



**Residential Water Testing
for Real Estate Agents**



Course Sponsor

**Focused Property Inspections,
Inc.**

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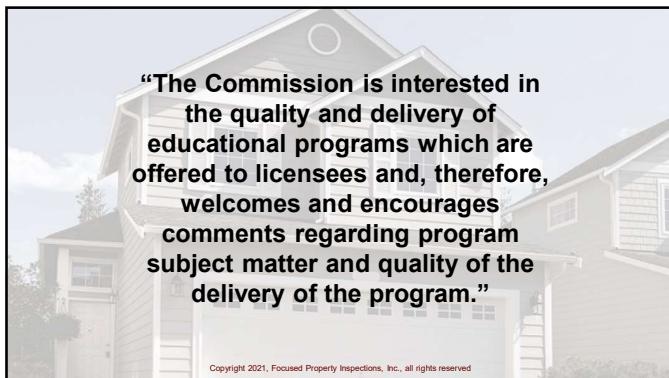
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This program has been approved by the Director of the Real Estate Commission for three clock hours toward fulfillment of the educational requirements for renewal of a real estate license.

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Introduction

Instructor: Darryl E. Chandler

- Darryl is the owner of Focused Property Inspections, Inc. in Gorham, ME.
- Darryl and his team of inspectors provide several thousand inspection services each year.
- Focused Property Inspections is the only inspection company in Maine to offer free educational courses which have been approved by the State, as well as by ASHI and InterNACHI.

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Darryl Chandler has been doing inspections for over two decades, and is among the most respected property inspectors in the State of Maine.

As CEO and Owner of Focused Property Inspections, Inc., Darryl has performed thousands of residential and commercial property inspections throughout Southern Maine.

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Darryl is a fully certified member of the American Society of Home Inspectors (ASHI) and the International Association of Certified Home Inspectors (InterNACHI), two of the nation's most widely respected professional organizations for property inspections.

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Darryl has obtained and maintains the following licenses and certifications:

- State of Maine Radon Air License
- State of Maine Radon Water License
- Certified by the American Society of Home Inspectors
- Certified by the International Association of Certified Home Inspectors
- Certified Master Inspector by the Master Inspector Certification Board

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Neither this outline nor this course is intended to provide legal advice.

Consult your legal counsel or Designated Broker for any areas of concern.

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Course Description

Water quality is a top concern for buyers and sellers in real estate. Variables for water quality such as microbiological contamination, common water quality problems, aging water systems etc. can play an important role in the real estate transaction.

(Credit Hours 2.0 (120 minutes))



Course Objectives

By the end of this course, participants will be able to:

- Understand the Clean Water Act and the Safe Drinking Water Act
- Compare Public Water Systems versus Private Water Supplies
- Understand importance of water testing
- Understand needs of rural buyers and new build buyers
- Why clean water is important
- Understand available tests
- List possible questions for Residential Water Testing
- Teach agents knowledge to use during transactions



Participant Discussion

Difference between CWA and SDWA

Clean Water Act (CWA) deals with all water within the United States

Safe Drinking Water Act (SDWA) deals specifically with water consumed by Americans.

- SDWA does not affect wells that service less than 25 people.

Types of Water Contaminants

- Physical:** Sediment or organic material suspended in the water of lakes, rivers and streams from soil erosion.
- Chemical:** Nitrogen, bleach, salts, pesticides, metals, toxins produced by bacteria, and human or animal drugs.
- Biological:** Bacteria, viruses, protozoan, and parasites.
- Radiological:** Cesium, plutonium and uranium.

Source: EPA.gov

Public Water Suppliers	Can be Publicly or Privately Owned
Public system serves at least 25 people at least 60 days a year or has at least 15 service connections.	

Source: EPA.gov

EPA HAS DEFINED THREE TYPES OF PUBLIC WATER SYSTEMS:



Community Water System (CWS): A public water system that supplies water to the same population year-round.

Non-Transient Non-Community Water System (NTNCWS): A public water system that regularly supplies water to at least 25 of the same people at least six months per year. Some examples are schools, factories, office buildings, and hospitals which have their own water systems.

Source: EPA.gov

EPA HAS DEFINED THREE TYPES OF PUBLIC WATER SYSTEMS:



Transient Non-Community Water System (TNCWS): A public water system that provides water in a place such as a gas station or campground where people do not remain for long periods of time.

