THE ETHICS OF CONSOLIDATION, OR "WHY SHOULD I TAKE YOUR WASTE?"*

Mary R. English
Energy, Environment, and Resources Center
327 South Stadium, University of Tennessee
Knoxville, TN 37996-0710

ABSTRACT

In radioactive waste management, consolidation is usually understood to mean merging waste together for handling and disposal at one or a few sites. With high-level waste, this means making the waste now stored at nuclear power reactors a federal responsibility and placing it in a monitored retrievable storage facility or, eventually, in a geologic repository. The latter is mandated by the 1982 National Waste Policy Act and its 1987 amendments, which stress the need for a permanent repository for the good of society as a whole. With low-level waste, consolidation is understood to mean having a few rather than a proliferation of disposal facilities. This is encouraged but not mandated by the 1980 Low-Level Radioactive Waste Policy Act and its 1985 amendments, which stress instead the individual states' rights and responsibilities regarding low-level waste disposal.

Consolidation, taken as merging waste, is a difficult enterprise: it raises a host of technical and, especially, political problems when sites for the waste are sought. However, consolidation can also mean a consolidation of effort -- i.e., working together without necessarily merging waste together. This interpretation offers flexibility, by promoting efficient coordination during the long process of realizing the very different mandates of the National Waste Policy Act and the Low-Level Radioactive Waste Policy Act.

INTRODUCTION

With high-level radioactive waste (HLW), consolidation is prescribed, in that, according to the 1982 Nuclear Waste Policy Act (NWPA), the HLW now stored at nuclear power reactors is to be disposed of in a centralized federal repository. This position was reaffirmed in the 1987 amendments to the NWPA, which provisionally selected Yucca Mountain as the site for the repository despite Nevada's strong objections. With low-level radioactive waste (LLW), consolidation is not prescribed, in that, according to the 1980 Low-Level Radioactive Waste Policy Act (LLWPA), LLW is the ultimate responsibility of the individual states, although interstate compacts are encouraged as the way to fulfill this responsibility. This position was reaffirmed in the 1985 amendments to the LLWPA, with their system of milestones and penalties to ensure compliance with the 1993 deadline for new disposal sites.

The US Congress does not appear interested in revisiting either the NWPA and its 1987 amendments or the LLWPA and its 1985 amendments. Thus, any discussion of consolidation is in a sense academic. The issue is worth examining, however, if only to understand the ways in which "consolidation" can be used and the principles that people bring to bear when they talk about consolidation. Because of differences on both scores, discussions of consolidation often become stalemated. This paper suggests how such stalemates could, perhaps, be minimized.

CONSOLIDATION: THE ARGUMENTS PRO AND CON

High-Level Waste

There is little disagreement that in the long term HLW should be handled in a consolidated fashion, because of the scientific complexities of its management and the dangers to humans and the environment, both current and long into the future, if it is mismanaged. The main disagreement lies in how quickly we should move to a final solution and whether HLW should, in the interim, be consolidated.

One big issue with HLW is whether the proposed repository should be schedule-driven. Under the NWPA, with its 1998 target date for opening the repository, it would have been. This target was subsequently postponed to 2003; then, in late 1989, the DOE announced that while Yucca Mountain was still the candidate site, good science and thorough site investigations would take precedence over the schedule and the repository's opening would be delayed until 2010. A related, important issue with HLW is whether the proposed monitored retrievable storage (MRS) facility should be linked to the repository -- i.e., whether it should be contingent upon siting and licensing the repository. Those who believe that HLW should move quickly to permanent, geologically secure disposal and those who are potential host states for the MRS facility are concerned that having an unlinked MRS would enable long delays in and

* This paper was presented at Waste Management '90 in Tucson, AZ, on February 27, 1990. It was benefited from the comments of several people, including those of John Hardwig on an earlier draft.

perhaps abandonment of the repository program. Those who believe both that the government has an obligation to the utilities to take their HLW in 1998 as planned, and that the repository should not be built until its major scientific uncertainties have been resolved, favor an unlinked MRS.

Thus, the main questions with HLW concern when, where, and how it should be consolidated, with arguments for and against an MRS facility and with Nevada continuing to contend that Yucca Mountain is technically unsuitable. There is little disagreement, however, that HLW consolidation eventually should take place.

Low-Level Waste

Low-level waste is a different proposition. Because management and disposal of LLW is less demanding than HLW, there is no technological imperative to handle LLW in a consolidated fashion. This opens up possibilities, but it also opens up room for arguments of a different sort.

Those in favor of compact consolidation argue that now, nine years after the LLWPA, there are more disposal sites planned, more expensive technologies, and less waste than had been anticipated in 1980. They contend that as a result the costs to society of disposing of LLW will be considerably higher than they would be if economies of scale were realized by having only a few sites, and that the extra money and resources spent could better be used for other pressing environmental and social needs. Furthermore, they argue, there would be less total risk with a few large, well-managed sites than with a proliferation of sites located in less-than-optimal areas and maintained by states that can ill-afford the staff to regulate them.

Those opposed to compact consolidation argue that in 1980, it was agreed that each state or compact would be responsible for its own waste and would have the right to exclude out-of-compact waste. They contend that whether circumstances have since changed is irrelevant; circumstances always change and the rules of the game still must be followed. Furthermore, they argue that the risk at any one site is partly a function of the amount of waste it accepts, and that those who have shouldered their own responsibilities should not be penalized by being required to also shoulder the responsibilities of shirkers. Finally, they argue that the economies of scale may not be as great as claimed, and that in any case, the higher disposal costs would be borne by those benefiting from the products that generate LLW.

CONSOLIDATION -- WHAT IS IT?

