BREAKING NEWS: Heyburn City Council discussing options to combat recent outbursts of graffiti

Studies show water contaminated by INL too deep for concern

By Laura Lundquist - Times-News writer | Posted: Monday, September 13, 2010 9:30 am | (0) Comments

Related Links

USGS groundwater report

When it comes to groundwater, the Idaho National Laboratory could have been built in a better place. But recent studies show it could also have been in a worse one.

Two reports released in August by U.S. Geological Survey scientist Roy Bartholomay have used new data from deep wells to describe how groundwater flows under the INL, not only horizontally but vertically.

By using new technology that allows measurements at various depths, he's been able to document how water flows rather than relying on models to predict its travels. The findings explain why no contamination has been measured in groundwater outside INL boundaries, easing fears of groundwater users.

"Conceptually, we always thought the water would sink deeper," Bartholomay said. "The data shows the model was correct."

The INL desert property has accepted and stored radioactive waste since 1949, some with minimal containment. Because the INL sits on top of the Eastern Snake River Plain Aquifer, older waste has leaked into the sole source of water for southeastern Idaho. Some wastewater was even injected into wells leading directly into the aquifer. In 1987, the Environmental Protection Agency demanded a clean-up based on groundwater quality measurements.

Scientists already knew groundwater flowed southwest from north of Rexburg. Beginning in 2005, Bartholomay equipped six wells around the INL with special sensors at five to six depths where models had predicted changes in the way ground water flowed. Some were as deep as 1,300 feet while the shallowest was around 470 feet down.

In addition to harmless elements, each sensor measured the amounts of 12 radioactive chemicals, including tritium. Tritium is the radioactive variation of hydrogen, used to make objects such as watch hands glow. With three hydrogen atoms, it closely resembles the chemical structure of water so it behaves similar to water.

In the northern wells close to where waste was stored, Bartholomay found tritium at a shallower depth than in wells farther south near the INL boundary, which shows that groundwater streams sink as they flow south, carrying radioactive elements with them. At the southern boundary, tritium was measured only at depths deeper than around 800 feet.

"The reason we've seen nothing off site is because people have never dug deep enough," Bartholomay said.

The area's geology is such that the hardrock bottom of the aquifer gets deeper moving southwest from the northern boundary to outside the southern boundary. Water follows the bottom of the aquifer.

That's good news for groundwater users downhill from INL: wastes have sunk deeper than users' wells. The groundwater rises and emerges farther southwest, Bartholomay said, but by that point, it's been filtered of any contamination.

Bartholomay said he's using his data to refine the groundwater models because he has none of his detailed data for locations outside INL so models are still necessary. The USGS monitored wells in the Magic Valley in the 1980s but there's no depth information and budget cuts shut them down. However, the Snake River Geothermal Drilling Project may dig a couple holes 5,000 feet deep between Shoshone and Minidoka.

"We hope to grab some samples off that to give us a better idea what's going on there," Bartholomay said.

Laura Lundquist may be reached at llundquist@magicvalley.com or 735-3376.

Posted in State-and-regional, Local on *Monday, September 13, 2010 9:30 am Updated: 10:10 am.* | Tags: Idaho National Laboratory, U.S. Geological Survey, Water Contamination

Print Email ShareThis

Other Stories

- Heyburn City Council discussing options to combat recent outbursts of graffiti
- Buy and print photos that capture Magic Valley
- Rainy weekend in the forecast
- College of Southern Idaho teams with elementary schools to bring science to life
- Gov. Otter blasts federal land policy, calls for order to be rescinded
- Gooding lawyer Schmitt broke a lot of glass ceilings
- Superintendent Luna, teacher union at odds over student-teacher ratio
- Idaho schools chief proposes bonuses for exemplary teachers, collaboration [audio]