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**REPORT AND  
RECOMMENDATIONS  
OF THE  
NARUC DIALOGUE ON  
SPENT FUEL MANAGEMENT**

**FEBRUARY 25, 1994**

**PREPARED BY:  
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# REPORT AND RECOMMENDATIONS OF THE NARUC DIALOGUE ON SPENT FUEL MANAGEMENT

## EXECUTIVE SUMMARY

Approximately 20% of the United States electricity is generated using nuclear energy. The major waste by-product of nuclear power generation is spent nuclear fuel, which is contained in storage pools at over 70 commercial reactor sites. Most reactors were not expected to accommodate all of the spent fuel that would be generated during their operating lifetimes. Nevertheless, several utilities have already had to take costly and controversial steps to expand their on-site spent fuel storage capabilities, and many others -- representing about 30% of all reactors -- will have to do so by 2000. In addition, sites with reactors that have permanently ceased operation cannot be completely decommissioned due to the continued need for on-site spent fuel storage.

Congress, in the Nuclear Waste Policy Act of 1982, as amended, called upon the U.S. Department of Energy (DOE) to develop a system to manage commercially-generated spent fuel by 1998, in exchange for electric utility ratepayer payments into the federal Nuclear Waste Fund. Ratepayers have thus far paid about \$8 billion including interest into the fund. While DOE is making progress toward the establishment of a repository for the permanent disposal of spent fuel, such a repository is not expected to become available until 2010 or later. Therefore, the following question emerges: How should the spent fuel accumulating at reactor sites be managed prior to its permanent disposal in a repository?

The National Association of Regulatory Utility Commissioners (NARUC) initiated a stakeholder dialogue to examine alternatives for the interim storage of spent fuel and to formulate recommendations for policymakers on this important issue. The following principles were established:

- High-level radioactive waste management is the responsibility of this generation.
- Health, safety and minimization of environmental impact are the overriding priorities in managing civilian nuclear waste with other important considerations including: geographical equity, public acceptance, and cost effectiveness.
- DOE has a responsibility to take title to and remove spent fuel from reactors beginning in 1998.
- Compensation alone would not satisfy DOE's obligation to remove spent fuel from reactor sites.
- Even though central DOE interim spent fuel storage facilities may be available, subject to the above principles, each utility should have the option to pursue storage on-site or elsewhere should it be more desirable to do so.

Based on these principles and an examination of possible options, the following recommendations were developed:

- The federal government (DOE and Congress) should take the actions necessary to establish interim off-site spent fuel storage capability to allow the Department to take title to and remove spent fuel from reactor sites starting in 1998.
- The voluntary process, including both the public and private efforts for locating interim storage facilities, should continue.
- The federal government (DOE and Congress) should immediately initiate a serious effort to locate an interim storage facility at one or a few existing federal sites.



- DOE should increase the planned rate of acceptance of spent fuel from reactors and Congress should increase the statutory capacity limits on interim spent fuel storage facilities to efficiently and effectively accommodate actual interim storage needs.
- DOE should take immediate action to ensure that the necessary infrastructure (such as transportation capability) exists and will be available to support the acceptance of spent fuel for interim storage in 1998.
- The NRC should review its regulations, and implementation of those regulations, for safety added value to ensure the cost effectiveness of interim storage facilities.

In summary, centralized off-site interim storage of spent fuel is far preferable to on-site storage at reactor sites throughout the country. The federal government should take immediate action to establish centralized interim storage capability by 1998, including the commencement of an effort to develop such capability at one or more federal sites. This represents a sensible, safe, economical approach to meeting the nation's near term spent fuel management needs. The participants recognize that Congressional action is necessary to effectuate many of the recommendations. They also recognize that this is a difficult issue and are ready to actively assist the federal government in discharging its responsibilities.

This is the report and recommendations on the interim storage of spent fuel of the following individuals<sup>1</sup>:

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<sup>1</sup>Lake Barrett of the Department of Energy and Charles Haughney of the Nuclear Regulatory Commission were invited to provide technical assistance to the dialogue as necessary, but were not participants in the dialogue process itself and therefore were not asked to accept the report.

# REPORT AND RECOMMENDATIONS OF THE NARUC DIALOGUE ON SPENT FUEL MANAGEMENT

## 1.0 INTRODUCTION

This report is the product of a stakeholder dialogue that was initiated at the request of the National Association of Regulatory Utility Commissioners (NARUC) to consider the range of realistic alternatives for the interim storage of spent nuclear fuel prior to permanent disposal in a deep geologic repository. Following an exchange of letters between NARUC and the U.S. Department of Energy, NARUC invited individuals with diverse interests and backgrounds to participate in the dialogue. The objective of the dialogue was to evaluate interim spent fuel storage options and to develop recommendations for consideration by the Secretary of Energy and others. Those who accepted the invitation to participate included public utility commissioners from six states, chief executive officers or senior nuclear officers from six utility companies (not regulated by the commissioners participating in the dialogue), one individual from an environmental organization, and two individuals from the State of Nevada. NARUC's Nuclear Waste Program Office provided the support to the dialogue and moderated the discussions.

Section 2.0 of this report contains the background as to why this effort was initiated. It discusses the nature of the near-term nuclear waste management problem and describes the organization of the NARUC dialogue and its evolution. Section 3.0 enumerates the guiding principles developed by the dialogue participants and used in the evaluation of the problem and in the formulation of the recommendations to address it. Section 4.0 sets forth recommendations for a U.S. spent fuel management strategy, which have been endorsed by the majority of the participants. Section 5.0

discusses the supporting rationale for the majority recommendations. Section 6.0 contains additional comments, submitted by a number of the dialogue participants. Additional information on the dialogue is provided in three appendices to this report.

## 2.0 BACKGROUND

### 2.1 Description of the Problem

Within the United States, there are currently 109 reactors in operation at 74 sites located in 34 different states. In 1993, they generated over 20 percent of U.S. electricity. The operation of these reactors results in the production of approximately 2,000 metric tons of spent fuel annually. To date, approximately 28,000 metric tons of spent fuel is stored either in pools or in dry storage vaults at the reactor sites. By 1998, it is estimated that at the current rate of generation, there will be 38,000 metric tons of spent fuel in such storage. If these reactors are operated in accordance with their currently licensed lifetimes, there will ultimately be a total of approximately 86,000 metric tons of spent fuel. This waste has been and must continue to be managed in a safe, environmentally sound manner.

The federal government has grappled with the problem of civilian nuclear waste management for a long time. After decades of ineffective *ad hoc* policy initiatives, the federal government convened a two year interagency review of potential disposal options. The review, which was conducted by the Council on Environmental Quality during 1978-1979, resulted in several findings and recommendations. The review concluded: first, that "the Federal Government has the responsibility to provide for the permanent disposal of high-level radioactive waste and spent nuclear fuel"; second, that our generation has the responsibility for final disposal; and third, consistent with world-wide scientific consensus, that deep geologic disposal is the environmentally preferred method for the final isolation of high-level waste.

As a result of this review, the Congress passed the Nuclear Waste Policy Act of 1982 (NWPA) "to provide for the development of repositories for the disposal of high-level radioactive waste and spent nuclear fuel; [and] to establish a program of research, development, and demonstration regarding the disposal of high-level radioactive waste and spent nuclear fuel." In addition to embracing the concept of deep geologic isolation of nuclear waste as the means of permanent disposal, the NWPA:

- Assigned responsibility for disposing of the nuclear waste to the federal government;
- Established a schedule for the siting, construction, and operation of repositories, including a prescriptive process for characterizing at least three potential sites for a first repository and a similar process for developing a second repository;
- Established a Nuclear Waste Fund to be paid by the generators of the high-level radioactive waste and spent nuclear fuel to cover the costs of the federal government's disposal program;
- Authorized the Secretary of Energy to enter into contracts with the generators of spent fuel, requiring them to pay a fee of 1.0 mil per kilowatt-hour for electricity generated by a civilian nuclear power reactor, plus fees for waste generated prior to April 7, 1983. In return for the payment of these fees, the NWPA states "the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel involved", following commencement of operation of a repository;
- Directed the Executive Branch and Congress to proceed as expeditiously as possible to consider the concept of constructing one or more

monitored retrievable storage facilities as an additional option for providing safe and reliable management of spent fuel.

Difficulties with the implementation of U.S. nuclear waste policy persisted. In particular, the evaluation of several potential repository sites proved far more expensive and controversial than anticipated. In 1987, Congress adopted the Nuclear Waste Policy Act Amendments (NWPAA), which:

- Focused repository site characterization efforts at one site -- the Yucca Mountain site in Nevada -- and halted the search for a second repository site.
- Established a Monitored Retrievable Storage Review Commission to prepare a report on the need for an MRS.
- Authorized the establishment of the Office of the Nuclear Waste Negotiator to find a State or Indian tribe willing to host a repository or MRS facility.

In addition, the NWPAA placed restrictions on the location, timing and capacity of an MRS. These restrictions prohibit construction of an MRS facility until the NRC issues a construction license for the repository, and limit the capacity of the MRS facility to 10,000 metric tons of spent fuel until a repository first begins operation. It is important to note that these restrictions were established nearly seven years ago and were based upon the expectation in Congress that a repository would begin operation in about 2003, as projected by DOE at the time.

These laws and the contracts between the utilities and DOE, and the actions DOE has taken since 1982, are the basis for the expectation that DOE would begin accepting spent fuel from U.S. utilities in 1998. The Secretary of Energy has agreed that DOE

has, at least, a moral obligation to perform in accordance with this expectation. Secretary O'Leary's willingness to consider strategies to resolve this issue is viewed as a positive development.

As of December 31, 1993, in accordance with their contracts with DOE, utility ratepayers have contributed over \$6.2 billion into the Nuclear Waste Fund, which has accumulated an additional \$1.7 billion in interest. It was understood that this fund would be used for the sole purpose of nuclear waste management. Of the \$7.9 billion total, \$4 billion has been spent on the program. The rest has been used to reduce the federal deficit on paper. By 1998, more than \$10 billion will have been contributed by utility ratepayers into the fund.

Utility ratepayers also face the significant cost and controversy associated with expanding spent fuel storage capacity at reactor sites. Already, eight reactor sites have initiated or are operating on-site dry cask storage programs because they are running out of space in their spent fuel storage pools. The need for expanded at-reactor storage will become more acute particularly after 1998, unless some provision for off-site storage is made available. In 1998, approximately 23 reactors will have exhausted existing spent fuel pool storage capability. By 2010, this will increase to about 73 reactors. Expansion of at-reactor storage capacity, whether it involves construction of either wet or dry storage facilities, raises difficult political, regulatory and ratepayer issues. When most of these reactors were built, the expectation was that all the plants' spent fuel would not be accumulated at the reactor sites. Moreover, the prospect that utility ratepayers will be expected to pay additional sums for interim storage after the contractual acceptance dates over and above what they have paid into the Nuclear Waste Fund raises serious questions about the equity of continuing payments into the NWF. This question is aggravated by the grave concern that payments are not leading to intended solutions. This situation serves to undermine confidence in DOE and the federal government to accomplish the tasks with which they have been entrusted.



Thus, the continued uncertainty over nuclear waste management issues has significant repercussions. It threatens continued operation of an increasing number of plants, and prohibits the effective and efficient decommissioning of those reactors that are already shut down. It undermines public confidence in the federal government and other public institutions.

NARUC is gravely concerned about the lack of progress in the federal nuclear waste program, and proposed the dialogue process as a constructive means of determining which solutions are acceptable to a broad constituency.

## **2.2 Evolution of the NARUC Dialogue**

NARUC proposed in an April 1, 1993 letter to the Secretary of Energy, Hazel R. O'Leary, that a collaborative dialogue be initiated. The purpose of the dialogue would be to identify and develop constructive recommendations for the Secretary of Energy and other decisionmakers that could be factored into their evaluation of alternatives for solving the interim spent fuel storage problem. Lake H. Barrett, the then Acting Director of the DOE Office of Civilian Radioactive Waste Management responded on the behalf of Secretary O'Leary agreeing with the suggestion that such a process be established. Participants placed great value on the willingness of Secretary O'Leary and the Clinton Administration to address this issue and on the DOE efforts to bring stakeholders together to develop recommendations to move the federal civilian high-level waste program forward.

In an effort to assemble a dialogue whose participants represented a broad range of affected interests, NARUC extended invitations to state utility regulators, nuclear utility executives, organized environmental groups, and persons from the State of Nevada. Individuals from DOE and NRC were invited to provide technical assistance as necessary. DOE and NRC were not participants in the dialogue process itself. Participants alone are responsible for this report and minority views presented.



As part of the invitation, NARUC proposed an organizational structure, objectives, and groundrules that were accepted by all participants. These are presented in Appendix I. It was asked that participants commit to attend at least three meetings and that they act as individuals rather than as representatives of their respective organizations. (Those who accepted the invitation to participate in the dialogue are listed in Appendix I.)

Dialogue members agreed to review and weigh all realistic alternatives for the interim storage (assumed to be approximately 20-to-40 years) of spent nuclear fuel, beginning in 1998. Participants further agreed to focus on the question: "What is the best way to deal with spent nuclear fuel in the interim between generation and disposal?" Participants were asked to identify options that coordinate existing or potential policies and laws with the needs of government, industry, state regulators and environmental, consumer and public interest organizations.

