

IMPLEMENTATION OF THE NUCLEAR WASTE POLICY ACT OF 1982

H. Babad, Chair

J. Gervers, Co-Chair

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### INTRODUCTION

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The following proceedings of this session have been edited from the transcript of the plenary session of Waste Management '84. Where the tape of the transcript was not clear, sections of the proceedings have been omitted. Where the focus of the speaker's comments was not amenable to concisely written text, minor editorial emphasis or inserts were added to enhance readability. Such editorial inserts are shown as bracketed phrases. The co-chairmen for the session acknowledge full responsibility for the editing process. In creating the proceedings of this session a variety of introductory remarks were removed and only the session topic, "Implementation of the NWPA of 1982" was focused on.

### SESSION INTRODUCTION

Harry Babad

The plenary session will be devoted to a dialogue, but not a debate, on the implementation of the Nuclear Waste Policy Act of 1982. As many of you are aware, the research and development on waste storage and waste disposal has been an active program for the last twenty years. It is only since the 1982 passage of the NWPA that we have had a comprehensive legislative mandate for these activities. Congress has created a structure which enables the Department of Energy to get on with the job of disposing of high level waste, and has done so in a context which will provide reasonable assurance of public safety, in a manner that institutionally involves all concerned segments of our society. During the year since the Act's enactment, progress has been made in establishing a regulatory framework, developing siting guidelines, establishing program strategy in the form of a DOE/OCRWM [Office of Civilian Radioactive Waste Management] Mission Plan, and identifying issues both generic and site-specific at various repository sites. [Site characterization, laboratory, field testing, and design activities for possible repositories in Basalt, Salt and Tuff, have continued.]

In establishing a framework for this session of Waste Management '84, John Gervers, my co-chairman, and I have attempted to find speakers for you who could share not only the technical progress, which is my professional interest, but also the institutional progress that has been made since the passage of the Act.

**The Honorable Morris Udall**  
Representative of the State of Arizona

It's a great pleasure for me to at last be able to address the University of Arizona's Nuclear Waste Conference. I wanted to be your guest a couple of times in the past at this important gathering, but the business in Washington, particularly the nuclear waste legislation, always seemed to coincide with my schedule. Now that the Act is in place we have turned our attention in the Committee to oversight and investigation ... to kind of looking over the shoulder and nagging a little bit as we go forward to implement the policy in that Act. I hope we can keep the Administration's attention focused on the effort to carry out its mandate given by the Congress, and today I want to make some recommendations in this regard.

Earlier this year we conducted oversight hearings on the Department of Energy's waste management program. We had testimony from environmentalists, industry groups, the administration, and from the Office of Technology Assessment, which I have the honor of chairing in this Congress. From all sides we heard the same concern, time and time again--concern that the Department of Energy has not solidified its grip on the nuclear waste management program. From the Department of Energy Secretary, Hodel, we heard that this program has his highest attention and highest priority. But the actions of the Department and Administration are falling short of that commitment and leave me, and I think all of us, with an uneasy feeling having invested so much in this delicately balanced and procedurally difficult program. I am concerned about where we are going.

Every time I've addressed the waste management issue for a year now, I have pointed out that the Administration has failed to provide the program with leadership. Somebody once said "Promise them anything, but give them leadership.", and truly this is what we need. In early February, the Secretary said that a nominee to head the Office of Waste Management would be forthcoming within ten days. If no director was nominated, the Secretary promised that a search committee, which I had been urging, would be established. We don't have a director nor do we have a search committee. I think somewhere in this country there is another Admiral Hyman Rickover or another talented person who, with a single minded dedication, can get this program on the road.

Second, the Secretary has failed to create and consolidate an office of waste management as required by law, and recently has actually moved to retract the two steps forward taken early last year, taking several giant steps in the wrong direction. The [Congress'] intention in requiring the creation of a separate office of civilian radioactive waste management was two-fold. First, we wanted to have an organization with a direct line of authority from headquarters through the field offices.

Investigation of repository sites in distant regions of the country must be carried out with consistency and tight central control if we are going to have fairness and clear communication of policy with state governments and the public. With some programs like the strip-mining legislation I think there is a role for regional administration, but here we need tight central control in the selection and building process of the nuclear repository.

I wanted in that Law a dedicated, mission-oriented staff committed to getting through this process and doing it right. We have instead a headquarters organization, filled in a majority of management positions by people who have 'acting' in front of their titles--and that includes the Director himself--while the regional offices of the Department of Energy are in charge of program operations and of most contractor management functions. Furthermore, the secretary has now proposed that the Director of Waste Management will also direct the Uranium Enrichment Services program. I must say that these programs have little in common except trouble and fees collected to pay for them from the nuclear utilities, who are definitely not getting their money's worth under the proposed management structure.

My third complaint is that the Administration has not adequately addressed the realities of carrying out the program created by the Act. In the Act we included the requirement that the Department develop what we called a Mission Plan to put together the technical, logistical, and scheduling requirements of the Act and of the job itself and [the Plan should] show us in detail how to get from here to there [an operating repository]. Testimony before my subcommittee indicated that the plan is damaged by inconsistencies and assumed events which are unlikely in the extreme. So whether or not specific milestones in the Act were met last year, the prospects for meeting the critical goal of getting a repository operating by the end of the century could still be good. But during this first year, the Administration should have developed a plan and the organization that would get us there. We still do not have a solid grip on the program today and we will not carry out our commitment to safe disposal unless the problems [described above] are addressed immediately. I am talking about leadership, I am talking about management, and I am talking about detailed, realistic planning.

This concludes my reluctantly downbeat message on nuclear waste management. I do have some modest good news. I'm reminded of Bob Dole, who has been working on supply side economics--a critic of that kind of economic management for a country. He said that the good news was that a bus loaded with supply-side economists had gone off a cliff, and that the bad news was that there were three empty seats.

I would like to add a couple of brighter-side comments. One is that after looking into the possible use of copper for nuclear waste containment for close to a year now, I am convinced of its potential to provide a very great increase in the margin of safety of any hard rock nuclear waste repository. While engineering barriers such as cannister material must not take the place of a thoroughly studied, safe geohydrologic repository site, we can increase our certainty of system performance and our confidence of safe waste disposal by a factor of 100, promising hundreds of thousands to a million years of containment of nuclear waste. Secretary Hodel has promised to step up the Department's research program on copper cannisters which had fallen to a zero funding level. In order to assure that he does this, I will be offering an amendment to the Department's authorization bill which I hope will become law this year. I will keep fighting for copper cannisters regardless of the fact that Arizona produces half the nation's copper, and regardless of how many votes this might cost me.

The final bright note in my speech is the recognition of the dedication and talent represented by this group and others in the nuclear waste management field. We have a lot of highly-skilled technical people and policy people who worked with us on the Nuclear Policy Act, who struggled with this problem before and since the Act, and who I know will join me in hoping that the leadership and organization that are needed to take maximum advantage of this resource will be provided.

#### SPEAKER INTRODUCTIONS

##### Harry Babad

**Mike Lawrence** joined the Department of Energy in 1969 after obtaining a degree in physics from the University of Maryland. He has been involved in managing a variety of activities including the job of Deputy Director of the Office of Terminal Disposal in remedial action programs for the Department of Energy.

**James Asselstine** is a commissioner of the U. S. Nuclear Regulatory Commission. Jim obtained his law degree at the University of Virginia and has served on the staff of the Nuclear Regulatory Commission. He has also been the staff legal counsel for the subcommittee on Environment and Public Works.

**Dan Egan** is the project leader for the EPA's High-level Waste Standard. He has been with the EPA since 1979. Dan holds a bachelor's degree in Nuclear Engineering and a master's degree in Nuclear Systems. Dan has the honor of being considered the father, and perhaps according to some the Godfather, of 40CFR191, and he'll share with you his perspectives on progress in issuing the Standard.

**Holmes Brown** is the Associate Staff Director of the Committee on Energy and the Environment for the National Governors Association. He will speak to you on issues of concern to potential host states (none of whom volunteered) and to the citizens who live therein. Prior to his present activity, Holmes was deeply involved in the formulation and implementation of the Low-Level Radioactive Waste Policy Act of 1980 and in the formulation of the Nuclear Waste Policy Act of 1982. Mr. Brown is also a member of E.G. & G.'s review committee for low-level waste programs and Battelle's technical review panel for the MRS.

Last but not least, with the timely implementation of the Nuclear Waste Policy Act a vital concern to the well-being of the nuclear utilities, **Dr. Linn Draper** will share their concerns with us. Dr. Draper is Senior Vice President for External Affairs at Gulf State Utilities. His background in the nuclear industry as Director of Nuclear Engineering programs at the University of Texas until February 1979 before he joined Gulf State Utilities, and as consultant to over thirty utilities, state, and federal agencies, has given Linn a unique perspective on the problems of nuclear waste disposal.

#### PANELIST INTRODUCTIONS

##### John Gervers

Ladies and gentlemen, Dr. Babad has referred to the technical challenges of the waste management program,

and I would like to say a few words about the institutional challenges of implementing the Nuclear Waste Policy Act. This past year has been critical for the establishment of the procedural underpinnings of the program. Undoubtedly, some of you may feel impatience with the interminable debate on procedures. Some will say "Let's get on with the job!", but I think it is worth emphasizing that the nuclear waste program is not like the space program, which enjoyed broad societal consensus for a difficult technical challenge. This program does not yet enjoy such a societal consensus, and because there are so many differing interests and perspectives, it becomes essential to have a firm procedural basis before we can get on with the job.

We have just spent a year wrestling with the siting guidelines, which provide the criteria for selection of acceptable repository sites. Now we are entering a period when consensus building will be equally important relative to the DOE Mission Plan, which is the basic procedural document for implementing the [OCRWM] program. All of the speakers and each of the panelists will have a role to play in fashioning the consensus which ultimately must exist if we are to have a functional disposal program in this country. It is my pleasure to introduce the panelists who represent the full spectrum of participants in this intricate institutional process.

**David Berick** is Director of the Nuclear Waste and Safety project with the Environmental Policy Center in Washington, D. C.. As a representative of the environmental community, he was actively involved in fashioning the Nuclear Waste Policy Act and is regularly called upon to testify before Congressional oversight committees on the progress of the program.

