

A BAD APPROACH TO NUCLEAR WASTE

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by Arjun Makhijani

President Bush is due to make a decision soon of a kind that has never been made by any head of state. He will decide whether he agrees with the finding of Energy Secretary Spencer Abraham that Yucca Mountain in Nevada is a suitable site for a repository for highly radioactive nuclear waste.

Most of this waste is spent fuel from nuclear power plants, now stored at dozens of power plant sites around the country, generally in huge, swimming-pool-like concrete tanks. More than 40,000 tons of it, containing hundreds of tons of plutonium—the stuff from which nuclear weapons are made—have accumulated so far. It will remain dangerous for hundreds of thousands of years.

A great deal is at stake, including the integrity of today's decision-making for generations far into the future. There are immediate issues too. Spent fuel storage is the most vulnerable part of the nuclear power system today. Will declaring Yucca Mountain a suitable site advance the goal of securing spent fuel against terrorist attacks by consolidating it all at one site, as Secretary Abraham claimed?

To eliminate security risks arising from on-site spent-fuel storage, it is essential to remove all the spent fuel from the pools and put it into some form of sub-surface storage, either on site or in a deep repository. In the long term (several decades) no reasonable substitute for a deep geologic repository exists.

But the spent-fuel pools cannot be closed while their existing nuclear power plants are operating. Underwater storage for several years is essential, else the spent fuel will melt and release large amounts of radioactivity. In other words, to end the security vulnerability of spent-fuel pools, existing nuclear power plants must be phased out.

That is just a difficult technical reality. It will take decades to do that, since these plants generate about 20 percent of the country's electricity. But it can be done in an orderly fashion. Whether or not new nuclear plants that don't have the vulnerabilities of existing plants can be built is an open question. But that doesn't solve the security problem at hand.

Moreover, the Bush administration, like its predecessor, is encouraging re-licensing of existing power plants far beyond their current licenses. In this context, Abraham's claim is simply wrong. Yucca Mountain will not consolidate spent fuel at a single site. The administration's nuclear power policy ensures that dozens of sites will continue to operate with spent-fuel pools. Given re-licensing, Yucca Mountain, which is crisscrossed with geologic faults, may well run out of room before it can take the spent fuel from existing power plants, to say nothing of new ones.

Then there's the hundred million gallons of high-level radioactive waste in the nuclear weapons complex, mostly stored in dangerous liquid form, some of it in tanks that have leaked. These tanks are near some of the most important water resources of the United States: the Columbia River and the Snake River Plain aquifer in the Northwest and the Savannah River in the Southeast. Although Abraham has stated that military high-level wastes would also be sent to Yucca Mountain, the Energy Department has already floated a trial balloon to the contrary. It is exploring the possibility of simply declaring much high-level waste to be low-level waste by fiat, mixing it with cement, and disposing of it on-site.

Finally, Yucca Mountain is a poor site. Federal regulations have already been changed or set aside several times to accommodate it. The computer models that the Energy Department used to assess site suitability are riddled with uncertainties. The site's history carries the whiff of politics rather than sound science. By early 1986, the selection process, mandated by the 1982 Nuclear Waste Policy Act, included sites in New England, but it was abruptly abandoned in mid-1986. That happened just a couple of weeks after concerned New England residents went to see a top aide to then-Vice President George Bush, just as he was preparing to launch his presidential campaign. The next year Congress named Yucca Mountain as the only site to be investigated.

It is possible to do a far better job, but the Energy Department seems incapable of it. It has essentially ignored an excellent 1983 study that it commissioned from the National Academy of Sciences. President Bush should declare both Yucca Mountain and the Energy Department unsuitable for the job and create a blue-ribbon commission to recommend a new program to him. That approach stands a far better chance of actually restoring some confidence in public science and leading to a sound geologic repository program, which is needed for both security and environmental reasons.

The writer is president of the Institute for Energy and Environmental Research. A study he co-authored in 1992 on nuclear waste was partially funded by the state of Nevada.