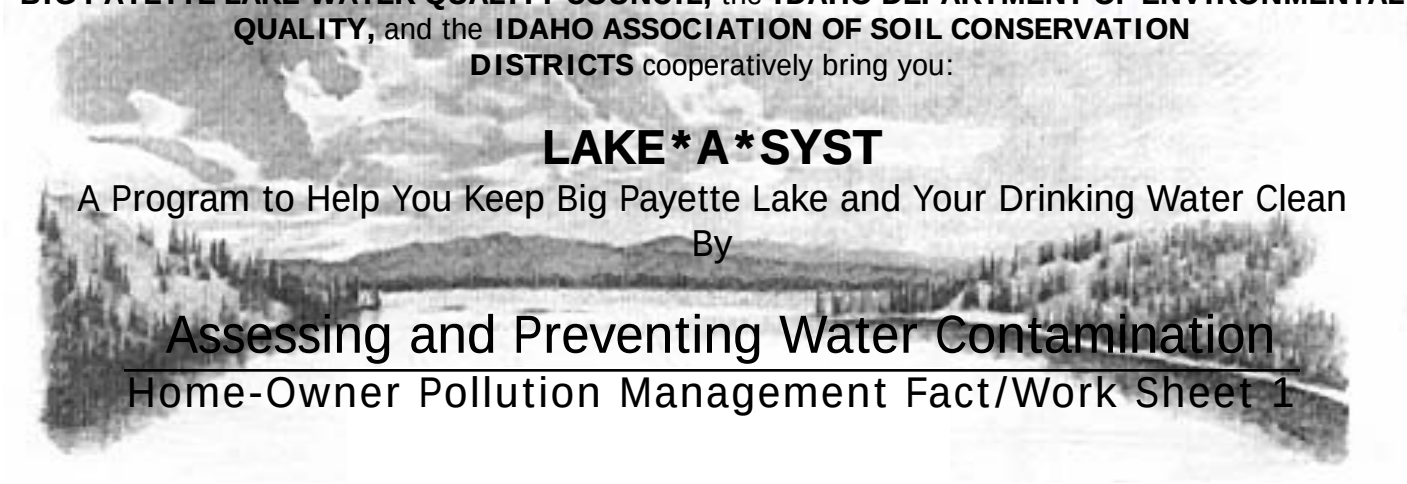
BIG PAYETTE LAKE WATER QUALITY COUNCIL, the **IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY,** and the **IDAHO ASSOCIATION OF SOIL CONSERVATION DISTRICTS** cooperatively bring you:



LAKE*A*SYST

A Program to Help You Keep Big Payette Lake and Your Drinking Water Clean

By

Assessing and Preventing Water Contamination

Home-Owner Pollution Management Fact/Work Sheet 1

If you live in the Big Payette Lake watershed you have a special responsibility to prevent pollutants from entering streams, groundwater, and the lake. Payette Lake's water quality is currently very good, but in recent years activities associated with urbanization around the lake have contributed to deteriorating water quality, as proven by findings in the *Technical Report on the Water Quality of Big Payette Lake*. These findings raised concerns within the community about how to save and enhance the lake's water quality. This led to the development of the *Big Payette Lake Management Plan and Plan Implementation Program,* which outlines voluntary **Preventative Actions** to protect water quality. One such *Action Item* is to help people protect the drinking water sources around the lake.

What is Lake*A*Syst?

Lake Assessment System (Lake*A*Syst) is a voluntary program designed to help you protect Payette Lake by reducing sediment and nutrient delivery to the lake from.
Lake*A*Syst is a 3-Step Process:

1) Use this brochure to assess for drinking water pollution risks.
2) Fill out the **Action Checklist** on page 11 to inventory contamination sources, and to help you;
3) **Take Action** to protect your drinking water; whether spring fed, drawn from the lake, or drawn from the ground.

A Safe Supply?

Most people take a safe water supply for granted. We assume the water coming out of the faucet is safe to drink. Unfortunately, this assumption is not always correct. Households around the Lake need to have their private water supply tested regularly to confirm it is safe to drink.

At infrequently used vacation homes, the water supply should be tested every year, if the well is not used continuously. Drinking water wells near the lake and its tributaries draw from shallow ground water and are at the most risk from contamination and need to be tested annually.

Many vacation dwellings use surface water for the household water supply. **This is not a recommended practice according to the Idaho Department of Environmental Quality.** Surface water presents a different set of risks and problems; information about special consideration and testing for surface water is available from the Central District Health Department (see page 8).

