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Transportation Issues

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The Utility Industry's View of the Status of  
OCRWM's Cask Systems Development Program

Introduction

I am Howard Shimon, Chairman of the Edison Electric Institute Utility Nuclear Waste and Transportation Program's (EEI/UWASTE) Transportation Working Group (TWG).<sup>1/</sup> I appreciate the opportunity to be here today and present the utility industry's perspective on the status and scope of the DOE/OCRWM's Cask Systems Development Program (CSDP). This presentation is particularly timely because the TWG has just completed its review of the preliminary design reports submitted to DOE/OCRWM by the five contractors working under the CSDP. Our perspective on the CSDP reflects not only conclusions from review of the preliminary design reports, but also the positions that we have consistently taken on the appropriate scope and pace of the CSDP and its integration with other OCRWM activities. For that reason, I think some background information may be helpful in understanding our current position. Many of the items we are concerned about have been in existence for some time; EEI/UWASTE has raised these concerns repeatedly. We are encouraged that the new DOE/OCRWM leadership will heed these concerns and effect changes to the program.

Background

Although the transportation program that is being developed by DOE/OCRWM plays only a supporting role in the national program for disposing of spent nuclear fuel and high-level radioactive waste, it is of vital interest to the utility industry. There are several reasons for this interest. First, the DOE/OCRWM transportation system is the only physical interface between utilities and the federal waste disposal system. Second, transportation will be the NWPA activity that is the most visible to the largest number of people. Third, development of the transportation system, together with the rest of the NWPA program, is

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<sup>1/</sup> References to EEI/UWASTE herein include its predecessor organizations, the Utility Nuclear Waste Management Group and the Electric Utility Companies' Nuclear Transportation Group.

designs so far ahead of the date that they will be needed that the designs will have to be redone to take account of such factors as changes in spent fuel burnup, modified regulatory requirements, and interim storage systems that have been implemented at utility facilities. Nor, if there is no pressing need to proceed immediately with the development of various cask designs, does it make sense to do so before it is possible to integrate the data collected through the FICA and other efforts.

Given the importance of DOE's transportation program to the successful implementation of the NWPAs, the utility industry has participated actively in the development of the CSDP from its outset. In early 1988, the industry sent a letter to OCRWM setting forth our position on the pace and scope of the CSDP. Based largely on the factors discussed above, the letter made two points: first, that OCRWM was proceeding more rapidly than was warranted at that time in developing from-reactor casks; and second, that OCRWM should confine its design development efforts to one legal weight truck cask. We urged OCRWM to implement our suggestions upon completion of the preliminary design stage, which was a contractual hold point under the five cask development contracts that were proceeding under the first phase of the CSDP.

At the time that we first took this position, we believed that cutting back the CSDP to reflect delays in the repository development program would provide DOE/OCRWM the opportunity to factor the information developed through the FICA program and other data collection efforts into the final cask designs. It would also provide DOE and the utility industry needed time to ensure coordination of utility near-term storage plans with the OCRWM transportation system. On the other hand, given the potential for bringing an unlinked MRS into operation in 1998, there was some justification for proceeding with the development of at least one cask design. We viewed a legal weight truck cask design as the most appropriate design for this purpose because it could be used to remove spent fuel from the pools of all reactors. In addition, the availability of a prototype legal weight truck cask of more efficient design than casks currently in use could be of value to both utilities and DOE/OCRWM during the period before large-scale shipments begin under the NWPAs. Developing the legal weight truck cask design could also provide DOE/OCRWM valuable experience with respect to the Nuclear Regulatory Commission's (NRC) cask certification process.

In early 1990, after reviewing the preliminary design reports for the five casks then under development, DOE/OCRWM announced its intent, given programmatic and budgetary considerations, to redirect its CSDP contractors' efforts so as to proceed with final design (i) on one legal weight truck and one rail/barge design at a full funding level and (ii) on one legal

it would be to DOE/OCRWM's advantage to gain as much insight as possible from individuals that have experience in handling, shipping and receiving spent nuclear fuel. Many of these individuals are already involved directly in this program as employees or contractors of DOE. Unfortunately, however, our review of the preliminary cask designs does not confirm effective utilization by DOE/OCRWM of the experience of these individuals.

The EEI/UWASTE review team, which included individuals with substantial spent nuclear fuel shipping experience, identified many operational concerns that should have been apparent to anyone that has been involved in a shipping campaign. For example, the opinion of the utility review group, based on significant hands-on experience, is that a realistic yet optimistic fuel transfer time is approximately 30 minutes per assembly. The NAC Rail/Barge cask preliminary design report estimates 4.5 hours to load 52 BWR fuel cells, which equates to 5.2 minutes per assembly. The Nuclear Packaging preliminary design report estimates that it will take 4 hours to load 31 BWR fuel assemblies, or 8 minutes per fuel assembly. Total cask handling times estimated in the preliminary design reports for all but one cask were optimistic to the point of being unrealistic, particularly in light of cask drying procedures and times. This failure to recognize the realistic time frame needed to load a cask could perhaps have been avoided had DOE/OCRWM been able to avail itself of the significant fuel and transportation cask handling expertise that currently exists. DOE/OCRWM must develop a mechanism for doing so as soon as possible, so that it can utilize this expertise for timely resolution of concerns with the cask development effort that have already been identified, as well as those that may arise in the future.

