

UNDERSTANDING EXPOSURE AND HEALTH EFFECTS URANIUM AND HUMAN HEALTH

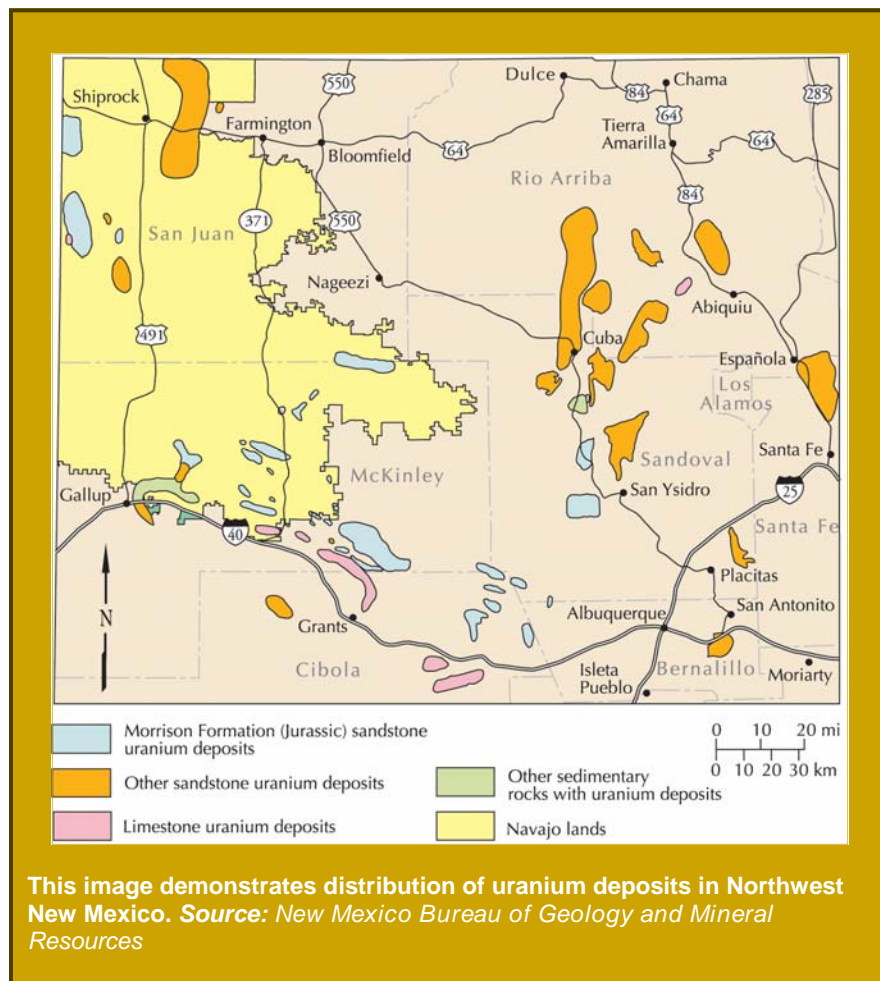
WHAT IS URANIUM AND WHERE DOES IT COME FROM?

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?

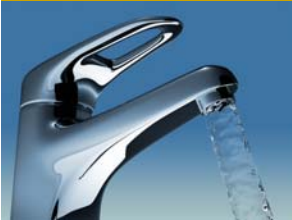
The map highlights the major uranium deposits in New Mexico. Natural uranium mineral deposits are concentrated in northeastern Santa Fe County, the Grants-Gallup area, and in others areas in the state. These mineral deposits can leach uranium into ground water. High levels of uranium have been detected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

In northeastern Santa Fe County, 50 percent of more than 200 wells tested contained uranium at levels exceeding the safe drinking water standard for uranium which is 30 micrograms per liter ($\mu\text{g}/\text{L}$). Uranium levels greater than 1,000 $\mu\text{g}/\text{L}$ have been detected in wells in this area. The Environmental Protection Agency (EPA) sets the safe drinking water standard, also called the Maximum Contaminant Level (MCL), for public water systems. Private wells are not regulated in New Mexico; however, the same drinking water standard for public water systems is used as the reference for drinking water quality of private wells.



URANIUM AND HUMAN HEALTH

FREQUENTLY ASKED QUESTIONS



HOW MUCH URANIUM IS IN MY DRINKING WATER?

Household water that comes from a **public water system** is 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> and under Water Quality at <https://nmtracking.org/dataportal/query/PublicDatasetIndex.html>.

Private well users who live in northeastern Santa Fe County (Arroyo Seco, Cuyamungue, El Rancho, Jacona, Jaconita, La Mesilla, La Puebla, Nambe, Pojoaque, Quartales, 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 Tukumcari-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. Private well owners can learn more about water testing at <https://nmtracking.org/water>.

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.



Point of use reverse osmosis systems such as the one pictured above can be a solution to reducing uranium levels in water.

DOES URANIUM IN SOIL POSE A HAZARD?

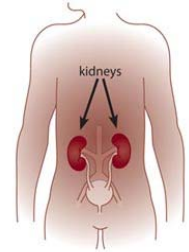
Naturally high levels of uranium occur in rocks and soil in some areas in New Mexico. Uranium occurs naturally in rocks such as granite and volcanic ash beds. Weathering of these rocks can cause the uranium to migrate into sandstone or into soil. Natural levels can be further increased in areas where 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.

URANIUM AND HUMAN HEALTH

FREQUENTLY ASKED QUESTIONS

HOW CAN URANIUM AFFECT MY HEALTH?

Uranium ingested in drinking water and food is stored primarily in the bones, liver, and kidneys. Some studies have shown small changes in the way kidneys work when people drink water with large amounts of uranium. These changes seem to go away when people stop drinking this water. What this means medically is unclear.



Another 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> and at <https://nmtracking.org/environment/air/IndoorQuality.html>.

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. Elevated urine-uranium levels will indicate uranium exposure but do not necessarily indicate health problems.

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

It is recommended that you see your medical provider and discuss your concerns. Your medical provider will advise you of the best course of action.

Uranium in urine at a level greater than 0.2 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 suspected 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 <https://nmtracking.org>.

**For health related questions call the
New Mexico Department of Health:
888-878-8992
Visit: <https://nmtracking.org>**

**For water related questions call the
New Mexico Environment Department:
877-654-8720
Visit: www.nmenv.state.nm.us**