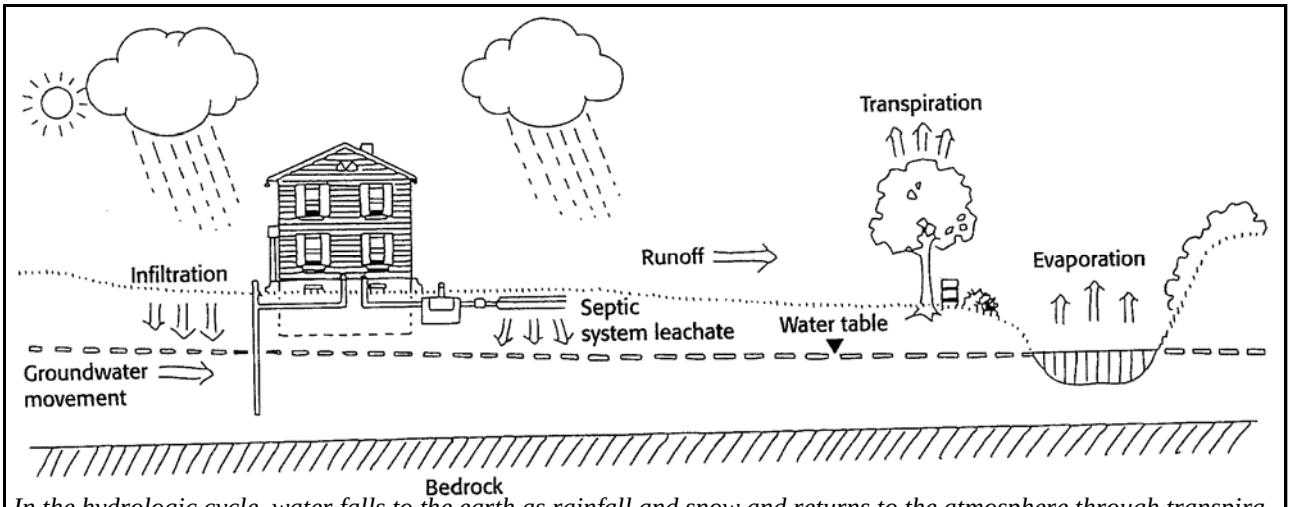
The most obvious concern about an unsafe water supply is the health risk to your family and guests. Animal wastes carried to Payette Lake Via stormwater runoff is a potential source of bacteria, viruses, and parasites that can cause gastrointestinal problems or transmit contagious diseases. High Nitrates from fertilizer can present a serious health risk to infants. Pesticides or rodenticides that are improperly used or disposed of can cause chronic health problems for humans or animals.

Property value and resale is another reason to make sure your water supply is clean. At the time of property transfer, most lenders will not provide financing for the purchase of a property without a water test that meets the Primary Drinking Water Standards for several contaminants including Fecal Coliform Bacteria and Nitrates.

Is There a Problem?

You should have your water tested:

- if there are unexplained illnesses in the family.
- if there is a sudden or gradual change in taste, odor, or color.
- if there are frequent visitors other than family members; especially if visitors become sick after arriving; family members may have developed a resistance to water contents.
- if there is a spill of chemicals or petroleum products near your well or into the surface water that services your drinking water supply.
- if an oily sheen appears when the water stands for a while.



In the hydrologic cycle, water falls to the earth as rainfall and snow and returns to the atmosphere through transpiration and evaporation.

What is Groundwater?

Groundwater is the underground water found in the cracks of bedrock and in the interstitial spaces between gravel and sand particles. Ground water can occur just a few feet from the surface or may be buried several hundred feet down.

Groundwater and the Hydrologic Cycle

The hydrologic cycle is the cyclic movement of water from air to land, in the soil, into the ground water and back to the surface where the cycle begins again.

As the figure above shows, water falls to the earth as precipitation (rain, snow, sleet or hail). Some water runs off the surface into streams, rivers, and Payette lake. Sometimes it accumulates as ice. The sun's heat causes some of the water to evaporate. Water also forms a vapor as it leaves plants. This is called transpiration. Evaporation and transpiration provide the moisture that ultimately forms clouds and creates precipitation.

Water also infiltrates the ground where it renews the water supply. First it moves through a zone of aeration, where air fills most of the pores (spaces) in the soil and rock. This zone is also referred to as the unsaturated or vadose zone. Much of the remaining water in the soil is available for plants to use. Eventually, the water reaches a zone of saturation, where the pores between the rock and sediment are filled with water. The top of this zone is called the water table and the water here is called ground water and can also be called an aquifer.

What is an Aquifer?

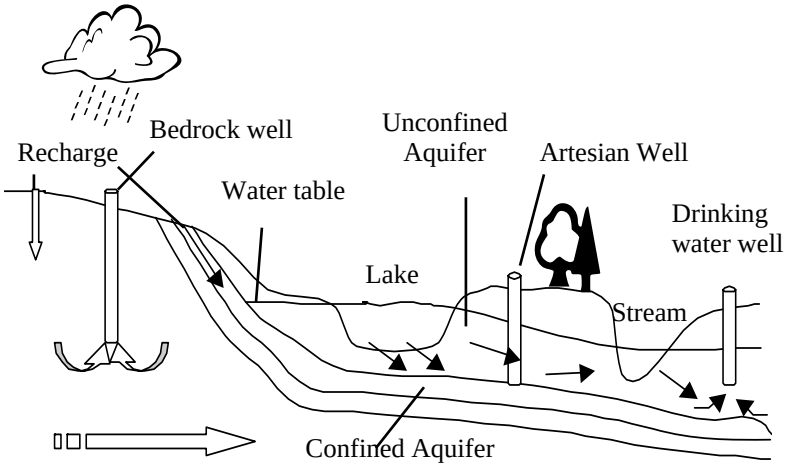
Aquifers are areas in the zone of saturation which contain large quantities of water within the pore spaces between rocks and sediment, generally enough to supply wells or springs. Ground water usually moves slowly through an aquifer.

An aquifer functions in two ways. First , it transmits water from an area of recharge to point where water may leave the aquifer, such as a well. Aquifers also store ground water until it is transmitted to an area where it may move to the surface.

Aquifers are defined as either confined or unconfined. Confined aquifers are overlain by one more layers of impermeable rock or soil which restrict water to within the aquifer. Thus, water is confined under pressure much the same as the air in a balloon. Drilling a well into a confined aquifer is analogous to puncturing a balloon and releasing the pressure within. This release of pressure in the aquifer causes the water to rise in the well. These wells may also be called artesian wells.

