against the contaminants in your water supply.

Installing a small-scale water treatment unit to provide low volumes of high quality water for drinking and cooking represents a viable option for homeowners. Selecting such a system to treat water for all household uses is less practical, because of the costs of purchasing, operating and maintaining such a unit. Purchase and installation costs range from about \$400 to more than \$3,000. Many units on the market have only recently been developed, so operation and maintenance costs and the expected life of the unit have not yet been established.

Although some units are easy to operate, continuous attention is essential to obtaining properly treated water at a reasonable cost. There is the possibility that contaminants may "break through" a poorly maintained system, exposing household members to health hazards. Monitor the system carefully and conduct periodic water quality tests to be sure the system is working properly.

Be a careful consumer when buying a household water treatment unit. Check the claims of salespersons regarding the capabilities of treatment units against other sources of information. Equipment sold by nationally based water treatment firms often has been tested by an independent organization, and the test results should be available.

For more information regarding water testing, water contaminants and their sources, and water treatment, contact the New Mexico Environment Department, which has several brochures and booklets available on these topics.

Well Maintenance

Once a well is completed and the home has running water, there is a tendency to forget that the well needs regular maintenance in order to function properly. Maintaining a well involves early detection and correction of problems that reduce well performance. To avoid crises that demand immediate and often drastic action, the homeowner should initiate a regular maintenance schedule.

The problems that affect well yields often occur out of sight inside the well. The normal wear of pump parts, encrusting deposits on metal parts, and corrosion of the well screen can hinder well performance and shorten the useful life of the entire water system. An increase in power consumption, indicated by

a higher-than-average electric bill, without increased water delivery could indicate reduced pump performance or a problem in the well.

If the pump seems to run more frequently than it should, check for possible leaks in the pressure tank or distribution system. Inspect the well casing periodically to make sure there are no openings through which insects, plant debris and other materials can enter and contaminate the water supply. Keep up-to-date records of pump tests, water tests and well repairs, as well as records of the well installation.

Periodic chemical analyses of the water can indicate the presence of chemicals that cause encrustation in wells. The formation of encrusted deposits depends upon the mineral content of the water and the rate of pumping. If these deposits are not treated early, they will become more difficult, and sometimes impossible, to remove as they grow thicker. The rate of encrustation can be delayed by using properly designed well screens and reducing pumping rates. Several methods of removing the deposits, using acid, chlorine and chemical cleaning agents, are available. Removal should be done by a professional and not by homeowners.

Preventing Groundwater Pollution

Groundwater quality can be threatened by the improper siting of wells and septic tanks. Another threat to groundwater quality is the improper use of numerous hazardous substances found in most rural households. Leaking underground storage tanks and discarded hazardous wastes have already contaminated numerous public and private wells in New Mexico. Rural homeowners should not add their wells or the wells of their neighbors to the list.

A hazardous substance is one that can be corrosive or toxic or catch fire, explode or react either alone or when mixed with other substances. Included are paints, varnishes, paint thinners, antifreeze, wood preservatives, photographic solutions, pesticides and household cleaners containing lye or petroleum distillates. Except for Albuquerque, New Mexico has no community pickup and disposal programs for household hazardous wastes. Neither is the disposal of these wastes regulated by law. The responsibility for careful disposal of these products falls singularly upon the homeowner. Rural homeowners should adopt the

following practices when using hazardous materials to protect against groundwater contamination:

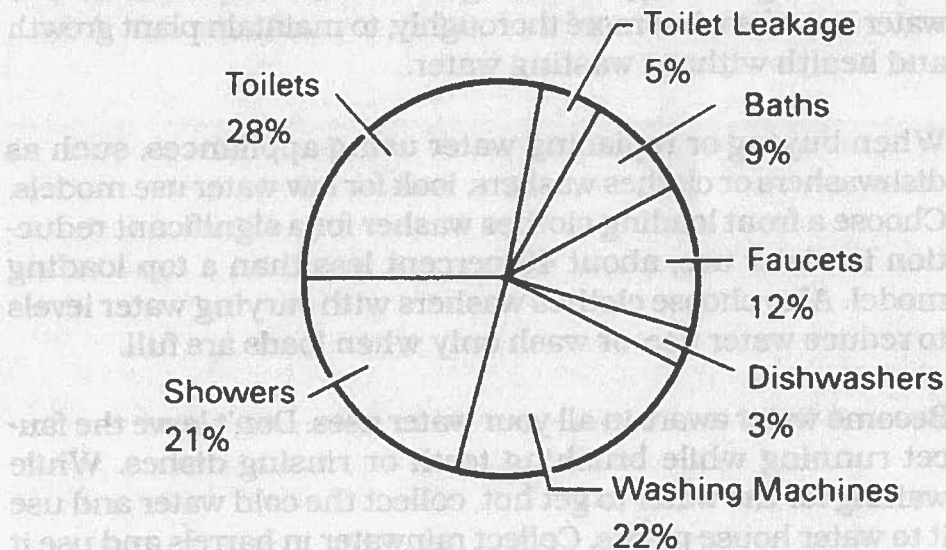
- Read hazardous product labels carefully to make sure you are getting the product you really need. Also check the label to learn how to properly apply and dispose of the product. Buy only what you need and use safer substitutes when possible, such as vinegar, baking soda or borax, for household cleaning.
- Use fertilizers and pesticides, such as insecticides and herbicides, with caution and follow the manufacturer's instructions. Never mix, store or use these chemicals near a well. Many of these products can dissolve in rain or irrigation water and percolate through the soil into the ground water.
- Store unused pesticides safely at home or take them to a licensed hazardous waste contractor. Do not incinerate them, for home incinerators such as wood stoves and fireplaces do not produce high enough temperatures to destroy them. Pesticide containers can be disposed of at landfills if properly prepared. They should be rinsed three times and crushed or otherwise made not usable. The rinse water should be reserved for future pesticide applications. Contact the New Mexico Department of Agriculture for further information regarding proper storage and disposal of pesticides.
- Carefully check pesticide sprayer equipment for proper calibration so that recommended application rates are not exceeded. Excessive pesticide use may increase the potential for groundwater contamination. Back-siphoning prevention devices should be installed on all faucets and hoses used to fill pesticide sprayers.
- Do not pour or flush toxic or hazardous substances through the household plumbing. These materials can destroy the beneficial bacterial action in a septic tank and then pass through the system and pollute ground water.
- Collect used motor oil to recycle at an oil collection center. Most centers are located at service stations. Call the local office of the New Mexico Environment Department for names of recycling stations nearest you.
- Reducing the amount of other solid wastes disposed of in landfills will also help to preserve groundwater quality.

Reuse and recycle aluminum cans, glass, plastic, newspapers and other paper products. Compost kitchen wastes and garden trimmings. And never dispose of wastes through an abandoned well. As mentioned earlier, these wells should be properly sealed to prevent groundwater contamination.

Using Water Wisely

Water is a precious resource, especially in a state like New Mexico where water is in short supply and much of the water that is available is threatened with pollution from many human activities. Residents should use this resource efficiently, consuming only what is really needed and not wasting any. Reducing water demand can also save money for the homeowner on water pumping, septic tank maintenance and water heating costs.

Most rural residents use from 50 to 75 gallons of water per day. With a little forethought and continuing awareness, water consumption rates can be reduced by 10 to 20 percent. Water conservation practices, such as those in the following suggestions, can be incorporated into a rural household without a significant impact upon the residents' lifestyles.



Average Inside Residential Water Use

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- If you are building a new home or replacing old water fixtures, consider installing ultra low-flow toilets and showerheads. Ultra low-flow toilets use only 1.6 gallons of water or less per flush, compared to 3.5 gallons for standard "water conserving" toilets and 5 or more gallons for older toilets. Ultra low-flow showerheads usually use about 2 gallons of water per minute instead of the normal 3.5 to 5 gallons, without eliminating a good shower flow.

Some concern has been expressed about the operating efficiency of ultra low-flow toilets (whether you have to double flush); however, recent tests conducted in residences have found these toilets perform as well as, or better than, most 3.5 gallon toilets. Contact your plumber for advice on which ultra low-flow toilets and showerheads to choose. To ensure satisfaction, ask to see manufacturers' testing results before choosing specific brands and models.

- Examine ways to reduce outside water use, which accounts for approximately 50 percent of residential water use. Plant native and drought tolerant trees, shrubs and flowers. These can provide a varied, pleasing landscape while requiring low maintenance and watering levels. Use drip irrigation, rather than overhead sprinkler systems, wherever possible. Water in the evening or early morning to reduce evaporation, and water less often, but more thoroughly, to maintain plant growth and health without wasting water.
- When buying or replacing water using appliances, such as dishwashers or clothes washers, look for low water use models. Choose a front loading clothes washer for a significant reduction in water use, about 40 percent less than a top loading model. Also choose clothes washers with varying water levels to reduce water use, or wash only when loads are full.
- Become water aware in all your water uses. Don't leave the faucet running while brushing teeth or rinsing dishes. While waiting for the water to get hot, collect the cold water and use it to water house plants. Collect rainwater in barrels and use it for irrigation. Take shorter showers and fewer full-tub baths. Reuse greywater for irrigation. Use a cut-off nozzle on your hose when washing the car. Sweep, rather than hose down, driveways, patios and walks. Insulate water pipes to provide hot water faster.

