

BRC Disposal Subcommittee meeting Nov 4, 2010

What are the key lessons learned from site evaluation processes for the WIPP and Yucca Mountain sites?

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The disposal subcommittee asked me to focus on two broad questions: 1) What were the drivers behind the scope of scientific work and the associated cost and time required for evaluation of the WIPP and Yucca Mountain sites, and 2) How can a future site evaluation process be designed to allow the many necessary and sometimes conflicting goals for site evaluation to be met in a credible way within a reasonable time and at a reasonable cost.

I have worked on the US High Level Waste program most of my professional career over the last 30+ years. It is hard to understand how so much effort was expended with so little results. As many speakers before me have noted, it takes a credible technical and social decision process for a deep geologic disposal program to succeed. Clearly, the US program has failed regarding the social decision process for Yucca Mountain. The US has succeeded in implementing a credible technical and social decision process at WIPP. In my view, there are a number of key lessons learned regarding the experience at Yucca Mountain. These include in no particular order of importance, 1) we narrowed to one site prematurely, 2) US regulatory standards are too prescriptive, and 3) regulatory standards need to be in place prior to siting decisions. In my view, a minimum of two sites should be characterized "at depth" within different geologic media.

Overly prescriptive regulations can drive cost and schedule. Safety regulations need to be succinct, understandable and implementable. NRC regulations 10 CFR 60 and 63 do not have such characteristics. In my view, we need to start with a clean sheet of paper.

An adaptive staged management process as suggested by the National Academy of Sciences, Tom Isaacs and others should be followed. Such an approach helped Sweden, Finland and WIPP gain public trust in the selection, characterization, and development of a deep geologic repository. Continuous feedback in the adaptive staged management approach helps build technical and social confidence in projects. Use of a pilot demonstration process for limited amounts of waste would also develop that trust and help refine the design approach.

We need to set a reasonable safety standard that today's society accepts in everyday activities such as driving a car, flying an airplane, or riding a bike. Setting multiple pathway standards using the most restrictive criteria is a sure way to drive cost and schedule.