Unconfined aquifers are those which are not overlain by a layer of impermeable rock or soil. Water in a well will naturally stay at the level of the water table. As water is removed from the well, the water table is lowered, causing the surrounding ground water to flow toward the well.

Eventually, the water may leave the aquifer. Ground water can flow naturally from springs or canyon walls, leave the earth as a seep, supply water to rivers, or be pulled into wells. Once on the surface, the water may evaporate or again infiltrate the earth's surface-starting the cycle over.



Protecting your Drinking Water is Important!

Preventing contamination of both ground water and surface water in the Payette Lake watershed is very important due to the dynamic interaction between the two drinking water sources called hydraulic continuity. Hydraulic continuity is the movement of water in a saturated environment between ground and surface water. This allows that once either water source becomes contaminated both may become contaminated making it very difficult to contain or clean up. Both ground and surface water play an important role in supplying drinking water to the many households around Payette Lake.

Drinking water sources:

Surface Water

- The City of McCall draws 100% of its public drinking water supply from two intakes in Big Payette Lake. The intakes are 80 feet deep and are located out of Legacy Park and Davis Park. The water is disinfected (Chlorinated) for fecal coliform bacteria prior to delivery to homes and businesses.
- Surface water is also used by several non-community transient water systems, which include organized camps, trailer parks, marinas, campgrounds, and condominium complexes around the lake. These types of systems are also disinfecting their drinking water.
- Many households around the lake are still using lake water for drinking water. This is considered a hazardous practice unless state-of-the-art disinfection treatment systems are in place. Most homes just use the T-shirt filtration method, a t-shirt wrapped around the end of the intake pipe, to filter the water, but this does not filter out giardia, fecal coliform bacteria, and other gastrointestinal maladies. **Using surface water for domestic use is not recommended by the Central District Health Department and the Idaho Department of Environmental Quality**.

Groundwater

Groundwater from deep wells is considered the safest source of drinking water in the Payette Lake watershed. Drilled wells provide drinking water to many private households and non-community transient public water systems around the lake.

- Drilled wells around Payette Lake vary in depth from 30 - 200 feet, but some wells are as deep as 650 feet. Drilled wells have been developed within sand/gravel upper layer aquifers, developed in sand/gravel aquifers below confining clay layers, or in some cases developed within fractured -ers, or in some cases developed within fractured bedrock.
- Dug wells are large-diameter holes, typically three to six feet wide, often constructed by hand and lined with rock, brick, or concrete. Dug wells are often shallow, 15 to 50 feet deep.
- Sand-point or drive-point wells developed in sandy soils which may be as shallow as 12 feet.

It is the homeowners sole responsibility to protect their individual drinking water supply. Only public systems, which serve more than 15 connections or 25 individuals daily for at least 60 days of the year are regulated to meet State and Federal Drinking Water Regulations. If your home is served by other then a public system, either by an individual well or extraction from surface waters, than it is your responsibility to provide a safe drinking water supply.

BMPs for Protecting Drinking Water

The following information addresses the management of your **wellhead** and **surface water** sources of drinking water and the location of contamination sources in relation to those sources.

Well Location

Whether a well taps water just below the ground surface or hundreds of feet deep, its location at the ground surface is a crucial safety factor. Locating a well in a safe place takes careful planning and consideration of factors such as where the well is located in relation to surface drainage and ground water flow. A well down-slope from a leaking fuel tank or a failing septic system runs a greater risk of contamination than a well on the uphill side of these pollution sources. The general rule for protecting the water supply is to **keep a well up-slope and as far as possible from potential sources of contamination.**

Separation Distances

Many states encourage good well location by requiring minimum separation distances from sources of potential pollution, thus using the natural protection provided by soil. IDWR Well Construction Standard Rules (25.01.a.) requires that constructed wells must meet all siting and distance requirements set forth by the appropriate public health districts and Idaho Department of Health and Welfare rules. For example, Idaho Rules require a well to be the minimum distance of 50 feet from surface waters.

Changing the location of contamination sources in relation to your well may protect your water supply, but not the ground water itself. Any condition likely to cause ground-water contamination should be improved, even if your well is far away from the potential source. Whether or not drinking water is affected, ground-water contamination is a violation of Idaho law.

There is no specific distance that will guarantee that the well will not be affected. Make every effort, however, to always provide as much separation as possible between your well and any potential contamination source(s).

Both soil type and slope can make siting a well tricky business. Keep in mind that separation distances listed by the state are minimums. You may want to chose greater separation distances in some cases, depending on factors at your well site. All surface runoff should be diverted away from the well. Be sure to consider possible contamination sources on adjacent properties as well.

Well Construction

Proper well design reduces the risk of contamination by sealing the well from anything that might enter it from the surface (figure 2). Poor design can allow a well to become contaminated by letting rain or snowmelt reach ground water without filtering through the soil. Wells located in pits, or constructed without grout or a sanitary well seal, can allow surface water to carry bacteria, pesticides, fertilizer, or petroleum into your drinking water supply.

Several items concerning well construction that should be checked are described in the following sections. Well construction information may be available from the person who drilled your well, the previous owner, or the well construction report. The IDWR has copies of well construction reports (well logs) on file. You may contact any IDWR office in the state to request a copy. The location of your well, reported by township, range, section (1/4 of a 1/4 section or 40 acres) and the name of the person who the well was drilled for will be needed to locate your well log. Well construction reports, for wells drilled prior to 1987, were not required to be filed with IDWR and therefore may not be readily available.