Over the course of three meetings, the participants identified the alternatives for interim storage of spent fuel, and considered the advantages and disadvantages of each of the alternatives. The overall objective of the NARUC dialogue was to develop recommendations for the Department of Energy, the industry, the regulatory community and the public on the issue of how to best achieve the Congressional mandate of acceptance of spent nuclear fuel from existing commercial nuclear energy plants beginning in 1998. (More information on the dialogue process is also contained in Appendix I.)

### **3.0 GUIDING PRINCIPLES**

Participants agreed on the following principles to guide them in evaluating the problem and formulating recommendations:

- A. High-level radioactive waste management is the responsibility of this generation. We created the waste and derived the benefits from the activities that produced it; therefore we must develop solutions that can be utilized now as well as by future generations. While it would be presumptuous to foreclose opportunities for future generations to develop better solutions for nuclear waste management, we must at least provide them with safe, environmentally sound, efficient and cost effective methods of isolating this material from the biosphere.
  
- B. Health, safety and minimization of environmental impact are the overriding priorities in managing civilian nuclear waste. These priorities must be carefully considered in identifying the appropriate interim storage solutions. Other important considerations include: geographical equity, public acceptance, and cost effectiveness.
  
- C. DOE has a responsibility to take title to and remove spent fuel from reactors beginning in 1998. This responsibility is consistent with existing law and contracts. Failure to achieve the 1998 acceptance objective will result in higher costs to ratepayers and a less efficient spent fuel storage system which is required until a high level waste repository becomes operational early in the next century. The costs of building and maintaining one or a few carefully located interim nuclear waste storage facilities are judged to be substantially less than the cost of expanding storage capacity at a large number of existing reactor sites. DOE studies indicate that timely acceptance of reasonable quantities of spent fuel in the federal waste management system would represent direct and significant cost savings for operating and shutdown reactors.
  
- D. Consistent with global scientific consensus and Congressional mandate, deep geologic disposal of spent fuel should continue as the ultimate objective of the

federal government's civilian nuclear waste management program. Efforts to develop and implement interim nuclear waste storage solutions should not delay or detract from the efforts to characterize a site for deep geologic disposal. Also, continued progress toward central long-term disposal is essential to the viability of any efforts to establish interim storage. Although the availability of interim storage capability will add flexibility to the repository site characterization program, and increase confidence in DOE's ability to safely handle the nuclear waste prior to disposal, the public needs assurance that the interim storage facilities will not become the permanent disposal facilities.

- E. Compensation alone would not satisfy DOE's obligation to remove spent fuel from reactor sites. Although some form of compensation after the 1998 date for at-reactor storage may be appropriate given the present circumstances, this will not be sufficient to alleviate the problems in expanding at-reactor storage that are already being encountered at some reactor facilities. Moreover, the equity and cost impact issues associated with compensation are complicated and need more thorough discussion and consideration by all parties to the contracts with DOE.
  
- F. Even though central DOE interim spent fuel storage facilities may be available, subject to the above principles, each utility should have the option to pursue storage on-site or elsewhere should it be more desirable to do so.

#### **4.0 RECOMMENDATIONS**

At the first meeting, the dialogue participants concluded that there are five realistic options for interim spent fuel storage. These five options are as follows:

- Option 1 - At Reactor Storage Without Compensation
- Option 2 - At Reactor Storage With Compensation By DOE

- Option 3 - Interim Storage Using Existing Federal Sites
- Option 4 - Voluntary Interim Storage Site
- Option 5 - Integrated Storage and Disposal Capacity in Nevada

Each option was evaluated for its relative advantages and disadvantages. A brief description of the advantages and disadvantages of each option that were identified and accepted by the dialogue participants is included in Appendix II. After weighing the advantages and disadvantages of each of the options, a general consensus emerged that the nation's nuclear waste management strategy and objectives should be revised and that:

- A. The federal government (DOE and Congress) should take the actions necessary to establish interim off-site storage capability, which would allow the Department to take title to and remove spent fuel from reactors starting in 1998. Temporary storage of spent fuel at one or a few interim storage locations was judged to be preferable to leaving it at more than 70 independent reactor sites. This reflects the consensus of the dialogue participants that off-site facilities provide an added margin of safety by using a minimum number of acceptable sites.

Safe design and operation of a centralized interim spent fuel storage facility could be accomplished in a very straightforward manner using existing, proven dry cask storage technology. Such a facility could simply consist of a flat concrete pad, robust concrete spent fuel storage casks, an appropriate cask handling capability, and appropriate security and environmental monitoring provisions, as required by NRC regulations. Such a facility would be well-suited for centralized interim storage using multi-purpose containers (MPCs). There are many technically suitable sites for this type of storage facility, including sites located at existing government installations or on other federally owned land where some of the necessary support infrastructure may already exist.

- B. The voluntary process, including both public and private efforts for locating interim nuclear waste storage facilities, should continue. Full and active support of this process should be provided by DOE to maximize the potential for success. It must be recognized, however, that the voluntary process, as established in the NWPAA may not succeed and is unlikely to meet the 1998 objective. Therefore, reliance should not be placed solely on this process for locating an interim storage site. Alternatives to the voluntary process need to be aggressively pursued immediately in order to conscientiously pursue the ability to accept spent fuel according to contract terms by 1998. The voluntary process should be re-evaluated at a time certain to decide whether it is appropriate to continue.
- C. The federal government (DOE and Congress) should initiate a serious effort to locate and license an interim storage facility at an existing federal site(s). In light of the potential schedule advantages to be derived from utilization of sites with existing infrastructure and environmental data, one or more federal sites appear to be promising as possible locations for an interim storage facility. Preliminary work to identify suitable sites should start now. As the voluntary process has demonstrated, the political process makes siting of controversial facilities exceedingly difficult. A process and criteria need to be established to fairly select the potential federal sites to receive spent nuclear fuel. Consideration should be given to adopting a process which emphasizes safety, technical and cost considerations and minimizes political issues in the selection process. While this report does not recommend a specific site selection process, a number of options were discussed during the NARUC Dialogue. As one example, several participants supported the consideration of a site selection process that would involve the establishment of an appointed site selection panel that would make its recommendations on a site or sites to Congress for their acceptance or rejection under some form of expedited procedures. (For illustrative purposes only, a sample process is described in Appendix III.)

D. The DOE spent fuel acceptance rates and the statutory capacity limits of the interim spent fuel storage facility(s) should be increased to allow a level<sup>2</sup> that achieves: 1) a significant reduction in the number of reactor sites that will need to initiate dry cask storage after 1998; 2) a significant reduction in the amount of spent fuel storage capacity expansion at those reactor sites already using dry cask storage by 1998; 3) a significant reduction in the period of time that spent fuel must remain at reactor sites following permanent reactor shut-down; and 4) acceptance of the spent fuel at a rate equal to or greater than its rate of generation. However, in meeting these objectives, care must be taken not to develop an inefficient "over-sized" DOE waste management system that costs utility ratepayers more than the benefits they receive from the higher capacity system.<sup>3</sup>

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<sup>2</sup>Current DOE plans call for very low rates of spent fuel acceptance from utilities during the early years of interim storage facility operation. Those rates are 400 MTU in 1998, 600 MTU in 1999, and 900 MTU/year between 2000 and 2007, totalling 8,200 MTU during the first ten years of interim storage facility operation. Also, the NWPA A limits the storage of waste at a Monitored Retrievable Storage (MRS) facility to not more than 10,000 MTU of spent fuel before the initiation of repository operation. Furthermore, the law prohibits the storage of more than 15,000 MTU of spent fuel at an MRS facility at any one time. These planned DOE acceptance rates and MRS facility capacity limits are too low to make a meaningful contribution to the spent fuel storage needs.

<sup>3</sup>Preliminary evaluations suggest that an appropriate early DOE spent fuel acceptance rate is in the range of about 3,000 to 4,000 MTU/year (as compared to the 900 MTU/year currently planned). As an example, using the rate of 3,000 MTU/year (with an assumed repository start date of 2010), the number of reactor sites requiring the initiation of dry-cask storage would drop from approximately 42 to 22. About \$300 million would be saved in avoided storage capacity expansion costs. The average period of time that spent fuel would remain at reactor sites after reactor shut down would drop from 14 years to 8 years. This would result in a savings in pool operating costs following permanent shutdown of approximately \$2 billion to \$4 billion.



If the acceptance rate is not increased to accommodate these concerns, the ratepayer will have to pay more and possibly twice for the same service contracted from the DOE for spent fuel disposal. This is true whether the utility pays directly for the extra storage or if the waste fund bears the cost. For example, a plant's decommissioning may be significantly delayed, increasing the costs to ratepayers. Also, the utility may be forced to build special on-site storage facilities to store spent fuel while the plant is dismantled.

- E. DOE needs to take immediate action to ensure that the necessary infrastructure exists and will be available when it is needed in order to support the objective of taking title to and removing spent fuel from reactors by 1998. This would include, for example, developing a fleet of storage and transport containers as well as preparation for transport of the materials at the appropriate time. DOE could provide these storage and transport containers to utilities for temporary use at some reactor sites until an off-site interim storage facility is available. NARUC is mindful of the possible budgetary concerns this might cause. NARUC and others will continue to work with DOE on the funding problem.
  
- F. The Nuclear Regulatory Commission (NRC) should review its regulations, and, especially their implementation, for safety added value to ensure cost effectiveness of interim nuclear waste storage facilities. Early definition of cost effective siting regulations and criteria will lead to a more efficient planning and implementation process.

## 5.0 DISCUSSION OF RECOMMENDATIONS

The recommendation that off-site interim spent fuel storage capability must be provided in 1998, or as soon as possible thereafter, is based on several considerations. The term, off-site interim storage capability, is a generic description

of what is needed and does not necessarily mean a monitored retrievable storage facility (MRS) as was previously envisioned in earlier DOE planning documents. Specifically, the existing MRS plans are for an unpackaged spent fuel handling and storage facility. Alternative MRS designs, including those incorporating the multi-purpose canister (MPC) concept could result in a much simpler operation, that would require greatly reduced spent fuel handling capability.

Centralized off-site interim storage of spent fuel provides an added margin of safety and security by using a minimum number of specially selected sites rather than leaving spent fuel at more than 70 sites across the country. This potential arises from consolidated operations and maintenance particularly as the number of sites where spent fuel is stored is eventually reduced. The group concluded that one or a few centrally located off-site interim spent fuel storage facilities is preferable because the site(s) can be selected and prepared for this single purpose. Institutional arrangements and procedures would be developed and exercised more uniformly at one or a few locations rather than at 70 plus sites. The responsibility for managing spent fuel until a repository is available is better housed in an institution that is dedicated to this sole purpose and function.

In addition to the increased safety margin, operating and maintaining one or a few centrally located interim spent fuel storage facilities would also be less costly and more efficient than operating and maintaining at-reactor storage facilities at over 70 sites across the country. Without the timely availability of off-site interim storage capability, most utilities will incur the costs associated with planning, licensing and construction of additional at-reactor storage capacity. Even if there is some form of compensation from the Nuclear Waste Fund for this on-site storage capacity expansion, doing this at more than 70 sites is certainly significantly more costly than planning, constructing and operating one or a few centrally located storage sites. For example, the cost of building an independent spent fuel storage facility at an existing reactor ranges from \$20 million to \$75 million, depending upon the amount of



additional spent fuel storage needed.<sup>4</sup>

The most efficient way to proceed that offers an added margin of safety to the overall nuclear waste management system and minimizes environmental impact, is to develop off-site interim storage capability to address the spent fuel storage problems that exist. This would entail an increase in the spent fuel acceptance rate to accommodate a more rapid draw down of on-site spent fuel inventories. A larger spent fuel acceptance rate will provide the system needed flexibility to more productively and efficiently accommodate the range of situations. A waste management system that is potentially safer, more efficient and more cost effective benefits all who contribute into the waste fund. The added flexibility from a larger spent fuel acceptance rate would make it possible for utilities and DOE to develop arrangements for removal of spent fuel that successfully accommodate all affected parties. This would provide an ability to deal with situations where utilities are unable to develop additional on-site storage due to political or regulatory constraints. This flexibility could assist in the removal of spent fuel from reactors that have been shut down and are in the process of decommissioning. This could significantly decrease the costs and other

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<sup>4</sup>A December 21, 1993 draft report issued by the DOE/OCRWM Management & Operating Contractor entitled "System Architecture Study" includes preliminary findings that illustrate the substantial benefits of off-site interim storage over at-reactor storage of spent fuel. Figure 1 (reproduced from Figure 3-2 of the M&O report) compares the total system cost of at-reactor storage only (top curve) with the cost of storage at an off-site facility (middle curve). Costs are shown as a function of the date of initiation of repository operations. For the "Storage only at reactor sites" case, there is no interim storage facility and spent fuel acceptance does not begin until the repository opens. If the repository opens in 2015, the total waste system cost for this case (including DOE and utility costs) would be about \$38 billion. In the "Storage at off-site facility" case, DOE begins spent fuel acceptance at interim storage facility in 1998 at the rate of 3,000 MTU/year. Assuming a repository operation date of 2015, the total cost of this system would be approximately \$32 billion. As shown on Figure 1, the cost savings of a centralized off-site storage facility over at-reactor storage grow even larger as the repository start date is delayed. Also, in the "Storage at off-site facility" case, fewer reactor sites need to initiate dry-cask storage and spent fuel is removed from shut-down reactors in a more timely manner.