**Luther Carter** is a journalist who has spent much of his career as a staff reporter for Science Magazine. He is currently completing a major study of waste management as a world problem under the auspices of Resources for the Future. We are looking forward to seeing this definitive work on the subject.

**Benjamin Cooper** is a professional staff member for the Senate Energy and Natural Resources Committee. He replaces Charles Trabant on the program, who was unable to attend due to imminent Congressional action on a piece of legislation he has been following. Dr. Cooper has a Ph.D. in physics, specializing in nuclear theory, and has been involved with energy and nuclear issues on the Committee Staff since 1974.

**Thomas Cotton** is a senior analyst with the Congressional Office of Technology Assessment, where he is currently directing OTA's study of the management of commercial high-level radioactive waste. He has contributed substantially over the years to the conceptual development of the nuclear waste management process.

**Edward Davis** is a Senior Vice President of the American Nuclear Energy Counsel, a Washington-based trade association representing the nuclear industry before the United States Congress. He has been extensively involved in nuclear waste management issues for the past seven years, and played an instrumental role in the development and passage of the Nuclear Waste Policy Act of 1982.

**Andrea Dravo** is a staff member with the House Interior and Insular Affairs subcommittee on Energy

and Environment, where she has worked for Congressman Udall on nuclear waste management issues for seven years. She was actively involved in the negotiation of the delicate political compromises which resulted in the passage of the Nuclear Waste Policy Act.

**Steve Frishman** is Director of the Nuclear Waste Programs Office in the Office of the Governor in the State of Texas. (Texas is a candidate for the first repository.) Steve began his career as a journalist and has long been involved in energy and environmental management issues.

**John Stucker** is an associate professor of government at the University of South Carolina, and is now Special Assistant to Governor Richard Riley. South Carolina is currently being considered a candidate for a second repository. John served as Executive Director of the President's State Planning Council on Radioactive Waste Management and has been involved in the organization of this and previous waste management conferences as a member of the Program Advisory Committee.

#### MICHAEL LAWRENCE COMMENTS:

I would like to summarize and emphasize what I think are the positive points of the (OCRWM) program during this past year. We've had a number of hits and a number of misses and I think it is very important for all of us here who are involved in this very important program to understand a little bit of its background. There is an Office of Civilian Radioactive Waste Management in the Department of Energy. It reports directly to the Secretary and, although it does not yet have a permanent director approved by the Senate, it has had the good fortune of having an Acting Director over the past year. I think Bob Morgan has done a very good job in translating the program the department had in place prior to the passage of the Act [into one consistent with the objectives of the Act]. The Department of Energy has, for a number of years, been conducting a waste management program in which many of you were involved. [This is being reoriented into a program] which we hope is responsive to the demands and needs of the Nuclear Waste Policy Act. It has not been an easy birth; it has not been an easy transition. There are a lot of people who look to different things in the Nuclear Waste Policy Act and DOE's job has been to try to respond to, balance, and meet all of those needs and expectations. We are now faced with reality, but we think progress has been made.

We have all the utilities with nuclear power reactors under contract, providing funds into the nuclear waste fund to pay for these important activities. That was a major undertaking which we completed during the past year. As far as the repository program is concerned, the potentially acceptable sites which we are looking at for the first repository have all been identified. We have had hearings on the environmental assessments necessary for nomination and on the intent to nominate on all of these sites. Those [hearings] have not all gone without incident, but they have been conducted. We are ready now to proceed to the next stage and that is selecting three sites for characterization. An important event for that to occur, however, is the [issuing of the siting] guidelines. I'll be talking about those in a minute.

We did not meet our anticipated goal of recommending three sites for characterization by the fall of 1983. Those of you who have been following the program will recall that when the Secretary wrote to the six states last February informing them that they had potentially acceptable sites he said it was his intent to recommend three sites for characterization in the fall of '83. The reason for that was so we could meet the 1987 date in the Act for actually selecting the repository site. There were a number of prerequisites which we felt we could meet. However, we did not fully appreciate the extent of public involvement and interaction that would be necessary to do that [recommend sites]. Again, I am recalling the guidelines which were a prerequisite for taking the nomination and recommendation steps. Without those guidelines, we could not proceed on to those steps.

With regard to our second repository program, we've been working with seventeen states to identify rock formations in those states which could be considered for second nuclear waste repository sites. I am particularly pleased with the way that program is going. It doesn't have quite the same time pressures as the first repository program. Because of that, we're seeing a much better dialogue in working with the states in identifying potential rock formations. Just several weeks ago, [in draft form] working with state geologists, we identified new rock formations in their states, many at their suggestion, which should be considered and looked at. I think that is a very, very positive sign for the program. When you don't have these pressures and deadlines and balancing acts to deal with, you are able to work and build a greater degree of consensus and work together on the siting issues. We are very pleased with the way that [effort] is going.

Our Monitored Retrievable Storage (MRS) program is also a program that I am pleased with. It is under the leadership of Bob Bauer, who will be speaking to this group a little bit later this week. We've met a number of key milestones. The MRS program is a critical one to us, as a parallel effort to the repository, in the event that the Geologic Repository Program does come upon unexpected delays or problems either in concept or in site. It's clear that we need to have an engineered system ready to go, to back up our statutory and contractual requirements to begin accepting waste for disposal. We've submitted an R & D report [on MRS] to Congress. We've selected a major architect/engineering firm and recently selected two concepts--two proven concepts, the sealed storage cask and the drywell concepts--which we will use in submitting our proposal to congress June of next year [1985] for the MRS program. We will have a [MRS] program laid out in that proposal which will complement the repository program. It will give us the capability, if necessary, authorized by Congress, and approved, to have engineered storage systems in place by 1998. Our main goal, however, is to have a geologic disposal system in place v that time, but the MRS system will be available if needed.

In the area of spent fuel storage, the Act clearly laid out that it was the utilities responsibility to provide for that prior to 1998 and we have a number of programs, now or soon to be underway, to assist the utilities in making sure that they have the capability through licensed storage expansions to meet their storage needs. Three utilities--Virginia

Electric Power Company (VEPCO), Carolina Power and Light, and Northeast Utilities--have been selected for cooperative demonstration of dry storage and rod consolidation. In addition, we are working with the Tennessee Valley Authority for rod consolidation and dry storage co-ops [demonstrations] at Brown's Ferry. We have just recently signed an agreement with Nuclear Fuel Services [NFS] for the development and demonstration of a transportable dry-storage cask; this is a very key step forward in this program.

We all recognize that transportation is going to be a very, very important part of this program and see the need to translate from the safe, but limited, cask fleet which we have today into a larger, perhaps more efficient, practical system to meet the transportation needs of the future. We look to this demonstration with NFS as very important in doing that.

Well, those were the hits, what about the misses that we've had? Clearly I've mentioned the repository siting guidelines several times and we have not gotten final guidelines out. We worked very long and very hard with the states to get their comments and concerns regarding those guidelines. I am sure you will hear later that we did not meet the [states'] expectations. We understand and recognize that [fact], but we did fully consider all the states' comments. Recently we had an opportunity to testify before the NRC and those [state] issues were brought up again. We had an opportunity to go back and reevaluate the guidelines. It is still our belief that they do represent the broad type of guidelines necessary to the full range of this program, from early siting to the very critical final siting decisions when you pick a repository. Nevertheless, we are still working on those guidelines. We are very pleased, as a matter of fact, that the NRC has issued a federal register notice last week indicating the conditions under which they felt they could concur on the guidelines. We'll be meeting later this week with the NRC staff attempting to resolve the seven issue that they have. I am very hopeful that we can sit down and mutually work through these conditions and come up with guidelines which will be acceptable to the NRC so that they can concur. We can then get on with issuing final guidelines so that later this summer we can issue draft environmental assessments to support nomination of at least five sites. We will nominate five and recommend three sites for characterization by the end of this year. It is a tight time schedule but we think we can meet it. We think that the response from the NRC to our guidelines opens the door for that to occur, but we recognize that we have to work together with the NRC to make that happen.

We have just started (actually several months ago) the study required by the Act to look at alternative means of managing and financing the waste program. I think it is very easy to sit back and say "Well, we need to get this out of the Federal Government" or "Obviously, DOE may not be the right place to put the waste program." It is very tempting to think of that suggestion. But I think it is also somewhat like "the other man's grass is always greener". There are some very good aspects to having the Department, certainly to having the leadership of Secretary Hodel, behind us in moving forward with this program. Fortunately, we have put together a very good, broad-ranging panel of experts to advise us. Several members of the panel are here with us

this week. We look forward to their recommendations. It is very important to the DOE's secretary that an unbiased report and recommendations be made as to how this program can best be managed. The OCRWM program, with complications and sensitive issues to deal with, is somewhat unprecedented in the government. We really look forward to the panels' recommendations and, hopefully, by next year at this time the Secretary will have submitted a report to Congress saying how he feels this [Civilian Radioactive Waste Management] Program can best be managed--be it via federal or quasi-industry [management].

What do we see for the future? I have already noted that once the guidelines are final we will be issuing environmental assessments, moving into the site nomination and recommendation stage. Obviously, it's a key milestone to get underground in this program so we can start collecting data. The process of collecting data for site characterization is critical to the technical quality and soundness of our siting decision. A lot of people have said that we are already three years behind in this program for recommending the first site. It is three to four years actually if you total up the time. I like to point out to people, and I'd like to point out to you, that the two years provided in the Act between recommending three sites in '87 just was not technically possible. We have the requirement to get state permits and to actually acquire or to get use of the land at the non-federal sites. That could take a year to a year and a half. We have to drill exploratory shafts and again that could take a year to a year and a half depending upon the media. So, we are already talking of between two to three years before we will actually get underground and to the depth where a repository should be. Then we have to collect the data necessary to support our recommendation and a licensing decision. And obviously this is unprecedented for the NRC licensing action relative to the amount of data and the type of data DOE has to collect. I think Congress was very, very wise in providing for site characterization plans developed in conjunction with the NRC, which actually laid out in our test plans the amount of data needed. It also raised the question of when we would have enough information and data to make a siting decision. Because more data obviously is better, where do we draw the line? I think we'll be hearing more about this subject this morning. But until we've got the site characterization plans approved, we won't know if the amount of testing we need at a given site is one year, two years, or up to five years or more. So you can see that the ability to meet an '87 selection date just was not possible.

