

URANIUM MINING energy

A Statewide Concern

Statement of the Issue

There are many questions surrounding the safety and wisdom of uranium mining and processing in Virginia. As a state-commissioned study goes forward, Virginia Conservation Network maintains its opposition to lifting the current moratorium on uranium mining. The burden is on the study to prove that it can and will be done safely under the conditions found in Virginia. Similarly, the onus rests with a planned second study to demonstrate net benefits to the communities and local economies involved. A mining study in the 1980s failed to consider these Virginia-specific questions, and that failure, as noted by dissenting study committee member Elizabeth Haskell, marred the study conclusions. Ignoring this question in 2009 will only serve to replicate a past study deficiency.

Background

A moratorium on uranium mining and milling was imposed in the early 1980 and then the Virginia Commission on Coal and Energy undertook an extensive study of uranium mining. The study was costly, time consuming, and divisive. The Commission made no recommendation on lifting the moratorium and the General Assembly and Governor did nothing to lift it.

After the General Assembly failed to endorse a subsequent study in 2008, the Virginia Commission on Coal and Energy decided to initiate a new study on uranium mining. It appointed a subcommittee to work with Virginia Center for Coal and Energy Research at Virginia Tech to negotiate a contract with the National Research Council (NRC) of the National Academy of Science. The purpose of the NRC study presumably is to determine whether uranium mining, milling,



and waste disposal in Virginia can be undertaken in a manner that will safeguard the Commonwealth's environment, natural and historic resources, agricultural lands, and the health and well-being of its citizens. As noted by Del. Terry Kilgore, Chairman, Coal and Energy Commission: "We need to leave no stone unturned on this. If it's not safe, we don't want to do it."

Known Dangers of Uranium Mining

Uranium ore, waste, and tailings are a toxic mixture of numerous, hazardous materials.

The two types of conventional mining, open pit and underground mining, involve milling—grinding mined ore to an even, sandy consistency, and leaching uranium from the ore using either acid or alkaline chemical solutions. Because the ratio of usable uranium to mined rock can be as low as one-half

Recommendations: Uranium Mining

The NRC study is not likely to reassure Virginians as it will not address integral questions on socio-economic impacts. The uranium subcommittee of the Coal and Energy Commission intends to develop a separate study of socio-economic impacts such as: the impact of health threats (and the perceptions thereof) to the economy; social and economic instability associated with mining (e.g., boom-bust cycles); jobs and local income effects including their stability and duration; and revenues and liabilities over the life of potential mines and life of mine closures. Neither the commission nor the General Assembly should act to lift Virginia's existing moratorium until both the NRC study and the proposed socio-economic study are completed and made available for public review and comment.

pound per ton, conventional mining creates vast amounts of waste containing low levels of radiation, heavy metals, and other pollutants.

Mining waste principally consists of waste rock and the “tailings” left over after milling. Dry waste piles must be managed to prevent wind-blown spread of radioactive materials during operations. Tailings are typically placed as a liquid/sand slurry in massive tailings ponds. These tailings ponds can leak contaminants into surface and underground waters and pose the risk of catastrophic failure. Both the waste rock and tailings present significant challenges in terms of reclamation and will likely require maintenance in perpetuity.

The process of radioactive decay necessitates the long term maintenance of former mines. Uranium isotopes are radioactive. Over time, the nuclei of radioactive elements are transformed into other elements by emitting or absorbing particles. This process, known as radioactive decay, generally results in the emission of alpha or beta particles from the nucleus. It is often also accompanied by emission of gamma radiation, which is similar to X-rays. These three kinds of radiation are all ionizing radiation—each is energetic enough to break chemical bonds, thereby possessing the ability to damage or destroy living cells.

The most serious health hazard associated with uranium mining is lung cancer due to inhaling uranium decay products. The radioactive materials, notably radium-226, and heavy metals (e.g., manganese and molybdenum) contained in uranium mill

tailings can also leach into groundwater. Near tailings piles, water samples have shown levels of some contaminants at hundreds of times the government's acceptable level for drinking water.

Radon gas also emanates from tailings piles. Radon gas can travel a thousand miles in just a few days, with a light breeze. As it travels low to the ground (it is much heavier than air) it deposits radioactive fallout on the vegetation, soil and water below; the resulting radioactive materials enter the food chain, ending up in fruits and berries, the flesh of fish and animals, and ultimately, in the bodies of human beings.

Additional health and environmental dangers are posed by the heavy metals like selenium and other contaminants frequently associated with uranium.

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