# COMPARING COST WITHOUT MRS CONSTRAINTS

SPC ARCHITECTURE (3000 MTU/YEAR STARTING 1998)

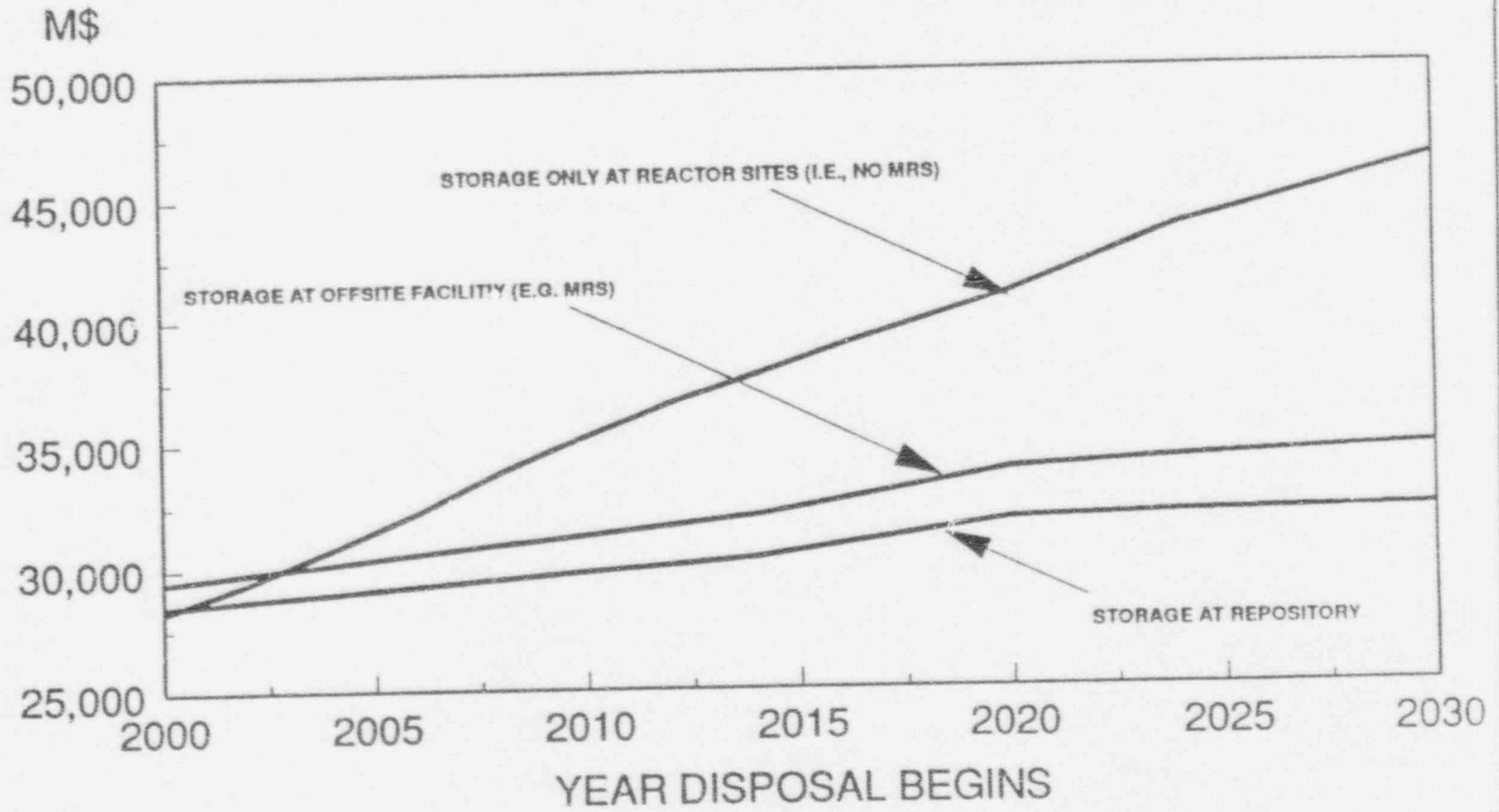


Figure 3-2. Dependence of life cycle costs of SPC architecture on start of disposal operations. Single repository system with large capacity waste packages.

uncertainties associated with decommissioning. These savings would accrue to the waste fund and to ratepayers. For example, the cost of maintaining the required personnel and other support facilities to keep spent fuel at a site with no operating reactor is on the order of \$4 million to \$8 million per year. There is no electricity generation to offset this cost. Moreover, it will prevent the timely decommissioning of the reactor site and its restoration for other possible uses.

NRC's time and resources can also be managed more efficiently if that agency is engaged in licensing one or a few central facilities as opposed to licensing such facilities at more than 70 sites. Thus, NRC spent fuel storage facility licensing and inspection and enforcement activities will be more efficient and less costly for one or a few facilities than it would be for all on site storage at reactors. The fees associated with licensing at so many sites can be better spent on other aspects of the program.

Another potential advantage of developing one or a few centrally located interim spent fuel storage facilities is that they would provide a measure of flexibility to the overall spent fuel management program that does not now exist, particularly as local and other pressures increase for removing spent fuel from some reactor sites. Given the uncertainties with respect to the repository operation date, the need for collection of scientific data etc., the availability of interim storage capability would accommodate any legitimate slippage in the repository characterization schedule. At the same time, by operating an interim spent fuel storage facility, DOE would gain valuable experience in spent fuel container handling and management operations. This would build confidence in DOE's capabilities to ultimately perform the disposal function when the repository is ready, or identify the technical and management capability required.

Developing an off-site interim spent fuel storage capability is consistent with the principle of taking responsibility for the waste we generate and would demonstrate important progress toward solving the waste problem. It would increase public confidence that nuclear waste can be handled safely, efficiently, and effectively. It

would provide an option for future generations on which they could improve if they were so inclined.

Establishing an off-site interim storage capability is also consistent with the Congressional mandate for DOE to take title and begin to remove spent fuel from reactor sites by 1998. The nation's ratepayers have paid for this service and to the extent practicable, it should be provided.

Spent fuel exists and it must be managed safely, with minimum environmental impact and in a cost effective manner. With this as an objective, the benefits of demonstrating the existence of both technical knowledge and political will to develop a safe facility for the interim storage of spent fuel add to the safety and cost benefits of removing spent fuel from the sites. It constitutes a logical step in a progressive system for the handling and disposal of nuclear waste. If successful, achievements in the civilian nuclear waste program could yield significant benefits for other aspects of U.S. nuclear waste policy.

## 6.0 PARTICIPANTS' COMMENTS

### 6.1 Minority Report and Recommendations of the Environmental Representative<sup>5</sup>

#### 6.1.1 Summary of Environmental Minority Report Comments and Recommendations:

1. Readers of the Majority Report and Recommendations of the National Association of Regulatory Utility Commissioners (NARUC) are cautioned that the "stakeholder dialogue," from which this Majority Report issues, was not, in its composition, fully or proportionally representative of all sectors of our society whose interests are affected by the management of highly irradiated "spent" reactor fuel and other radioactive wastes. References to "participants agreed, accepted, or concluded" "group agreement" and "dialogue consensus" in the Majority Report (for example, at pages 6, 7, 11, 12, 15 and 17 of the Second Draft) must be disregarded by the reader. Those statements refer to opinions of a majority of participants but not consensus by all. The Minority Reports were required to be submitted prior to receipt of the final draft of the Majority Report and without any opportunity to review the exact wording of the Appendices.

2. This Environmental Minority Report is largely in agreement with, supports, and joins with the Minority Report and Recommendations of the State of Nevada, with the exception of portions of two sections: "The Relative Merits of Storage On- or Off-

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<sup>5</sup> Only one environmentalist was finally invited and allowed to participate in the NARUC spent fuel "dialogue." The Environmental Minority Report is submitted by Judith H. Johnsrud, Ph.D., a geographer specializing in the geography of nuclear energy. It represents her views, but not necessarily those of the organizations she represents. For purposes of identification only, she serves as Director of the Pennsylvania-based Environmental Coalition on Nuclear Power, and is its representative on the Pennsylvania State Low-Level Radioactive Waste Advisory Committee; is an Honorary Trustee, New England Coalition on Nuclear Pollution, and a former Chair (1992-3) of the Sierra Club National Energy Committee.

Site" and "Mandatory Interim Storage Facility Siting. "

3. This "Environmental Minority Report" does not concur with the recommendations and options set forth in the report of the majority of the NARUC Dialogue participants. The storage and management options proposed by the majority do not, in our opinion, provide adequate assurance of protection of health, safety, or the environment, and therefore cannot be advocated, absent an upper bound on the amount of spent fuel and high-level waste that is generated and requires isolation from the biosphere.

4. The Majority Report is based on a narrow approach to the analysis of the nation's radioactive waste management programs, with a focus almost entirely on the nuclear utilities' demand that the Department of Energy meet unrealistic schedules for the transfer of spent fuel to the Federal government and development of a deep geologic disposal repository and interim storage facility for spent reactor fuel. The schedules were imposed by Congress at a time when the technical and political problems of storage and disposal were poorly understood.

5. We suggest that the Department of Energy now exercise leadership in recommending establishment by the President of a commission or panel that is fully independent of the Department and nuclear industry proponents to undertake a complete review and, as may be needed, recommend revisions and the redirection of the nation's nuclear waste management programs to ensure maximum protection of present and future public health and safety and the quality of the environment that our generations will leave to those who follow us.

6. The Majority Report makes no reference to recent research findings of the greater severity of the adverse health effects experienced from all exposures to ionizing radiation, including non-cancer effects of chronic low-dose exposures that may be experienced through ingestion and inhalation. The public radiation protection

standards and risk determinations to which radioactive waste storage and disposal must be designed can be expected to become more restrictive in the future and provisions for these changes should be taken into account in recommendations for the management of spent fuel.

7. The Congress, Department of Energy, Nuclear Regulatory Commission, and other responsible agencies of the Federal government, should initiate expedited programs to utilize all possible measures for the near-term replacement of the nuclear facilities that are adding to the nation's burden of spent fuel and other radioactive wastes. Cessation of commercial waste generation by a date certain should be a required prior condition of Federal acceptance of spent fuel and other high-level wastes. It is our position that only when the Energy Department has full knowledge of the total quantity and characteristics of the highly irradiated spent fuel for which it is required to provide isolation can the agency proceed with repository development that will win public acceptance.

8. State governments likewise, through legislative and public utility commission actions, should require the full internalization by nuclear utilities of all costs and liabilities associated with the operation, maintenance, repairs and replacements, decommissioning and decontamination, and spent fuel and other waste management; and in utility rate determinations, should require comparative cost analyses of, and adoption of, demand side management, conservation, efficiency, and reliance on alternative energy sources.

9. In the absence of sites, transportation, and technologies acceptable to the States and to the public to achieve the long-term sequestration of spent fuel, the Congress should direct the Department of Energy not to accept title, liability, or possession of spent fuel and other reactor-related wastes. The lack of available and fully proven capability for safe radioactive waste disposal should be treated as a national crisis that requires the equivalent of a Manhattan Project to address. The first



essential step toward a solution is a moratorium on waste production that increases the quantity of wastes and the difficulty and costs of their isolation -- and, hence, the biological danger they pose to present and future populations and to the environment.

10. The nation's nuclear energy policy stated in the 1954 Atomic Energy Act, as amended, Chapter 1, Section 1, should be revised to declare that the policy of the United States shall have as its paramount objective the maximum protection of health, safety, and environment for both present and future time.

#### 6.1.2 Background of the NARUC Spent Fuel Dialogue:

In the spring of 1993, representatives of national environmental groups were asked by a different organization to consider participation in the development of recommendations for the interim management of spent fuel to be submitted to the Secretary of Energy. Absent the broader context of the generation of radioactive waste and the programs for the management of all such wastes, the individuals who were approached had declined.

In August 1993, the Director of the NARUC Nuclear Waste Program Office invited representatives of other environmental organizations to participate in this "dialogue." Only one of those approached was able to commit to the three meetings and travel; although other environmentalists knowledgeable about spent fuel were suggested to the person convening the dialogue, they were not contacted by him. The dialogue was therefore composed of six state utility commissioners, six nuclear utility executives, one person from the Department of Energy and one from the Nuclear Regulatory Commission, a Deputy Attorney-General representing the state of Nevada, one from a Nevada university, and one environmentalist. It is our belief that this marked imbalance of stakeholders is reflected in the limited nature of recommendations in the Majority Report.