On top of all of this technical data collection, we have to end the recommendation process with a full Environmental Impact Statement. Most of you here I think, at one time or another, have been associated with an Environmental Impact Statement. You do recognize that it is very, very difficult to take a major project such as this and complete the impact statement in a year. But that is our expectation. Consequently, instead of '87, we really look to the end of 1990 to being in the position to submit to the President our recommendation for the first repository--and at that time, the host state has the right to disapprove that selection. We feel very strongly that unless we have a technically sound [basis for our] decision, one that can stand full public scrutiny, and unless we have fulfilled all of the institutional requirements of the Act and all of the process requirements such as working with the

states, public, and other federal agencies, Congress will not be in a position to overturn a state which may disapprove that site selection. The program then would have to go back to peg one. So it is very, very important that we take our time now to do the job right so that we can have some confidence that when that day comes, and if the host state does disapprove a selection, Congress would have a track record to look back on and say we made the right decision and overturn [the state veto].

Finally, in December the Department issued a preliminary draft of the Mission Plan. The purpose of that preliminary draft was to put our thinking out on the table and let people have a chance to see how things were going. It made available our key assumptions. The Act, as good as it is for setting out rules for the siting and selection of repositories, still does have a number of either ambiguous or conflicting sections. It was DOE's job to lay out in the Mission Plan what we were assuming. We received a number of comments on the Mission Plan--a number of very critical comments, but they were [useful] comments--and we are revising that Mission Plan today, hopefully to be responsive to those [comments or] concerns. We will lay out a credible program considering contingencies and different approaches which we can take that will ultimately lead to what we feel will be the success of this program; that is, the initial operation of a licensed, federal disposal system in 1998. That's our goal; that's our focus. Hopefully, when we issue the Plan in April of this year, you'll have a chance to see how well we've done and give us comment on that.

#### QUESTIONS FROM THE PANEL

(Q) **Carter:** My question has to do with incentives for the host state. The Nuclear Waste Policy Act contemplates impact assistance which would compensate the state for impacts received as a result of the program. For the states, whether it is Nevada or Utah or Texas, to take waste from all other states in the country and, in return, only be made whole is not a particularly attractive proposition. The Nuclear Waste Policy Act puts forward the Mission Plan as a means of identifying necessary modifications in policy and strategy with a mandate to go to Congress with suggestions for change. My question is whether you and others in the leadership of the program have considered the concept of positive rewards for the host state? You know...to give them something far beyond compensation or impact assistance.

(A) **Lawrence:** It would be my intent to go as far as we legally can under the Nuclear Waste Policy Act and other federal laws to compensate states in which we would site a repository. To the extent that we can go beyond completely reimbursing them, we would do so. We are not at this point in time, however, proposing greater financial incentives for the program or changes in legislation which would cause that to occur. I don't think from our discussion with the states which are under consideration for the first repository that that would be enough to satisfy their concerns. They are concerned about safety. They are concerned about the siting implications in their states. Certainly, we should go as far as we possibly can in financial assistance to the states, both in regard to site characterization and the actual operation of a repository.

go in terms of assisting states?

(A) **Lawrence:** Essentially, when you get to the final stage of a repository operation and the impact assistance provided there, I don't exactly know how far that is but, certainly it compensates the states for all costs they would incur. We would work out an agreement with the states to fully mitigate any impact they would have. I think we are given quite a bit of latitude in actually determining how much that is and I would fully anticipate that it would be quite generous.

(Q) **Cooper:** What is your best guess for the date that we'll commence operation of the first repository?

(A) **Lawrence:** In our Mission Plan we indicated that we could have a repository available in 1998 and we specified the assumptions for achieving that date. One of the assumptions was a limited work authorization from NRC in 1991, but they have indicated that such an authorization would not be appropriate since it would prejudice their licensing decision. I've discussed this with the Secretary and we have to assume that given the other assumptions we have for siting, we would not get a license until 1994. By 1998, given a 1994 decision, we could have the underground workings of a repository completed. What we could not have in place, if we could not start work until 1994, is the full range of head-end receiving and handling facilities which we envision would eventually be needed for full-scale operation of a repository which could handle all the different possible types of waste. We could have a limited head-end facility available by that point in time and that is one of the things we are looking at which may be in the formal draft for the Mission Plan. Our intent would be to have a licensed repository beginning operation in 1998 but it would not be of the same size or scope as in the first draft of the Mission Plan.

(Q) **Cooper:** 1998 is your best guess?

(A) **Lawrence:** That's right. We're focusing on 1998 because that's the date which we have to look to both contractually and in the law. If you ask about the delays that we could incur in the program through litigation or through technical problems, you really cannot define or bracket that. We are looking to see what we could have in place by 1998.

#### JAMES ASSELSTINE COMMENTS:

I have been asked to provide an NRC perspective on progress in implementing those provisions of the Nuclear Waste Policy Act of 1982 which establish a nuclear waste repository program for the disposal of commercial high-level waste and spent fuel. I intend to begin with a brief overview of NRC responsibilities in the repository development program and then provide the status of our efforts in carrying out those responsibilities. Then, because my time is limited, I want to focus in more detail on two of the more significant near term NRC activities--the Commission's concurrence decision for the DOE repository site selection guidelines and the NRC comment on the DOE draft mission plan. Finally, I want to share with you some closing thoughts on the extent of our success, thus far, in implementing the provisions of the Nuclear Waste Policy Act and the more significant challenges that I see ahead in carrying out the repository program to a successful and timely conclusion.

We've identified some 20 NRC activities and responsibilities in the repository development program established by the Nuclear Waste Policy Act. I want to describe briefly the more significant of these items and give you the status of our efforts. First, the Commission must decide whether to concur in DOE's proposed site selection guidelines in accordance with Section 112(a) of the Act. The Commission received DOE's final siting guidelines on November 23, 1983 and, on January 11, 1984, the Commission held a meeting to hear oral presentations on the guidelines from DOE, EPA, interested states and Indian tribes, industry representatives, and representatives of public interest groups. Last week, the Commission reached agreement on a proposed concurrence decision that would grant NRC concurrence provided that satisfactory revisions to the guidelines are developed in seven areas. I will return to the areas needing revision a bit later. The Commission has agreed to provide a 21 day public comment period on its proposed concurrence decision--the final concurrence decision will be issued following review by the end of April. I suspect that sometime in May would be more realistic. However, the commissioners have directed the NRC staff to begin working with the DOE in the interim to develop the necessary revisions to the guidelines. These revisions will ultimately be reviewed and approved by the Commission.

A second NRC responsibility under the NWPA is to promulgate technical requirements and criteria for licensing a repository. These technical criteria were required to be issued within one year of enactment of the NWPA and I am pleased to report we beat the date by about six months and issued the technical portions of 10CFR60 in June of 1983.

Third, the Commission has the responsibility to comment on the EPA's high-level waste standard which must be promulgated under Section 121(a) of the Act. EPA environmental standards for the management and disposal of spent fuel, high-level waste and TRU waste were proposed on Dec. 29, 1982. The Commission provided comments on the proposed EPA standards in May 1983 and we reiterated some of those comments in September of last year. As is reflected in those comments, we have some difficulty with the variance procedures, the assurance requirements and the procedural requirements contained in the EPA proposed rule and we have expressed the view that we would prefer to see those elements deleted. Once EPA completes action on its environmental standards we'll need to review our own regulations to determine whether any conforming changes are needed.

Under Section 114(e) of the Act, DOE must prepare a project decision schedule for the repository. NRC must coordinate with DOE on the development of the project decision schedule and must report any difficulties in meeting deadlines under the schedule. This activity really hasn't begun as yet.

Section 301 of the Act requires that DOE prepare a draft mission plan for the repository programs, submit the draft plan to NRC among others for comment, and then submit a final mission plan to NRC and others by April 7 of this year. The NRC staff received a preliminary draft of the proposed mission plan in December 1983 and provided some initial comments last month. The Commission will provide comments on the final draft when it's received in April. Following a period for congressional review of the final DOE mission plan, the NRC will adopt any necessary conforming changes to our waste

management program planning guidance. The staff's initial comments on the preliminary DOE mission plan raised some significant concerns. I will return to those comments in a few minutes.

Under Section 112(b) of the Act, DOE must nominate at least five sites and then recommend at least three sites for characterization as candidate sites. DOE must prepare an environmental assessment for each site nominated and NRC intends to review and comment on the draft and final environmental assessments. We now expect five draft environmental assessments as early as August of this year.

Under Section 113(b) of the Act, DOE must submit a site characterization plan, a waste form or package description, and a conceptual repository design to NRC for review and comment. DOE's preliminary draft mission plan indicates that three site characterization plans will be submitted in March 1985.

The NRC also has a number of longer term review and comment responsibilities for the first and subsequent repositories. These include areas such as the sufficiency of the at depth site characterization work and waste form [under Section 114a1E and the Draft DOE Environmental Impact Statement under Section 114a1D]. In addition, the Commission must commence and conduct a licensing proceeding for a construction authorization for the repository. The Act specifies a schedule and reporting requirements to ensure expeditious completion of that proceeding.

The current DOE schedule calls for the submission of the first construction authorization application in February 1991. Apart from these responsibilities, the Commission is under a continuing obligation under Section 117(a) of the Act to provide timely and complete information to affected states and Indian tribes on its determination or plans regarding the siting, development, design, licensing for construction and operation and ultimately, decommissioning of a repository.

That's a brief review of the more significant NRC responsibilities for the repository program and where we stand in carrying out these efforts. Relative to the longer term elements [of the program] we're basically in the position of preparing ourselves to carry out those responsibilities, hopefully on the time frame that will be established in the Mission Plan for the OCRWM program.

I want to spend a few minutes discussing two of these activities in greater detail. The first of these is the Commission proposed concurrence decision on the DOE's site selection guidelines. That [proposed decision], which should be available now, would grant NRC concurrence [of the DOE guidelines] subject to the satisfactory resolution of seven conditions.

\* The first condition requires that the guidelines be amended to recognize NRC's jurisdiction for resolving differences between guidelines and 10CFR60.

\* The second condition requires that DOE commit to obtain NRC's concurrence on revisions to the guidelines that relate to NRC's jurisdiction.

\* The third condition requires that DOE revise the guidelines in several specific respects. These revisions are intended to resolve any potential inconsistencies between the guidelines and 10CFR60

technical criteria.

\* The fourth condition requires that DOE modify the guidelines to make it clear that engineered barriers cannot constitute a compensating measure for deficiencies in the geologic media during site screening.