Source: EPA.gov



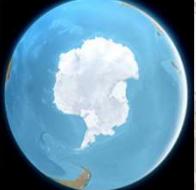
The Environmental Protection Division (EPD) ensures that all public water systems in the state continuously meet SDWA standards.

Consumers are notified immediately of violations like spills, floods or treatment issues that impact water quality.

May be given a boil advisory depending upon level of contamination.

Source: EPA.gov

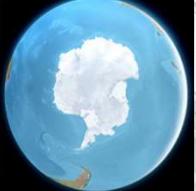
EPA HAS DEFINED THREE TYPES OF PRIVATE WELLS:



Source: EPA.gov

1. Bored or dug wells
 - a. Dug by hand or backhoe.
 - b. Shallow - usually between 10 and 30 ft.
 - c. Lined (cased) with brick or tile to prevent collapse and this is not continuous throughout the well.
2. Driven Wells
 - a. Pipe driven into ground to create.
 - b. Shallow also.
 - c. Cased continuously.
 - d. Easily contaminated due to shallowness of well.

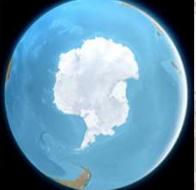
EPA HAS DEFINED THREE TYPES OF PRIVATE WELLS:



Source: EPA.gov

3. Drilled wells
 - a. Created by percussion or rotary drilling machines.
 - b. Continuous casing.
 - c. Can be thousands of feet deep.
 - d. Because wells are deeper, less chance of contamination.

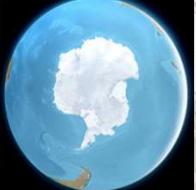
Challenges Facing Rural Homeowners



Source: usgs.gov

- a. Adequate water supply
- b. Safely dispose of wastewater
- c. Water quality
- d. Septic systems can fail and contaminate well water
- e. Potential contamination from agricultural usage

Challenges Facing New Homeowners/Homebuilders



A. Learn about land, water supply and septic system before buying or building.

B. Look at environmental conditions around and under the home.

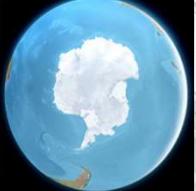
C. Visit in different types of weather.

D. Observe water patterns and entrance into home.

E. Make sure soil type is appropriate for septic systems and wells.

Source: usgs.gov

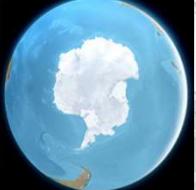
Private Wells and Water Testing



- 1. Check your state for information on the water of any property your clients are interested in.**
- 2. Some states require the well driller file a well log with the state.**
 - a. The well log has depth of well, how it was made, geological formation and efficiency of the well.
 - b. Used for comparison in future if issues arise.

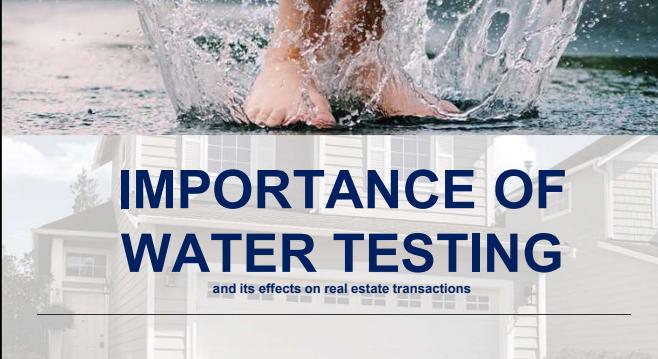
Source: OSU.edu

Private Wells and Water Testing



- Check your state's recommendation regarding well water testing.
- Most states and the EPA recommend yearly testing. If near an oil or gas development area, annual testing during different seasons is encouraged for a baseline.
- Government agencies do not monitor or regulate water quality in private wells, and water testing is not required by any federal or state regulation. If you are one of the 13 million well owners in the United States, you are responsible for your own water.

Source: EPA.gov



IMPORTANCE OF WATER TESTING

and its effects on real estate transactions



One way to test if your drinking water is safe is to have it tested during the home inspection.

Even if no smell or color changes, there could be issues in the water.