Over the strongly voiced objections of the environmental participant and the representative of the State of Nevada, the meetings were not open to the public. The one member of the public who tried to observe the initial session was physically pushed from the table and removed from the room by hotel "bouncers." The sole environmental participant then wrote objections to the Secretary of Energy and to a NARUC official, inquiring of the legality for public officials at public expense to meet in private with representatives of the industry they regulate. The two subsequent dialogue meetings were cancelled but were later reinstated at the direction of a NARUC participant. Members of the public were permitted to attend the following two meetings and were given the opportunity for brief oral comment.

### 6.1.3 Background and Description of the Spent Fuel Problem:

The development and licensing of approximately 115 commercial nuclear power reactors in the United States had commenced with strong governmental support and demonstration facilities in the 1950's and '60's under the mandate of the 1954 Atomic Energy Act, which declares, in part (at 42 USC sec. 2011):

It is...declared to be the policy of the United States that...the development, use, and control of atomic energy shall be directed so as to make the maximum contribution to the general welfare, subject at all times to the paramount objective of making the maximum contribution to the common defense and security....

It should be noted that "general welfare" is undefined, and this nuclear policy is silent on protection of human health, safety, and environmental quality.

Not until the early 1970's did the Atomic Energy Commission, upon petition for rulemaking by the New England Coalition on Nuclear Pollution and Natural Resources Defense Council, address the environmental effects of the complete nuclear fuel cycle,

including the disposal of radioactive wastes. Subsequent Nuclear Regulatory Commission "Waste Confidence" proceedings in the late 1970's provided a regulatory conclusion that spent fuel storage and high-level waste disposal facilities would be available on a timely basis, thereby allowing the operation of nuclear power plants to continue and continue to generate "spent" fuel. It is our view that those assurances and their recent reconfirmation were highly speculative and not based on either scientific or technological evidence that such facilities could or would become available prior to the termination of the operating life of licensed reactors. They did not take into account either the political difficulties of siting and licensing nuclear waste facilities nor the escalating costs of waste management.

Public disaffection with the uses of nuclear energy and mistrust of the responsible governmental agencies were markedly increased by the Three Mile Island Unit 2 accident in 1979, regulatory performances of these agencies, and the 1986 Chernobyl disaster. These contexts are important factors in the current efforts of the Department of Energy to regain public confidence through a public involvement program.

However, the open-ended generation of ever more radioactive waste in the absence of the capability to provide for disposal only exacerbates the opposition of communities to accept waste storage and disposal facilities. Trust once damaged and destroyed cannot readily be restored. The biological hazards of "spent" nuclear fuel and other forms of radioactive materials and wastes require sequestration from the environment. National economic limitations not anticipated in earlier decades must be taken into account. The imperatives of democratic process must be respected, and the relationships of authority and responsibility between the States and the Federal government resolved within the framework of the Constitution.

The 1982 Nuclear Waste Policy Act and 1987 Amendments imposed methods, siting, and timetables for the interim storage and disposal of waste all of which have

proven to be unworkable. Locations of many reactors (on islands, river banks, shorelines), dictated in that earlier time by availability of utility-owned land, the need for cooling water, and utility expectations that spent fuel would be reprocessed or removed promptly to some undetermined place by the government, are unsuitable for long-term storage of radioactive materials and wastes. Public concern and opposition is augmented by the reliance of utilities upon at-reactor storage of spent fuel in Dry Casks that have not, in the public view, been adequately performance tested or subjected to adjudicative public hearings. Utilities' unverified hopes for the efficacy of Mobile Multi-Purpose Casks have further increased the concerns of the public that retention of spent fuel on-site or at supposedly temporary interim storage facilities (by either DOE or utilities) will become in essence permanent and inadequate de facto disposal. Public opposition has increased to the construction of any new waste facilities that will contaminate additional areas but also that will worsen the conditions of contamination at existing atomic energy facilities where the demand is now for decommissioning and remediation.

Meanwhile, the quantity of "spent" fuel and other high-level wastes has increased some twenty-fold since the 1970's and is expected to double or triple again within the next fifteen to twenty years, exceeding the design capacity of the proposed Yucca Mountain geologic repository by the end of the licensed operating life of existing commercial nuclear reactors. In our opinion, it is that continuing growth in the amount of spent fuel that exacerbates all of the problems of its management more than any other single factor. The continuing growth of the total quantity of spent fuel is the one aspect of this problem that can be readily brought under control. Yet the NARUC Majority Report fails to recommend the curtailment of the generation of additional amounts of spent fuel, and, to the contrary, states that the uncertainties of waste disposal "threatens continued operation of an increasing number of plants" "complicates future planning" as justification for rapid shipment of spent fuel offsite to any place DOE can find for it.

#### 6.1.4 What Must Be Done:

The Environmental Minority submits that, until the generators of spent fuel initiate and in good faith halt the production of more of these wastes and make the concerted shift to implementation of conservation, efficiencies, and alternative sources for the generation of electricity, there will be no public acceptance of waste disposal facilities, short of heavy-handed mandatory actions that violate the Constitution of the United States and the rights of States and of individual citizens to equal protection under law. It will be only when that "upper bound" on the total amount of radioactive waste is determined that this nation can proceed in an orderly and acceptable manner to achieve its isolation from the biosystem.

The Nuclear Waste Policy Act itself, while committing the Federal government to ultimate control and responsibility for spent fuel disposal, states that "*...following commencement of operation of a repository* the Secretary [of energy] shall take title to the high-level radioactive waste or spent nuclear fuel...." [42 USC 10222(a)(5), emphasis added]. It would appear that (a) the Congress acted in 1982 and 1987 in the absence of accurate, reliable information from the nuclear industry and responsible Federal agencies with respect to the realistic probabilities of successful development of waste storage and disposal facilities within the time frame then established by the Congress, and (b) the contracts drawn up thereafter by DOE and nuclear utilities are fatally flawed and cannot be met.

In this instance of national security and future obligations to our descendants with respect to the safe management of all radioactive wastes, the tenets of contract law must give way to the realities of scientific, technological, economic, and political limitations. Human frailties must be taken into account in our planning for safe management of radioactive wastes. The Congress, DOE, NRC and EPA, the nuclear industry, and the public all must begin to give credence to the limits of our faith in technology to resolve all problems that our technological society has been able to

create. Time and care, the utmost care, must be expended to bring about a minimization of the biological injury to present and future peoples and the environment that can result from our failure to maintain control over radioactive wastes produced during our generations of the latter half of the twentieth century.

The profound and intractable nature of the issues raised here have, in our opinion, been grossly underestimated or ignored by both the generators of radioactive waste and their regulators. Simply moving the stuff about from one fallible site to another won't do. Simplistic solutions won't suffice. Nor will rushing to decisions serve the national interests or those of the public, regulators, or generators of the problem. Radioactive waste guardianship will be an extremely difficult and ongoing responsibility, the terrible legacy we will leave for people of the future.

From the perspective of the public-interest and environmental communities for which this Minority Report tries to speak, those enterprises that create a danger to public safety and the environment bear the responsibility and full liability for their actions. That means that the ownership, liability, and full costs of waste management should not pass from the generators and shareholders to the government, which means to the taxpayers. A consequence of this part of the problem is that State Utility Commissions and the Federal government must incorporate full cost accounting and accountability into the regulatory framework.

The \$8-10 billion that will soon have been paid into the Nuclear Waste Fund will, we suggest, eventually prove to be woefully insufficient to meet the real costs of waste sequestration. (The figure of \$1.1 trillion to clean up DOE weapons production facilities, cited at a recent conference on the future of advanced reactors, should be a caution in this regard.) The Fund should not be spent in ways that will not directly advance the safest achievable control of spent fuel. That means that, despite the claims of the generators -- who had failed to plan adequately for the management of spent fuel in the first place -- the Nuclear Waste Fund should not be

depleted by returning it to the utilities as a cost of caretaking after January 1998. Repricing of nuclear electricity in comparison with its alternatives is in order, and payment of those real costs can be expected to reduce substantially some or much of the wastefulness that now characterizes Americans' use of electric power. Fair compensation for those utilities and independent power producers that provide less potentially harmful electricity can and should be arranged.

Counterbalancing against the position that calls for full financial responsibility of the nuclear utilities (and others), however, those private and public entities that create the spent fuel are not of so limitless duration as the hazards of the nuclear spent fuel they generate. Provision for the longer term isolation and control of spent fuel and other radioactive waste must be provided by the presumably, if arguably, durable Federal government. We caution that far greater flexibility in the management of spent fuel is required, with the paramount objective being, at all times, to maintain control -- and maximize allowance for continuous future maintenance of control -- over radioactive materials in sequestration from the biosystem.

Until and unless the limit of the production of spent fuel is in effect and the total quantity of waste to be isolated is known and characterized, we cannot advocate any of the available options. These include the continued on-site storage of spent fuel; the adequacy of the NRC's preemptive regulatory control is too questionable to assure the public that the regulators will not give way to demands of the regulated for relief -- as is currently taking place with respect to proposed elimination of regulatory requirements deemed marginal to safety -- or that spent fuel will simply be abandoned at some future time when a utility goes bankrupt or walks away from its responsibility. This is particularly critical at locations not designed or suitable for long-term use as a nuclear waste site. But neither can we advocate sending spent fuel to new MRS sites or to existing DOE, DOD, or other Federally-owned sites. Nor can we advocate private spent fuel storage facilities. Nor can we advocate the transfer of spent fuel to Yucca Mountain in an attempt to force the rapid development of a repository there, or to the



## Nevada Test Site.

These positions should not be taken as negative. They are based on the belief among many environmentalists (no one can speak for the vast divergences of opinion of any sector of the population) that it is not acceptable for one segment of society to impose that which it will not itself willingly accept upon others who are, or may be in the case of our progeny, equally unwilling to accept the burden of biological risk and the many forms of costs of control. The equity issues cannot be ignored as the NARUC Majority Report seems to do.

The key to societal resolution of this problem of unparalleled difficulty is to bound the problem first. The clear goal must be to provide the means to maintain isolation for the full duration of the hazardous life of the wastes. Having determined the total quantity of spent fuel and other radioactive waste, and their variable nature, the second step is to proceed in cautious incremental steps with development of management plans that will retain a maximum of flexibility of options for waste management while assuring maximum protection for present and future people and the environment. Here, we must revise the approach adopted in the Nuclear Waste Policy Act. The goal is not to get rid of spent fuel as fast as possible: out of sight, out of mind, and out of control. The goal is to achieve enduring isolation.

To effect the best means of managing the existing spent fuel, the approach offered by the State of Nevada is sensible, reasonable and do-able: a tailoring of the management methods to best meet the circumstances of each facility's spent fuel. The tailoring process must incorporate the concerns and active involvement of the many sectors of the public that will be affected, including those who advocate for the protection of persons yet to be born over the many generations of future hazard. Not everyone can be entirely satisfied with the outcome of such a process and the decisions. And it will be expensive.

The key, to repeat one last time, is setting the upper bound on the total amount of radioactive waste, curtailing and then halting the generation of spent fuel as the first step in the right direction. The results -- better assurance of present and future biological and environmental protection -- will afford us a far more honorable place in history than the options recommended by the majority of participants in this NARUC Spent Fuel Dialogue.

Finally, I must personally commend the efforts of the Secretary of Energy and others to open these decision-making processes, and to express appreciation to those in NARUC who recognized the wisdom of a more inclusive approach. I urge the readers of these documents to regard them as initial steps toward a more successful program of nuclear waste management.

Respectfully submitted,

Judith H. Johnsrud, Ph.D.



## 6.2 Minority Report and Recommendations of the State of Nevada Regarding the Interim Management and Storage of Spent Nuclear Fuel

In August 1993, NARUC's Nuclear Waste Program Office invited representatives of the State of Nevada<sup>6</sup> to engage in a series of ad hoc, closed group meetings to discuss a consensus recommendation to the NARUC's Committee on Electricity's Subcommittee on Nuclear Issues-Waste Disposal regarding the management and storage of spent nuclear fuel during the "interim" period between February 1, 1998 and the actual date when the Department of Energy would be capable of taking title to and possession of that spent fuel. Nevada responded that it was prepared to participate provided that the group understood Nevada's position that the discussion should be open to the public and that Nevada would retain the opportunity to file a minority report if it did not concur with the ad hoc group's recommendations.

Three meetings were held, September 7, 1993, November 3, 1993, January 24, 1994, the first without public participation. During this period a number of serious revelations occurred regarding the federal government's conduct in matters nuclear over the last forty years. Nevada participated in the ad hoc group with the continued intent of contribution to the dialogue even though Congress and the Department of Energy have run roughshod over Nevada regarding the high level nuclear waste repository program.

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<sup>6</sup>Nevada was represented by James H. Davenport, Special Deputy Attorney General on behalf of Nevada's Nuclear Waste Project Office, and Dr. Donald H. Baepler, Director, UNLV Harry Reid Center for Environmental Studies. Dr. Baepler does not join in this Minority Report.

