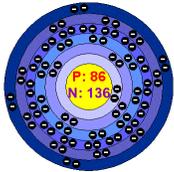


RADON IN WATER



Atomic Number:	86
Atomic Symbol:	Rn
Atomic Weight:	222



Radon at a Glance

Alternative Maximum Contaminant Level being considered, but not yet mandated by the EPA

= 4000 pCi/L (pico curies per liter) for public water systems with a multi media radon program.

State Contaminant guideline Levels (in pCi/L); Massachusetts = 10,000, New Hampshire = 2,000, Maine = 4,000, Rhode Island = 4,000

Health Effects – The EPA has identified radon as the second leading cause of lung cancer, smoking being first. It is the #1 cause of lung cancer among non-smokers.

Sources of contamination

It is produced in the ground through the normal decay of uranium and radium and levels can vary dramatically from one well to another, but most ground water contains some radon.

Radon enters homes from sources other than water. We know that radon from the soil contributes a significant share of our total exposure to radon. The focus of this article is how to reduce water borne radon for homes on private wells that depend on ground water.

Question? My home inspector found radon in the well water, should I not buy this house?

Answer: Radon is a naturally occurring radioactive gas and it can be found all over the world. It is produced in the ground through the normal decay of uranium and radium. This naturally occurring radioactive gas called radon is present in most well water. It doesn't matter whether the wells are private or public and whether they are shallow or deep. Levels of radon can vary dramatically from one well to another, but most ground water contains some radon.

The good news is that radon can be safely and effectively reduced from well water. So if your client loves the house, radon is not the reason not to buy it. **There are two commonly used methods of removing radon from well water: 1) Aeration and 2) Granular activated carbon (GAC). Although Aeration is the more expensive of the two, it is the preferred method for water containing more than 2,000 Pico curies of radon per liter, which will be explained below.** Both aeration and GAC systems can remove more than 90% of the radon in water.

AERATION

An Aeration system would be installed on the main water supply just after the well tank. An Aeration system consists of a fiberglass or plastic tank in which water is depressurized and agitated. The best systems will use a combination of spraying the water and agitation in the tank to achieve higher reduction rates. As the water is sprayed and agitated the radon gas is released from the water and then escapes or is blown through a vent, which will terminate outside the house where it mixes with outside air and quickly reaches normal background levels. **The vent should be extended above the roof if there is any chance of the radon gas reentering the home** and potentially exposing the occupants to high levels of radon.



Radon is reduced 24/ 7

- Provides constant water pressure
- Quiet operation
- 99% Removal

continued >

GRANULAR ACTIVATED CARBON

A GAC system would also be installed on the main water supply just after the well tank. A GAC system consists of a large fiberglass tank, which would contain a bed of granular activated carbon (GAC). The carbon bed consists of many tiny carbon particles, which hold on to impurities in the water. This material can hold onto the radon much like a sponge holds water. Radon does build up in the carbon, but because it is also breaking down the radon does not reach dangerous levels. It is the break down or decay of the radon in the carbon that does cause concerns when using carbon to reduce radon. The radon decay products do emit a gamma ray radiation similar to x rays. Most studies show that a distance of two to four feet is all that is necessary to reduce the radiation to near background levels. It is generally recommended that the carbon bed be replaced frequently to minimize the build-up of radiation in the carbon bed.

At present we are not aware of any EPA regulations specific to the disposal of carbon that has been used for radon reduction but some are being considered. Restrictive requirements on carbon disposal would limit the feasibility of using GAC to remove radon.

AERATION vs. ACTIVATED CARBON

Both carbon and aeration are effective at reducing radon. We believe Aeration to be the preferred and safer method of radon reduction because the radon is vented to the outside. **Since no radon is stored in the unit there is very little opportunity for radiation to be given off by the unit itself and there are no disposal concerns.** Proper design and maintenance are critical to the long-term reliability and effectiveness of these systems.

Professional Installation is performed by our on-staff Master and Journeyman Licensed Plumbers to ensure that all work is done professionally, safely and with quality workmanship.

Radon in Air

If you are concerned about radon in air, an H2O representative can recommend a reputable radon in air mitigation expert in your area.

For more information on Radon, the following EPA website is helpful: www.epa.gov/ogwdw000/radon/remove/ga1.html

If you would like more information on radon or radon reduction systems contact:

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SERVICE AREA:

