

Sac and Fox Nation Office of Environmental Services

Sac and Fox Nation Water System (062004108) Has Levels of Uranium Exceeding Drinking Water Standards

Our water system recently violated a drinking water standard. Although this is not an emergency, as our customers, you have the right to know what happened, what you should do, and what we are doing to correct the situation.

We routinely monitor for the presence of drinking water contaminants. Test results we received on a quarterly basis for our system during the period March 25, 2010 to February 15, 2011 show that our system exceeded the maximum contaminant level (MCL) for Uranium. The MCL for Uranium is 30 ug/l. The running annual average of Uranium over the last 12 months is 59 ug/l. This exceeds the MCL of 30 ug/l.

What Should I do?

* **You do not need to use an alternate (e.g., bottled) water supply.** However, if you have specific health concerns, consult your doctor.

What does this mean?

* **This is not an immediate risk.** If it had been, you would have been notified immediately. However, *some people who drink water containing Uranium in excess of the MCL over Many Years could experience kidney problems and may have an increased risk of getting cancer.*

What happened? What is being done?

After testing each individual well, it was determined only one well was producing water with Uranium content above the MCL. In response, that well has been taken off line and Uranium levels will start to be reduced immediately. We will test for Uranium again in June to confirm the level is below the MCL.

For more information, please see the attached FAQ sheet, ODEQ Water Report or contact J. Paul or Quinton Saylor at (918) 968-4271 or the Office of Environmental Services at (918) 968-0046. You may also mail any questions to 920883 S. Hwy 99 (attn: PWS Public Notice), Stroud, OK 74079.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by the Sac and Fox Nation Water Supply (PWS ID # 06200408).

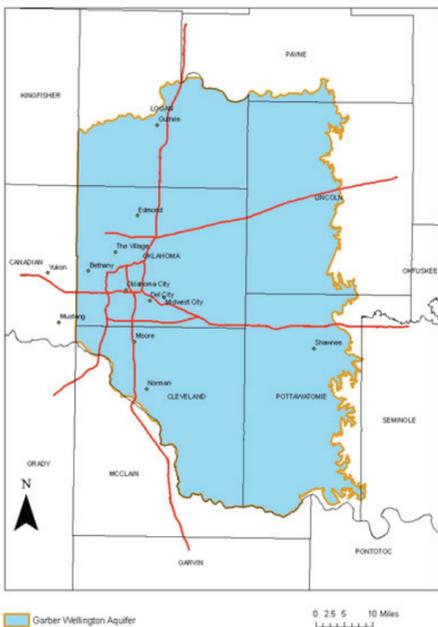
Date distributed: 5-10-2011



Arsenic, Chromium, Selenium, and Uranium in Private Drinking Water Wells on the Garber Wellington/Central Oklahoma Aquifer

This report explains a risk of elevated levels of arsenic, chromium, selenium, and uranium for drinking water wells on the Central Oklahoma Aquifer, consisting of the Chase-Admiral Formations and the Garber-Wellington Formations. The Central Oklahoma Aquifer is a major source of drinking water for central Oklahoma. Concentrations of dissolved arsenic, chromium, selenium, and uranium in regions of the aquifer occasionally exceed the Federal Drinking Water Standards (or Maximum Contaminant Level, MCL, or the highest level of a contaminant that is allowed in drinking water) for each of these chemicals. These high concentrations are found in both shallow and deep wells and are not confined to any particular area of the aquifer, so until chemical analysis has been completed, risk is unknown. All public water systems are being checked for arsenic, chromium, selenium, and uranium to ensure they are safe for drinking. Testing of private water wells is not a requirement of The Department of Environmental Quality (DEQ), but due to health concerns related to these chemicals, individuals on private water wells may want to have their

water tested. A sample kit can be obtained by contacting Stan Johnson with the State Environmental Laboratory at (405) 702-1114. There is a charge of \$60 for this analysis. Turn around time for this analysis is two weeks. *The normal cost of this analysis is \$85.00. This is a special rate for private drinking water wells drawing water from the Central Oklahoma Aquifer.



Uranium

Uranium is a naturally and commonly occurring radioactive element. Rocks, soils, surface and underground water, air, plants, and animals all contain varying amounts of uranium. Naturally occurring uranium is radioactive but poses a small risk because it gives off very small amounts of radiation. Cancer is not usually a result of exposure to naturally occurring uranium. However, health studies have shown large amounts of uranium can cause kidney damage. We do not know whether children differ from adults in their susceptibility to the health effects of uranium exposure. The Environmental Protection Agency (EPA) MCL of 30 ug/L for uranium was adopted in December 2003. There was not a uranium drinking water standard in effect from 1998-2003.

stomach, intestines, and lungs; neurological disturbances; and cancer. The EPA MCL of 10 ug/L for arsenic in drinking water was adopted January 2001, a decrease from the previous MCL of 50 ug/L.

Arsenic

Arsenic is a naturally occurring element that can enter water from deposits in the earth or from agricultural and industrial practices. Arsenic can cause various health effects from long term consumption including skin disorders; irritation of the

exposed to levels above the MCL for relatively short periods of time: hair and fingernail changes, damage to the peripheral nervous system, fatigue, and irritability. A lifetime exposure to selenium at levels above the MCL could lead to hair and fingernail loss, damage to kidney and liver tissue, and damage to the nervous and circulatory systems.