### 6.2.1 Composition of the Ad Hoc Group

The ad hoc group was composed of six nuclear utility chief executives, six state utility commissioners, DOE and NRC representatives, two Nevada representatives, and one environmentalist representative. Prior to each meeting, nuclear utility representatives and utility commissioners met in respective caucuses. The object and process of the ad hoc group was dynamic, defining itself as the process moved forward. The members and the meetings were courteous and businesslike. The conversation was often frank and a "dialogue" did indeed occur. In retrospect however, the make-up of the group probably dictated its conclusions, notwithstanding the Report's suggestion that "individuals with diverse interests and backgrounds" participated in the group dialogue. Report,<sup>7</sup> p. 1.

### 6.2.2 Definition of the Problem

The Nuclear Waste Policy Act contained two essential political compromises: 1) nuclear utilities and their ratepayers would pay for disposal of spent fuel by the federal government if the federal government would take title to the spent fuel and dispose of it on a fixed timetable; and 2) deep geological disposal sites would be selected on the basis of objective, scientific, comparative analysis and would serve several regions of the country. The latter compromise was abrogated by the Department of Energy's political decision making prior to 1987 and Congress' 1987 NWPA amendments. The Department of Energy is projecting that it will abrogate the first compromise in 1998.

The Department of Energy originally anticipated that a repository would be available by 1998. The Department entered into contracts with operators of nuclear

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<sup>7</sup>"Report" refers to the Report and Recommendations of the NARUC Dialogue on Spent Fuel Management, of which this Minority Report is a part.

reactors, pursuant to 42 U.S.C. §10222(a) and in the form established by 10 C.F.R. 961, for "acceptance of title, subsequent transportation, and disposal of such waste or spent fuel" by 1998.

The term "interim" refers to a period<sup>8</sup> which is not totally precise under the Nuclear Waste Policy Act. First the beginning of the period is not precise. Contracts entered into by the Department of Energy and spent fuel generators, pursuant to 42 U.S.C. 10222(a)(5) must provide:

(A) following commencement of operation of a repository, the Secretary shall take title to the high-level radioactive waste or spent nuclear fuel involved as expeditiously as practicable upon the request of the generator or owner of such waste or spent fuel; and

(B) in return for the payment of fees established by this section, the Secretary, beginning not later than January 31, 1998, will dispose of the high-level radioactive waste or spent nuclear fuel involved as provided in this subtitle.

Arguably, no title to spent fuel can transfer prior to the "commencement of operation of a repository." Reading this language in the context of the entire legislative enactment, where DOE has missed every statutory deadline without consequence, the language may in fact permit the beginning of the "interim" period to be a matter of agency discretion.

Second, the end of the "interim" period is also not precise. The Secretary of Energy now projects that a high-level nuclear waste repository will be available in

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<sup>8</sup>The Report estimates this period to be approximately 20-40 years. Report, p. 7.

2010. The Nuclear Regulatory Commission projects that a repository will be available in 2015. Both of these estimates presume no problems with the Yucca Mountain, Nevada site, either in timing of site characterization or eventual site suitability. In fact, several problems are already known and more can be anticipated.

For example, the excavations performed by DOE at Yucca Mountain in connection with the Exploratory Shaft Facility (ESF) have revealed a newly recognized fault zone which intersects the Ghost Dance Fault zone and appears to transect the repository block in a northwesterly direction. This zone appears to be about 800 feet wide, and possibly consists of up to six faults with both vertical and horizontal offset. The dimensions and magnitude of this newly recognized geologic feature are similar to those of the Ghost Dance Fault Zone, which caused NRC to compel DOE to redesign its ESF in 1989. It took DOE approximately three years to do so.

Concerns by technical reviewers include schedules driven by tunnel boring machine acquisition; design "overkill" and project "gold-plating"; lack of assurance that equipment will meet radiological safety, waste isolation, and test interference standards; procurement standards which dictate purchase of new, unique size or design equipment (e.g. 25 ton diesel locomotive is specified to be purchased when 20 ton diesel locomotive is available); and design fragmentation. These project efficiency issues could extend the repository characterization schedule beyond current estimates.

In order to accurately address the "problem", it is necessary to analyze three aspects of the problem: 1) transfer of title, 2) transfer of possession, and 3) change of physical location of the spent fuel. Action on any one of the aspects could be taken independently. Nuclear utilities seem to want action on all three by February 1998, and the Report reflects that desire. However, 42 U.S.C. 10222(a)(5)(A) would seem to be satisfied if transfer of title only occurred after a repository were in operation. Alternatively, 42 U.S.C. 10222(a)(5)(B) would seem to be satisfied if transfer of possession only occurred not later than January 31, 1998.

As can be seen, the "problem" is a problem of timing. It is not a problem of universal physical storage capability. Some nuclear reactors do have an immediate need for additional spent fuel storage or they will have to stop production of power.<sup>9</sup> Under NRC's current licensing rules for approved storage casks at power reactor sites,<sup>10</sup> nuclear reactor operators may amend their operating licenses to permit development of on-site,<sup>11</sup> dry-cask storage facilities lasting 20 or more years without public hearing and re-adjudication. The NRC has issued certificates of compliance for five models of dry cask storage containers. There are currently 1,482 spent fuel elements and 452 spent fuel assemblies in dry storage at five locations in the United States.

In its Waste Confidence Decision Review,<sup>12</sup> the Nuclear Regulatory Commission determined that neither 30-year renewals of reactor licenses nor delay in repository availability until 2025 will result in significant safety or environmental impacts from extended post-operational spent fuel storage. The National Academy of Science's Board on Radioactive Waste Management stated in "Rethinking High Level Radioactive Waste Disposal (National Academy Press, July 1990) that the "alternative [of continued at-reactor storage] is safe in the short term -- on-site storage systems are safe for at least 100 years, according to present evidence."

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<sup>9</sup>The Report's statement that "The need for expanded at-reactor storage will become more acute" (Report, p. 5) needs to be more specifically quantified. How many of the "approximately 23" reactor sites can physically accommodate expanded at-reactor storage?

<sup>10</sup>55 Fed. Reg. 329181, amending 10 C.F.R. pts. 50, 72, 170.

<sup>11</sup>In this Minority Report, the adjectives "on-site" and "at-reactor" are used interchangeably and mean the same thing. Similarly, the adjectives "off-site" and "away-from-reactor" have the same meaning.

<sup>12</sup>54 Fed. Reg. 39767, 38790, September 28, 1989.

Continued at-reactor spent fuel storage positively affects the physical characteristics of spent fuel. In ten years after removal from the reactor, the heat generated by spent fuel will be 11% of the heat generated by freshly removed spent fuel. The radiation level at the surface of a dry fuel storage cask, of fuel which has been cooled five years in a reactor's pool, will be 1/2 of the original dose rate in ten years.

### 6.2.3 Limitations of 42 U.S.C. 10151-10157

The Report's Recommendation that DOE locate and establish interim storage facilities at existing federal sites, Report, at p. 11, ignores Title I, Subtitle B of the Nuclear Waste Policy Act, 42 U.S.C. 10151-10157.

In 1982, Congress found that:

(1) the persons owning and operating civilian nuclear power reactors have the primary responsibility for providing interim storage of spent nuclear fuel from such reactors, by maximizing, to the extent practical, the effective use of existing storage facilities at the site of each civilian nuclear power reactor, and by adding new on-site storage capacity in a timely manner where practical.

(2) the Federal Government has the responsibility to encourage and expedite the effective use of existing storage facilities and the addition of needed new storage capacity at the site of each civilian nuclear power reactor; and

(3) the Federal Government has the responsibility to provide, in accordance with the provisions of this subtitle, not more than 1,900 metric tons of capacity for interim storage of spent nuclear fuel for

civilian nuclear power reactors that cannot reasonably provide adequate storage capacity at the sites of such reactors when needed to assure the continued, orderly operation of such reactors.

42 U.S.C. 10151(a).

42 U.S.C. 10155 establishes a procedure and criteria by which to determine whether a civilian power reactor can provide adequate storage capacity at the reactor site. That section also defines state participation in federal site selection.

The Report's Recommendation to use existing federal sites for interim spent fuel storage without full implementation of on-site storage capability is in clear contravention of Congressional findings and established decisional infrastructure.

#### 6.2.4 Contributions to the Waste Fund in Perspective

The Report states that "utility ratepayers have already paid \$6.2 billion into the Nuclear Waste Fund," suggesting that ratepayers have an equitable right to removal of spent fuel from reactor sites. While \$6.2 billion is an admittedly large number, that number should not be taken out of its context. The cost of nuclear waste disposal is a cost which nuclear utilities were able to defer without quantification because of the NRC's early Waste Confidence Decision. That Decision opined that nuclear waste disposal did not have to be considered in nuclear facility licensing because the NRC was confident that there would be some solution to that problem. The deferral of this cost is one of the reasons that nuclear power promoters were able to argue the cheapness of nuclear power ("too cheap to meter"). The \$6.2 billion in costs currently sunk into governmental infrastructure for a universal waste disposal system should be evaluated against the total cost of nuclear power in America, including licensing, construction, fuel generation and enrichment, general facility management and site decommissioning. Alternatively, the 1 mil per kilowatt hour of production (imposed



by the Nuclear Waste Policy Act and contracts required by 42 U.S.C. 10222) can be translated into a portion of the rate per kilowatt hour paid by utility ratepayers. Either of these approaches would put the \$6.2 billion into context.

The Report states, on the one hand, that "the prospect that utility ratepayers will be expected to pay additional sums for interim storage over and above what they have paid into the Nuclear Waste Fund raises serious questions about the equity of continuing payments into the NWF." Report, p. 5. On the other hand, the Report states that "compensation alone would not satisfy DOE's obligation." Report, p. 10. If the point is actually that ratepayers should not pay again for what they have already purchased, the real remedy is DOE financial support of utilities' future costs of on-site interim storage through credits against their Nuclear Waste Fund payment liability.

#### 6.2.5 Health, Safety and Environmental Impact

Nevada concurs in the Report's Guiding Principle B, regarding health, safety and minimizing environmental impact. Report, p. 8.

#### 6.2.6 Environmental Equity/Responsibility of this Generation

The Report adopts a principle of environmental ethics, intergenerational equity, Guiding Principle A, Report p. 8, and further states:

"Developing an off-site interim spent fuel storage capability is consistent with the principle of taking responsibility for the waste we generate and would demonstrate important progress toward solving the waste problem. It would increase public confidence that nuclear waste can be handled safely, efficiently, and effectively. It would provide an option for future generations on which they could improve if they were so inclined." Report, pp. 16-17.

Environmental equity, the principle that we do not pass the environmental externalities of our societal convenience to persons who do not enjoy the convenience, is not only intergenerational. It is also interjurisdictional.<sup>13</sup> To seek equity, one must do equity. The principled action for nuclear utilities and their current nuclear power consumers is to address their own nuclear waste problems. Nothing in the Report's recommendations takes any responsibility for the waste nuclear utilities now generate.

The Report also raises the issue of "equity" to utility ratepayers who suffer the "prospect" that they will pay "additional sums for interim storage over and above what they have paid into the Nuclear Waste Fund." Report, at p. 5. Ratepayers' additional speculative responsibility to pay interim storage costs must be considered in light of the choice of nuclear utilities and regulators to avoid costing of nuclear waste management in the context of earlier decisions to begin nuclear power production.

The Report's statement that "the expectation was that all the plants' spent fuel would not be accumulated at the reactor sites," Report, p. 5, does not entitle nuclear power consumers to any additional equity, when that "expectation" was not tested by real confrontation at the time with the waste disposal issue and the "bargain" did not involve potential waste recipient communities.

#### 6.2.7 DOE's "Moral and Contractual Obligation"

The problem is the timing of the Department of Energy's receipt of nuclear utilities' spent fuel. At the final meeting of the group on January 24, 1994, the DOE representative clearly stated that it was very unlikely that DOE would be able to do so by that January 31, 1998. Notwithstanding that statement of reality, the group's

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<sup>13</sup>The Report recognizes this in the concept of multiple site selection. Report, Guiding Principle B, p. 8.

recommendations are premised on the statement that "off-site interim spent fuel storage capability must be provided [by DOE] in 1998." Report p. 13 [Emphasis supplied.] This statement was also made orally in various meetings of the ad hoc group. When queried why DOE "must" provide off-site interim storage in 1998, utility representatives declared the "moral and contractual obligation" of DOE to do so. See Report, pp. 4-5. In their opinion, the moral obligation arises out of the agreement, embodied in the Nuclear Waste Policy Act of 1982, that utility ratepayers would contribute to the Nuclear Waste Fund in return for relief of nuclear utility obligation to personally manage or dispose of spent fuel after 1998. The contractual obligation arises, in their opinion, from the contracts each of them entered with DOE in 1983.<sup>14</sup> Nevada explained that, in light of Congress' and DOE's breach of the other compromises (multiple repository siting, objective site selection, geographic distribution of sites) embodied in the Nuclear Waste Policy Act of 1982, the expectations of nuclear utilities were unrealistic and that utilities should take practical, business-prudent steps at this time to provide on-site spent fuel storage capacity.

In light of the obviously imminent litigation by which to force DOE's hand, the majority's recommendations seem little more than posturing in advance of litigation. The issues in that litigation would seem to be, affirmatively, breach of contract (or anticipatory breach), benefit of the bargain, necessity, bailment and damages, and defensively, impossibility of performance, and construction of contract under the NWPA.

