

Report identifies health, environmental issues and best practices

December 19 2011

A number of health and environmental issues and related risks need to be addressed when considering whether to lift the almost 30-year moratorium on uranium mining in Virginia, says a new report from the National Research Council, the operating arm of the National Academy of Sciences and National Academy of Engineering.

"Internationally accepted best practices, which include timely and meaningful public participation, are available to mitigate some of the risks involved," said Paul Locke, chair of the committee that wrote the report and associate professor, Johns Hopkins Bloomberg School of Public Health, Baltimore. "However, there are still many unknowns."

The committee concluded that if Virginia lifts its moratorium, there are "steep hurdles to be surmounted" before mining and processing could take place within a regulatory setting that appropriately protects workers, the public, and the environment, especially given that the state has no experience regulating mining and processing of the radioactive element.

The study was requested by the Commonwealth of Virginia after owners of a large uranium deposit at Coles Hill in southern Virginia and other groups began in recent years to call for an end to the moratorium. The committee was asked to assess the physical and [social context](#) in which uranium mining and processing might occur; national and global uranium markets; technical options and best practices for uranium mining, processing, and reclamation; and potential impacts on public health, worker safety, and the environment. It was also requested to review the

state and federal [regulatory framework](#) for uranium mining, milling, processing, and reclamation.

The committee was not asked to recommend whether uranium mining should be permitted, or to consider the potential benefits to the state were uranium mining to be pursued. It also was not asked to compare the relative risks of uranium mining to the mining of other fuels such as coal.

Should the ban be lifted, uranium mining and processing are unlikely to begin for at least five to eight years after the initial granting of a license, the report says. This period of time should be used to build a robust regulatory and management culture focused on safety and citizen involvement. The experience of Canada and Colorado -- who have both enacted laws and promulgated regulations in recent years that are based on modern practices -- may be helpful to Virginia.

Although the committee was not asked to specifically assess the suitability of the Coles Hill site, it said the Coles Hill uranium deposit is large enough and of a high enough grade to have the potential to be economically viable. The United States produces just 3 percent of the world's uranium supply, most of which comes from eight countries. Last year the United States imported 92 percent of the uranium that it needed to fuel domestic reactors. Known sources of uranium are sufficient to meet demand at today's rate of usage for 50 years.

Extensive site-specific evaluations would be required to determine the most appropriate mining and processing methods for each uranium deposit, the committee said. Geological exploration to date indicates that uranium deposits in Virginia are likely found in hard rock rather than "soft" rock as coal is. Underground mining or open-pit mining would be the probable methods of extraction for any uranium deposits in Virginia. The committee noted that Virginia is susceptible to extreme natural

events, including heavy precipitation and earthquakes, which need to be taken into account when evaluating a site's suitability for mining and processing. Many of the technical aspects of uranium mining would be essentially the same as for other types of hard rock mining. However, uranium mining would carry the extra risk of exposure to ionizing radiation from uranium and its decay products.

Some of the worker and public health risks could be mitigated or better controlled through modern internationally accepted best practices, the report says. In addition, if uranium mining, processing, and reclamation were designed, constructed, operated, and monitored according to best practices, near- to moderate-term environmental effects should be substantially reduced, the report says. Nevertheless, such activities in Virginia would have the potential to impact water, soil, and air quality. The degree of impact would depend on site-specific conditions, how early a contaminant release is detected by monitoring systems, and the effectiveness of mitigation steps.

The report says less is known about the long-term environmental risks of uranium tailings, the solid waste left after processing. Tailings disposal sites represent potential sources of contamination for thousands of years. While it is likely that tailings impoundment sites would be safe for at least 200 years if designed and built according to modern best practices, the long-term risks of radioactive contaminant release are unknown.

Taking the full life cycle of uranium mining and cleanup into consideration when planning a uranium mining and processing facility is one of three overarching best-practice concepts that are recognized and applied by the international uranium mining and processing community, according to the committee. The second is that any uranium mining project should use the expertise and experience of professionals familiar with internationally accepted best practices and who represent all aspects of a project including legal, environmental, health, monitoring, safety,

and engineering elements. The third concept is the need for meaningful and timely public participation throughout the life cycle of a project. This would require creating an environment in which members of the public are both informed about, and can comment upon, any decisions that could impact their community.

Provided by National Academy of Sciences

Citation: Report identifies health, environmental issues and best practices (2011, December 19) retrieved 19 April 2024 from <https://phys.org/news/2011-12-health-environmental-issues.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.