

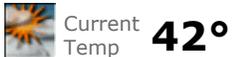
April 13, 2003

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Radioactivity found in Fallon wells

USGS report from 1994: Uranium discovered in 31 of 73 tested wells

Frank X. Mullen Jr.
RENO GAZETTE-JOURNAL
6/3/2002 03:45 pm

From the April 18, 2001 edition:

Ground water used for drinking in the Fallon area contains radioactive minerals that exceeded federal standards in 31 of 73 wells tested in the early 1990s, according to a federal report obtained by the Reno Gazette-Journal.

State and federal officials said they neglected to consider the U.S. Geological Survey report in their wide-ranging investigation of a cluster of 12 childhood leukemia cases diagnosed in Fallon since 1999. The report has surfaced only because a former USGS director thought the information would be important to the investigation and wondered why it hadn't been considered.

Assemblywoman Marcia deBraga, D-Fallon, learned about the report Tuesday and was outraged that it hadn't been brought up sooner.

"This could turn out to be significant in terms of the leukemia cluster," she said. "Clearly, radiation is one of the listed causes of leukemia. The researchers need to follow up on the radiation levels in the wells."

The Geological Survey report, released in 1994, showed the shallow and intermediate ground water used for drinking water in the rural areas of the Carson Desert contained high amounts of uranium and radioactivity.

"Dissolved uranium concentrations appear to be high enough to account for the observed gross-alpha activities," the report stated. Gross-alpha is a measurement of radioactivity.

The city's municipal water supply, which serves about a third of the city's population of 8,300 people, comes from deeper wells that don't contain dissolved uranium, state and federal officials said.

Radiation is one of the few known triggers of leukemia, according to researchers. In the Fallon area, 12 children have been diagnosed with the same type of leukemia since 1997, 11 of them in the last two years.

Radiation fact sheet

- o Children are known to be more radiosensitive than adults. Analysis of Hiroshima atomic bomb victims showed a higher incidence of cancers among those who were exposed to the radiation blast as children. Occupational exposure to radiation has also been linked to cancer, including leukemia.
 - o Radiation risk to embryos is higher than to children, which in turn is higher than to adults. The increased sensitivity of children to radiation-induced cancers may be caused by their rapidly dividing cells and higher breathing rates, researchers said.
 - o Dr. Ronald Rosen of the University of Nevada School of Medicine told members of a Legislative committee investigating the Fallon leukemia cluster that studies have linked some leukemia cases to prenatal exposure to radiation.
- Sources: Reno Gazette-Journal research, Environmental Protection Agency, Nevada Legislature.

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The report says the radiation is naturally occurring. The uranium in the ground water has nothing to do with an underground atomic bomb test conducted 28 miles from Fallon in 1960. Scientists from the Reno-based Desert Research Institute have said that radioactive elements left in the ground from that test don't come anywhere near the town.

Dr. Randy Todd, state epidemiologist, said he was unaware of the USGS report until a meeting with state and federal health and environmental officials on Tuesday. USGS officials said the report was distributed to state and local officials in 1994 and didn't get much attention at the time.

"I guess it was on a shelf someplace," Todd said.

DeBraga said the radiation report and ground water radiation levels never came up during the three-day Legislative hearing in February or the U.S. Senate hearing on the leukemia cluster last week.

"It's frustrating that this report sits around since 1994 and nobody is aware of it," deBraga said. "What's the point in doing all these studies if the information doesn't lead to anything else being done?"

John Nowlin, the former USGS director in Reno, said Tuesday he called the Reno office two weeks ago to ask about the 1994 report.

"There was no big hue and cry when the report was released in 1994, before the uranium standard for drinking water was adopted," he said. "I knew it had been distributed and discussed back then, but I wondered why it hadn't been mentioned lately (in the leukemia investigation).

"I guess it didn't stay in people's minds for long."

Todd said the USGS report will be significant in the state's testing of nine private wells used or formerly used by the families in the leukemia cluster. He said those wells are being tested for all contaminants mentioned in the state's clean water law, including uranium and radioactivity.

He said state health and environmental officials met Tuesday with officials of the USGS, the federal Centers for Disease Control and Prevention, and the federal Agency for Toxic Substances and Disease Registry. The officials exchanged information and began to plan a joint state-federal probe of the disease cases and possible causes, he said.

"There are a number of agencies whose data might be useful in this (case)," Todd said. "We have to sift through all the information and come up with protocols for environmental and biological sampling in the area."

Some of the biological samples will come from families in the leukemia cluster and from other Fallon-area residents, he said.

Todd said the significance of the ground water radiation is not clear. He said it will be examined as one of many environmental factors, including agricultural chemicals, jet fuel from the nearby Navy base and other pollutants to be investigated.

The USGS report found naturally-occurring uranium and radioactivity in wells bored into the shallow and intermediate aquifers in Churchill County, which has a population of 26,000 people including Fallon residents. An aquifer is an underground lake.

The wells are used for agricultural or drinking water, USGS officials said.

The uranium in the ground water comes from the Sierra Nevada and other mountain ranges. It migrates to the desert basin as sediments in the Carson River and its tributaries. It has been collecting in the Carson River Basin for millions of years, the USGS report said.

The municipal water supply comes from four wells that tap the basalt aquifer, which is found at

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400 or 500 feet below the surface. The USGS researchers and city tests showed no radioactivity in that ground water.

"It has been zero in those city wells," said Larry White, Fallon city engineer. "The basalt aquifer is very deep and it's insulated from anything that might get into the water from the surface."

That's not the case with the 4,500 wells drilled into the shallower aquifers in Churchill County. Those wells don't come under federal clean water testing requirements and the well owners can test them or not.

The U.S. Environmental Protection Agency last year set uranium standards for drinking water at 30 micrograms per liter. The 1994 USGS report shows one shallow well logging 310 micrograms per liter and another shallow well measuring at 210 micrograms per liter.

The report also showed radioactivity levels — presumably from the dissolved uranium — above EPA standards in nine of 56 wells in the shallow or intermediate aquifer.

Michelle Moustakas, an environmental engineer with the EPA in San Francisco, said the federal standards are based on extensive studies, models and risk analysis.

"It's not just guesswork," she said. "It relates to health risks."

The USGS program that produced the Carson Basin ground water report, called the National Water Quality Assessment Program, is listed to be slashed by 30 percent under President Bush's proposed federal budget.

Federal officials said another USGS check of the Carson Basin wells is scheduled for next year, but may not take place if the program is cut back.



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