Although the ad hoc group began with the intent of describing alternative "solutions" to the interim storage problem, the group's recommendations and conclusions merely worsen the problem. Nevada consequently cannot join them.

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<sup>14</sup>See form contract at 10 CFR 961.

### 6.2.8 Decommissioning

The Report states that the "uncertainty over nuclear waste disposal" "prohibits the effective and efficient decommissioning" of nuclear reactors. Report, at p. 6. In fact, the Nuclear Regulatory Commission's developing radiological criteria for decommissioning is formative at this time. Under the most recent NRC draft (January 26, 1994) of proposed amendments to 10 CFR Part 20, "ancillary surface facilities that support radioactive waste disposal activities" will be subject to decommissioning standards. The proposed decommissioning standards offer nuclear utilities a flexible, practical process through which to propose termination (decommission) of their NRC licenses, with future restricted or unrestricted use of their properties. Continued on site spent fuel storage, with appropriate safeguards, may be an appropriate restricted use of reactor sites, whose operating licenses are decommissioned. In the event that the proposed standards cannot be met, the NRC decommissioning approach offers continued NRC licensing jurisdiction.

### 6.2.9 Minimizing Generation of Waste

The Report is silent about the proposal offered by the environmentalist representative in the ad hoc group that nuclear utilities make a good faith commitment to reducing total waste production as part of any dialogue, recommendation or solution to the interim storage problem. Nuclear utility executives and utility commissioners rejected this proposal on the basis that it distracted from the central "thrust" of the group's recommendation that DOE must take delivery of spent fuel on schedule.

The waste reduction proposal is consistent with the position of the Nuclear Regulatory Commission expressed in its most recent draft (January 26, 1994) of proposed amendments to 10 CFR Part 20, regarding decommissioning:

"NRC agrees that licensed facilities should be encouraged in designing and operating nuclear facilities to minimize the generation of radioactive waste and facility contamination. The proposed rule would require applicants for licenses after the effective date of the rule to describe in the application how facility design and procedures for operation will minimize contamination of the facility and the environment, facilitate eventual decommissioning, and minimize the generation of radioactive waste." Proposed Federal Register Notice, NRC Draft Radiological Criteria for Decommissioning, January 26, 1994, pp. 35, 36, 60.

Nevada concurs that this waste reduction objective would work toward solution to the interim storage problem.

#### 6.2.10 The "Tailoring" Option

The Report is silent<sup>15</sup> about Nevada's proposal that several interim storage options could be chosen. Nuclear utilities could be given the option and flexibility<sup>16</sup> to make spent fuel management proposals appropriate to their particular situations. The funding for such proposals could be through credits (either retrospective or prospective) against that utility's obligation to the Nuclear Waste Fund. Such proposals might implement, one, several or a mix of the options discussed in the options listed in Appendix 2. These proposals should be in the form of amendments to NRC operating licenses. Inasmuch as any proposal would involve nuclear materials possession by the utility, the NRC has current jurisdiction of the safety issues

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<sup>15</sup>With the exception of Guiding Principle F, Report, p. 9, with which Nevada concurs. It does not appear, however, that this "guiding principle" has manifested itself in actual recommendations of the group.

<sup>16</sup>Flexibility is apparently valued by utilities in the context of waste acceptance schedules. Report, p. 15.

involved. If the costs of any proposal were a credit against the utility's obligation to the Nuclear Waste Fund, and there is no net additional cost to ratepayers, such a proposal would not require review by state utility commissioners (provided they have already included the nuclear waste fee in the rate base).

The cost of all of the options listed by the Report in Appendix 2 can only be evaluated by the most gross calculations. Tailoring proposals to individual spent fuel situations permits more precise calculation of cost.<sup>17</sup> Choosing any of the options alone, including the off-site federal interim storage facility recommended by the Report, requires another Waste Confidence type prediction that the system will work for a predicted price.<sup>18</sup>

An individual utility's well-tailored proposal for interim storage might include: 1) a demonstration of the physical capability (or lack of it) for at-reactor storage; 2) a demonstration of the waste acceptance capability of the away-from reactor storage; 3) a demonstration of assured participation by other parties involved in the interim storage plan (e.g. an agreement with DOE regarding willingness to receive fixed volumes of materials on certain dates); 4) an estimate of the managerial capability for interim storage (on- or off-site) during the estimated interim period; 5) an estimate of the total interim-storage system cost, perhaps broken down into system elements (physical improvements, land costs, management or institutional costs, transportation costs, etc.); 6) an estimate of the fiscal capability for the estimated period of interim storage, including proposed mechanisms for implementation of a credit against the Nuclear Waste Fund; 7) a demonstration of continued compliance with safety

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<sup>17</sup>See, e.g. Report, p. 14. \$20 million to \$75 million is too large a spread to be meaningful in planning.

<sup>18</sup>See, Report, p. 15, note 4, and Figure 1. The estimates in Figure 1 were not presented during the group's meetings. In fact the estimates presented at the group's second meeting showed all the alternatives considered to cost about the same (\$35.4-\$39.7 billion) when costed through 2010.

regulations.

The tailoring approach is consistent with the flexible and practical direction recently chosen by the NRC staff for decommissioning of operating facilities. The most recent draft radiological criteria for decommissioning<sup>19</sup> permits case by case proposals for decommissioning of operating facilities under restricted conditions. The restrictions appropriate to each case are determined by the amount of restriction necessary to demonstrate compliance with set standards. They are recommended by site specific advisory boards and must be enforceable.

The tailoring approach is also consistent with the interim storage provisions of the Nuclear Waste Policy Act, 42 U.S.C. 10151. Nevada recommends the tailoring option be used in interim storage solutions as well as decommissioning solutions.

#### 6.2.11 Economics of Nuclear Power

The Report argues that the "uncertainty over nuclear waste disposal issues" "threatens the viability of existing reactors." Report, at p. 6. In addition to the spent fuel storage problem, the nuclear power industry is faced with a number of problems including a) higher decommissioning costs and funding requirements than currently estimated, 2) increasing regulatory risks, 3) increasing competition from lower cost alternative resource options, 4) escalating costs of operating nuclear plants, 5) continuing safety issues, and 6) continuing public opposition. The interim storage problem is only a portion of the industry's overall problems and should be seen in that light.

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<sup>19</sup>Proposed Federal Register Notice, NRC Draft Radiological Criteria for Decommissioning, January 26, 1994, pp. 35, 36, 60.



## 6.2.12 The Relative Merits of Storage On- or Off-Site

The Report's Discussion of Recommendations attempts to justify off-site interim storage of spent fuel at federal sites.<sup>20</sup> Notwithstanding the statements, at pp. 7, 10 of the Report, that a general consensus emerged "after weighing the advantages and disadvantages of each of the options," in fact the option recommended is the only one which utility representatives within the ad hoc group were prepared to accept and the only one consistent with the removal of spent fuel from their sites by 1998.<sup>21</sup>

### a. Proliferation of Sites:

The Report states that:

"Centralized off-site interim storage of spent fuel provides an added margin of safety and security by using a minimum number of specially selected sites rather than leaving spent fuel at more than 70 sites across the country. The group concluded that one or a few centrally located off-site interim storage facilities is preferable because the site(s) can be selected and prepared for this single purpose. Institutional arrangements and procedures would be developed and are more likely to be exercised more uniformly at one or a few locations rather than 70 plus sites." Report at p. 14.

This argumentative statement is supported by no real or quantitative evidence. In fact, the addition of any interim storage sites would only increase the total number

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<sup>20</sup>The Report states that "one or more federal sites appear to be promising as possible locations for an interim storage facility" but does not identify them. Report, p. 11.

<sup>21</sup>Even the statements of advantages and disadvantages of various options are written from the nuclear utility perspective.

of sites at which nuclear materials are located (utilities will continue to store live and spent fuel at reactor sites for their operational needs). Although all sites licensed for nuclear power facility operation may not make good spent fuel storage sites, they have all at least already undergone the scrutiny of NRC licensing with respect to security, seismicity, environmental integrity and management capability. Each currently operating reactor site has a substantial capital value attributable to that licensing scrutiny. The public acceptance of each, although not universally favorable, is certainly better than the public acceptance of a new interim storage site. The "single purpose" of an interim storage site raises significant issues of disproportional externalities which co-located power generation and interim storage facilities resolve.

b. Technical Competence and Safety of Interim Storage.

The Report argues that "off-site facilities provide an added margin of safety." Report, p. 10. In fact, none of the necessary attributes of dry-cask spent fuel storage is unique to off-site storage. The Report states that "such a facility could simply consist of a flat concrete pad, robust concrete spent fuel storage casks, an appropriate cask and/or spent fuel handling capability, and appropriate security and environmental monitoring provisions, as required by NRC regulations." Report, p. 12. No explanation is given why an away-from-reactor facility with these attributes operated by DOE is any better than an at-reactor facility with the same attributes operated by a utility. Utilities already operate facilities with total security. One necessary attribute of dry-cask spent fuel storage is long-term management capability. Utilities have a record of such management under supervision of an NRC operating license.<sup>22</sup> This would suggest that on-site storage is the better choice.

c. N.R.C. Licensing

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<sup>22</sup>See discussion of Waste Confidence Decision Review, *supra*, at note 12.

The Report states that:

"NRC spent fuel storage facility licensing and inspection and enforcement activities will be more efficient and less costly for one or a few facilities than it would be for all on site storage at reactors." Report, p. 16.

This statement is supported by no quantitative evidence. The Report again overlooks the reality that creation of any independent interim storage facilities increases the total number of sites at which nuclear materials are located, and increases the number of sites which NRC must supervise.

d. Timing

The Report states that "the availability of interim storage capability would accommodate necessary and legitimate slippage in the repository characterization schedule." Report, p. 16. This statement is true with respect to both on-site and off-site interim storage.

e. Transportation

The Report recommends that DOE ensure that the necessary transportation infrastructure exists to support early receipt of spent fuel. Recommendation E, Report, p. 15. At the group's third meeting, DOE stated that it was not prepared to support state and local transportation planning and emergency response "until a pin is stuck in the map" for a certain waste destination. Nevada concurs with the Report that early transportation planning is essential.

### 6.2.13 Spent Fuel Acceptance Schedule

DOE's planned rate of acceptance of spent fuel was not discussed during the

dialogue. The reported "consensus" on this issue, Recommendation D, Report, p. 12, 15, note 2 was also not discussed, but apparently reached after the close of the dialogue.

#### 6.2.14 Mandatory Interim Storage Facility Siting

The Report states that, because the voluntary process for locating interim nuclear waste storage facilities will likely not "meet the 1998 objective," "alternatives to the voluntary process need to be aggressively pursued immediately." Report, p. 12. The only alternative to a voluntary process is a mandatory one, i.e. one in which some authority (Congress) mandates that a waste destination community accept its fate.

Nevada cannot abide this concept of mandatory waste facility siting. The concept of using federal sites for off-site storage presumes a federal ability to mandate sites within states and does not acknowledge the right of state governments, as expressed through their legislatures or governors, to permit or regulate nuclear facilities, notwithstanding their location on federal property. This is a right which Nevada continues to assert with regard to the high level nuclear waste repository being investigated by the Department of Energy at Yucca Mountain, Nevada.<sup>23</sup>

The need for public acceptance of any group recommendation or any ultimate nuclear waste system was expressly recognized by the ad-hoc group during its discussions.<sup>24</sup> This understanding is essential and the group should be commended for acknowledging it. However, the Report discusses public acceptance only in terms of the public which resides around a nuclear power plant. Public acceptance by waste

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<sup>23</sup>See, Davenport, James H., "The Federal Structure: Can Congress Commandeer Nevada to Participate in its Federal High Level Waste Program?" 12 Virginia Env. L. J. 539 (1993).

<sup>24</sup>See, Guiding Principle B, Report, p. 8.

destination communities is not addressed or evaluated at all in the Report. It would be totally without principle for Nevada to advocate that other states be compelled to accept interim storage facilities when Nevada asserts the right not to be so compelled. We would expect that many NARUC commissioners, who are state officers, would share Nevada's concern. Their states may become waste destination states.

Nevada's position is essentially that Nevada's citizens are entitled to informed consent to the potential exposures to them and their environment which might occur because of the location of a high level nuclear waste repository or interim storage facility. The recent revelations of the Department of Energy illustrate repeated breaches of individual rights to informed consent prior to intended irradiation. The right of a political community (state or local government) to consent on behalf of its citizens is just as vital to American democracy as is the right of individuals to consent to their potential harm.<sup>25</sup>

The Defense Base Closure and Realignment Commission model which the ad hoc group discussed at its October meeting, and alluded to in Recommendation C, Report, p. 11 (See Appendix III), does have aspects which would improve the fairness of facility site selection, for either interim or more permanent facilities. In particular, the comparative consideration of prospective sites on their merits in a process immune from political favoritism is essential to garner public confidence in facility siting. (This

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<sup>25</sup>Nevada's citizens have recently expressed their continued adamant opposition to the placement of a high level nuclear waste repository or interim storage facility in the state. In a recent (December 1993) statewide poll, 69.4 % of respondents stated they would vote "no" if they were permitted to vote for or against a repository. 88.8 % believe that Nevada residents should have the final say on whether or not a repository is built within the state. The opinion of Nevada residents was affected by the American Nuclear Energy Council's advertising campaign about the nuclear waste program. Of the 62.2 % of the respondents who had heard or seen any advertisements, 29.3 % of them claimed actually to have become less supportive of the repository program. 66.6 % of the respondents do not believe that the Yucca Mountain selection process has been basically fair.

was the concept that Nevada thought it had agreed to in the 1982 Nuclear Waste Policy Act.) Unfortunately, that model does not recognize the rights of states to withhold consent but permits them to be commandeered into the federal government's program to assist nuclear utilities by assumption of their waste liability.