Alternative Definitions

In radioactive waste management, "consolidation" can be thought of in two quite different ways. Conventionally, it is thought of as a merger of the waste itself. But it can also be thought of as a coordination of the process by which the waste is handled. The former is likely to raise technical or political objections; the latter avoids these objections while opening up possibilities of integrated, more efficient activity.

Both those in favor and those against consolidation tacitly assume that it means "merging." But consolidation, when defined as "joining together in action," allows for the possibility that the individual entities will remain separate for the foreseeable future but will cooperate with each other, for their mutual benefit and the benefit of the whole. In terms of HLW, this could mean, for example, that while the repository and MRS programs are being worked out and wastes are being stored at the reactors, a family of standardized transportable dry storage casks would be used. In terms of LLW, this could mean anything from uniform manifest systems to reciprocal agreements for emergency access or exchanges of different types of waste (e.g., "you take my Class B and C waste; I'll take your mixed waste").

The Importance of Timing

Consolidation also tends to be thought of as a one-shot, all-or-nothing proposition. But there are alternatives, and it is important to be sensitive to when these alternatives are appropriate. "Appropriateness," will, in turn, be defined at least as much by political feasibility as by technical achievability or economic efficiency.

With HLW, as was noted, there is concern that an unlinked MRS could remove the impetus to actualize the repository. Given the human propensity to procrastinate if a problem isn't pressing, this is a valid concern. There is also concern, by Nevada and others, that the DOE will press ahead with the Yucca Mountain site despite indications that it is not technically adequate. Given the human propensity to rush to solutions when there is "a job to do," this concern also is valid. But preparations can begin for eventual consolidation, even without committing to either Yucca Mountain or an MRS facility. Of course, to the extent that the future course of action is unclear, these preparations may be constrained.

With LLW, there is concern that simply talking about consolidating the current system of host states and compacts into an arrangement with fewer sites could lead to failure to meet the 1993 deadline for new sites. The risk of failure is seen as coming from two sources. First, the siting processes of host states that have been "footdragging" may grind to a halt if these states *think they have an out*. Again, given the propensity to procrastinate when there is reason to hope that a problem will go away, this concern is valid. And second, the siting processes of host states that have been moving forward may be derailed if their proposed host communities think that they risk taking more waste than they "signed up" for. Given some of these communities'

demands for assurances that they will not become the nation's dumping ground, this also is a valid concern. It is conceivable -- perhaps likely --that several years from now, some host states still will not have operating sites while others will have sites in communities that have become comfortable with their facilities and would like more waste because it would mean more local benefits. In this event, consolidation would be logical. There is no certainty, however, that this will occur. The prudent course (and one that is being followed to some extent) is, for the time being, to pursue consolidation of process while avoiding discussions of waste mergers except in special instances.

CONCLUSION: PHILOSOPHICAL UNDERPINNINGS

The arguments for proceeding quickly with a centralized HLW repository or MRS or with consolidation of the number of LLW disposal sites are grounded in classical utilitarian principles. Utilitarians focus on the consequences of taking (or not taking) a particular course of action and use the good of society as a whole as a yardstick to evaluate those consequences. By contrast, the arguments for giving host states and communities an adequate say in whether and under what conditions they will take these wastes are all grounded in deontological principles. Deontologists often focus on process over consequences, and they evaluate both against the yardstick of rights and responsibilities. Utilitarians tend to emphasize "the greatest good for the greatest number"; deontologists tend to emphasize the moral claims of individuals or groups within society.

This tension between the deontological and the utilitarian viewpoint is typical of our American culture and government, with its Lockean belief in the right to "life, liberty, and the pursuit of happiness" but its Puritan belief in efficiency. It is reflected in both the 1982 NWPA and the 1980 LLWPA, with different results.

The NWPA tried to satisfy both the utilitarian and the deontological views, first, by establishing a process whereby, with the "consultation and cooperation" of the prospective host states, the technically most suitable site for a HLW repository would be selected from among a range of sites (all in the West); and second, by initiating a process that would satisfy regional equity concerns through a second repository in the East. The NWPA's bias toward the utilitarian viewpoint is evident, however, in that the originally proposed "consultation and concurrence" wording was diluted, and in that the second repository was not mandated (and the effort to site one was subsequently abandoned by the DOE). This utilitarian bias was furthered in the 1987 amendments to the NWPA, where the attempt to find the most suitable site was abandoned in favor of the expediency of finding a suitable site.

The LLWPA also set up the tension between deontological and utilitarian principles when it stated: "(A) each State is responsible for providing for the availability of capacity either within or outside the State for the disposal of low-level radioactive waste generated within its borders . . . and (B) low-level radioactive waste can be most safely and efficiently managed on a regional basis." But, while the LLWPA espoused efficiency, its "bottom line" was the responsibility of the individual states -- a point reinforced by the 1985 amendments to the LLWPA, with its system of milestones and penalties. The LLWPA thus is unlike the NWPA in that it charts a deontological course which can be diverged from only with the willingness of all parties involved.

The utilitarian viewpoint can be tempered by taking into account individual rights when calculating the good of society as a whole, and the deontological viewpoint can be tempered by taking into account societal consequences when considering rights and responsibilities on a particular issue. Basically, however, the two views are at odds. Thus, unless we are prepared to fundamentally rethink the NWPA or the LLWPA, it is important to acknowledge and accommodate the dominance of the utilitarian viewpoint in the former and the deontological viewpoint in the latter. With HLW, this could be done by first recognizing the inevitability of eventual centralization and then seeking the safest, fairest, and most efficient way to achieve it. With the LLWPA, it could be done by creatively finding ways that efficiency can be improved -- e.g., through waste exchange agreements and agreements to take limited quantities of outside wastes with appropriate surcharges -- while preserving the tenet, fundamental to the LLWPA, of the individual states' rights and responsibilities.