

UNDERSTANDING EXPOSURE AND HEALTH EFFECTS URANIUM AND HUMAN HEALTH



Health Department: 888 878-8992

Environment Department: 505 827-0187

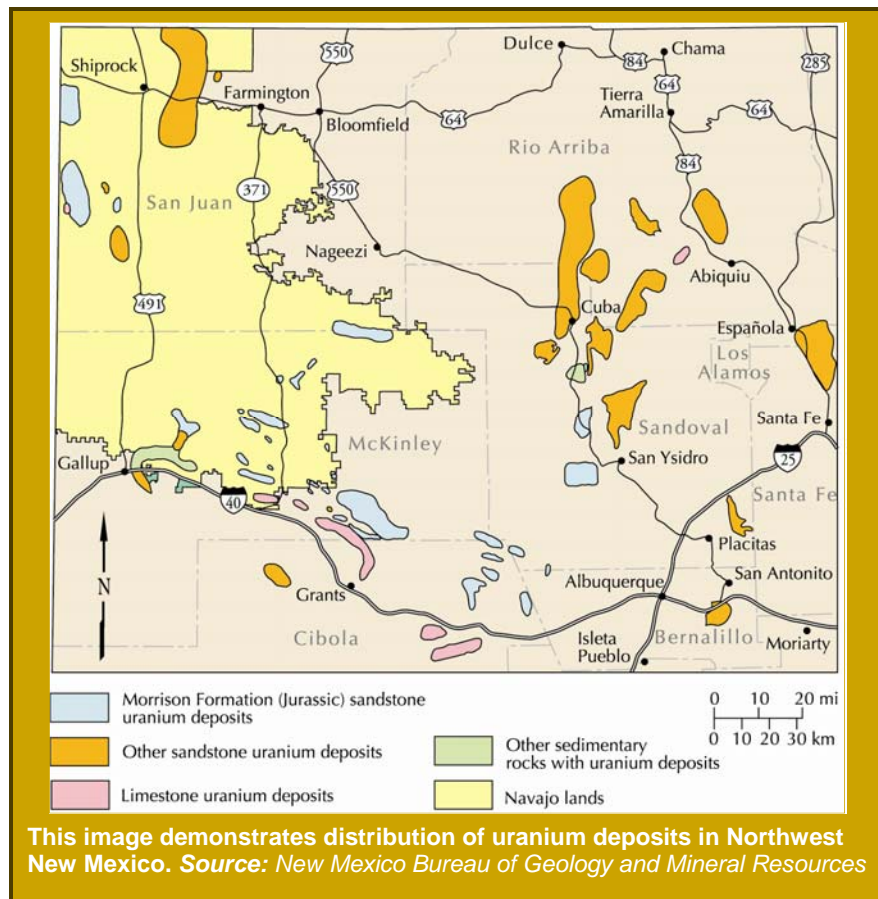


WHAT IS URANIUM AND WHERE DOES IT COME FROM?

Uranium is a radioactive heavy metal that occurs naturally in the earth in the form of minerals, and can be processed into a silver-colored metal. It is found in small amounts in rocks, soil, surface and ground water, air, plants and animals everywhere. People may be exposed to more uranium if they live in an area with naturally higher amounts of uranium in the rocks, soil or water, or in areas near a uranium-contaminated site. People may also be exposed in certain jobs, such as those involving the mining and processing of uranium ore.

WHERE DO HIGH LEVELS OF URANIUM OCCUR IN SOIL AND GROUND WATER IN NEW MEXICO?

Natural uranium mineral deposits are concentrated in northeastern Santa Fe County, the Grants-Gallup area, and in others areas in the state. These mineral deposits can leach uranium into ground water. High levels of uranium have been detected in some, but not all, wells in these areas. In northeastern Santa Fe County approximately half of the wells tested contain uranium at levels of health concern. The map highlights the major uranium deposits in New Mexico.



HOW CAN URANIUM AFFECT MY HEALTH?

Uranium ingested in drinking water and food is stored primarily in the bones, liver, and kidneys. The kidney is the most sensitive organ to uranium toxicity, but small amounts of uranium in food and drinking water will most likely not cause health problems in most people. The severity of the effect on kidney health increases with increasing

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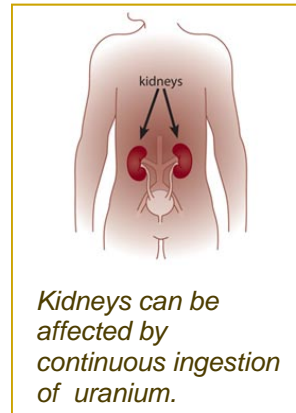
FREQUENTLY ASKED QUESTIONS

amounts of ingested uranium and duration of exposure. Because uranium damages the kidney slowly, it may take years or even decades for the damage to become apparent.

