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Danville Uranium meeting Nov 12th (Added: November 12, 2011)

WSLS's Morgan Donnelly reports on special uranium mining information meeting held in Danville on Saturday, November 12th. Experts offered unbiased, scientific evidence about the controversy to famili (more)

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By: TARA BOZICK

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Uranium mining and milling, like all activities, entails risk.

Residents need to fully understand the risks to public health and safety when coming to a conclusion on whether to allow uranium mining in Virginia. That's why Virginia Tech hosted a day-long workshop on uranium, radiation, health studies, uranium recovery regulations and nuclear power at the Institute for Advanced Learning and Research on Saturday, said Virginia Tech geochemistry professor Robert Bodnar.

"Find out what the facts are and make up your own minds," Ward Whicker, radioecology professor at Colorado State University, told attendees. "That's the way democracy ought to work."

A grant from Virginia Uranium Inc. to Virginia Tech paid for the symposium, but VUI did not choose the speakers or organize the workshop, said moderator Steve Brown of SENES Consultants. VUI would like to mine and mill a 119-million-pound uranium deposit at Coles Hill in Pittsylvania County.

Uranium, a naturally occurring element in soil, rocks and water, is radioactive, but natural uranium's amount of radioactivity per gram is relatively low, said Teresa Coons, the executive director of the John McConnell Math and Science Center of Western Colorado.

Radioactive elements get rid of the excess energy in their nuclei by emitting radiation. People get most (88 percent) radiation exposure from natural sources, like from the earth, sun and cosmic rays. Nearly all of artificial exposure comes from medical procedures, like X-rays.

About 2,000 cosmic rays pass through the body every second, Whicker said. Natural radiation causes damage to cells' DNA, but the body quickly repairs a vast majority of that.

Radiation is one of many things that contribute to cancer, but it's hard to know what causes it in any one individual, as many factors are at work, he added.

Aside from radiation concerns, uranium is also a toxic heavy metal, Coons said. While epidemiological research results are confusing, animal studies show ingesting high doses of uranium produces damage to the kidneys.

But data from humans suggests uranium may not be as toxic to humans, and there are no known deaths from people ingesting uranium, she said. While several studies did not find adverse renal (kidney) effects to humans, one occupational study did.

In the past before more stringent regulation, radon gas, a decay product of uranium, was found to cause a higher incidence of lung cancer among miners. Radon gas combined with the dust increased the risk more than either lone, and ventilation of underground mines and dust control now greatly reduces that risk in modern mines.

Studies found lung cancer risks increased for underground miners who smoked, she said. Miners in the past also had many times more exposure than allowable today.

More recent studies by epidemiologist John Boice and others didn't find increased cancer mortality in communities around mining or milling operations, aside from the early cases of lung cancer, and found no evidence environment radiation exposures above natural background increased the risk of cancer.

Clearly, uranium operations could have been better operated in the past, as mistakes were made, she said.

"We have perceived there is a risk. We understand that risk, and from there we need to figure out how to manage it," Coons said.

Radiation exposures and limits

» Federal regulations require that ionizing radiation exposure be as low as reasonably achievable — the ALARA principle.

» The Nuclear Regulatory Commission requires licensees to limit maximum radiation exposure to the general public to 100 millirem per year.

» On average in a year, humans would get 25-35 millirem from dental X-rays, 28 millirem from rocks and soil, 200 millirem from radon gas and 8,000 from cigarettes, according to a presentation by Finis Southworth, chief technology officer for Areva NP Inc

»A bunch of bananas, because they have a naturally radioactive form of potassium, has about 8,000 pCi of radiation, about the same as a handful or one-third ounce of uranium ore, said Steve Brown, certified health physicist who analyzes radiological aspects of uranium exploration.