\* The fifth condition requires that the guidelines be revised to specify in greater detail how the guidelines will be applied at each siting stage, including site nominations, site recommendation and site characterization.

\* The sixth condition requires that DOE supplement the guidelines to indicate for each major category the type and amount of information needed to determine whether a site meets that aspect of the guidelines.

\* The final condition requires that the guidelines be revised by adding additional disqualifying conditions with sufficient specificity to insure that unacceptable sites are eliminated as early as practicable. The condition specifies the area for which disqualifying conditions must be provided. In some cases, the potentially adverse conditions already in the guidelines may serve as the basis for developing the new disqualifying conditions.

The conditions imposed in our proposed concurrence decision represent an attempt on our part to be responsive to concerns raised by the states and others in our January 11 meeting over the excessive flexibility and lack of specificity in the DOE guidelines. I'd urge you to look carefully at the Commission's conditions and the supporting discussion in our proposed concurrence decision to see how we've attempted to address the concerns that I know many of you have expressed about the guidelines. I'm hopeful that our staff can work with DOE to develop, fairly quickly, the necessary revisions to the guidelines to enable them to carry out the site screening function envisioned by the Act.

With regard to our initial comments on the DOE preliminary draft of the Mission Plan the NRC staff has identified seven areas of concern.

\* The first concern focuses on DOE's use of a development strategy which depends upon receiving a limited work authorization to allow repository construction to begin six months after the submission of the construction authorization application. As the NRC staff points out in its letter to DOE, the commission's regulations do not provide for a limited work authorization (LWA) for a geologic repository and a number of the commissioners have indicated their unwillingness to consider an LWA for this first-of-a-kind project.

\* The second concern has to do with DOE's estimates of the time needed for instituting testing to obtain the data needed for selection of the first repository. DOE's estimates range from eight to 27 months, although DOE acknowledges that some estimates are for considerably longer periods of time than that. Our staff has emphasized the need for DOE to assure that the estimates in the final Mission Plan reflect the uncertainty in the scale and the duration of required testing and need to provide sufficient information to support a licensing decision. We also stressed a particular uncertainty with respect to the testing that may be required to address thermal effects on waste emplacement on the host rock and ground water.

\* The staff's third concern has to do with DOE's reference to a three-year NRC licensing period. The Staff has emphasized a point that the commission has made repeatedly in testimony before



Congress. Our ability to meet a three-year licensing schedule is directly dependent upon DOE submitting a high quality and complete license application. This requires a sound and effective pre-licensing program by DOE that identifies and resolves technical issues early on and that reduces the potential for legitimate dispute over the data relied upon by DOE to support its application.

\* In line with this point, the staff's fourth concern is that the level of design detail that DOE intends to submit at the time of license application is a preliminary design and may not be sufficient to meet the requirements of our regulations.

\* Fifth, the staff emphasizes the need for DOE to establish, as soon as possible, the intended performance requirements for repository system components on a site specific basis. The staff would like to see a commitment as to when this will be done in the Mission Plan.

\* The staff's sixth concern has to do with DOE's interpretation that the Nuclear Waste Policy Act would permit construction of the underground portions of a co-located test and evaluation facility prior to the issuance of a construction authorization for the repository.

\* And finally, the staff has expressed concern that the Mission Plan makes no mention of the quality assurance program that is required by our regulations for DOE's repository development program.

I might add that while the Commission did not formally review the staff's comments, I agree with each of these points and would expect them to be addressed in the draft Mission Plan to be submitted to the Commission in April.

I want to make just a few closing comments. First, I find myself in the interesting position of having worked on the Nuclear Waste Policy Act, at least in the early stages of its development, and now having part of the responsibility to implement many of the provisions of the Act. Given the complexity of the legislation, that's no small task. In fact, I would say there are two principle characteristics of the Nuclear Waste Policy Act. First, there's a very detailed set of requirements covering virtually all aspects of repository development. Second, an aggressive schedule for accomplishing each of those steps leading to the operation of the repository. It is the combination of these two elements that poses a particular challenge to the agencies that have to carry out these responsibilities. In many respects there's a "tension" between the need to carry out the responsibilities fully and effectively and the need to meet scheduled milestones. Although the scheduled elements are important, and I know they were important to the congress, the most significant aspect in my view is to assure that we do the job right. As the Commission has emphasized repeatedly, the need to do the job right especially in the early pre-licensing stages is particularly critical since much of the success in the later licensing process will depend upon the quality of the information developed during the initial period. This is particularly true for site screening and site characterization activities. As Mike Lawrence has mentioned, there are indications that the schedules may well slip. I guess my own view would be that I think that's less significant, if the reason they slip is to really carry out those initial responsibilities fully and effectively and to make sure that we have the information needed to support a high-quality license application when it is submitted by DOE.

I think a second challenge ahead of us under the Act derives from the assignment of responsibilities to several agencies. That poses a real coordination problem for all of us. I think we've seen such problems in the site selection guidelines DOE has developed, in the FPA environmental standards, and in the subsequent need for NRC to provide more detailed guidance to DOE on what is needed to meet our licensing requirements. I think we need to do a more effective job at this coordination aspect of carrying out the responsibilities under the Act than we've done over the past year or so. And I think that responsibility falls on NRC as well as on DOE and EPA. The third challenge that I see under the Act is to build a good cooperative working relationship with the affected states and Indian tribes. In many respects, I think that this is a new way of doing business, a new experience both for DOE and for many of our people. I would expect that the learning process will continue for a bit longer. I think we have seen some evidence of the learning process in the DOE site selection guidelines development already. I think that [cooperation] is a principal challenge that faces us at least in the federal agencies over the next few years.

I guess a final challenge that I would mention again is the need to identify and resolve, as early as possible, the outstanding technical issues and to assure that when DOE submits a licensing application it is fully supported by the necessary reliable data.

#### QUESTIONS FROM THE PANEL

(Q) **Berick:** Commissioner, one of the issues highlighted in the Mission Plan was the proposal to provide monitored retrievable storage if a repository was not available by 1998. Looking at the history of this concept, Senator Johnson appears to have his interpretation of MRS, the Department of Energy seems to have a different interpretation of MRS, and some utility spokesmen seem to have yet a third interpretation. From your experience of having worked on the legislation, and now looking at it as someone who must implement it, what is your interpretation of monitored retrievable storage?

(A) **Asselstine:** I think the Act itself tended to provide a good deal of flexibility on what would constitute monitored retrievable storage. I guess my own view of MRS as it developed in the legislation was that it did not serve as a substitute for the repository program but that it was an additional outlet. It is quite clear that there are many people on the Hill who felt at the time and, I suspect, still feel very strongly that a monitored retrievable storage program is an essential component of an overall waste management strategy. I think the Act is fairly clear in providing for the submission to Congress of specific proposals for a monitored retrievable storage facility. I guess within the range provided in the Act, there is probably still a good deal of opportunity for interpretation about what the characteristics of that facility would be.

(Q) **Berick:** Could you give us a rough time frame for how long you believe that facility would operate?

(A) **Asselstine:** I suspect that is really going to depend on how the facility is designed. I know that when the legislation was being considered there was some indication at the time that such a facility might be good for, say 50 to 100 years. But I'm not

sure we have all the information that I would need to say this is what the limit ought to be or can be. I think it really depends to a large extent on the design that is developed and that's really in DOE's hands at the outset more than in ours.

(Q) **Stucker:** Jim, could I follow up and ask that question in a slightly different way. I am going to start with a premise and if you don't accept it, please say so. It seems to me the opportunity costs of developing an MRS are not at all less than the opportunity costs for a major facility to manage, store, handle, or dispose of nuclear waste. What kind of benefits do you think an MRS could offer to the nation as a whole, to the industry, to the government, to this whole program that would justify those costs?

(A) **Asselstine:** That is more of a programmatic question than a regulatory question.

(Q) **Stucker:** I ask it not only from your view as a Commissioner who is involved in making decisions that involve public participation and so on, but also from your background perspective from Capitol Hill.

(A) **Asselstine:** I suspect that you may be right that the opportunity costs may not be much different for a monitored retrievable storage facility. It may well be that there are some benefits to be gained by having an interim retrievable storage system in place. One benefit may be that it will provide an interim means of storage between the time when such a facility could be designed and built and the time when a permanent disposal facility might be available. I think, as Mike mentioned, there may be some doubt about whether the precise schedules for repository development under the Act are going to be met. MRS may well have some role as an intermediate step between the temporary storage at reactor sites that you now see and a repository. I guess my own view at the time that the Act was considered and still today is that ultimately, high-level waste or spent fuel, if it is not otherwise dealt with, ought to be disposed of in a repository.

#### DAN EGANS COMMENTS:

Given the difficult issues we are trying to wrestle with in building a consensus around the environmental standards this program should follow, I am not terribly surprised or disturbed about where we are in the process right now. If I am not able to come down here next year with final standards in hand to talk to you about what we have done, then I think we may be in trouble. Let me start off by saying something I think we don't say often enough. The Environmental Protection Agency is quite confident that high-level wastes can and will be disposed of with exceptional protection for the environment. This will probably be one of the safer endeavors mankind has ever undertaken. The sobering fact is that it will have to be for it [waste disposal] to be a successful program. That is the issue we are facing.

Since I was here last time we have had a long public comment period on the proposed standards and have built up, in many areas, a surprising consensus on some key issues. There is a very good consensus that the level of protection we've sought in the proposed standards is about right or, if not about right, it at least is a reasonable target for the program. That's consensus across people you might

characterize as being on both sides of the issue. There's a good consensus that the 10,000 year period we chose to regulate for in the proposal is certainly not too long, that it is a kind of minimum [period]. I was somewhat surprised by the strength of opinion, again on both sides of the issue, that we should look even a little longer than 10,000 years in the regulation. We're trying to build provisions into the standards that consider [longer time periods] more in a qualitative or comparative than a quantitative sense.

We've also had the opportunity to go through a long technical review process [on the standard] that was conducted through the EPA Science Advisory Board (SAB). That has just now formally been finished and the final report of the SAB panel was transmitted to the Administrator on February 17. There are many very useful and very constructive recommendations in that report and we do plan to consider them fairly strongly as we develop the final standards. Because that [SAB] document will be fairly important to the final rule, we do plan within the next couple of weeks to publish in the Federal Register a formal announcement asking for public comment on that SAB review report itself. We've indicated some areas where we have particular interest in the report, but we're also interested in the technical review and comments of the public on all the aspects of that particular document. [The Federal Register announcement] will probably be appearing within a couple of weeks but because of the time constraints of getting the standard out, it will probably be a fairly quick turn-around review. We'll try to make copies of the SAB document available, as soon as possible, to any of those of you who are interested.

The other activity I am very heavily engaged in right now is preparation of working drafts of the final rule, as we work on technical issues within the Agency and among the other Federal agencies. All of the working drafts of the rule are being placed on the public docket and are accessible to you. We want the public to be able to keep track of the process we're going through and to get some feel for why we are doing what we are doing as we go through and try [to define] an appropriate final rule.

Now, on the status report on the rule; we are still working with the NRC, DOE, and USGS on some technical details of the standards. We think in many of the places, particularly where technical issues are concerned, that we're fairly close to agreement on almost all aspects of the rule. We do plan to formally submit the rule to what we call the EPA steering committee process by the end of the month. It would then face an agency review by all the assistant administrators. When that is completed it will then face the review by the Office of Management and Budget, directed by Executive Order #12291. Now, if all of those reviews go according to schedule, the rule will be promulgated sometime early to mid-June. We hope that we will not be too far [off of our schedule] because of the intensive coordination done on the staff level with the other agencies trying to work out kinks. In some ways I think we're doing that better than we did in the proposed rule which was hung up at OMB for quite some time.

Actually the two key issues I want to talk about today should give you some perspective on why the agency thinks certain things are important in the rule and why you keep hearing about these particular issues.

First, part of the proposed rule and final rule includes seven qualitative assurance requirements over which we have something of a jurisdictional dispute with the Commission. We want to emphasize that the Agency always considered the rule to be a combined package. The numerical containment requirements and the qualitative assurance requirements are completely interdependent. We do not see how they can be split and broken apart, with one side thrown away and the other side still remaining viable. We developed a numerical structure for the standard that we believe is relatively forgiving of the inherent uncertainties in the long term calculations needed [to demonstrate compliance] because the assurance requirements would be in the standard.

Mr. Udall referred to the confidence you should have in political hot-shot experts in predicting what's going to happen with this. On this issue, many of the people in this room are the hot-shot experts. If you think the public will be confident that the environment will be protected during the disposal of these wastes, primarily because we rely on sophisticated computer analysis only we can understand, then the public comment record convinces me that you are wrong. Besides the numerical dimension of the standard--which is important, I don't mean to downplay that--it's also important that the public understand that these wastes will be disposed of in very careful steps with a very great amount of caution, reflecting the fact that there are lots of chances that all the numerical analysis we will make may be wrong in some respect. There will be surprises everyday as we go along. That's understandable, that's part of the program. Technical failures, errors in technical judgement occasionally have slowed the program down far more than they should have. We can't have standards, we can't have an environmental and public health protection mechanism that only relies on those [purely technical] types of analyses. The public knows that well. All the states, all the public interest groups, and many other people who commented on the standards have stated very strongly that the assurance requirements, or something very much like them, are an essential part of the rule. From another perspective the Agency also feels that if numerical standards stood by themselves, they would not provide adequate environmental protection.

To give you an added dimension on that, let's consider the recent National Academy of Science's (NAS) report, written by a panel chaired by Thomas Pigford. That report was extremely critical of our rule. Many of you read it. If you strip through the rhetoric in that report and ask, "what's the problem", you will find that the NAS is basically saying two things--(1) 10,000 years isn't long enough; and (2) the proposed quantitative rule could allow extremely serious individual doses to people who might try to use ground water, for some reason, in the vicinity of the repository. Our answer to that has been, "Yes, but....". The "but" is that the assurance requirements were in large part designed to try to avoid such risks and hazards, not by setting quantitative prescriptions but by setting qualitative steps that would tend to discourage those types of things from occurring. Without the assurance part of the standard in place, we do not necessarily have confidence that the numerical part of the rule really does meet the test of what adequate environmental protection should be. Understand, I am not arguing that the population risk that we targeted is a bad level. In fact, consensus is that it is a pretty good level and that

public seems to have a fair amount of confidence that it is adequate protection for that dimension of the problem. But there are lots of uncertainties in the numerical part and we did not, in the proposed rule, explicitly address individual exposures. Those are two of the [aspects of protection] that the assurance requirements deal with and why we feel they are a very important part of the EPA package.

The second issue that I will talk about briefly, because it has acquired some notoriety, is that we did have in the proposed rule an assurance requirement that releases to the environment should be kept as low as reasonably achievable or words to that effect. The ALARA principle, of course, is one that has long been followed as part of radiation protection. The Agency has not wanted to lose sight of that principle and does not plan to here. On the other hand, when NRC objected to the way we had phrased that provision, one of their comments we think was appropriate was that in part 60 the commission did a very good job of addressing defense in depth, cautious procedures, etc., in terms of the engineered barriers. The Agency has always endorsed the approach NRC took in part 60 to set strong and very protective numerical standards for the individual engineering barriers of the system. What the commission did not, and in some ways could not, address was the question of site selection. What we are working toward creating in the final rule is a provision that will place some biases in the system for selecting more protective sites. I emphasize the word bias to distinguish it from an absolute requirement. Given the case that you have two sites, "everything else being equal"--which of course is never the case; nevertheless, for theoretical argument "everything else being equal"--one of those sites [without recourse to engineered barriers] clearly will keep waste away from the accessible environment better and far longer than the other site. We think it is clear which site should be picked. Obviously everything else is not always equal. There are lots of other dimensions to the problem [transportation, safety issues, and other issues] that the Department of Energy has largely elucidated in the site selection guidelines as far as identifying the types of things that should be considered.

The Agency does not mean to tie the Department [of Energy's] hands, saying that the Department must go to the best site among the alternatives considered (best here defined in terms of best environmental protection). On the other hand, the Agency does not want that issue [of natural barriers, better sites] lost sight of either. We think comparison of sites on as rigorous a basis as possible with the data available is necessary. Recognizing that the amount of data is always a limitation, comparison of sites, not engineering characteristics, should be done as often as possible and be a significant consideration in the final site selection, albeit not the only consideration. So if the Agency has a bias from our mission, which is protection of the environment, we do have a bias towards picking a site that will keep high-level or transuranic waste out of the environment as well as possible. It is just that, a bias, not an absolute requirement. We mean to try to keep that clear, and also let you understand the dimensions of that problem. We think the Department [of Energy] in general, through the siting guidelines, is developing a good grasp of the range of issues that need to be considered [in siting]. We have so commented in the EPA's comments to the DOE guidelines that, given a difficulty in setting many of the technical criteria there, they

[DOE] have gone a long way in a proper direction. But, we've encouraged the DOE to be a little more specific on the aspect of quantitatively comparing the performance of sites, one with another.

Those are the two issues I thought you should know about now. In fact, you may want to ask me questions about them either now or later in the panel discussion. There are a number of other technical issues we are working with and I think we will sort those out in time. I emphasized these two as, perhaps, the nappiest problems we've got left to deal with. I was encouraged by Commissioner Asselstine's comment that we do need the federal agencies [to act] to both retain the coordination we have so far and to make sure we make that coordination process even better. This will help to get the standard well on the way towards promulgation. I do look forward very much to being able to come down here next year and say, "Hey, we're done with this; here it is! We think this is the basis on which the program can proceed with a great deal of public and state confidence".

#### QUESTIONS FROM THE PANEL

(Q) Cotton: Dan, I know that you said that numerical standards aren't everything, but there is still a very important role in the licensing process for performance assessments to show that the repository can be expected to meet the numerical criteria. One of the key challenges in the licensing process comes when you have to make a convincing case that those criteria are going to be met over a 10,000 year period. The licensing process could be delayed because some of the major issues about performance assessment haven't been thrashed out in detail before you ever get to the licensing process. So I wonder if you could tell us what you think would be the most important things that could be done through the end of the decade to resolve those questions before we hit licensing. Do you think it would be useful for DOE to include in their site characterization plan a preliminary performance assessment based on the data that is available from the surface, that looks at the conceptual repository design that DOE has to include in the site characterization plan?

(A) Egan: Procedurally, what we have been trying to do in the rule is to try to craft explicit guidance on what we mean by compliance with these new long-term numerical requirements. Although we expect analysis to be as quantitative as possible, there come places where just plain good old qualitative judgment and expert opinion is an inevitable part of the process, and that's appropriate. In fact, that's one of the issues we struggle with a great deal with the rules when we try to craft something with this type of long-term numerical projective structure that is still practical. And that's one of the things that has taken us a while, with the NRC staff in particular, although we are making fairly good progress now.

Regarding your comment about DOE, I personally would advocate doing a performance assessment as early as possible, whenever possible, even with data that is inadequate, just to go through the exercise with the understanding that some of the analysis will be off base, and that should be expected. We should try as best we can to communicate the fact that because we made a mistake in this early draft analysis does not mean we'll never know anything. It is a problem. There is always a tendency not to want to do an

analysis on insufficient data for fear you will make a mistake and then you will look like a fool. We all worry about that and it tends to stop us sometimes, quicker than I think is appropriate. I was just invited by Weston, one of the contractors to DOE, to participate in a performance assessment review group. I don't know the full details but they seem to be making a fairly sustained effort to work through the analytical process and determine what makes sense and what should be standardized or cross-referenced with each other. I think that is the type of activity that we would be well advised to start as soon as possible and I do see procedures to begin that now.

One of the aspects of coordination that has gone very well between NRC and ourselves has been a lot of cross-referencing of our computer methodologies with the computer methodologies developed for NRC by Sandia. The results have generally been very positive and we've done a lot of benchmarking runs with those methodologies, knowing that those two at least agree. Now the Department [of Energy] has not been closely involved with that to date, but I suspect this other activity may give them a vehicle to do so.

#### HOLMES BROWN COMMENTS:

I appreciate this opportunity to present the states perspective on the implementation of a high-level waste bill. I think to perhaps get a measure of the progress that we have made, it is advisable to look at the situation we were in two years ago. At that point the program was facing the same uncertainties that it had over the past decade--frequent program changes and uncertain funding sources. Passage of the [Nuclear Waste Policy] Act and the declared purposes of the Act established a set schedule for building a repository. The Act established a federal waste program that cut across the board, not with just repositories, but such issues as on-site storage, federal interim-storage, and a possible monitored retrievable storage [MRS] program. The Act also provided a secure source of funding [for these programs] and, finally, it established the provisions for state/federal relationships. These are not insignificant achievements. I think we have to remember this progress when looking at implementation, comparing the progress to the situation that existed just two years ago.

The Act represents the first congressionally mandated resolution of the technical and institutional issues involving high-level waste. From the states' perspective, it is important that the bill does contain an extensive role for states. This was not accidental. The high-level waste bill received four years of extended consideration in Congress, and in the end Congress accepted the state role as integral to the program. The bill represents a consensus arrived at among federal agencies, states, industry, and public interest groups, and it recognizes in its provisions that the task before us is both political and institutional. I want to emphasize that the Act would not have passed without state support, and Congress could still be debating what the federal program on high-level waste should be. The state endorsement of a high-level waste bill represents a bargain with the other constituencies. The state partnership in the process was to be institutionalized in law and sustained throughout the lifetime of the program. I would like to emphasize this last point dealing with consensus, the consensus achieved among the four

constituencies. This consensus must be maintained throughout the lifetime of the program. It was not a temporary marriage of convenience to pass a bill, but rather an on-going, dynamic coalition whose continued existence is essential to successful implementation of the program. Recognizing that the high-level waste bill represents a framework within which the remaining issues involving high-level waste storage and disposal will be resolved explains what has transpired [on waste disposal] over the past year and what we can expect in the future.

I would like at this point to express a note of cautious optimism about ultimately achieving the goals of the Act. To explain this, I would like to return to the provisions of the Act on which the states place the greatest emphasis. First of all, there are the [requirements for siting] guidelines with the provision that states be involved in their preparation. Secondly, the requirement for environmental assessments at each of the sites which are recommended, along with [allowance for] judicial review. Third, timely state access to complete information. Fourth, impact assistance funding, in addition to funding for technical personnel to review the progress of the Department of Energy's site specific implementation. Fifth, signed agreements between the states and the Department of Energy. Finally, the provision for the two [Houses of Congress] to override [a state veto of a site].

The dual focus of all of these provisions was first, to improve the technical quality of the site selection process by insulating it, to a large extent, from parochial/political interference. Secondly, to allow states sufficient participation in the program so that public confidence could be established and maintained. These two goals of improving technical quality and building public confidence remain the collective motivation of states during implementation of the Act. I believe the federal agencies' characterization this morning confirms the constructive nature of states participation up to this point.

I would now like to provide a brief review of the past year of implementation and an assessment of the program's future. First, the [DOE siting] guidelines--when you mention guidelines, the most frequent response is that we are way behind schedule on them. Admittedly that is the case, but I think a more important lesson can be derived from attempts to establish [siting] guidelines. The first version of the guidelines was inadequate from the states perspective. This critical document, in our view, should fulfill the declared goals of section 112(a) of the Act, which is to establish for the record the criteria for selection before the [site selection] process begins. [In the absence of highly] specific defensible criteria, we feel that the Department of Energy will later be subject to intense political pressures to eliminate certain sites. The more specific the guidelines and selection criteria are at this point, the less political pressure and parochial interest will occur later in the program. The states consulted with the Department of Energy at length about the guidelines, and we felt in some ways, without much success. It is gratifying to us that several of the major points which states raised throughout their consultation on the guidelines have been sustained by the Nuclear Regulatory Commission. The most disquieting aspect of the guidelines episode is that the states feel that the consultation with DOE was not entirely successful. There was no absence of opportunity for discussion but, frequently, legitimate suggestions from states

were never understood or integrated into the revised versions of the guidelines. One of the challenges ahead is to better coordinate consultation on the preparation of future complex and sensitive documents.

The Missions Plan offers the next opportunity for state/federal consultation on a vital document. States have again submitted a number of comments. The Department of Energy is currently revising the [Mission] document. The results of the revision will give some indication as to whether lessons on consultation have been derived from the [siting] guidelines episode.

#### QUESTIONS FROM THE PANEL

(Q) **Davis:** Since you didn't mention anything about the MRS, I was wondering if you would describe the states perspective on the MRS program?

(A) **Brown:** The states considered the role of the MRS during Congressional deliberations on the Act. We have not revisited that issue and I think probably will not until more information is available from the Department of Energy. At the time the bill was before Congress the main argument was whether the MRS would be developed on a parallel track with the mined repository, or whether it would be considered a back-up facility. The states decided at that time that the primary emphasis of the high-level waste bill should be on a mined repository and that MRS should be included as a back-up facility. I believe this approach is reflected in the Act. The states will be looking at the schedule of implementation and the proposals put forth by the Department of Energy. We may want to revisit the issue at that time, but at this point we retain the policy of primary emphasis on the mined repository.

(Q) **Cooper:** In view of your comments about the need for assistance to states to effectively implement the state participation process, do you think the fee is adequate at the present one mil per kilowatt hour level? Or, do you think the fee will have to be raised and if so, when?

(A) **Brown:** The impact assistance requirements of the Act are not going to constitute a very high drain on the fee. If the fee needs revision it is going to be because of the requirements of repository construction. We did calculations when the Act was before Congress about how much money would be involved in impact assistance and it always came out to be a very small percentage. I might comment very briefly on the question of incentive payments to states. When the Act was before Congress some of the bills on the House side contained substantial payments to states as incentives--one included three million dollars per year during construction, I believe, and ten million dollars per year during the lifetime of the repository. We argued against those provisions, feeling that impact assistance was the legitimate approach, since a state should not be penalized both by being a host state and by having to subsidize a national program. We felt that if you make incentive payments to states, it is going to compromise public confidence. People are always going to wonder whether their state legislature or governor agreed to go along with the DOE plan because it brought a lot of money into the state. We felt there were many disadvantages to incentive payments and the chances of ten million dollars convincing a state to take a repository is so slight

that those provisions should not be included.

#### LINN DRAPER COMMENTS:

Let me begin with a disclaimer. Unlike each of the other panelists here who have fairly clearly defined constituencies, I am here as a representative of the utilities. There are at least fifty utilities that, in one way or another, have some interest in the nuclear waste management business--either because they have an operating reactor in service or they have a nuclear construction project that is well along and almost certain to be completed. For that reason, I am speaking specifically for one utility, but attempting to represent the others.

In discussing the utilities point of view, I think it is useful to go back and look at the situation of nuclear utilities in the late 1970's and early 1980's, just before the passage of the Nuclear Waste Policy Act of 1982. During that period, there were no new orders for nuclear power plants--there haven't been any since 1978. Those who were interested in the utility business and thinking of building a nuclear reactor, I think, viewed three major impediments to the orders for new nuclear plants. First was the financial weakness that was almost universal among the utilities in the late 1970's and early 1980's. The situation now, in 1984, is mixed. A number of the utilities are in better financial condition, a number are in worse financial condition, and many are about the same. A second major impediment to the ordering of nuclear power plants was the issue of regulatory reform, with all the attendant things such as back-fitting, licensing, and what-not. There has been very little progress made on that score in the last several years. The third major impediment was the uncertainty about the management of nuclear waste.

When the Nuclear Waste Policy Act was passed in 1982 and signed into law on January 7, 1983 there were high expectations. The utilities thought one of the major roadblocks to continued operation of nuclear plants, and perhaps even to the ordering of additional nuclear plants, would now be removed. There were at least three very important provisions to that act. One was that a firm schedule was provided for the construction of a radioactive waste repository and the deposit of radioactive waste by 1998. The second important provision was that a fee [for this] was fixed in law. The third provision was a mechanism by which the states could interact in the decision-making process. It would appear to me now that each of these three major provisions is at some peril, and I would like to say more about that in just a few minutes.

The utilities and other participants in the waste disposal business have several organizations that are attempting to interact with the Department of Energy and other federal agencies in the construction, licensing, and operation of the waste repository. To be specific, two organizations--one, the Utility Nuclear Waste Management Group, which has been in existence for about four years now, decided to focus its efforts specifically on the provisions of the Waste Policy Act beginning in early 1983. This is an organization of forty odd utilities, representing both the investor-owned utilities as well as the co-ops and public power utilities. They attempted, through their organizational structure, to get organized and look at what the Department of Energy was doing and how it was interacting with other organizations. A

second organization with broader based representation was established under the auspices of the Atomic Industrial Forum. Again, the objective was to monitor the activities of the Department of Energy and other agencies that are players in the game of radioactive waste management. These organizations have been in existence for about a year now and I think that, although they have made some progress, they still have a long way to go. The principal concerns of these organizations, I think, can well be characterized by the remarks Congressman Udall made at the beginning of the meeting. The first of these is the issue of leadership and direction. We believe that the people who have been in charge of the Civilian Nuclear Waste Management Program, that is Bob Morgan and Mike Lawrence, are extremely able people. But it is not enough to be able. One must have an organizational structure that will allow the job to be done. When one has an acting director, it is very difficult for the organization to take firm shape. We have concerns about the ability of the headquarters organization in Washington to see that the job is done at the field level.

A second concern revolves around the Mission Plan and the related issue of scheduling. We have seen that in the preliminary draft of the Mission Plan the schedule, at least for the selection of the first site, has slipped some three to four years. There are provisions in that Mission Plan to make up that time if a limited work authorization can be issued in 1991. We have also heard from the Department of Energy, however, that if something goes wrong and we are not able to have a geologic repository in 1998, the logical thing to do would be to have a monitored retrievable storage [MRS] facility. We're further told that such a decision to go on to an MRS facility and have it operational by 1998 must be made in 1987--four years before the decision on the limited work authorization will be rendered. I think that [plan] is cause for concern. I think everyone should be concerned that a firm schedule be adhered to because in my judgement, lack of action on the waste disposal issue is perceived by the public as lack of ability to act. They believe that inaction is a sign of inability ever to dispose of radioactive waste.

On the issue of cost, I think there is also a concern. We have cast into law the one mill per kilowatt hour fee with certain provisions for raising it. There is also provision in that law for the Department of Energy to go to the treasury, if in the early years it is necessary to do so, and borrow money against the future receipts from the electric utilities. Money is now flowing into the federal coffers at the rate of about 300 million dollars a year, or roughly a million dollars a day. There are indications in the current budget that this won't be enough in the early years. The proposed DOE fix for that insufficient revenue is not to go to the Treasury to borrow, but to raise the fee at the inflation rate. Again, I think that is a disastrous course to embark upon. I think that we should take advantage of the provisions of the law which allow borrowing against the fund (which every study I have seen shows, in the long run, will be sufficient to finance the program).

Finally, the interactions with the states have been less than perfect. We are now over a year into the program and there are still major concerns. I think the jury is still out on that [issue] but again, I think there are reasons to be concerned. I think that it is wise to go cautiously. We must be sure

that the states' concerns are satisfied, but if what we are doing is providing a protracted, carefully orchestrated process that will inevitably lead to negative results, what have we gained by slowing down the process?

Finally, a comment about the contracts. The contract between the utilities currently operating nuclear plants and the Department of Energy was entered into hastily. The utilities had very little ability to resist the terms of the contract and a number of its provisions have now been challenged. The difficulty with the contract is that there is very little redress. If the Department of Energy does not live up to its responsibilities and some sort of financial penalty is imposed after all, who will pay that financial penalty?--We will be paying ourselves.

In summary, I think there is great concern about the radioactive waste management program. There are a number of positive things that have occurred during the last year, but I think it is accurate to say that the utilities are waiting to see what happens in the next several months--to see whether or not a very difficult project will finally take shape and we can have confidence that radioactive waste will be disposed of before the turn of the century.

#### QUESTIONS FROM THE PANEL

(Q) **Dravo:** You indicated in your remarks that you think DOE should meet a 1998 deadline. Assuming that the Nuclear Regulatory Commission will not consider a limited work authorization for a waste repository, and assuming also that everything will move better if management and direction for the program materializes, how would you propose that DOE meet the 1998 deadline, considering the technical requirements of the program?

(A) **Draper:** I think there are two alternatives. One is to propose a Mission Plan that has a realistic schedule, says what can be done precisely on what schedule, and how much it will cost. In other words, a very detailed Mission Plan which would either show that you could make the 1998 deadline or you could not. I think the current Mission Plan is inadequate to make that judgement. If it becomes clear when the detailed Mission Plan has been presented that a geologic repository cannot meet the 1998 date, then I think a decision must be made to begin a monitored retrievable storage facility which could meet that date.

(Q) **Dravo:** Then do you assume the federal government has responsibility to provide interim storage between 1998 and repository operation; and if so, given the history of the interim storage controversy in Congress, should the utilities rely on the Department of Energy to provide that interim storage and to what extent are they relying on it now?

(A) **Draper:** I think at this stage the utilities believe that the contract they have signed with DOE which says that waste will be received in 1998 will be honored. I think that was the intent of Congress, but you are in a far better position than I to speak for them. If that is not the situation, I think we need to have a very early signal from Congress so that alternate provisions for interim storage can be made.

(Q) **Davis:** With the fact that the only role the

utility industry was given in the Nuclear Waste Policy Act was one of financing the program, do you think given the utilities stake in the outcome, that they ought to have a somewhat larger role in the oversight and implementation of the program?

(A) **Draper:** Let me say first that the utilities act as a conduit for the money from the ratepayers. The people who are really paying the freight in radioactive waste disposal are the ones who pay our electric rates, and we do feel that we have a fiduciary responsibility to them. We would like to see the utilities have a major role in the decisions that are made. So far there is no indication that this will not be the case, but it is a little early to tell.

#### QUESTIONS FROM THE FLOOR

(Q) **Halstead (State of Wisconsin):** My understanding is that DOE is still proposing to add responsibilities for the uranium enrichment program to the job of Director of the Office of Civilian Radioactive Waste Management. I was wondering if Mr. Draper could give us a utility perspective on the wisdom or folly of such a decision.

(A) **Draper:** I can give you a personal opinion on such a decision, and that is that it would be unwise to combine these two activities. I think the thing these two activities have in common is they are big and they are hard. It seems to me that we ought not try to intermingle two things that are essentially unrelated under the direction of a single individual. I think the Waste Management Program is clearly a full-time job and we would hope that whoever has that full-time job would not have his attention diverted to other things such as the enrichment program.

(Q) **Halstead:** I wonder if Mr. Lawrence would like to comment on the DOE perspective?

(A) **Lawrence:** It is a full-time job and it does take a lot of time. I think the Secretary's intent in combining these two functions was to have the day to day management of enrichment also be the responsibility of the Director of the Office of Civilian Radioactive Waste Management since both report to the Secretary. He wanted to let his proposal be known early prior to a name being submitted to the Senate for consideration as Director of the Office so that this could be taken into account. I think that based upon all the comments he has had about putting the two together, he is now reconsidering that proposal. It is his decision, but it is not locked in concrete.

(Q) **Forsberg (Oak Ridge National Laboratory):** In a number of European countries internally consistent, rational, hazardous waste programs are being developed. For example, geological disposal is used for more hazardous elemental wastes (arsenic, barium, and other toxic wastes) in West Germany and the salt mine disposal for these wastes is in its sixth year of operation--it is handling about 40,000 tons a year. In the United States, we don't have a consistent set of hazardous waste regulations. We have one set of rules for radioactive wastes and one set for hazardous elemental wastes. Is this inconsistency going to cause us a problem down the road when somebody decides to adopt consistent regulations, as Ruckelshaus has proposed? In other words, are we going to go back four, five, six years from now and say we have to reexamine these

regulations because we want a consistent set of regulations to handle all long-lived hazardous wastes and not just the very narrow category of radioactive wastes?

(A) Egan: I think the question is a very fair one as so far there has not been a major effort in the Agency to try to make the two sides of that issue consistent. In this country the chemically hazardous waste business, from a federal regulatory stand-point, is very embryonic and still struggling with its own issues. I work in the Office of Radiation Programs and obviously have a fairly parochial interest myself. We have tried to make sure that our regulatory program is not stalled by something like that. I would have great doubt that anything we do here will be rescinded because the chemically hazardous waste program regulations are safer than ours. I also suspect that, with our regulatory program underway, the nuclear waste program will not be delayed by efforts to make it less safe just because the chemically hazardous waste programs are less safe. A concern I have long had is the possibility that the chemically hazardous waste programs may see this activity as a threat to their program. So far that has only been a concern of my own and has not materialized. As to Mr. Ruckelshaus' involvement in this (he is fairly new to the Agency), I can't answer that question because it hasn't come up yet. See me next year and we will hope.

#### QUESTIONS FROM THE PANEL

(Q) Berick: I would like to address the question to both Dan Egan and Commissioner Asselstine. Both of you spoke very enthusiastically about interagency cooperation and accommodation with the Department of Energy and each other. Certainly recognizing that is very important, I think it is also important to recognize that you are independent regulatory agencies. Where would you draw the line between interagency cooperation and maintaining your independent regulatory authority, and what procedural safeguards are your agencies prepared to adopt to assure your regulatory independence?

(A) Asselstine: First I think our view has always been that we want an informal prelicensing process. One of the reasons we wanted that process was to be able to discuss informally with the Department (which ultimately would be our license applicant) the steps they were taking to assure that when a license application was submitted it would be the kind of application we need to make reasonable and sensible licensing decisions. So we structured our rules even before the Waste Act was established to provide for a more informal prelicensing process. At the same time, I don't think there has ever been any question that we would maintain our independence and maintain our ability to reach a judgement later on. We do have the benefit, as we do in our other licensing activities, of having staff involvement prior to having the Commission ultimately make the licensing decision. There is some benefit in the staff having preliminary and informal discussion with the potential license applicant in preparation for the ultimate license application. In terms of procedures [safeguards], I don't think we have too many formal procedures to assure our continued independence. I think, perhaps, the best protection is that we intend to operate the process fairly and openly and to provide everyone an opportunity to assure we are carrying out our responsibilities as an independent regulatory agency. I think we will continue to do that, I think we have done that so

far, and I think the opportunity for interaction with the states and other interested people provides that opportunity for monitoring our performance and conduct.

(A) Egan: We interact quite often with the Department and even more frequently with the Commission on technical issues associated with developing the rule. What we have tried to do in developing the final rule is to make clear that all those discussions and the working drafts that come from them are docketed for the record and available for review. The latter approach is a fairly unusual feature for our particular office in the EPA. Normally, internal working drafts of the rule are not public documents. The proposed rule and the final rule are, of course, made public; but we have gone the extra step here in trying to make sure everything we commit to paper for external agency review is also available for everybody else so that process is as open as possible. So far, we think we are fairly successful in keeping an independent position here, and certainly we are not rushing into an agreement on everything. I am fairly comfortable with that and hope other people can be too.

(Q) Carter: It appears to me that there is an inherent tension and conflict within the National Governors Association over the nuclear waste disposal issue. On one hand you have a majority of states, many of them having reactors, that want to see the problem of ultimate disposal solved. You also have a minority of potential host states who don't want the disposal carried out at their expense. Is there any way the conflict can be solved in a creative fashion, perhaps through major incentive payments as a way of getting potential host states to look at their repository sites as a resource for which they might receive something in the way of reverse severance tax?

(A) Brown: The tension that you allude to has actually not surfaced yet. In some ways it is reflective of what happened in Congress. The states who knew they were under consideration for a high-level waste repository were on notice and their delegations exercised considerable influence over the provisions of the Act. The states with spent fuel stacking up at the repositories were certainly less influential, and the same balance of forces still exists within the National Governors Association at this point. In other words, there has not been a lot of pressure from the states with reactors to accelerate the schedule or alter the Nuclear Waste Policy Act. This will change over time and it will change for two reasons.

First, transportation is going to become a very major focus. There has been very little spent fuel on the road up to this point but, as evidenced by the shipments that originated at West Valley, once spent fuel hits the road you find a lot of interest. State interest is certainly going to accelerate.

Secondly, the potential host states are a diminishing category. Right now there are 23 states in that category--a year from now you are going to find that [number] cut at least in half (and maybe less), eventually working down to say four, and then to two. So the ratio between those states having spent fuel they want to get rid of and those states under consideration for a repository is going to alter dramatically, with the potential host states significantly outnumbered. I think you can predict who may prevail in those circumstances, say ten years from now, because you are going to have a lot



more states with reactors than states with a repository. On the other hand, the high-level waste bill institutionalized a lot of the participation and protection to be afforded the host states. One good reason for having the Bill pass when it did was to assure that the host state doesn't end up feeling like it is being victimized by the rest of the country.