#### 6.2.15 Conclusion

What the Report of the ad hoc group is really advocating is a not-so-new twist on the NIMBY syndrome: Get this waste out of my back yard. Alternatively, this can be stated: Get this liability off my balance sheet. Rather than perpetuate IMBYism, Nevada recommends that:

The Nuclear Waste Policy Act be amended to define a strategy of responsible "management" of nuclear waste rather than the "final disposal" of nuclear waste. The strategy should create flexible mechanisms for long-term, continuous, vigilant management of materials in isolation. The single, monolithic "solution" of final disposal envisioned by the NWPA, is not likely to be obtained. Moreover, it has resulted in the failure of all parties to proceed with reasonable, cost-effective interim spent fuel management.

Congress recognize the right of states to consent to participation in the Federal Government's nuclear waste disposal solutions and establish a strategy which will allow states to share equitably in those solutions.

Nuclear utilities recognize that no strategy will put the Department of Energy in the position to actually remove spent fuel from reactor sites by February 1998.

Nuclear utilities commit resources to on-site storage of spent fuel, develop management capability to conduct long term spent fuel custodianship, and explore compensation scenarios with the Department of Energy.

Nuclear utilities explore individual corporate or intercorporate agreements with individual interim storage recipients based on consensual terms.

Respectfully submitted,

James H. Davenport  
Special Deputy Attorney General  
State of Nevada



### 6.3 Additional Comments of Andrew C. Kadak

These comments are in response to the thoughtful minority report written by Mr. Davenport. Mr. Davenport bases much of his position on the Nuclear Waste Policy Act of 1982 and the Amendments Act of 1987. Both the original act and the amendments specified a date by which the high level waste repository was to be operational. This date was established as January 31, 1998 -- 16 years after passage of the original act and 11 years after the amendments. It was clearly the expectation of Congress that the facility could be identified, licensed and built by that date.

It is also true that by passing the original act in 1982, and more emphatically by the amendments of 1987, the Congress took control over the entire high level waste program by mandating programs, schedules and responsibilities for action. The inability of the administering agencies to meet established milestones is a reality that must be dealt with. Since this program is congressionally driven, only Congress can relax the schedules. Unilateral DOE pronouncements of delays, first to the year 2003 and then to 2010, have no legislative standing as they pertain to the government's obligation to accept fuel by 1998.

Congress and the Department of Energy can deliver on the contractual commitment to accept fuel if they take the steps outlined in the report of the NARUC Dialogue Group. It is unacceptable to reject the liability that the 1982 and 1987 acts impose on the federal government by saying that the government needs only to accept spent fuel if a repository is operating; the second paragraph of the same section of the statute states that the government will accept spent fuel in 1998. The expectation of Congress was quite clear -- a repository needs to be in operation by 1998 and that, in return for the payment of fees, DOE will dispose of such spent fuel beginning no later than January 31, 1998. Failure of the government to have an operating repository in 1998 (16 years from the passage of the act), does not relieve the government of its legislative commitment to accept fuel at that time, particularly if

other remedies are available.

It should be noted that, despite numerous delays announced by the Department of Energy in the repository program, Congress did not see fit to change the law requiring 1998 acceptance, suggesting that Congress continues to believe that the federal government does indeed have an obligation to accept the spent fuel as originally specified in the legislation.

In summary, although federal legislation is necessary to implement some of the recommendations contained in the Dialogue Report, DOE can, if they take the appropriate steps, site an interim spent fuel storage facility(s) to meet the legislative mandate that still exists.

#### 6.4 Public Utility Regulator Statement

The NARUC initiated and the undersigned NARUC members entered this dialogue process with the intention of developing in the interests of their ratepayers, a broad-based consensus on how to best deal with the interim storage of spent nuclear fuel. Given the history of the nuclear waste program, we anticipated that resolution of the issue would likely require legislative changes and possible redirection at the Department of Energy. Thus, we felt it important that any proposed solution be supported by as many diverse groups as possible.

Great efforts to achieve diversity in the dialogue group were made. Certainly, even within the regulator group, there are differing perspectives depending partly upon the urgency of a state's interim storage needs and its cost responsibility to the nuclear waste fund. An earlier dialogue group initiated by the Keystone group failed to materialize due to a refusal by the individuals from environmental organizations to participate. In this case one of the many individuals from environmental groups invited to participate agreed to do so. We were also fortunate to have the participation of two individuals from the State of Nevada, utility executives from utilities with differing interim storage needs, and the resource support of an individual from the Department of Energy and the Nuclear Regulatory Commission. We believe that the discussions and final product greatly benefitted from the diversity of views and beliefs brought to the table by these individuals. We greatly appreciate the participation of all participants, recognizing that some of the participants came to the dialogue with some degree of skepticism and reluctance.

Based on all our discussions, we believe the majority position provides a workable solution within the existing political structure and a safe and cost-effective means of dealing with spent nuclear fuel generated by existing nuclear reactors.

Respectfully submitted,

Commissioner Lynn Shishido-Topel

Commissioner Emmit George

Commissioner Susan Clark

Commissioner Donald Storm

Commissioner Jim Sullivan

Commissioner Evan Woollacott

## APPENDIX I

### NARUC NUCLEAR WASTE DIALOGUE ORGANIZATION, OBJECTIVES, GROUNDRULES AND PARTICIPANTS

#### Background

On April 1, 1993, the National Association of Regulatory Utility Commissioners wrote a letter to the Secretary of Energy, Hazel R. O'Leary, formally requesting the Department of Energy's participation in a collaborative process. NARUC's concerns and a proposal for a dialogue process were set forth in the letter as follows:

"...While we believe that it is important to continue to search for volunteers for an MRS, we believe the time has come to look for alternative solutions to be able to begin removing spent nuclear fuel from commercial reactors by 1998. [A recent NARUC resolution] expresses our desire to work closely with you to develop a collaborative process to address this issue.

In exploring the benefits of a collaborative process, we feel it is important to define what the process can achieve. We believe that a useful process would first concentrate on how the Department of Energy can begin accepting commercial high-level waste by 1998. For example, this process could determine whether existing authority or provisions in the Nuclear Waste Policy Act, which have expired, could be utilized by the Secretary to expedite the acceptance of high-level spent fuel by the Department. This process would not reopen the question of whether or not Yucca Mountain should be evaluated as a possible permanent repository site.

Secretary O'Leary, we believe that in the almost 20 years since these issues have been debated, provisions have been included in legislation which could get the job done. It is not necessary to start over. It is now necessary to determine how to get the job done. If we are not successful, increasing numbers of ratepayers will pay twice for storage of high-level spent fuel and many utilities could be forced to shut down efficient nuclear power plants. U.S. nuclear power plants represent 20% of the power supply in the United States. Replacement of these resources would cost significant amounts of money. This debate is not a referendum on nuclear power, but a focus on how the federal government lives up to its obligations to dispose of the nation's commercial spent fuel. That should be the goal of this process...."

On April 27, 1993, Lake H. Barrett, the then acting Director of the DOE Office of Civilian Radioactive Waste Management (OCRWM) responded to the NARUC letter on behalf of the Secretary of Energy. He indicated that the Secretary had undertaken a comprehensive review of the civilian radioactive waste management program and had classified program activities into three broad categories (1) activities within the program that should proceed as presently planned; (2) new activities and policies that will be implemented now; and (3) those activities within the program that require further reconsideration and that will be reviewed formally with substantial external consultation. The third category included consideration of an approach for the 1998 waste acceptance requirement, including utility compensation alternatives; a full range of options for the near-term storage of spent fuel pending ultimate disposal; and alternative repository licensing strategies. The letter also stated:

"...We welcome the National Association of Regulatory Utility Commissioners (NARUC's) comments and the opportunity to work together, along with other interested and involved parties, to address concerns about the Civilian Radioactive Waste Management Program...."



...With regard to NARUC's request to establish a collaborative process to discuss how the Department can begin accepting waste by 1998, we agree with the suggestion that such a process can be established and look forward to working with NARUC, an independent facilitator, and any other interested and affected parties that may choose to participate...."

### **Formation of the NARUC Dialogue Process**

With this response from the Department of Energy, the NARUC proceeded to set up a dialogue process and enlisted the support of its Nuclear Waste Program Office to make the arrangements. It was recognized at the outset that in order for the dialogue to be useful and timely, it would have to be completed well in advance of the internal DOE reviews. At the time, DOE anticipated that these reviews would be completed in the fall of 1993. Thus, there was considerable pressure to begin the dialogue as quickly as possible. NARUC attempted to enlist the services of a professional facilitator, but this could not be done within the time and other constraints that existed.

Working closely with NARUC commissioners, DOE and others, the Nuclear Waste Program Office developed a dialogue format, objectives and groundrules for perspective participants to consider. To make the most productive use of the limited time available, an effort was made to select participants who:

- are thoroughly familiar with the civilian nuclear waste program;
- represent a broad spectrum of affected interests;
- have diverse experience and backgrounds;



- represent territories with different spent fuel storage needs and expectations.

To coordinate schedules, conduct discussions etc., disseminate information, it was agreed that the total number of participants should not exceed 20. To promote the expression of independent views, facilitate open discussion, and obtain the widest range of state and regional perspectives, it was also decided that commissioners and utilities would not be from the same territory. Individuals from DOE and NRC were invited to provide technical resource assistance to the dialogue meetings as necessary. DOE and NRC were not participants in the dialogue process itself. Participants alone are responsible for this report and minority views presented.

The original objective was for participants to include six public utility commissioners, six senior utility company executives, four environmentalists and two representatives from the State of Nevada. When the invitation was extended, the purpose, groundrules and expectations of the dialogue process were fully explained. These were subsequently communicated in writing. Relevant excerpts from the initial Concept Paper are as follows:

#### **DIALOGUE:**

The NARUC proposes to convene a dialogue of relevant stakeholders to review all realistic alternatives for the interim storage of spent nuclear fuel, beginning in 1998. The question on which the discussion will focus is "What is the best way to deal with spent nuclear fuel in the interim between generation and permanent disposal?" The dialogue will examine a full range of options for addressing civilian high level radioactive waste issues in a 20-to-30 year time frame. It will seek to identify options that coordinate existing or potential policies and laws with the needs of government, industry state regulators, and environmental, consumer and public interest organizations.

In reviewing the options, the dialogue will identify the advantages and disadvantages of each alternative. The group will try to arrive at consensus on the accuracy of the facts associated with each option. In addition, the group will try to reach agreement on the priority ranking of the options in order of preference. Further the dialogue will attempt to identify the proposed solutions that are unlikely to be either feasible or widely supported. A report is to be produced by the dialogue representing the positions of the group and the rationale supporting these positions.

#### **SCOPE:**

The effect of current federal and state laws, regulations, and institutional requirements will be an important part of these discussions. The group will attempt to determine the implications and consequences of the top ranked options for ratepayers, utilities, and the for the DOE nuclear waste program in both the near and long term. The underlying assumption is that a deep geologic repository as determined in the NWPA will continue to be the U.S. disposal policy.

The discussion should examine all available options, including, but not limited to, construction of one or more MRS facilities at non-Federal sites, interim storage at one or more existing Federal sites such as defense waste storage sites, canister systems, and various engineering and financial options for continued reactor on-site storage.

#### **DIALOGUE STRUCTURE**

The ground rules are: 1. all participants will agree to attend all three scheduled meetings; 2. the members of the dialogue will participate as individuals rather than representatives of an organization; 3. all conversations are off-the-record

and not for attribution; 4. neither the work papers nor the documents produced in the course of the dialogue or drafts of the final report are to be made public until their release is authorized by the group.

#### **REPORT OF THE RESULTS:**

At the conclusion of the dialogue the results of the inquiry will be published in a report containing the results of the dialogue. The report will describe the background for the dialogue, the issues discussed, the process that was followed and the options considered along with the advantages and disadvantages associated with each. These options will be presented in rank order of preference with the rationale for the selected preferences together with any recommendations reached by the group.

The report of the dialogue will contain recommendations reached by consensus with agreement on the accuracy of the facts associated with each recommendation. If consensus is not possible, however, the report will delineate areas of agreement and disagreement, and state why disagreement exists in the belief this delineation will be useful to policy makers.

#### **MEETING LOCATION AND TIMES:**

The group will meet according to the following schedule:

September 7, 1993 in Atlanta, Georgia

October 5, 1993 in Washington, D.C.