Casing, Grout, Pitless Adapter, and Well Seal

The well driller installs a steel pipe (casing) during construction to prevent collapse of the borehole. All openings in the casing should be sealed, and if water pipes exit through the side of the casing, they must do so through an approved fitting called a pitless adapter.

The space between the casing and the sides of the borehole provides a direct channel for surface water and contaminants to reach ground water. To seal off that channel, the driller fills the space with grout (cement or a type of clay called bentonite). The grout seal should extend at least 18 feet in depth from the ground surface with the ground surface sloping away from the well in all directions. This will cause surface water to flow away from the well.

You can visually inspect the condition of your well casing for holes or cracks at the surface, or look down inside the casing with a light or mirror. If you can move the casing by pushing against it, you have a problem with your well casing's ability to keep out contaminants. Check on the condition of your well casing by listening for water draining down into the well (pump should not be running). If you hear water, there could be a crack or hole in the casing, or your casing does not extend down to the water level in the well. Either situation puts your drinking water source at risk.

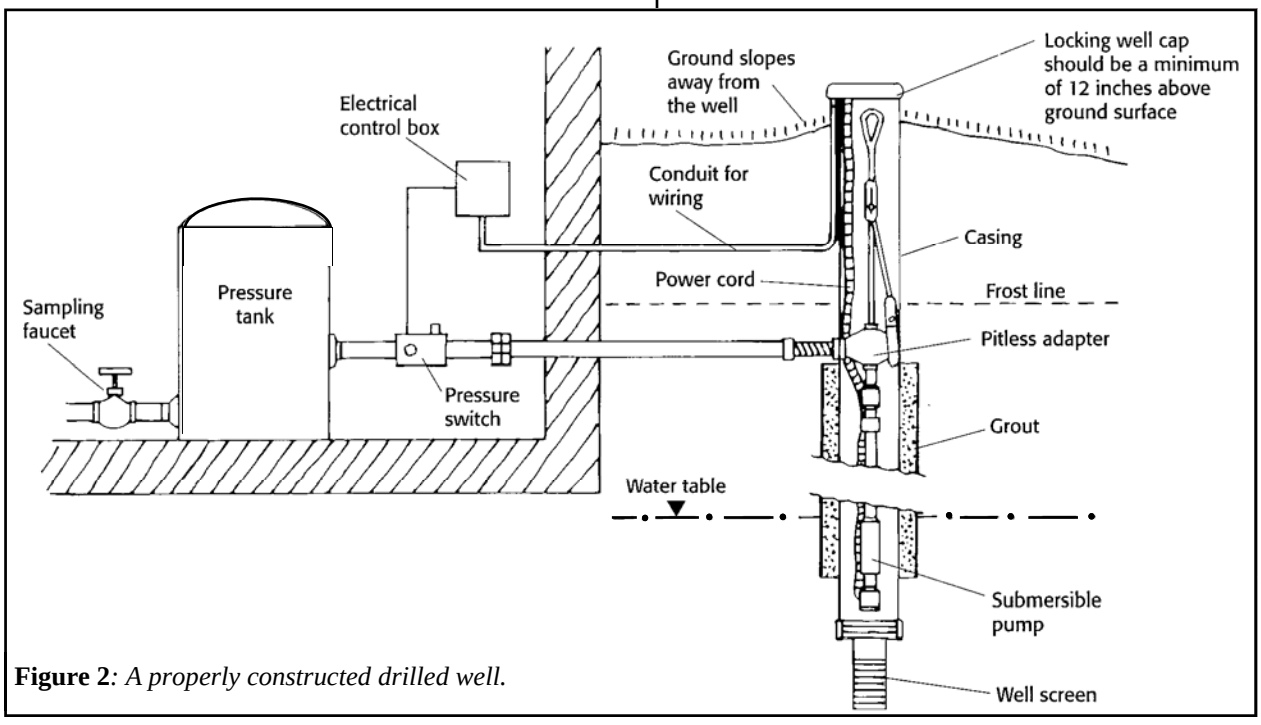


Figure 2*: A properly constructed drilled well.*

To prevent contaminants from getting down inside the well casing, the driller installs a tight fitting, vermin-proof well cap to prevent easy removal by children or entry of insects or surface water. Well regulations require a vermin-proof seal for all private wells (not all wells have caps; some may have pumping equipment attached at the surface). The cap should be firmly installed, with a screened vent incorporated into it so that air can enter the well. If your well has a vent, be sure that it faces the ground, is tightly connected to the well cap, and is properly screened to keep insects out. Check the well cap to see that it's in place and tightly secured. Electrical wires entering the well should be in an approved conduit.

Casing Depth and Height

As stated in Idaho Well Construction Standards Rules 25.02.a., all wells are required to have a durable, watertight casing that extends to a minimum depth of 18 feet below ground level. This ensures that water is filtered through soil and geologic materials before entering the well. Since most contamination comes from the surface, grouting along with casing the well deeper can provide greater protection, so you may want to consider exceeding the minimum casing depth.

Typically, the casing extends one to two feet above surrounding land to prevent surface water from running down the casing or on top of the seal and into the well. Idaho well regulations require that at least 12 inches of casing pipe extend above the final grade of the land. The siting of a well in areas that are subject to flooding is strongly discouraged. Check with IDWR for regulations concerning casing construction and minimum specifications.