Diminished bone growth and osteoporosis may result from long-term uranium exposure, such as over many months or years. There is also growing concern about negative effects of uranium exposure on the nervous system.

Although ingested uranium is not known to cause cancer, it transforms into other radioactive substances, such as radium, which may cause cancer. Information about radium is available at <http://www.atsdr.cdc.gov/tfacts144.html>. The Environmental Protection Agency (EPA) set the Maximum Contaminant Level (MCL) for uranium at 30 micrograms per liter ($\mu\text{g/L}$) in public water systems to prevent kidney damage from uranium in drinking water; this MCL is also protective against radiological hazards of uranium.

An additional potential health concern is the presence of high levels of indoor radon in areas where naturally high levels of uranium occur. Radon is a radioactive, colorless, tasteless and odorless gas that occurs naturally in our environment. It is a short-lived radioactive decay product of radium which in turn is a radioactive decay product of uranium. You can find more information on indoor radon at <http://www.nmenv.state.nm.us/nmrcb/radon.html>.



Private well users may consider use of reverse osmosis systems to remove uranium from water.

HOW MUCH URANIUM IS IN MY DRINKING WATER?

If your household's water comes from a public water system, your water supply has already been tested for uranium. The New Mexico Environment Department is working with public water systems that have levels of uranium above the MCL to identify appropriate treatment solutions. You can find test results for public water systems at <http://safewater.state.nm.us>. Or you may contact the NM Environment Department Drinking Water Bureau at 1-877-654-8720 (toll-free).

Private well users who live in northeastern Santa Fe County (Arroyo Seco, Cuyamungue, El Rancho, Jacona, Jaconita, La Mesilla, La Puebla, Nambe, Pojoaque, Quatales, San Ildefonso, San Pedro, Santa Cruz, and Sombrillo) are strongly advised to get their water tested for uranium. Testing also is suggested for private well users in the Dona Ana County, Grants-Gallup and Tucumcari-San Jon areas. In New Mexico, private well testing is not required by any state statute or regulation, and is therefore the responsibility of the well owner.

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FREQUENTLY ASKED QUESTIONS

WHAT SHOULD I DO IF MY DRINKING WATER CONTAINS URANIUM?

If test results show that your drinking water contains more than 30 µg/L of uranium, an appropriate water-treatment system or use of an alternative source of drinking water is recommended. **Boiling your water will increase, not decrease, the uranium concentration;** special methods are needed to reduce uranium levels in water. Point-of-use (at the kitchen sink) reverse-osmosis (RO) treatment units have been installed by some affected well users to reduce the level of uranium in their drinking water. Properly operated household RO units can remove up to about 90 percent of the uranium from the raw water. Other treatment methods, such as distillation and anion exchange, also can reduce uranium concentrations.

DOES URANIUM IN SOIL POSE A HAZARD?

Naturally high levels of uranium occur in rocks and soil in some areas in New Mexico. Uranium occurs naturally in rocks such as granite and volcanic ash beds. Weathering of these rocks can cause the uranium to migrate into sandstone or into soil. Natural levels can be further increased in areas where uranium ore was mined or milled. To reduce human exposure to uranium and erosion of uranium-contaminated soil materials, New Mexico State agencies are working to remediate soil materials containing unsafe levels of uranium in areas of past mining and milling.

WHAT MEDICAL TESTS ARE AVAILABLE TO DETERMINE URANIUM EXPOSURE?

There are medical tests that can determine whether you have been exposed to excessive amounts of uranium. Urine testing for uranium is the recommended standard test. Because most uranium leaves the body in urine within a few days of exposure, a urine test will show whether there was exposure to a larger-than-normal amount within the last week or so.

WHAT SHOULD I DO IF I THINK THAT I'VE BEEN EXPOSED TO URANIUM?

We recommend that you see your medical provider and discuss your concerns. He or she will advise you on the best course of action.

Uranium in urine at a level greater than 0.08 µg/L is a *notifiable condition in New Mexico and as such should be reported to the New Mexico Department of Health Environmental Health Epidemiology Bureau. To report health problems from uranium and for health-related questions, call the New Mexico Department of Health Environmental Health Epidemiology Bureau at 1-888-878-8992 (toll-free). For more information, visit our website at <http://www.nmhealth.org/eheb/>.

*A notifiable condition or disease means a disease or condition of public health importance required by 7.4.3.12 New Mexico Administrative Code to be reported to the New Mexico Department of Health.

For health related questions call the
New Mexico Department of Health:
888 878-8992
Visit: www.health.org/eheb

For water related questions call the
New Mexico Environment Department:
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