SEWAGE DISPOSAL

Drilling a well and supplying water to the house is only one half of the rural homeowner's responsibility regarding water. The other half involves choosing, installing and maintaining a sewage treatment and disposal system.

Sewage disposal in rural areas needs careful consideration because of the potential for creating a health danger through improper sewage handling. Individual liquid waste systems are the leading source of groundwater pollution in New Mexico, and a state permit is required to install a system. Most rural residents who rely on individual systems to treat household wastewater also rely on ground water to supply their drinking water. Subdivisions with small lots are especially susceptible to pollution by individual sewage systems because contaminants from sewage are concentrated in a small area. By not siting sewage disposal systems and water wells properly, homeowners can contaminate their own water supply and that of their neighbors.

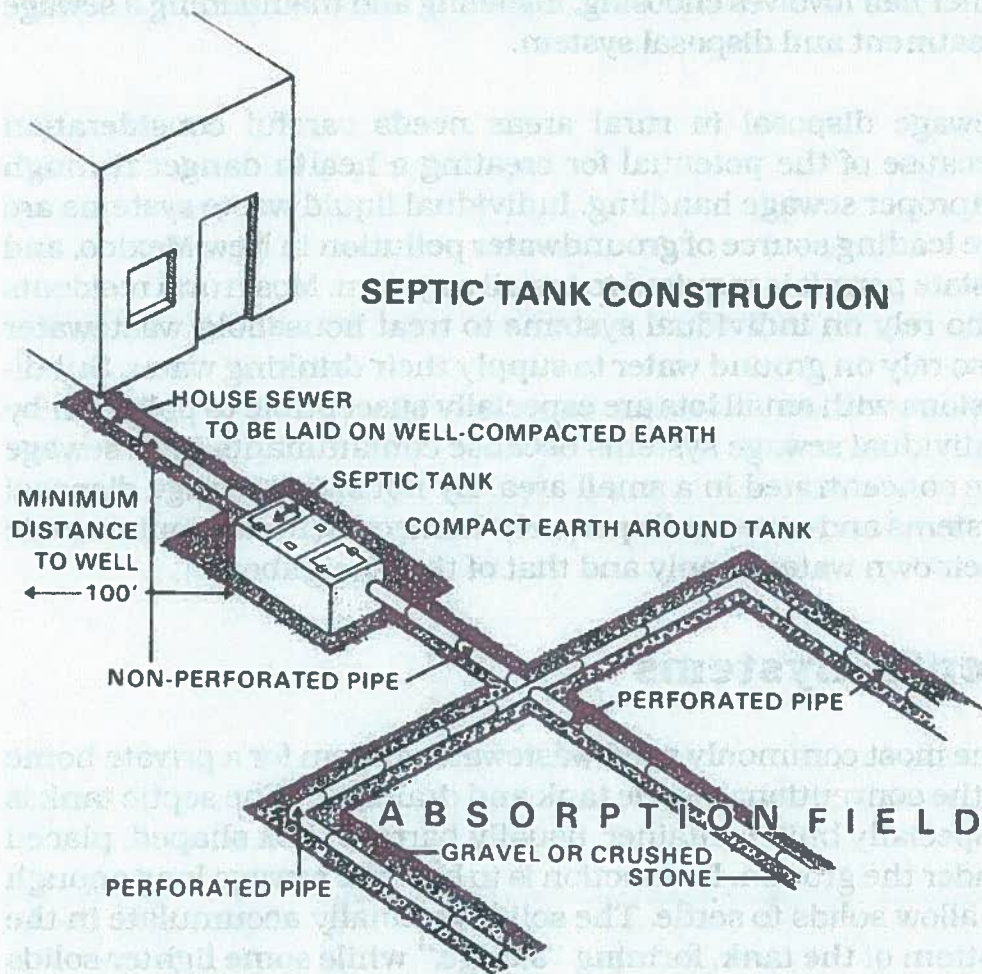
Septic Systems

The most commonly used wastewater system for a private home is the conventional septic tank and drainfield. The septic tank is a specially built container, usually barrel or box shaped, placed under the ground. Its function is to hold the sewage long enough to allow solids to settle. The solids gradually accumulate in the bottom of the tank, forming "sludge," while some lighter solids float at the surface, forming a greasy scum. Other solids remain suspended in the liquid which flows out of the tank's outlet and into the drainfield.