WHY IS TESTING IMPORTANT?

- Things to think about include:
- The nearness of your water well to septic systems.
- The composition of the home's plumbing materials.
- Contaminated water used for drinking and cooking may affect your health.
- Nearness to agricultural land.

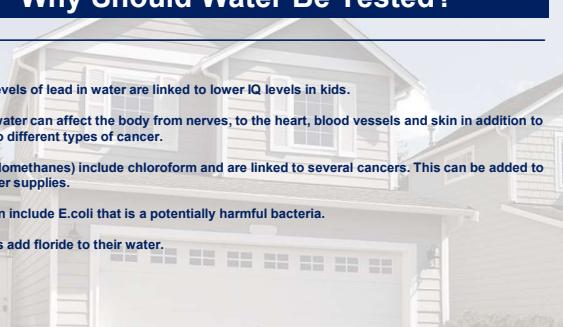


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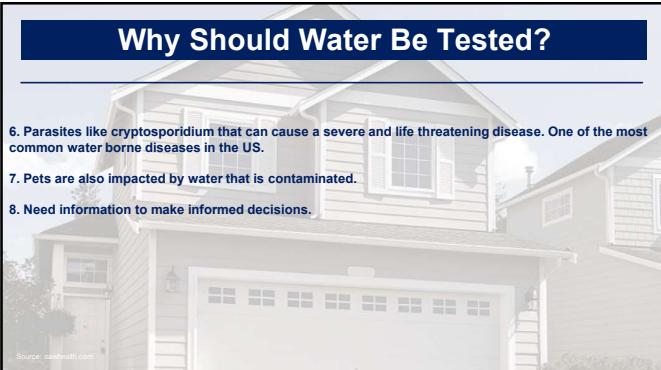
- Regular testing is important to:
- Identify existing problems.
- Ensure water is suitable for the intended use.
- Track changes over time.
- Determine the effectiveness of a treatment system.

Why Should Water Be Tested?



1. Increased levels of lead in water are linked to lower IQ levels in kids.
2. Arsenic in water can affect the body from nerves, to the heart, blood vessels and skin in addition to being linked to different types of cancer.
3. THMs(Trihalomethanes) include chloroform and are linked to several cancers. This can be added to municipal water supplies.
4. Coliform can include E.coli that is a potentially harmful bacteria.
5. Many places add fluoride to their water.

Why Should Water Be Tested?



6. Parasites like cryptosporidium that can cause a severe and life threatening disease. One of the most common water borne diseases in the US.
7. Pets are also impacted by water that is contaminated.
8. Need information to make informed decisions.

Source: oakhealth.com

BENEFITS OF HAVING CLEAN WATER

Water is essential for all living things.

The human brain is almost 85 percent water

Our blood is about 80 percent water and muscles have about 70 percent water

Weight for men includes about 60 percent water and about 50 percent of women's weight is water.

cawhealth.com

BENEFITS OF HAVING CLEAN WATER

Chronic dehydration has become known as the hidden epidemic.

The estimate is 75 percent of North Americans are chronically dehydrated.

Mild dehydration can impact how well you think and energy levels.

Loss of water between 9 – 12 percent of body weight can be fatal.

One of the leading causes of infant death and illness throughout the world is dehydration.

cawhealth.com

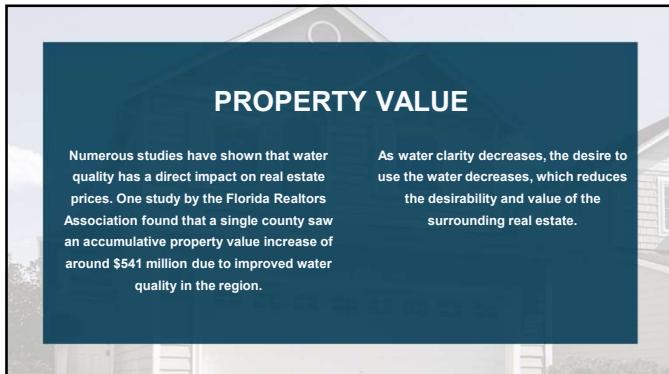


**Impacts of Unclean Water**

Contaminated wells tested within three years of the sale decreased the final sale price by 2 – 6%

Most common contaminants were nitrate, nitrite, ethylene dibromide and arsenic.

