PRIVATE WELL CONFERENCE

APRIL 11, 2018

Well Water Treatment Options

Coliform / E.Coli Bacteria

- Typical test results are represented by a positive or negative count. The presence of either form is considered a non-potable water supply. Coliform is the most common bacteria and is found in approximately 28% of all samples collected. Its presence is usually due to surface water entering the well structure (i.e. Wells below the ground). When E.Coli is present it means there is most likely a source of fecal contamination, or animal decay.

- Inspect well head and shock chlorination system. Retest water in 7-10 days after chlorine is absent from the water. Ultra violet sterilizers are permanent treatment systems.

Lead

- Colorless, tasteless, and odorless. The mcl is <0.015 mg/L or 15ppb. The primary source is solder joints in the plumbing structure, especially in homes built before 1986. Proper sampling procedures require that the sampling point be a faucet that has not been used for at least 6 hours, but no longer than 12 hours. Often inspectors grab samples from faucets that have not been used for days which can give you a false high reading. Running a faucet till the water is cold the night before collection would be a more accurate sample.
    - Carbon filters or reverse osmosis are effective as point of use drinking water systems.

Copper

- A blue/green stain in tubs, showers and sinks is a typical sign of corrosion to the plumbing structure. The mcl is 1.3 mg/L. May be caused by low pH or high chlorides.

Iron

- A brownish or reddish stain in fixtures often indicated the presence of iron. The secondary mcl is 0.3mg/L.

Manganese

- A blackish grey stain in fixtures can indicate the presence of manganese. The mcl is 0.5 mg/L with desirable levels less than 0.05 mg/L.

Water softeners and iron filters can remove iron and manganese.


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pH Value

- (Scale 0-14) below 7.0 indicated an acid condition and above 7.0 indicates an alkaline condition. The acceptable range is 6.4-8.5. Acid conditions are more common with pH values in our area being between 5.5-6.7 and causes corrosion to the plumbing structure resulting in pin hole leaks, blue/green stains and leaching of lead and copper.
    - Treat with limestone neutralizer, feed soda ash or aeration systems.


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Sodium

- 100 mg/L is an advisory level to people on sodium restricted diets. The mcl is 150 mg/L. Elevated levels can often be present from the use of salt for water softeners.
  - Treat with reverse osmosis or distillation

Chloride

- The mcl is 250mg/L. Levels of 175 mg/L can cause corrosion to plumbing. The presence of sodium and chlorides is not uncommon in well waters. Its most common source is due to over salting of the roadways.
  - Treat with reverse osmosis or distillation


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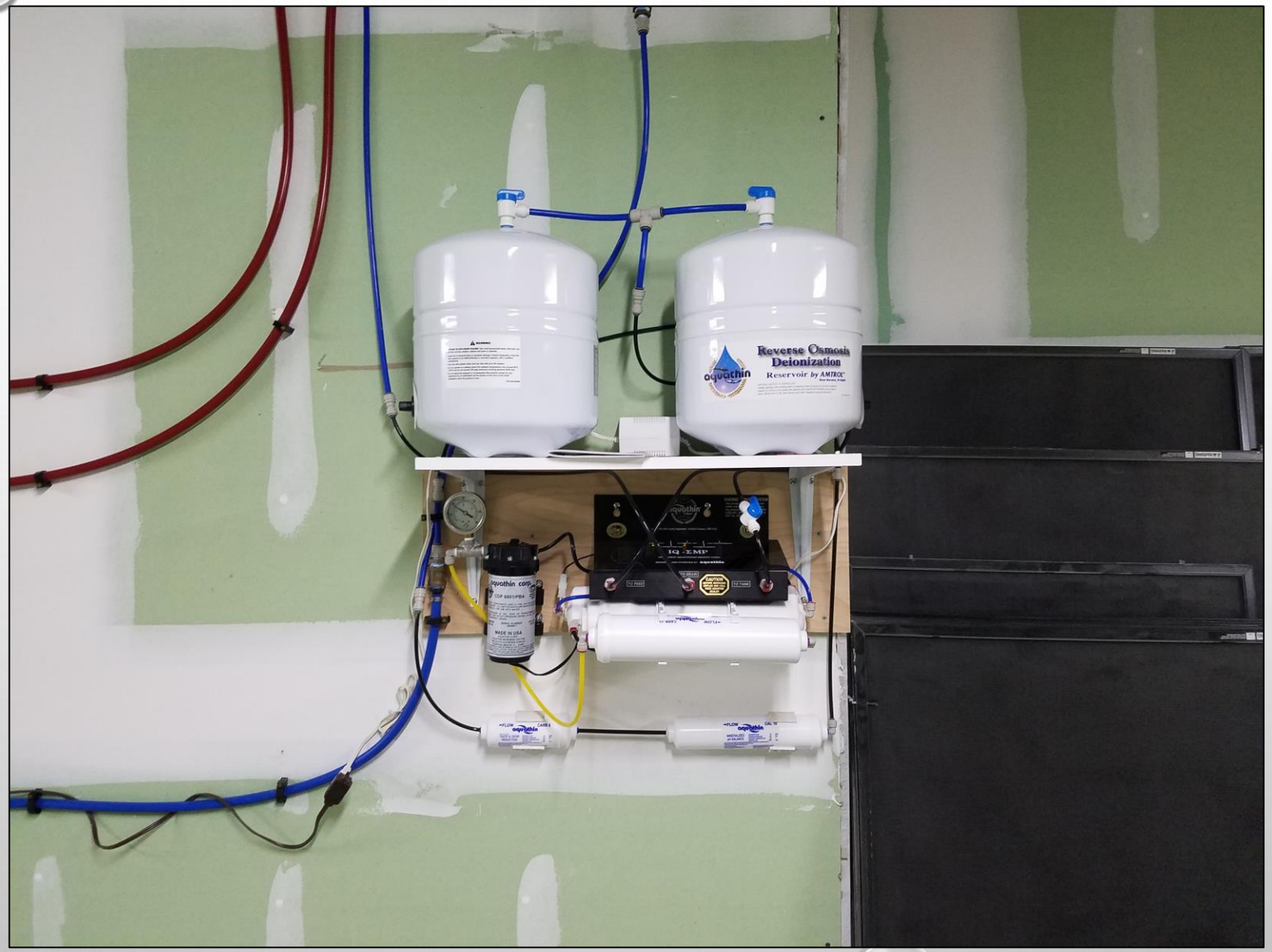
Nitrate / Nitrite