The drainfield consists of a series of gravel filled trenches containing perforated pipes. The liquid waste is carried through the pipes and discharged into the soil below the ground. While the liquid seeps through the soil, natural chemical and biological processes treat the waste so that it no longer presents a hazard to human health. Ultimately, the treated liquid combines with ground water.

A septic tank and drainfield will work for most New Mexico conditions. However, in certain areas where the water table is high, slope or soil problems occur, or bedrock is near the surface of the ground, an alternative system such as an evapotranspiration bed or a sand mound, may be required. Be certain that your property

is suitable for a standard system before you install one. Otherwise, you might experience a failing system which could cause pollution and health problems, not to mention expensive costs for replacement. Information on alternative systems can be obtained by talking with New Mexico Environment Department staff.



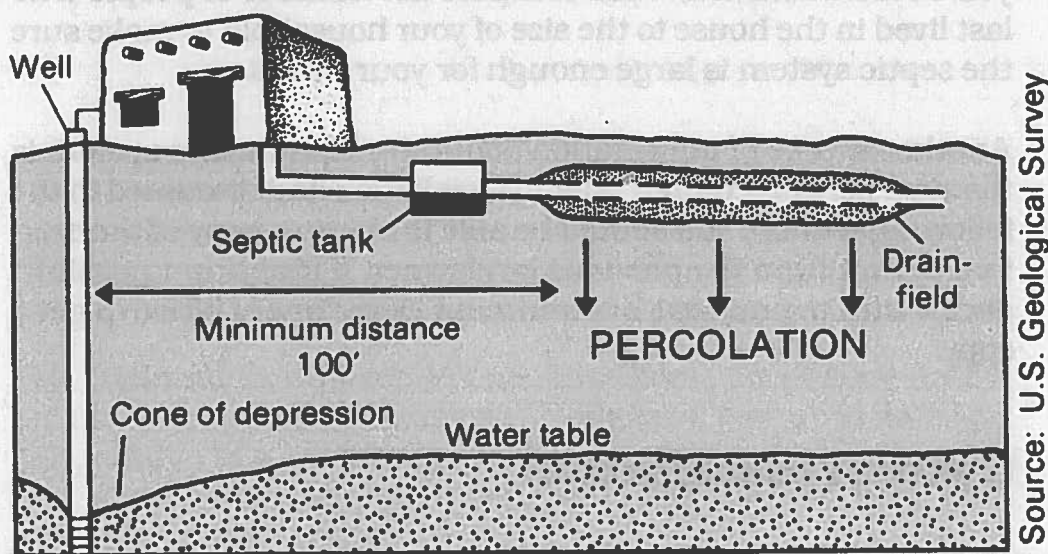
System Considerations

First, if you have access to a community sewer system, consider hooking up to it. You may be required to do so by local ordinances or you may decide it is a preferable option. Even though you have to pay monthly service charges, joining a community system may be cost effective when compared to the costs of installing, maintaining, and eventually replacing your own system.

If you are going to use an individual liquid waste system, carefully evaluate your property for system suitability and siting choices. A percolation test of the soil must be conducted to determine the rate at which liquid can flow through the soil. The test helps

determine what type and size of drainfield is needed. Too fast a percolation rate can cause as many problems as one that is too slow, because the wastewater may not be adequately treated by the time it reaches the ground water. You may want to test several locations on your property to find the area best suited for the disposal field. The New Mexico Environment Department provides guidance and forms for conducting a percolation test.

Before deciding where to place the disposal system, check the location of nearby wells and the depth to ground water. Sources for information on these topics are the county extension office, other local experts or neighbors, New Mexico Environment Department, and New Mexico State Engineer Office.



WELL AND SEPTIC TANK SITING

Living in the semiarid climate of New Mexico, some rural residents choose to reuse their wastewater for irrigating gardens, trees and landscaped areas, or for other uses. If you want to consider this option, several key points should be understood before proceeding. Only greywater, or water that comes from showers, baths and laundry, should be used. Wastewater from toilets and the kitchen poses too great a health risk for private home reuse. Even with greywater, certain precautions must be taken.