We are also concerned that the cask vendors may not have had an opportunity to factor the FICA data fully into the preliminary cask designs. The purpose of the FICA was to provide DOE with the physical parameters existing at the various utility sites, such as crane capacity and facility headroom, so that it could develop a transportation system that is compatible with those parameters. The final and verified FICA data, however, was not available when the vendors commenced their preliminary design effort. To the extent that the cask designs require use of ancillary equipment at particular sites, it is important to check the FICA data to verify that the cask and ancillary equipment will still be compatible with the utility site.

The preliminary cask designs also do not take into account all of the requirements of the standard contract or practical utility needs with regard to fuel that will be shipped (e.g., shipments of irradiated channeled BWR fuel). For example, Appendix E of the Standard Contract presents the maximum nominal physical dimensions for BWR spent nuclear fuel that must be met for

As you can see just from the brief overview of our comments on the preliminary design reports, there are a number of significant technical and operational issues that have yet to be resolved, and it is likely that significant additional concerns will arise as the designs move toward finalization. Faced with these concerns, and the continued delay in the projected schedule for the commencement of repository operations, we think it incumbent on DOE/OCRWM to make a fresh assessment of the appropriate scope and timing of the CSDP at this stage in the NWPA implementation process. In our view there are basically three options available to DOE/OCRWM. The first option is to continue the current CSDP, as limited in scope by DOE/OCRWM. The second option is to continue the current CSDP but to adopt the EEI/UWASTE recommendation that DOE/OCRWM (i) proceed to final design at a full funding level only on one legal weight truck cask, and (ii) continue to gather and assess information on such matters as the compatibility between utility handling and storage configurations and the DOE/OCRWM transportation system before completing final design of a rail/barge cask. The third option is to put a halt to the entire CSDP, take the time to assess the concerns identified by DOE/OCRWM, EEI/UWASTE, and others who have reviewed the preliminary design reports, and start over again using a more comprehensive and accurate data base.

The only justification we see for continuing the CSDP, even on a scaled back basis, is the potential for locating an MRS site through negotiation with a volunteer host and bringing an unlinked MRS into operation in 1998. In other words, if there were no possibility that shipments to an MRS or a repository would begin prior to 2010, there would be no need to proceed now with a cask development effort. However, the possibility that shipments to an MRS could commence by 1998 or shortly thereafter is not sufficient justification for full funding of the development of a rail/barge cask at this time. Essentially, nothing has happened since 1988 which would cause EEI/UWASTE to reconsider its recommendation that DOE/OCRWM proceed with final design on only one legal weight truck cask. If anything, subsequent events now support our recommendation even more strongly.

For example, we still consider it extremely important that DOE/OCRWM not proceed to final design on a rail/barge cask until it has had an opportunity to factor the completed FICA data into the cask design effort. Similarly, our concern that DOE/OCRWM and the cask contractors need more information about such issues as utility spent fuel storage and handling operations and NRC licensing criteria, rather than being lessened over time, is stronger today than it was in 1988. With DOE/OCRWM projecting the commencement of shipments to a repository in 2010, and the status of the MRS uncertain, more and more utilities are being forced to implement various at-reactor spent fuel storage technologies. Thus, by the time that DOE begins accepting spent

especially if DOE/OCRWM has spent several years gathering data and evaluating the operational and technical issues that must be addressed in the cask designs.

In conclusion, I do not mean to imply that the TWG has firmly decided that DOE/OCRWM should cancel the current CSDP. What we have decided, however, is that this is an option that DOE/OCRWM needs to evaluate with an open mind. It may be that some of the concerns we have identified, such as the inability of the casks to ship irradiated channeled BWR fuel, cannot be resolved without a major change in cask design at significant additional expense. Consideration of these fundamental concerns, along with the other major technical and operational concerns that we have raised, may argue strongly against continuation of the current effort. DOE/OCRWM has an obligation to the program, to the utility industry, and our ratepaying customers to engage in this analysis. As I stated earlier, we are encouraged that the new DOE/OCRWM leadership will make a fresh assessment of the CSDP and we stand ready to provide whatever assistance DOE/OCRWM may need in this effort.

Moreover, whether DOE/OCRWM decides to continue the current CSDP or to cancel it, we urge it to utilize the fuel and transportation cask handling experience that is currently available within DOE, its contractor organizations and the electric utility industry. By doing so, DOE/OCRWM will be better able to prevent problems that have arisen in past shipping campaigns and to anticipate new problems that have yet to be encountered. The end result will be a more timely, efficient and cost-effective transportation program, which is to everyone's benefit.