Well Age

If you have an older well, you may want to have it inspected by a licensed well driller. Older well pumps are more likely to leak lubricating oils, which can contaminate the ground water. In addition, older wells are also more likely to have a thinner casing that has corroded through. Even 30 to 40 year old wells with modern casings are subject to corrosion.

Well Depths

Shallow wells which draw from the ground water nearest the land surface are generally more quickly affected by surface activities such as pesticide usage. Local geologic conditions determine how long it takes for this effect to happen. In some places, this process happens quickly—in weeks, days, or even hours. Areas with thin soils over fractured bedrock or sand and gravel aquifers are particularly vulnerable to contamination. On the other hand, thick clay soils can prevent contaminants from reaching the water table.

Backflow Prevention and Cross Connections

Anti-backflow devices can be placed on all faucets with hose connections, and air gaps should be maintained between hoses or faucets and the water level during all activities. Otherwise, you risk having contaminated water from laundry tubs, sinks, washing machines, pressure washers, outside hydrants, livestock tanks, and hot tubs flowing back through the plumbing to contaminate your water supply. Water supplies that have cross-connections between them (connections between two otherwise separate pipe systems, such as potable and non-potable) also put your drinking water at risk.

BMPs for Maintaining Existing Wells

You wouldn't let a car or tractor run too long without an oil change, and likewise your well deserves the same attention. Good maintenance means testing the water every year, keeping the well area clean and accessible, keeping potential contaminants as far away as possible, and periodically having a qualified well driller check the well mechanics.

To maintain a safe water supply, follow these guidelines:

Short-term BMP's

- Test the water annually for nitrate and coliform bacteria.
- Disinfect the well and plumbing system following maintenance on the well or pump and after appliances or plumbing fixtures are repaired or replaced.
- Maintain septic systems properly and pump septic tanks regularly; see fact sheet #4.
- Avoid diverting surface drainage to well areas where it may seep into your drinking water.
- Minimize the use of fertilizers and pesticides, particularly in sandy soils or with shallow wells; see fact sheet #2.
- Properly dispose of hazardous household products

Long-term BMP's

- Use a licensed well contractor for installing new wells or sealing unused wells.
- When installing or replacing a well, follow the required isolation distances (see Figure 1, page 3).
- When planning development on your lot, leave enough room for future expansion to avoid crowding the well.
- Immediately replace or repair wells in which the casing is no longer watertight because of damage or corrosion.
- Properly seal unused wells to prevent direct contamination of ground water.

BMPs for New wells

New wells are expensive, but they are a good investment for the future. Getting the most from such an investment means locating the well away from contamination sources and working to maintain the quality of the well. Some simple principles are:

- Prior to drilling a new well make sure groundwater is not already contaminated.
- Follow at least the required minimum distances from potential contamination sources that are set by your local public health district, as well as any other local ordinances, when locating your new well.
- Locate your well on ground higher than contamination sources such as fuel tanks, livestock lots, septic systems, or pesticide mixing areas. Where practical, locate the well as far as possible from contamination sources. There is no specific distance from potential contamination source that will guarantee the well will not be affected.
- Build soil up around the well so that all surface water drains away from it, but maintain the minimum 12 inches of casing above the soil surface.
- Avoid areas that are prone to flooding.
- Make the well accessible for pump repair, cleaning, testing, and inspections.
- Hire a competent, licensed well driller. Make sure the driller disinfects the well with chlorine after construction, tests the water for bacteria after drilling, and provides a copy of the water well record, which includes detailed information about the well depth and construction.

Unused Wells

Many rural homesteads have unused wells. It is not uncommon to visit a homestead and find three or four wells, with only one or two currently in use. No one knows how many of these wells are in Idaho, although estimates range in the thousands.

If not properly filled and sealed, these wells can provide a direct conduit for surface water carrying contaminants to enter ground water without filtering through soil or can allow contaminant movement from one aquifer to another.

In addition to these wells being a threat to ground water, large open wells pose safety hazards for people and animals. The landowner, under Idaho law, is responsible for properly abandoning wells and test holes.

You may perform proper well abandonment work on your own land or an Idaho licensed well driller can also be hired to close these wells. Regardless of who does the work, the minimum regulatory requirements must be met. A local well driller can be helpful because they will have experience with well construction materials and methods as well as a working knowledge knowledge of the geology of the well site. In addition, special equipment is often required to remove old pumps and piping and to properly install sealing material inside the well. Use of inappropriate materials and methods can lead to well settling, collapse, and continued ground-water contamination.

Locating Unused Wells

Pipes sticking out of the ground around the homestead or under an old windmill are the most obvious places for finding unused wells. You may not know the history of your property, however, and old well locations may not be obvious. A depression in the ground may indicate an old well. Also, wells were often drilled in basements of houses, under front steps, or near old cisterns.

Proper well abandonment

The IDWR administers the laws regulating the abandonment of wells. Well drillers and landowners are required to follow these laws so that the potential for aquifer contamination can be reduced.

Proper well closing takes time and money. Costs will vary with the well depth, diameter, and geology of the area. However, spending a few hundred dollars to properly abandon an old well near your home may prevent contamination of your drinking water. Please contact the IDWR in your area for additional information.

Water Testing

Keep an eye on water quality in existing wells by testing them regularly. Wells should be tested immediately after construction, and then once annually at least for coliform bacteria. Well testing is particularly important for shallow wells, dug wells and sand-point wells, and wells that have shown contamination.

