

Sandia National Labs suggests we take another look at underground salt deposits for nuclear waste

4 April 2011, by Bob Yirka

(PhysOrg.com) -- In light of the Obama administration's decision to effectively end the discussion of using the Yucca mountain site in Nevada as a location for permanent storage of nuclear waste, Sandia National Laboratories, (SNL) headquartered in Albuquerque, NM, has released a paper wherein it calls for new discussions about the possibility of using underground salt deposits to permanently store the nation's growing stockpile of nuclear waste.

In the paper, the authors, Frank D. Hansen and Christi D. Leigh, note that the United States has several major underground salt deposits and has identified two sites they believe would be able to accommodate a [nuclear waste](#) repository; the salt domes on the Gulf coast and the bedded salt in Davis and Lavender Canyons in Utah.

Hansen and Leigh also note that a lot of testing over nearly 50 years has already been done regarding the feasibility of storing radioactive material in underground salt deposits, both in this country and in Germany; most of which was done using heaters though, instead of actual fissionable material, due to the hazardous nature of working with such materials. The objective was to determine if radioactive heat would cause the dislocation of minute quantities of water imbedded in underground salt, causing it to move. All of the tests done to date thus far have confirmed the author's belief that underground salt deposits are our current best option. They further noted that three atomic explosions were conducted in underground salt deposits in the early 50's with none of them reporting any leakage after more than fifty years.

The idea of using underground salt deposits is a strong one in this country due to the fact that the United States has several very large natural salt

fields, some nearly as thick as a mile, and that lie between 1 and 2 miles below the surface; and to the fact that the US is currently housing an enormous amount of both High Level nuclear Waste (HLW) and Used Nuclear Fuel (UNF) in temporary storage facilities. The recent disaster at the Fukushima plant in Japan has highlighted the dangers of storing such materials in temporary facilities and new calls for finding a permanent storage facility for nuclear waste are already being heard in Washington.

One of the chief benefits of using a salt deposit, rather than those of shale or other rock formations is that salt isn't nearly as susceptible to disruption as are rock formations. Salt has a self-sealing property due to its makeup and the weight and pressure of the salt and rock that surrounds it. In addition salt deposits are considered to be nearly impervious to geological disruptions such as earthquakes due to their soft nature, i.e. they tend to slide around rather than crack and break.

The Department of Energy has appointed a commission to come up with recommendations for storage of nuclear wastes and is expected to report its findings in the coming months.

More information:

[brc.gov/e-mails/January%2011/A...
_SAND-01-13-2011.pdf](http://brc.gov/e-mails/January%2011/A..._SAND-01-13-2011.pdf)
via [Newscientist](#)

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