Selenium

Selenium occurs naturally in the environment. People are exposed to low levels of selenium daily through food, water, and air. Selenium is also an essential nutrient for humans and animals. However, selenium can be harmful when regularly taken in amounts higher than those needed for good health. EPA has set an MCL for selenium at 50 ug/L. EPA has found selenium to cause the following health effects when people are

Chromium

Chromium is a metal found in three forms: chromium (0), chromium (III) or trivalent chromium, and chromium (VI) or hexavalent chromium. Trivalent chromium is naturally occurring in food and is an essential trace nutrient. Hexavalent chromium can enter the water from natural deposits in deep aquifers or from industrial practices. Ingesting large amounts

of hexavalent chromium can cause stomach upsets and ulcers, convulsions, and kidney and liver damage. Some people are extremely sensitive to trivalent and hexavalent chromium and can develop allergic reactions consisting of severe redness and swelling of the skin. EPA has set an MCL for Total Chromium of 100 ug/L.

Water Treatment Options

If feasible, the best treatment option is to purchase water from a public water system. Commercial water treatment systems, such as reverse osmosis and ion exchange, advertise the capability to remove arsenic, chromium, selenium, and uranium. There are two types of treatment options available - point of entry into the household and point of use, i.e. faucet. With point of entry treatment, water is treated when it enters the house, therefore treating all the water utilized by the household. These systems generally utilize sediment filters and

iron granules to absorb the metals as water passes from the well to the house. With point of use treatment, water is treated at the tap using granular ferric adsorption. Both of these methods involve cost and system upkeep to ensure they are working properly. Each method should be carefully investigated before choosing a system. Public water systems have additional treatment options, and when feasible, the best option may be to purchase water from the local water supply that services your area.

More Information

A detailed study of the groundwater in the Oklahoma Aquifer was conducted by the US Geological Society in 1998. This study is titled "Ground-Water-Quality Assessment of the Central Oklahoma Aquifer, Oklahoma: Results of Investigations" (Water-Supply Paper 2357-A). It can be found at <http://pubs.er.usgs.gov/usgspubs/wsp/wsp2357A>.

References

ATSDR. 1999. Toxicological Profile for Uranium. Atlanta, GA: US Department of Health and Human Services, Public Health Service. <<http://www.atsdr.cdc.gov/toxprofiles/tp150.html>>

ATSDR. 2005. Toxicological Profile for Arsenic (Draft for Public Comment). Atlanta, GA: US Department of Health and Human Services, Public Health Service. <<http://www.atsdr.cdc.gov/toxprofiles/tp2.html>>

ATSDR. 2003. Toxicological Profile for Selenium (Update). Atlanta, GA: US Department of Health and Human Services, Public Health Service. <<http://www.atsdr.cdc.gov/toxprofiles/tp92.html>>

ATSDR. 2000. Toxicological Profile for Chromium. Atlanta, GA: US Department of Health and Human Services, Public Health Service. <<http://www.atsdr.cdc.gov/toxprofiles/tp7.html>>

EPA. 2006. Drinking Water Contaminants. <<http://www.epa.gov/safewater/contaminants/index.html>>

USGS. 1998. Ground-Water-Quality Assessment of the Central Oklahoma Aquifer, Oklahoma: Results of Investigation. Water Supply Paper 2357-A. Oklahoma City, OK. US Department of the Interior, US Geological Survey.

USGS/DEQ. 2006. Comparison of Ground-Water Quality in Samples from Selected Shallow and Deep Wells in the Central Oklahoma Aquifer, 2003-2005. Reston, Virginia. US Department of the Interior, US Geological Survey.



Open House At The Office Of Environmental Services



Uranium FAQs

What is a MCL?

MCL is an abbreviation for Maximum Contaminant Level. MCLs are the highest level of a contaminant that is allowed in drinking water and are enforced by U.S. EPA.

What does exceeding the MCL really mean?

All sources of drinking water are subject to potential contamination by constituents that are naturally occurring or man-made. Those constituents may be microbes, organic or inorganic chemicals, or radioactive materials. All drinking water, including bottled water, may reasonably be expected to contain some small amount of contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk.

How does exceeding the MCL affect me?

MCL's are set at very stringent levels. For example, you would have to drink two liters of water every day for a lifetime at the maximum contaminant level to have a one-in-a-million chance of a related health effect. You can obtain more information about contaminants and potential health effects by calling the Environmental Protection Agency (EPA) Safe Drinking Water Hotline 1-800-426-4791.

How much is 59 ug/l?

It means there is 0.000059 grams of Uranium per 1 liter of water. You would have to consume 200,000 liters of water (52,840 gallons) to reach a single gram of Uranium. That's like drinking 1,000 gallons of water every week for an entire year.

How does uranium get into my drinking water?

Uranium is present naturally in virtually all soil, rock and water. Uranium in soil and rocks is distributed throughout the environment by wind, rain and geologic processes. Rocks weather and break down to form soil, and soil can be washed by water and blown by wind, moving uranium into streams and lakes, and ultimately settling out and reforming as rock. Uranium can also be removed and concentrated by people through mining and refining. These mining and refining processes produce wastes such as mill tailings which may be introduced back into the environment by wind and water if they are not properly controlled. Manufacturing of nuclear fuel and other human activities also release uranium to the environment. Because uranium has such a long radioactive half-life (4.47x10⁹ years for U-238), the total amount of it on earth stays almost the same.

Is there anything I need to do?

There is nothing you need to do. Sac and Fox Nation is actively working to reduce Uranium levels for the entire water system. There are water treatment options available if you choose to invest in one. They can include sediment filters with iron granules to treat the water as it enters the house or can be treated at the tap using granular ferric adsorption. Each method should be carefully investigated before choosing a system and you can get more information at <http://water.epa.gov/drink> or <http://www.deq.state.ok.us/index.htm>