If greywater is used for irrigation, the New Mexico Environment Department prefers that it be distributed through an underground irrigation system. The agency does not allow surface application without a high degree of treatment and disinfection. Also, if the irrigation system is located near the surface of the ground above the freezing zone, the homeowner must find a suitable alternative disposal method for the winter.

For a greywater system, the homeowner will need to install a dual plumbing system to separate greywater from "black" water (toilet and kitchen wastewater). Also needed will be two separate septic tanks, one for each type of wastewater. For guidance regarding greywater systems, contact the county extension office or the Environment Department.

If you are buying a home with an existing septic system, become informed about the system before you make the purchase. Locate the septic tank and drainfield and look for moisture near or at the surface of the drainfield that is not present elsewhere. Flush the toilets inside the house to make sure the flow is adequate. Find out when the septic tank was last pumped (every three to five years recommended). Also compare the number of people who last lived in the house to the size of your household to make sure the septic system is large enough for your needs.

Another source of information about the liquid waste system is the state permit required prior to installation and discussed in the following section. You should be able to obtain a copy of the original permit from the previous landowner. If that is not possible, check with the nearest Environment Department office to get a copy.

System Installation

In order to install a liquid waste system, the homeowner must obtain a permit from the New Mexico Environment Department and the Construction Industries Division. Both state agencies have responsibility for regulating liquid waste: the Environment Department for assuring proper system location to protect environmental quality and public health, and the Construction Industries Division for protecting the consumer by assuring proper construction practices. When getting a permit, the same application form is used for both agencies' approval. The application form contains valuable consumer information regarding system sizing and siting and can be obtained from any Environment Department office. There is no fee for the Environment Department portion of the permit; the Construction Industries Division portion currently costs \$12 to \$15.

The Environment Department has regulations governing the siting of individual liquid waste systems to protect public health and groundwater quality. Certain distances are required to separate waste disposal fields from private water wells, watercourses

and water supply pipes. Disposal fields must have a minimum depth of soil between them and ground water or bedrock. Other restrictions apply to soil types and certain site characteristics.

REQUIRED MINIMUM DISTANCES (feet)

OBJECT	SEPTIC TANKS AND OTHER LIQUID WASTE TREATMENT UNITS	DRAINFIELDS
PRIVATE WATER SUPPLY SOURCE	50	100
PUBLIC WATER SUPPLY SOURCE	100	200
PUBLIC LAKES	50	100
WATERCOURSES EXCEPT CANALS AND ARROYOS	50	100
UNLINED CANALS AND ARROYOS	15 + depth of channel	25 + depth of channel
LINED CANALS	10 + depth of channel	10 + depth of channel
POTABLE WATER LINES	10	10

Most plumbers and septic tank installers can provide an adequate system for a private home. However, if you are installing an alternative to a standard septic tank system, you may wish to employ a professional engineer to design the system and oversee its installation.

Contractors can be found in the yellow pages of the telephone book under "Septic Tank & System Contractors & Distributors" or check with your plumber for a recommendation. You may also wish to talk to nearby residents for their advice. Be sure that the installer you choose is licensed by the New Mexico Construction Industries Division. The cost for installing a septic tank and drainfield will vary depending upon specific site needs and conditions. In general, the price for a conventional system currently ranges from \$1,500 to \$2,000. Alternative systems can cost considerably more.

System Maintenance

Routine maintenance is critical to preventing septic tank failure. Over time, sludge and scum accumulate in the tank and eventually will pass out of the tank and clog the drainfield. The tank should be inspected once a year to determine how fast the sludge

and scum are accumulating. You can conduct the inspection yourself, using a pole to measure the accumulated scum and sludge, or you can contact a septic tank pumper who will perform the inspection for a fee. When the solids take up half the capacity, it is time to have the tank pumped. With ordinary use and care, a septic tank should require pumping every three to five years.

Check the yellow pages of the telephone book to find out who pumps septic tanks in your area. Pumping fees currently range from \$70 to \$100, depending upon transportation costs, disposal fees and other expenses.

When liquid and solid wastes enter the septic tank, bacteria which live in the tank use the organic materials as food. The bacteria, which live and work without oxygen, are necessary to the proper operation of the septic tank. They can be poisoned by many household items, such as drain cleaners, toilet bowl cleaners and other chemicals marked "caustic" or "poison." Even bleach can cause problems, although the small amount used in washing machines should not be harmful. Other items which should not be added to the septic system are solids, such as newspaper, rags, paper towels and coffee grounds. They can clog your pipes or force you to pump the tank out more often. It is best not to use a garbage disposal in your kitchen.

Excess water can also cause problems, so be sure that surface runoff cannot drain into the tank and that ground water cannot seep through the bottom or sides. Tree roots and improper design, installation or maintenance can cause a drainfield to fail. If this happens, you may find septic water surfacing over the drainpipes, obnoxious odors, and water backing up into the drains from the toilet and bathtub.

When a drainfield fails, you will probably have to get a new one installed. The old field can usually be reused after it dries out for a year or two. When siting your drainfield, identify an area to be used for its eventual replacement. This area should be located the proper distance from a well and not in a place where you are likely to build a future house addition, driveway or other structure.

Beware of products which are advertised to revitalize your septic system, but which come with no guarantees. Many have no beneficial effect and can actually cause severe groundwater contamination.

HOMEOWNER'S CHECKLIST

Check the appropriate box when each task is completed.

Water Supply

- Check availability of community water supply system; consider hookup.
- Check water supply availability, depth and quality.
- Consider a shared well with neighbors.
- Check nearby area for potential water pollution sources.

Water Rights

- Find out if you need a water right and if the property has one.
- If there already is a water right, see if it has been adjudicated.
- Obtain new water right or transfer existing one to your name.
- Check for possible acequia membership if using surface water.
- Check for restrictions on water use in the water right, local ordinances, or water association regulations.

Water Wells

- Check location, condition and past performance of an existing well.
- Become familiar with criteria for drilling a well.
- Site the well carefully to avoid potential for groundwater pollution.

- Hire a competent well driller; check references.
- Draw up a contract with the driller to clarify extent of services and all costs.
- Have the water tested to assure its suitability for drinking.
- Choose an appropriate water treatment system, if needed.

Sewage Disposal

- Check the availability of a community sewer system; consider hookup.
- Conduct a percolation test of your soil.
- Choose a sewage disposal system that meets your needs and site it carefully.
- Decide whether you want to reuse greywater and design system for it.
- Obtain a liquid waste permit.
- Hire a competent sewage disposal system designer and/or installer.
- Prepare a maintenance schedule to be followed.

Other Issues

- Check property for flooding potential; obtain flood insurance if needed.
- Choose a building site that is not likely to flood.
- Dispose of hazardous household substances properly.
- Recycle and reuse as much as possible.
- Install low water using fixtures, appliances and irrigation systems; water wisely.

INFORMATION DIRECTORY

NEW MEXICO ENVIRONMENT DEPARTMENT

1190 St. Francis Drive

P.O. Box 26110

Santa Fe, NM 87502

Ground Water: 827-2919

Surface Water: 827-0187

Hazardous Waste: 827-2959

(Field offices in 21 locations)

Areas of Information:

Water quality

Water treatment/testing

Water systems

Water pollution

Well drilling procedures

Sewage disposal

Hazardous waste

NEW MEXICO STATE ENGINEER OFFICE

Bataan Building, Room 101

P.O. Box 25102

Santa Fe, NM 87504

827-6175

(District offices in Albuquerque,
Las Cruces, Roswell, Deming, Aztec)

Areas of Information:

Water quantity

Water rights

Water levels

Well driller list and licenses

Water conservation

Acequias

Flood protection

NEW MEXICO

CONSTRUCTION INDUSTRIES DIVISION

725 St. Michael's Drive, Room 198

P.O. Box 25101

Santa Fe, NM 87503

827-7030

Area of Information:

Septic tank permits

NEW MEXICO

DEPARTMENT OF AGRICULTURE

P.O. Box 30005
Las Cruces, NM 88003
1-800-432-5310 (toll free number)

Areas of Information:

Pesticide use
Pesticide storage and disposal

U.S. COOPERATIVE EXTENSION SERVICE

Dept. 3A, NMSU
P.O. Box 30003
Las Cruces, NM 88003
646-3015
(Center for county extension offices)

Areas of Information:

Irrigation
Drainage
Water conservation

U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION 6

Federal Regional Center
800 N. Loop 288, Room 206
Denton, TX 76201
817-898-5280

Areas of Information:

Flood insurance
Flood protection

U.S. GEOLOGICAL SURVEY

Water Resources Division
Suite 200
4501 Indian School Road, NE
Albuquerque, NM 87110
262-5399

Areas of Information:

Water levels
Water availability
Water quality

**U.S. NATURAL RESOURCES CONSERVATION
SERVICE**

4374 Alexander Blvd. NE
Albuquerque, NM 87107
761-4684

Areas of Information:

Flood protection
Drainage control
Water conservation

New Mexico area code is 505