The water should also be tested:

- before using a well that has not been used for a long time
- when family or guests experience recurring or unexplained stomach illness
- there are individuals who may be at increased risk like infants and pregnant or nursing women
- your neighbors find a particular contaminant in their water
- you note a change in water taste, odor, color, or clarity
- you have a spill or back siphon of chemicals or petroleum products near your well or on your homestead
- when there has been a significant change in land use in the area
- if the presence of an old landfill has been discovered nearby

What To Test Wells For

A good initial set of tests for a private well includes hardness, pH, conductivity, chloride, nitrate, coliform bacteria, and perhaps lead.

Annually test for total coliform bacteria which is the standard bacteriological test conducted on drinking water supplies. The presence of total coliforms is an indicator of system vulnerability. Total coliform bacteria are a group of closely related bacteria genera, where some species are found in fecal matter, and some species are found in soil and plant material. If your drinking water sample shows the presence of total coliforms, many laboratories will automatically test for the presence of fecal coliforms. Presence of fecal coliforms indicates fecal contamination of the water source, either through an animal source or from septic systems. **If fecal coliforms are present, the water does not meet drinking water standards**. Certain bacteria and viruses from fecal sources are pathogens, that when ingested can cause intestinal disorders and diseases (hepatitis for example). A short term fix for coliform contamination is boiling water, a long term solution is disinfection of the supply (chlorination or the use of ultra-violet light).

Another primary contaminant is nitrate-nitrogen. Nitrate occurs naturally in waters, and around Payette Lake the concentrations are mostly less than 1.0 mg/l N, with some waters testing within the range of 1 - 2 mg/l N. Nitrate levels above 10 mg/L (the Federal Drinking Water Limit) should not be consumed by infants under one year of age or pregnant women. High nitrates in ground water often stem from commercial application of fertilizer on lawns and from animal manure, which are minor sources around Payette Lake. Test your drinking water occasionally for nitrates to make sure the values fall within the normal values for Payette Lake.

Lead in drinking water can be a health concern particularly for children and fetuses. Ideally, the lead level should not exceed five parts per billion. Sample for lead if you have lead pipes or copper joints with lead solder. Also, most chrome-plated faucets are made of brass which contains 3 - 8% lead. Soft or acidic water can accelerate leaching of lead from the plumbing system.

Laboratory tests for other possible contaminants can be quite expensive so you will probably not have them done unless you suspect a specific problem. For example, you may want to test for volatile organic chemicals (VOCs) if there has been a nearby use, spill or deposit (in dump or landfill) of oil, petroleum, or solvent. The same circumstances can be stated for pesticides.

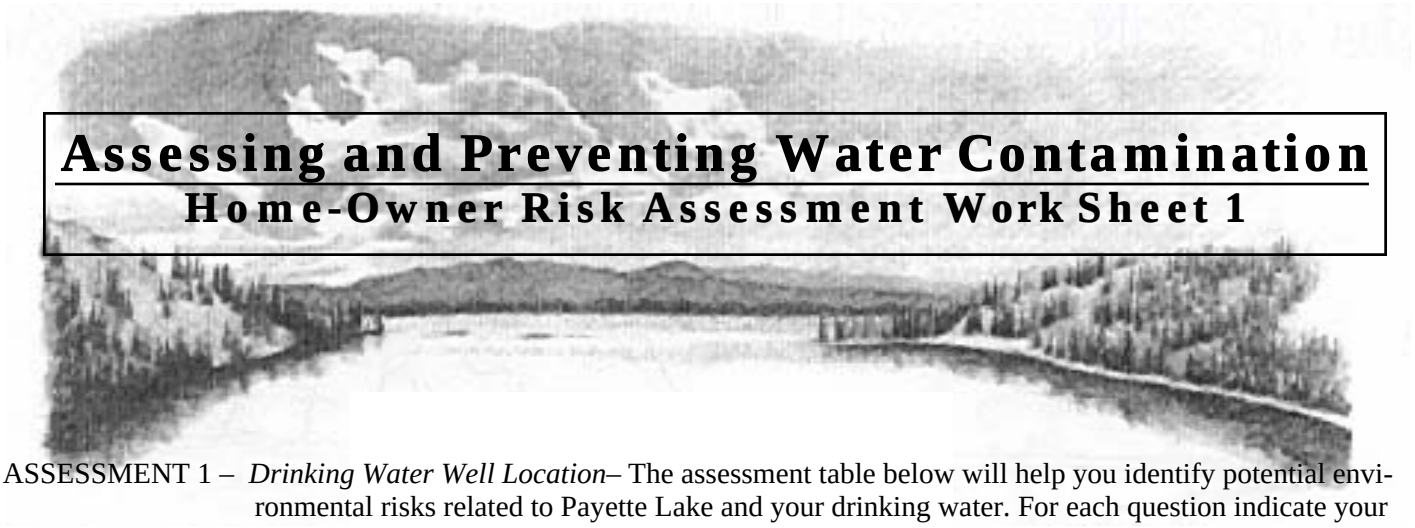
Of note around Payette Lake is the high concentration of iron in many groundwater sources. Iron will cause stained porcelain and may be unpleasant to taste, but it is not a harmful compound.

Drinking water may be tested at a commercial laboratory or at the Department of Health & Welfare lab in Boise Follow the lab's instructions for water sampling to assure accuracy of the results. Use only the container provided and return the samples promptly. Bacteria sample bottles are sterile and must be returned to the lab within a short specified time limit. **Request that drinking water methods be used to test your water.** You may also want assistance in interpreting test results. Contact Central District Health Departmen for more information (634-7194) or the Idaho Department of Environmental Quality (see *References* section).

