



September 9, 2005

## URANIUM IN WATER SUPPLIES

Uranium became a newly regulated substance in public community drinking water supplies when the EPA revised a ruling in December of 2003. Nebraska has a tremendous resource in our groundwater, but unfortunately uranium has been an issue with certain public water supplies across this state. The town of Dorchester knows exactly what I mean because the City had to close a well this past year to meet the contaminant level guidelines with the two remaining town wells.

Radioactive minerals present in certain types of rocks and soils were deposited by glaciers and volcanic ash in Nebraska. Water passing through certain types of rocks and soil formations dissolve minerals and compounds, including uranium, so varying amounts of it are present in some water sources. Dorchester is a community that is blessed with a large aquifer under their feet with deep deposits of sand and gravel. But unfortunately, one community well was averaging a little bit above the maximum containment level set by the EPA of 30 parts per billion. We are talking about an extremely low amount. One part per billion is one sheet in a roll of toilet paper stretching from New York to London!

Uranium is different from most other naturally occurring contaminants because its concentration sometimes varies significantly over time. For this reason, the level considered for compliance is based on a running annual average which is the average of the four most recent consecutive quarters of monitoring results. Dorchester is not alone. About 20 Nebraska community water supplies were found to be out of compliance when the first year of sampling occurred in Nebraska.

On average, only about 2 to 5 percent of the ingested uranium is absorbed in our bodies. The rest is eliminated. Because the uranium in water produces very little radioactivity, the health effects from exposure to uranium are primarily thought to be associated with the chemical properties of soluble uranium. Studies to date suggest that ingestion of high levels of uranium may be associated with an increased risk of kidney damage. Your risk would depend on the concentration of uranium in the water, how much water you consumed, how long you have been drinking the water and your age and general health situation.

Exposure to soluble uranium in drinking water has not been shown to increase the risk of developing cancer. While human and animal studies have been conducted, uncertainty still remains in uranium risk assessment and research will continue to determine the connections between exposure to uranium in drinking water and the assessment of potential adverse health effects.

Uranium could be present in any private well on farms in the area.. I do not have a good handle if this is an issue in shallower domestic wells in Saline County. Decisions on private wells can often be decided with one test. I have always suggested to private well owners to check for bacteria and nitrates annually. We have the bottles at the Extension Office in Wilber for you to use.

Concerning checking for uranium, the Nebraska Health and Human Services Laboratory can do



this test in-house and for an accurate reading it will cost you \$12.00. For more information, contact our office at 821-2151. A new NebGuide is available on the subject.

If you have further questions about the health effects, you should consult your physician or contact the Nebraska Health and Human Services state health risk assessor. In the meantime, Dorchester will continue to look for a location for developing a new well, will continue to deal with the existing EPA rules and deliver water under the MCL, and hope the new test hole will show lower uranium levels in the aquifer in or near the town.

Randy Pryor, Extension Educator  
University of Nebraska-Lincoln Extension in Saline County  
306 West 3<sup>rd</sup> Street, Wilber, NE 68465  
Phone (402) 821-2151 • Fax (402) 821-3398 • e-mail: [randy.pryor@unl.edu](mailto:randy.pryor@unl.edu)