November 3, 1993 in Atlanta, Georgia

As matters evolved, the meeting schedule changed so that the second meeting was on November 5 in Atlanta and the third meeting was held on January 24, 1994 in

Chicago, Illinois.

### Dialogue Participants

Those who agreed to participate and their professional affiliations are as follows:

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Des Moines, Iowa 50319

Comm. Susan Clark  
Florida Public Service Commission  
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Fletcher Building, Room 119  
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Comm. Donald Storm  
Minnesota Public Utilities Commission  
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Although a number of environmental organizations were contacted, one individual agreed to participate.

### **Conduct of the Meetings**

The first meeting was held on September 7, 1993 in Atlanta, Georgia. Cas Robinson of the NARUC Nuclear Waste Program Office moderated the discussions. All participants were invited to provide their views. This meeting concentrated on identifying and evaluating the options for interim spent fuel storage prior to disposal. Although this meeting was closed to the public, at the request of Secretary O'Leary, the two subsequent dialogue meetings were opened to the public and interested members of the audience were given the opportunity to address the dialogue participants verbally and in writing. Written comments were subsequently circulated to all participants.



The second meeting was held on November 5, in Atlanta Georgia and the focus of this meeting was a discussion of the options and their advantages and disadvantages. In between the first and second meeting, various documents were circulated to all participants for consideration and comment in preparation for a third meeting.

At the third and final meeting, which was held in Chicago, Illinois on January 24, 1994, an outline summarizing the discussion results was circulated to all participants. This document was discussed and provided the basis for the preparation of the final report. Two participants expressed reservations about the recommendations and have prepared dissenting reports included in the body of this report.



## APPENDIX II

### EVALUATION OF THE OPTIONS FOR INTERIM SPENT FUEL STORAGE

#### OPTION 1 - At Reactor Storage Without Compensation

##### Advantages:

1. Near term expenditures of waste fund monies for off-site storage are eliminated. This reduces competition for near term funding of other Waste Program activities which are important to eventual disposal of spent fuel. This advantage however is considerably reduced or eliminated if the current efforts to establish a revolving fund or other more accessible funding mechanism prove to be successful.
2. Political/public reaction problems associated with siting one or more interim storage facilities are avoided.
3. The few utilities with life-of-plant storage capability would view this option as a way to avoid unnecessary waste system expenditures that would not have benefitted them directly.
4. Legislative action related to the interim storage issue (i.e., MRS/repository linkage modification) would not be needed since the program shifts to a repository only system.
5. While the transportation system will need to continue development with the rest of the waste disposal system, the need to address some institutional transportation

issues is significantly deferred. This allows for more focus on overall system development and repository issues.

**Disadvantages:**

1. Continued reliance on reactor sites for all interim storage requirements appears as a lack of progress with the waste program. This may elevate local public/political opposition to reactor on-site storage.
2. Increases costs of on-site storage to utilities/ratepayers prior to and following reactor shutdown. Societal costs are increased also due to inability of some utilities to complete reactor site decommissioning on an optimum schedule.
3. Utilities and ratepayers continue to pay concurrently for both on-site storage expansion requirements and support of the Waste Program beyond 1998.
4. DOE's contractual commitments are not met and the services expected by the utilities are delayed until the repository is operational. This would amount to a delay of 15 or more years in relief to utilities.
5. Difficulties in performing needed on-site expansion per #1 above may cause premature decommissioning of certain reactor sites.
6. Maintain storage at 67 separate sites around the U.S. is operationally and economically inefficient when compared to one or two centralized sites which could serve the expansion needs of the U.S.

## OPTION 2 - At Reactor Storage With Compensation By DOE

### Advantages:

1. If the compensation is adequate, this option would eliminate or significantly reduce the concern for concurrent payment by utilities and ratepayers for both on-site storage expansion requirements and support of the Waste Program beyond 1998.
2. Would completely or partially off-set costs of on-site storage to utilities/ratepayers prior to and following reactor shutdown.
3. Represents an effective means of implementing the multi-purpose canister (MPC) program and encouraging MPC use.
4. Political/public reaction problems associated with siting an interim storage facility are avoided, although this would elevate the potential for local opposition to on-site storage. (See disadvantage #1 below.)
5. Legislative action related to the interim storage issue (i.e., linkage modification) would not be needed since the program shifts to a repository only system. Legislation may be needed, however, to allow for direct utility compensation to be paid from the waste fund. Political issues associated with this approach would likely be much less controversial allowing for smoother and quicker legislative action.
6. While the transportation system will need to continue development with the rest of the waste disposal system, the need to address some of the difficult institutional transportation issues is deferred.

## Disadvantages:

1. Continued reliance on reactor sites for all interim storage requirements would appear as a lack of progress with the waste program which may elevate local public/political opposition to reactor on-site storage.
2. This option forces some utilities to install spent fuel storage facilities that may have otherwise been avoided with off-site interim storage availability. System-wide costs are increased due to inability of some utilities to complete reactor site decommissioning on an optimum schedule.
3. Compensation may cause a reduction in industry pressure on DOE and in DOE's incentive to perform the disposal aspects of the waste program and meet the current 2010 schedule. This would result in further waste program inefficiencies primarily due to the continued diversion of the waste fund monies and the direct impact of the repository delays.
4. Equity issues are created and must be resolved due to variations in utility needs and due to the existence of utilities without any interim storage needs.
5. Depending on the form of compensation, legislation will likely be required to obtain access to the waste fund.

### OPTION 3 - Interim Storage Using Existing Federal Sites

#### Advantages:

1. Initiates movement of fuel off reactor sites. Reduces need for installing and/or expanding on-site storage capacity, cutting costs to utilities/ratepayers. Sufficient receipt capacity and appropriate distribution of allocations would allow decommissioning of shut down plants to proceed.
2. The availability of existing environmental site information may be sufficiently flexible to reduce licensing lead times and thereby improve the probability for meeting the 1998 DOE contract commitments.
3. Some of the needed infrastructure for implementation may already exist with certain of these sites (i.e., structures, equipment, security, emergency plans, knowledgeable personnel, etc.).
4. This option creates additional certainty for spent fuel-related planning by utilities and regulators once a firm schedule, capacity, and allocation scheme are in place.
5. Option represents real progress in management of spent fuel by the DOE and would enable their contractual commitments for fuel acceptance to be met. Industry wide economic and political implications of reducing the current uncertainty related to the spent fuel management issue would be positive.
6. Represents the least impactful mechanism for mandated siting.
7. Public safety and system economics are enhanced as a result of storing spent fuel at one or two locations rather than continuing to add spent fuel storage at reactor sites.

**Disadvantages:**

1. State and local opposition is likely to be strong though not as potentially impactful as that which would occur with individual siting efforts.
2. Use of defense waste sites may further drag the civilian waste program into the poor reputation of the defense waste program. This could create further political delays to the overall civilian program. Other questions relating to co-location include liability, preexisting contamination, environmental quality, and inconsistent licensing guidelines.
3. Legislation would be needed to allow for federal rather than voluntary siting of an interim storage facility.
4. Congress may be resistant to another siting program per the difficulties experienced with the Yucca Mountain siting effort.
5. Represents need for additional leg of transportation relative to continued on-site storage.
6. Environmental opposition will likely oppose fuel movement off-site.

## OPTION 4 - Voluntary Interim Storage Site

### Advantages:

1. Significant local support for storage facility may exist which would possibly simplify the siting process.
2. Legislative framework and process already exists and is being implemented. Interruption of this process prior to investigating all possible and reasonable sites would further hurt the credibility of DOE and the waste program in general.
3. Allows for maximum flexibility and optimization of private, utility, and DOE involvement in facility development, licensing and operation.
4. Initiates movement of fuel of reactor sites. Reduces need for installing and/or expanding on-site storage capacity, cutting costs to utilities/ratepayers. Sufficient receipt capacity and appropriate distribution/availability of allocations would allow decommissioning of shut down plants to proceed on an optimized schedule.
5. Represents real progress in management of spent fuel by the DOE and would enable their contractual commitments for fuel acceptance to be met. Industry wide economic and political implications of reducing the uncertainty of the spent fuel management issue would be positive.
6. Creates additional certainty for spent fuel-related planning by utilities and regulators once a firm schedule, capacity, and allocation scheme are in place.
7. Represents significantly increased incentive for DOE to aggressively, quickly, and efficiently proceed with site characterization and development of the Yucca Mountain repository facility.



**Disadvantages:**

1. Local support for interim storage facility would not necessarily extend to the state legislature and governor.
2. Environmental opposition will likely fuel movement off-site.
3. Legislative action on negotiated agreement and/or to gain access to the nuclear waste fund would be needed.
4. Option requires immediate development and procurement of transportation system to accommodate earlier need for shipments. Recent development efforts have somewhat slowed due to funding constraints. Total system life cycle "cask miles" likely increases with interim facility.

## OPTION 5 - Integrated Storage and Disposal Capacity in Nevada

### Advantages:

1. Initiates movement of fuel off reactor sites. Reduces need for installing and/or expanding on-site storage capacity, cutting costs to utilities/ratepayers. Sufficient receipt capacity and appropriate distribution/availability of allocations would allow decommissioning of shut down plants to proceed on an optimized schedule.
2. Represents real progress in management of spent fuel by the DOE and would enable their contractual commitments for fuel acceptance to be met. Industry-wide economic and political implications of reducing the uncertainty of the spent fuel management issue would be positive.
3. Creates additional certainty for spent fuel-related planning by utilities and regulators once a firm schedule, capacity, and allocation scheme are in place.
4. Simplifies and minimizes development and implementation of transportation segment of waste program if Yucca Mountain proves suitable for repository.
5. Economics of siting MRS and repository in one location probably makes this the lowest cost option. Allows use of repository waste handling facilities and equipment, rather than building an additional facility at a remote MRS site.
6. Operation by 1998 would make spent fuel available for repository testing and evaluation requirements. Would be available to serve as repository lag storage once operations begin.
7. Represents maximum increased incentive for DOE to aggressively, quickly, and efficiently proceed with site characterization and development of the Yucca Mountain

repository facility.

**Disadvantages:**

1. Indications are strong that the State of Nevada, and Nevada environmental groups would strongly oppose this option.
2. Suitability of the Yucca Mountain site has yet to be determined. This option would appear as an effort to force a positive suitability decision for the site. This perception would likely be a source of additional opposition.
3. Eventual failure to demonstrate suitability of Yucca Mountain site would eliminate many of the advantages cited above.
4. Implementing this option could undermine recent progress in Nevada on acceptability of the repository facility and would further exacerbate the inequity issue that many current opponents continue to argue.

## APPENDIX III

### CONCEPT FOR SITING INTERIM SPENT STORAGE FACILITIES ON FEDERAL LAND OR HOW TO MEET THE DOE 1998 COMMITMENT

What is to be Sited?

The objective is to site several interim spent fuel storage facilities regionally across the country. These spent fuel storage facilities would be the same type of outside storage facilities that some utilities currently use to store spent fuel on their sites in dry storage concrete cylinders or concrete boxes. With a transportable canister system which should be available and licensed by 1998, no bare fuel handling of any kind is required. Only a flat pad with a security fence around it is required which is commonly found at existing DOD, DOE or other federally owned land. The operating life of the facility would be limited to 40 years.

Why do it?

The federal government, through the Department of Energy, has contracts with all utilities that operate nuclear power plants that obligate the DOE to begin accepting spent fuel from these plants beginning in 1998. The voluntary siting process for the Monitored Retrievable Storage facility that was supposed to be ready by 1998 will not be available due in part to Congress's unwillingness to fund additional studies for siting feasibility. This leaves the interim storage of spent fuel on federal land as the only existing viable option to meet the federal commitment.

Where to put it?

The federal government has numerous existing facilities throughout the nation that could be used to temporarily store spent fuel until either an MRS is operational or the high level waste disposal site is ready to accept waste for disposal. These sites could be present or former military bases, national laboratories or other government facilities that meet certain requirements.

What are the requirements for such a facility?

The requirements are relatively simple:

1. Ease of access to major rail transportation systems.
2. Flat areas (preferably already concreted) such as abandoned airstrips.
3. Security fences and a small security force.

Essentially, the siting requirements are such that the only possible environmental issues might be those associated with external hazards such as exposure to flooding, tornados, hurricanes or seismic events. The storage devices are robust enough to handle these types of events.

How might a siting process work?

1. DOE would conduct a preliminary screening of all federal sites that meet the above criteria identifying advantages and disadvantages of the sites in question.
2. Based on this review, DOE would make recommendations as to which sites should be considered for siting the interim spent fuel storage facility.
3. A bipartisan congressionally appointed siting panel would be named by the

Speaker and Minority Leaders of both Houses. The panel would have one DOE representative.

4. Hearings would be held in each of the possible locations with community participation supported by development grants which would be given to prominent members of the community who would review the proposal and identify concerns and needs of the local community such that if the site were selected they could be addressed in the siting process.
5. Factors to be considered in the siting process would include community impact and the cost of siting this facility including community benefits.
6. Of the possible sites identified, the panel selects several to recommend to Congress with justification.
7. Congress votes up or down on the recommendation.