- The mcl for nitrate is 10mg/L and the mcl for nitrite is 1 mg/l. The most common source is fertilizers or fecal decay. Nitrates/nitrites linked to “blue baby syndrome”.
  - Treated with specialty anion resin or pump driven reverse osmosis.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Arsenic

- Arsenic is a metal that has no smell or taste. Arsenic is naturally present in bedrock in many places throughout CT. Depending on local environmental conditions, arsenic can leach from soils or mineral deposits into groundwater. The mcl for arsenic is 0.01mg/L. Research indicates that people living in areas where water concentrations are very high are more likely to have bladder, lung, or skin cancer. They are also more likely to have problems with their skin, and with their cardiovascular, immune and neurological systems. These toxic effects of arsenic exposure developed after many years of exposure mostly through ingestion.
    - Common acceptable methods of removal are point of use reverse osmosis or point of entry ferric oxide resin systems.

Radium / Uranium

- Radium is formed when uranium and thorium undergo radioactive decay in the environment. Uranium and thorium are found in small amounts in most rocks and soil. Radium is constantly produced by radioactive decay of uranium and thorium. Two of the main radium isotopes found in the environment are radium 226 and radium 228. Surface water sources and shallow wells will typically have lower levels of radium but deeper wells may have higher concentration. EPA MCL for radium is 5 pci/L.
    - Common method of treatment is cation water softeners and reverse osmosis drinking water systems.

- The mcl for uranium is 30ppb. Uranium is a naturally occurring element in groundwater in some portions of Connecticut. It gets into drinking water when groundwater dissolves minerals that contain uranium. The amount of uranium in well water will vary depending upon its concentration in bedrock. Most ingested uranium is eliminated from the body. However, a small amount is absorbed and carried through the bloodstream. Studies show that elevated levels of uranium in drinking water can affect the kidneys. Bathing and showering with water that contains uranium is not a health concern unless they exceed 750 ppb.
    - Common acceptable methods of removal are point of use reverse osmosis or point of entry anion resin systems.


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Radon Gas

- A radioactive gas that has been linked to lung cancer. It enters the home in one of two ways. The most common is airborne and emanates through the slab or foundation of a home. The recognized limit for radon in air is 4.0 pci/L. Treatment consists of creating suction beneath the slab or foundation with a fan and venting the gas above the roofline of the home.

- The second source of radon gas is in the well water. The gas is released into the air when water is used. There is no current standard for radon in water, but 3,500 pc/l-5,000pc/L or greater are typically the levels where treatment should be considered. The most common treatment is using G.A.C. Tanks for levels between 5,000-10,000 pci/L. For levels above 10,000 pci/L, aeration is the suggested treatment method.


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QUESTIONS & ANSWERS