Using Surface Water

Idaho DEQ does not recommend using surface water as a drinking water supply. But there are a significant number of homes/cabins which extract water from either Payette Lake or nearby streams for household use. Besides bacteria, surface waters can also contain single cell protozoan, *Giardia* and *Cryptosporidium*, whose cysts are intestinal parasites and considered as a waterborne disease. The cysts reside in the digestive tract of mammals, and are transmitted through the fecal-water-oral route. Ingestion of the cysts by humans can lead to severe intestinal disorders.

Use of surface water for drinking should go through a two-step treatment process. The water should be fine-filtered to remove most of *Giardia* and *Cryptosporidium* cysts. Water should then be disinfected to kill bacteria and viruses. Water can be disinfected by boiling, using chlorine, or with ultra-violet light.



Assessing and Preventing Water Contamination

Home-Owner Risk Assessment Work Sheet 1

ASSESSMENT 1 – *Drinking Water Well Location*– The assessment table below will help you identify potential environmental risks related to Payette Lake and your drinking water. For each question indicate your risk level in the right-hand column. Some choices may not correspond exactly to your situation. Choose the response that best fits. When finished turn to the **Action Checklist** on page 11 and record your medium and high-risk practices. Your goal is to lower your risks. Use the BMP recommendations on pages 1-7 and 8 to help you decide how to best protect water sources.

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Position of well in relation to contamination sources:	Up slope from all potential sources of contamination. No surface water runoff reaches well. Surface water diverted from well area.	Well is level to downslope from potential sources of contamination. Some surface water runoff may reach well.	Well is downhill from pollution sources or in a depression. Surface water runoff reaches well.	❒ Low ❒ Medium ❒ High
Separation distances between well and pollution sources (suggested minimum separation distance is 100 feet):	Distances from potential pollution sources meet or exceed all state minimum requirements.	Some but not all distances from potential pollution sources meet state minimum requirements.	Distances from most or all potential pollution sources do not meet state minimum requirements.	❒ Low ❒ Medium ❒ High
Soil type:	Soil is fine-textured like clay loams or silty clay.	Soil is medium-textured like silt or loam.	Soil is coarse-textured like sand, sandy loam, or gravel.	❒ Low ❒ Medium ❒ High
Subsurface conditions:	The water table or fractured bedrock are deeper than 20 feet.		The water table or fractured bedrock are shallower than 20 feet.	❒ Low ❒ Medium ❒ High

ASSESSMENT 2 – *Well Construction and Maintenance* – Use the table below to rate your risks related to well construction and maintenance. When finished turn to the **Action Checklist** on page 11 and record your medium and high-risk practices. Use the BMP recommendations on pages 1-7 and 8 to help you decide how to best protect water sources.

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Well age:	Constructed since Idaho well guidelines were enacted in 1987.	Well meets Idaho requirements, but constructed prior to 1987.	Not constructed according to Idaho regulations.	❒ Low ❒ Medium ❒ High
Well type:	Drilled well.	Driven-point well.	Dug well.	❒ Low ❒ Medium ❒ High
Casing height above land surface:	Casing extends 12 or more inches above the surface, if the area floods, casing is above flood levels.	Casing is at the surface or up to 12 inches above the surface.	No casing present. Hand dug well. Pump at or below ground surface.	❒ Low ❒ Medium ❒ High
Condition of casing and well cap:	No holes or cracks are visible. Cap is tightly attached. A screened vent faces the ground. No space around the pitless adapter.	Casing showing visible stress fractures. Cap is loose and no screen present.	Holes or cracks are visible. Cap is loose or missing. Running water can be heard or seen. Ground around casing is sunken.	❒ Low ❒ Medium ❒ High
Casing depth and surface seal (see well log for this information):	Casing extends below water level in well and is more than 18 feet below surface. At least 18 feet of surface seal is in place, or into the confining layer above the aquifer in which the well is completed.	Surface seal missing or less than required depth (an 18 foot surface seal is required for all new well installations. Placement of a surface seal in all wells is required)	No surface seal.	❒ Low ❒ Medium ❒ High
Backflow protection:	Anti-backflow devices (such as check valves) installed. No cross-connections between water supplies.		No anti-backflow devices. Air gap not maintained. Cross-connections between water supplies.	❒ Low ❒ Medium ❒ High
Water testing:	Regular annual testing. Records indicate consistent, satisfactory water quality. Bacteria, nitrate, and other tests meet standards.	Regular testing. Bacteria, nitrate, and other tests do not meet standards some of the time but are closely monitored.	No water testing. Water taste, clarity, and smell change throughout the seasons.	❒ Low ❒ Medium ❒ High
Unused Wells:	There are no unused wells, or there are unused wells that are properly sealed.	There are old wells partially used, but are maintained to keep out contaminants.	Unused, unsealed wells, near the lake or drinking water well.	❒ Low ❒ Medium ❒ High

ASSESSMENT 3 – *Drinking water source and conveyance system* – Use the table below to rate your risks related to drinking from Payette Lake or any other streams. ***Please Note:*** **DEQ does not recommend drinking from Payette Lake or any other surface water source**. When finished turn to the **Action Checklist** on page 11 and record your medium and high-risk practices. Use the BMP recommendations on pages 1-7 and 8 to help you decide how to best protect water sources.