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Numerous studies have shown that water quality has a direct impact on real estate prices. One study by the Florida Realtors Association found that a single county saw an accumulative property value increase of around \$541 million due to improved water quality in the region.

As water clarity decreases, the desire to use the water decreases, which reduces the desirability and value of the surrounding real estate.



Health Hazards of Unclean Water

Source: EPA.gov

Issues from drinking contaminated water

- Gastrointestinal issues
- Nervous system issues
- Reproductive issues
- Chronic Diseases like cancer

Factors contributing to health issues

- * Type of contamination
- * Levels in the water
- * Individual differences
- * Amount of water consumed
- * Length of time exposed

Health effects of chemical exposure

Chemical exposure through drinking water can lead to a variety of short and long-term health effects



Exposure to high levels of chemicals can lead to skin discoloration or more severe problems such as nervous system or organ damage and developmental or reproductive effects.



Exposure to lower doses over long periods of time can lead to chronic, longer-term conditions such as cancer. The effects of some drinking water contaminants are not yet well understood.

Health effects of consuming water with disease-causing microbes

Most life-threatening waterborne diseases caused by microbes (such as typhoid fever or cholera) are rare in the United States today.

The more common illnesses caused by viruses, bacteria, and parasites can result in stomach pain, vomiting, diarrhea, headache, fever, and kidney failure. Infectious diseases such as hepatitis can also occur.

Types of Tests for Residential Water

Bacteriological tests generally check for indicator bacteria (for example, total coliform, fecal coliform or Escherichia coli) and can indicate the presence or absence of disease-causing bacteria.

There are several other tests for other bacteriological contaminants

Mineral tests can determine if the mineral content of your water is high enough to affect either health or the aesthetic and cleaning capacities of your water.

A mineral test may include calcium, magnesium, manganese, iron, copper, zinc and others.

An abundance of these minerals can cause hard water, plumbing and laundry stains, bad odors and calcification on your faucets and dishwasher.

Organic chemicals tests are generally performed only if there is reason to believe a specific contaminant has infiltrated the water system (such as pesticides entering the water supply). Industrial and petroleum contamination can also be found through organic chemical testing.

Other tests may be conducted on radiological contaminants (radium and radon) or heavy metals (such as arsenic, mercury, lead or cadmium)

When to Test Your Water

No single test provides information on all possible contaminants, but water quality can be determined by the right test(s).

Conditions or nearby activities	Recommended Test
Recurrent gastro-intestinal illness	Coliform bacteria
Household plumbing contains lead	pH, lead, copper
Indoor air or region is radon rich	Radon
Scaly residues, soaps don't lather	Hardness
Water softener needed to treat hardness	Manganese, iron
Stained plumbing fixtures, laundry	iron, copper, manganese
Objectionable taste or smell	Hydrogen sulfide, corrosion, metals

Water appears cloudy, frothy or colored	Color, detergents
Corrosion of pipes, plumbing	Corrosion, pH, lead
Rapid wear of water treatment equipment	pH, corrosion
Nearby areas of intensive agriculture	Nitrate, pesticides, coliform bacteria
Coal or other mining operation nearby	Metals, pH, corrosion
Gas drilling operation nearby	Chloride, sodium, barium, strontium
Odor of gasoline or fuel oil, and near gas station or buried fuel tanks	Volatile organic compounds (VOC)
Dump, junkyard, landfill, factory or dry-cleaning operation nearby	VOC, Total dissolved solids (TDS), pH, sulfate, chloride, metals
Salty taste and seawater, or a heavily salted roadway nearby	Chloride, TDS, sodium



Things to remember as a real estate agent

Environmental due diligence in real estate transactions involves the assessment of known, potential, and contingent environmental liabilities and obligations associated with a parcel of property to be acquired.

Here are different ways to advise your clients:

Listing Agents:

- If there are taste and odor problems, Encourage your seller to have the well tested for bacteria, nitrate and other problematic contaminants and install/repair water treatment system or shock the well if needed.



Environmental due diligence in real estate transactions involves the assessment of known, potential, and contingent environmental liabilities and obligations associated with a parcel of property to be acquired.

Here are different ways to advise your clients:

Listing Agents:

Even if there are no obvious issues, testing the water prior to placing a home on the market will help to identify any potential issues.

Issues can be fixed prior to listing and will not hold up the sale of the home.

Instead of having to wait to have a filtration system fixed or a well shocked, and retested again, it will already be done.

This will lesson any potential future issues.



Here are different ways to advise your clients:

For Listing Agents:

- Advise your client about issues with selling a home with a filtration system that doesn't work and a home that has contaminants in it.
- Knowing these issues exist might impact the amount of money they get for the sale and length of time on the market.



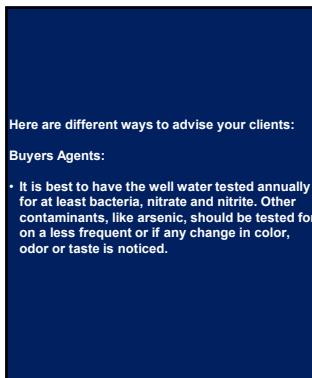
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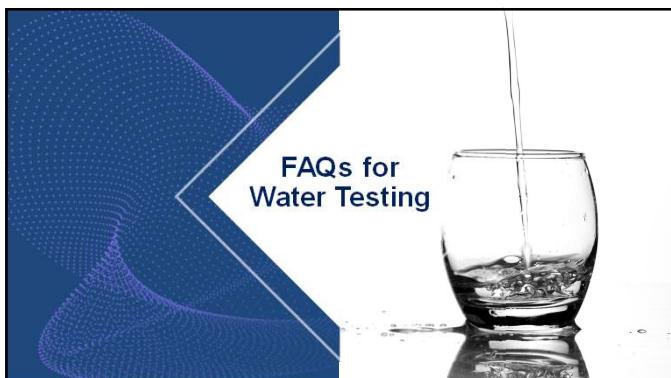
Buyers Agents:

- Get as much information as possible from the local health department.
- See if there is a database with well information and water test results available.
- Have the water test performed at that same time as the inspection.
- Know that water tests can take up to three days to complete once the lab has received them. Can be longer depending upon tests.
- May want to write in extra time for water results.









Who can test water?

- Local health dept
- Local labs
- Some home inspection companies partner with a lab.

How often should I test my water?

Private well water should be tested a minimum of once per year.

Drinking water supplies obtained from shallow wells and surface water sources should be tested more frequently (i.e., seasonally), as they are more susceptible to contamination.

If the well is near oil and gas wells, it is recommended to test seasonally to get a good baseline.

If you notice issues with the water like changes in appearance or odor, test your water.

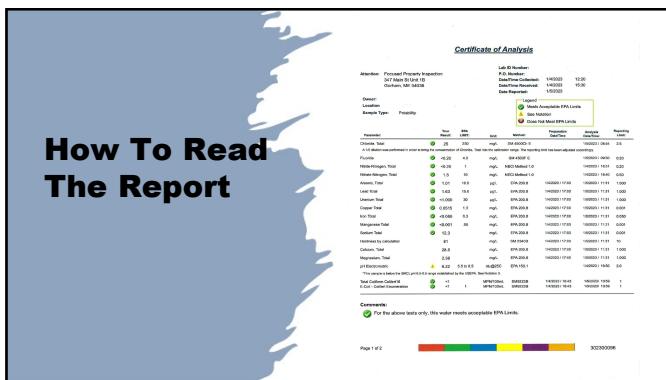
Prior to placing your home on the market.

How are the water results interpreted?

- It will contain a list of contaminants tested, the concentrations, and, in some cases, highlight any problem contaminants.
- There should also be a table with the maximum contaminant levels allowed for that particle.
- An important feature of the report is the units used to measure the contaminant level in your water. Milligrams per liter (mg/l) of water are used for substances like metals and nitrates.
- For extremely toxic substances like pesticides, the units used are even smaller. In these cases, parts per billion (ppb) are used. Another unit found on some test reports is that used to measure radon—picocuries per liter. Some values like pH, hardness, conductance, and turbidity are reported in units specific to the test.



