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SHORT ADVANCE SUMMARY OF MY PRESENTATION ON SEPT. 1, 2010 TO THE "DISPOSAL SUBCOMMITTEE" OF THE "BLUE RIBBON COMMISSION ON AMERICA'S NUCLEAR FUTURE"

I. ESSENTIAL ELEMENTS OF A REGULATORY SCHEME FOR DEEP GEOLOGICAL DISPOSAL OF RADIOACTIVE WASTE

Period of Protection

In my view, if the waste can be sequestered with very high confidence for a period of a few hundred years, that should be sufficient. However, it is not technically difficult to sequester waste deep underground for a period of a few thousand years, because the design of an engineered canister system can readily accomplish this. Therefore, I am entirely comfortable with a regulatory scheme in which the requirement is sequestration for a period of a few thousand years.

The million-year requirement in the EPA's and NRC's current Yucca Mtn. regulations represents a ridiculous policy choice. If the past is any guide, within perhaps 100,000 years, or probably sooner, the entire northern half of the US will have been totally destroyed under hundreds of feet of ice from the next glacial ice age. No New York City. No Chicago. No New England. When American civilization faces such a situation, why should anybody care how a radioactive waste repository is performing?

Protection scheme

The current regulatory scheme is to protect future individuals through an individual-dose standard. I am entirely comfortable with this approach, which is both feasible and sensible.

Level of Protection

I am entirely comfortable with insisting through regulation that individual doses from a repository be kept at a level near or below the natural background we all receive from natural sources every year. I do not think that we need to protect individuals down to levels that represent tiny increments to natural background levels.

Method of Demonstration

The current EPA and NRC regulations require that a realistic calculation of future doses be performed, using a probabilistic scheme for weighting scenarios. This is the so-called probabilistic-TSPA approach (TSPA is "total system performance assessment.") There was a time, back in the late 1970s and early 1980s, when many if not most experts were convinced that such a calculation was not feasible. Today, however, I believe that almost everyone in the community of experts believes that such an analysis is not only feasible but that it is the best approach, representing as it does a *realistic* analysis of future doses. I certainly believe that.

Human intrusion

For reasons that are well articulated in the Academy's TYMS report, which I helped to write, the best way to assure that inadvertent future human intrusion into a repository will not compromise its effectiveness is to require an analysis of a specified human intrusion scenario, and to require that the future doses after such an intrusion be no greater than if it had not occurred. This is the current scheme in EPA and NRC regulations, and I endorse it.

Retrievability?

I do **not** believe that the regulations should require retrievability of the waste, once emplaced, beyond a very short period like a decade or two. In my view, it is simply not needed to assure that the disposal scheme will be acceptable.

II. ANOTHER ISSUE – THE NRC

NRC Competence vis-à-vis Regulation of Disposal

The BRC should know that I believe the NRC to be a highly credible agency. Despite the complaints of a few who would probably complain about the competence of any government agency charged with nuclear regulation, I believe that the NRC staff is both very competent technically and very independent. The way the current legislative and administrative setup shields the staff from undue influence on its technical decisions is remarkably effective. And the technical competence of the NRC staff is very high, and has been for a long time. If somehow a different agency were founded and entrusted with doing what the NRC is now charged with doing, it is not obvious to me that the new entity would achieve what we now have, and doing better seems essentially impossible.

NRC's Office of Research

The NRC Office of Nuclear Regulatory Research, which I once headed as its Director about 30 years ago (1980), has among the most competent technical staffs anywhere in the Federal government. It has done highly effective work for decades to support the NRC, and continues to do so. It has been underfunded for a long while, and deserves to have more support.

Disclaimer: This represents my own views and does not represent the position of my employer, the Lawrence Berkeley National Laboratory, or of the US Department of Energy, which is LBNL's primary sponsor. I will appear before the BRC on my own time, and will not be paid by LBNL's payroll during the time when I will appear before the BRC.