	LOW RISK	MEDIUM RISK	HIGH RISK	YOUR RISK
Drinking water source:	Deep groundwater. Over 20 feet deep.	Shallow ground water. Under 20 feet.	Priest Lake or any other surface water source (streams, creeks, ponds).	☐ Low ☐ Medium ☐ High
Conveyance system:	Properly constructed drilled well.	Hand dug, or driven point well.	Pump and a pipe that extends into the water.	☐ Low ☐ Medium ☐ High
Separation distances between surface water and pollution sources (suggested minimum separation distance is 100 feet):	Distances from potential pollution sources meet or exceed all state minimum requirements. Septic Tank to surface water over 50 feet. Drain Field to surface water– 100 to 300 feet depending on soil type (see factsheet #3).	Some but not all distances from potential pollution sources meet state minimum requirements.	Distances from most or all potential pollution sources do not meet state minimum requirements.	☐ Low ☐ Medium ☐ High
Home water-treatment system for surface water:	A two-step treatment system. Water is fine filtered through a membrane filter certified by the National Sanitation Foundation for Giardia and Cryptosporidium Cysts. Then water is disinfected by boiling, using chlorine, or by ultraviolet light.	Granular Activated Carbon filter (generally a good filter, but are not as effective against microorganisms and bacteria). Water should also be disinfected.	No treatment or a screen or a t-shirt wrapped around the end of the pipe.	☐ Low ☐ Medium ☐ High
Water testing:	Regular annual testing. Records indicate consistent, satisfactory water quality. Bacteria, nitrate, and other tests meet standards.	Tested once in the last 5 years. Bacteria, nitrate, and other tests do not meet standards some of the time but are closely monitored.	No water testing. Water taste, clarity, and smell change throughout the seasons.	☐ Low ☐ Medium ☐ High

ACTION CHECKLIST

Assessing and Preventing Water Contamination

Write all high and medium risks below.	**What can you do to reduce the risks?**	**Set a target date for action.**
Sample: Water hasn't been tested for 5 years. Does not taste like it used to.	Contact DEQ or the Central District Health for information on water testing.	One week from today: June 1

Information derived from Lake*A*Syst materials is intended only to provide general information and recommendations to property owners around Payette Lake regarding their property management practices. **All results are confidential**.

BMPs for Surface Water

Protecting a surface fed drinking water source is difficult because of the many different environmental factors that can adversely impact the surface waters in the Payette Lake basin that provide drinking water. Your first defense and only sound practice for safe drinking water is a filtration system. Beyond that anything you can do to prevent contamination of Payette Lake and its tributaries is a bonus. Implementing the best management practices found in the Lake*A*Syst materials will protect both ground and surface waters in the Payette Lake watershed.

Home Water-Treatment Systems

Because so many of the Payette Lake home owners, either permanent or seasonal, are on their own when it comes to the responsibility of safe drinking water, just a word of caution about the multitude of available Home Water-Treatment Systems. First, make sure any treatment unit is certified by the National Sanitation Foundation (NSF). Home systems can be quite expensive, and you may get sold a system that is treating water for a whole host of compounds that are not a concern around Payette Lake, and conversely does not treat for a compound that may be of specific concern (lead for example). If you are drinking Payette Lake water, you would want a system NSF certified for cyst reduction. There have been excellent articles in Consumer Reports on safe water and home treatment systems.

For home use, two types of filters are generally considered:

Granular Activated Carbon. This filter addresses taste, odor, removes chlorine and volatile organic chemicals (VOCs), and some inorganic chemicals like lead. They are not as effective against microorganisms. This filter is higher maintenance than other types of filtration devices.

Membrane Filtration. Membrane filters (Microfiltration, Ultrafiltration, Nanofiltration, and Reverse Osmosis) remove particles by forcing water through very small openings.

- Microfiltration- removes particles down to micron and submicron sizes. These units typically do not remove dissolved material.
- Ultrafiltration– passes nearly all ions, but removes nearly all organisms and suspended particles.
- Nanofiltration– generally removes ions larger than 1 nanometer.
- Reverse Osmosis– removes virtually all particles and many ions. Higher maintenance due to cleaning.

For More Information…

Call, Write, or Visit

Idaho Association of Soil Conservation Districts, P.O. Box 2637 Boise, 83701. Phone (208) 338-4321. Website: www.iascd.state.id.us.

Central District Health Department, 703 N. 1st Street, McCall, 83638. Phone (208) 634-7194. Website: www.cdhd.idaho.gov.

Valley Soil and Water Conservation District, P.O. Box 580, Cascade, 83611. Phone (208) 382-3317.

Idaho Department of Lands, 555 Deinhard Lane, McCall, 83638. Phone (208) 634-7125. Website: www.idl.idaho.gov.

Idaho Department of Environmental Quality, 502 3rd St., Suite 9A, McCall. Phone (208) 634-4900.

Part of a Set…

This fact sheet is one part of a set of materials designed to assist property owners around Big Payette Lake in protecting and preserving water quality. The set includes:

- Big Payette Lake Management Plan
- Lawn Care Guide to Big Payette Lake
- Homeowners Guide to Big Payette Lake
- Watercraft Owners Guide to Big Payette Lake
- Handbook of Valley County Stormwater Best Management Practices
- Site Planning and New Construction Considerations for Water Quality
- **Lake*A*Syst Assessing and Preventing Water Contamination Fact/Work Sheet 1**
- Lake*A*Syst Lawn and Garden Fact/Work Sheet 2
- Lake*A*Syst Roads and Driveways Fact/Worksheet 3
- Lake*A*Syst Landscape and New Construction Fact/Work Sheet 4
- Lake*A*Syst Stormwater Runoff Pollution Management Fact/Work Sheet 5

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