ANALYTICAL LABORATORY REPORT																														
Clien: Client's name Project: Analytical Laboratory Services	Collected by: KM Project Number: CL000001																													
Date Collected: 08/28/90 Sample Identification: Kitchen Tap	Time Collected: 7:30 am Lab Number: 01000																													
<table border="1"> <thead> <tr> <th>Analysis</th> <th>Results</th> <th>Units</th> </tr> </thead> <tbody> <tr> <td>Total Coliform Bacteria</td> <td>50</td> <td>#/100ml</td> </tr> <tr> <td>Nitrite-Nitrogen</td> <td>4.55</td> <td>mg/l</td> </tr> <tr> <td>pH</td> <td>7.55</td> <td>units</td> </tr> <tr> <td>Iron</td> <td>0.035</td> <td>mg/l</td> </tr> <tr> <td>Hardness as CaCO₃</td> <td>280</td> <td>mg/l</td> </tr> <tr> <td>Sodium Chloride</td> <td>33.9</td> <td>mg/l</td> </tr> <tr> <td>Chloride</td> <td>25.4</td> <td>mg/l</td> </tr> <tr> <td>Specific Conductance</td> <td>344</td> <td>umhos/cm</td> </tr> </tbody> </table>				Analysis	Results	Units	Total Coliform Bacteria	50	#/100ml	Nitrite-Nitrogen	4.55	mg/l	pH	7.55	units	Iron	0.035	mg/l	Hardness as CaCO ₃	280	mg/l	Sodium Chloride	33.9	mg/l	Chloride	25.4	mg/l	Specific Conductance	344	umhos/cm
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<p>On the basis of the above test result(s), this water sample DOES NOT MEET PaDER drinking water standards</p> <p>The following notes apply to this sample:</p> <p>The Total Coliform Bacteria exceeded the max. lev. of 1 colony/100ml. The Iron level exceeded the limit of 0.3 mg/l.</p>																														
Submitted by _____ Laboratory Manager																														





What should I do if my tests results indicate a problem in my well-water?

If your water test report shows any primary contaminant with a concentration above the Maximum Contaminant Level (MCL), you are at a risk of adverse health effects. In such a case, there are six basic alternatives:

- If possible, locate and eliminate the source(s) of contamination
- Install an appropriate treatment system or repair current one
- Install a new well with expert guidance
- Shock the well if biological contaminants are found
- Connect with a public water system (if available)
- Use bottled water

In addition to primary contaminants, certain nuisance contaminants, such as hydrogen sulfide or sodium, when found at high levels, may indicate the need for an alternative water source or a home treatment system.



How much is the cost of water testing?

Contact your local home inspector or health department for their costs. Prices vary depending upon the tests performed.

Are There Any Other Parts of The Water System That Need to Be Inspected?

For septic systems, contact the local health department.

Contact the company that installed the filtration system to have them ensure it is working properly.

The well pump can only be looked at if it is not a submersible pump.

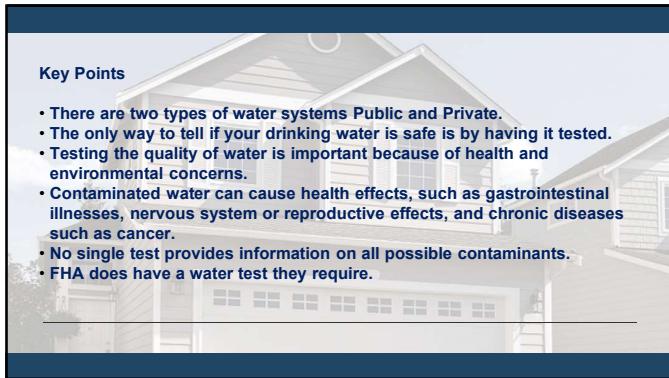
The pressure tank can be looked at during the home inspection.



If your client has an FHA loan, they will need a water test.

FHA rules state that the well water must meet either local requirements or EPA requirements for levels if there are none at the local level.

This basic test includes: Nitrates, Nitrites, Lead and Coliforms.



Key Points

- There are two types of water systems Public and Private.
- The only way to tell if your drinking water is safe is by having it tested.
- Testing the quality of water is important because of health and environmental concerns.
- Contaminated water can cause health effects, such as gastrointestinal illnesses, nervous system or reproductive effects, and chronic diseases such as cancer.
- No single test provides information on all possible contaminants.
- FHA does have a water test they require.



QUESTIONS?