(Q) **Cotton:** Specifically, I would like to know if you have any clear idea how much spent fuel the utilities expect the federal government to accept in 1998 to fulfill its commitments? The Act says you begin disposal at a repository in 1998, and it would seem to me that Mike Lawrence's idea of beginning operation with a partial loading facility at the repository in 1998 would satisfy that requirement. I wonder if you think that is adequate or whether in your view there is some obligation for the federal government to be accepting waste at a rate comparable to that of spent fuel generation, or to accept all the spent fuel that is in storage at that time. It is really a very important question when you come to making decisions about the scale-up of operations at the repository and about any interim storage that will be needed from 1998 thereafter.

(A) **Draper:** I think the expectation of a majority of the utilities is that the Department will accept less than the amount being discharged in 1998 and more than a few assemblies. In other words, I don't think if DOE accepted one or two fuel assemblies the utilities would feel they [DOE] had discharged their obligations. On the other hand, I don't think the utilities are expecting in 1998 that the repository will be accepting 9,000 canisters a year or one every hour. The numbers that have been discussed in some of the early conversations between the Department and organizations I have been involved with suggest that in the first year or so of operation the repository might be in a position to accept on the order of half of the spent fuel that is discharged in that year--in other words around 4000 spent fuel assemblies--and I think that if the number is 2000 instead of 4000, or 6000 instead of 4000, that would be within the range of our expectations.

(Q) **Davis:** I was wondering if we couldn't take advantage of [Commissioner Asselstine's] unique position here, having played a large role in fashioning the legislation and now being in charge of implementing it. Could you perhaps enlighten us as to whether or not the Act requires three sites to be found suitable post-characterization?

(A) **Asselstine:** I would say that the Act is probably less clear than many of us would hope on that point. The way I read the Act, it does not necessarily require that at the end of the characterization process you still have three sites that are qualified in accordance with the guidelines. As I read it, the Act does not specify when the Secretary's preliminary determination is to be made. I know there are strongly held feelings on this issue among people on the Hill who worked on the Act and were responsible for it, and I know those feelings go in different directions. We have identified this as an issue in the staff's comments to DOE on the preliminary draft of the Mission Plan and we have asked that DOE expand on that issue in the Mission Plan, but I guess my own view is that the Act does not require, at the end of the characterization process, that there be three sites that are qualified under the guidelines. But, I

would be the first to admit that the Act is not real clear on that point and there are strong views in both directions.

(A) **Lawrence:** I agree that the Act is not clear on this. When you look at the cost of selecting sites, to be assured of ending up with three completely suitable sites post-characterization, starting with four sites does not necessarily mean you will end up with three, so you have to talk about four plus sites if you want to start playing a risk game. If you total the cost for characterization, you are talking about hundreds of millions of dollars per site plus having to go to a state and say "just in case we fail somewhere else, we are going to add you to this process"; that is something we do not feel we can reasonably do. Consequently, we feel the only prudent thing to do is start with three sites, making the process of selecting those sites as sound as possible to assure we are going with three sites we have high confidence in so that when we complete the characterization process we'll wind up with three acceptable sites. We just cannot deal with it any other way, reasonably, and we are trying to put this in writing back to the Congress as well as into the Mission Plan.

(Q) **Dravo:** I would like some more information about where the Department of Energy is going now with the Mission Plan. Assuming that there was a policy decision that the Mission Plan would start from the 1998 operating date and work back from that, has there been any change in that policy that will affect the revisions of the Mission Plan?

(A) **Lawrence:** Clearly we think the 1998 date is a critical date and you must have a credible program leading to a license to proceed with construction of whatever you are going to have in place by 1998. We think we can lay out various scenarios for each step from the recommendation of three sites to the exploratory shaft activities, to the site characterization, to the environmental impact statement, to the licensing and then actual construction of a repository. There will be a number of paths and options under each one of those categories which allow you to layout a reasonable course ending up with the initial operation of a licensed disposal system in 1998. That assumes, when I say a licensed system, that you have submitted a quality license application to NRC that they can act on. It assumes that you have collected sufficient data to support that license application. But until you have actually gone through the site characterization plan and actually started collecting the data you can't be confident about how long it is going to take to get sufficient data. So we will lay out a course which will also identify ways to speed up the process later on if you find you are getting behind. We do feel the 1998 date is important but, as we have stated in the past, if a date has to be missed in order to meet and satisfy the procedural or technical requirements for sufficient data, it will be missed.

(Q) **Dravo:** Let me ask the same question a little differently. Let's say there are three ways of looking at the Mission Plan. One is that the Mission Plan will lay out a scenario for having an operating repository by 1998. Another is that the Mission Plan will lay out the most likely scenario for the DOE program from now through the future. And the other is that the Mission Plan will lay out the safest most conservative course for assuring that you get to a repository sooner or later. Now which of those objectives is the most important, and

which of them will the Mission Plan accomplish given that they may not all be consistent?

(A) **Lawrence:** I really think the one you pick depends upon your perspective. What we intend to do is lay out data in each one of those areas so you can go ahead and pick for yourself which one you think is most likely and most conservative. We're going to pick a course which we think satisfies our requirements and is achievable both from a technical and institutional point of view. But if someone wants to ask how long it would take if we make more pessimistic or conservative assumptions, the dates will be in there to let you see when such a repository would be in operation. Clearly though, once you start adding in things like litigation and court suits, the additional time added to the program could be almost limitless.

(Q) **Dravo:** So, there will be different options for the course the program could take and some charting of what the DOE considers the most likely and best course. And will it then end up with a 1998 operating repository?

(A) **Lawrence:** That is our intent right now, that is what we are working on.

(Q) **Dravo:** Both the most likely and safest, most conservative course would end up with a 1998 repository?

(A) **Lawrence:** We're going to lay out a reference case which we think is achievable and, from that point of view, is likely because that is what we are going to be shooting for.

(Q) **Frishman:** Given that we now have a draft concurrence order from the NRC which contains seven elements of which at least four are going to be fairly difficult to resolve, what do you view as the likely interaction between the NRC and DOE staff people in order to get something back to the Commission? Is this guidance? Is it negotiation? I see a potential wall existing based on what Mike said today--that he still is of the opinion that the guidelines are suitable as they are.

(A) **Asselstine:** I think our staff has a fairly good sense now of what the Commission wants in terms of revisions to the guidelines. We've outlined our conditions, we've had a good deal of discussion in the Commission meetings on the types of things we want to see in terms of the revisions and, for my part, I see the staff (in discussing this further with the DOE people) as working to assure that revisions are developed by DOE that really satisfy the Commission's concerns, so that when they go back to the Commission with the final version of these guidelines it is likely that we will then be able to sign off on them and say now our conditions have been satisfied. That is the role that I see our staff playing now and in the subsequent discussions with DOE. I would emphasize, of course, that the concurrence decision we put out is a proposed concurrence decision and I think all of us recognize that it is not final until people have been given the opportunity to comment on it, and then the Commission will reach a final decision that it is comfortable with. From our standpoint, though, I don't think that impedes beginning some initial work almost immediately at the staff level to try to assist DOE in developing the kinds of revision that we think are needed to satisfy the Commission's concerns.

(A) **Lawrence:** I indicated that we felt that the guidelines were acceptable. Certainly they are acceptable to us in their current form or we would not have sent them on to NRC but, obviously, in order to have final guidelines they have to have the NRC concurrence. So from that point of view they are not acceptable. We do anticipate being able to resolve our differences with NRC. Of the seven concerns mentioned in the presentation this morning, we think that four are relatively straightforward to resolve. The other three issues (five, six and seven) are issues which our staffs, working together, hopefully can resolve. I believe that is going to begin this week and we anticipate successful resolution.

(Q) **Gervers:** There has been some concern expressed that the staff negotiations will be going on concurrently with the 21-day comment period on the draft concurrence order and that comments received late in that period may not be reflected in the negotiations. How do you see this being avoided?

(A) **Lawrence:** I think that while these two processes are going on there will be constant interaction between the results of the public comments and the discussions between DOE and NRC. I think during the 21 days it will be going on concurrently.

(A) **Asselstine:** I would say that the processes will go along concurrently but they are independent. What we are doing is allowing our staff to get a head start on working out revisions to the guidelines, but it may well be that the Commission will decide after reviewing the comments that some additional conditions will be necessary or perhaps that one or more of the conditions that we imposed were not necessary. I suspect the latter case may be fairly unlikely, at least in my mind, but that is always a possibility. I think our feeling was that there was no reason that the staffs couldn't go ahead and start working on the necessary revision. It doesn't foreclose or in any way limit the Commission's options or flexibility in terms of reaching a decision on what the final set of conditions should be.

(Q) **Stucker:** I've come away with the sense that the revision of the Mission Plan expected, in April begins with a reference case based on the 1998 date and then there will be various alternative scenarios that will somehow be laid out ending up with a smorgasbord from which everybody can pick and choose. Mike said you can kind of draw your own conclusion as to what will happen in the future. I am thinking in terms of the purpose of the Plan as defined in the Act, and I would just like to ask Linn to look at it from the point of view of a person who works in the utilities and then have Holmes look at it from the point of view of one who works from the state perspective. What do you people think that Mission Plan should do? If I may, Linn, it seems to me you were suggesting at one point in your remarks that the Mission Plan should, in fact, fulfill the intent that was defined in the Act. That is, it should give the DOE's most realistic statement of how we can accomplish the principle purpose of the 1982 law--the safe permanent disposal of high-level waste or spent fuel. Could you just reflect on that and tell us what you think you want out of that plan?

(A) **Draper:** Without having seen what the revised Mission Plan looks like, it is somewhat difficult to comment. From my own perspective, what I would like

to see is a document that has sufficient detail to tell us whether we will have a geologic repository with relatively high confidence available in 1998 or why not. In other words, we would have a schedule that has some provisions for contingencies that come along. In any schedule for building a large facility there are a number of things that are uncertain and you have to work with plans that allow you to make it. If it becomes clear that it is absolutely impossible to make the 1998 date, I would like to know why. Then I would think that alternative plans for the DOE to receive spent fuel should be formulated fairly quickly.

(A) **Brown:** Yes, I would agree that the Congressional intent for the Mission Plan is pretty specific. They specified eleven points that were to be included in the Mission Plan and I believe that Congress wanted the plan to lay out a pretty specific schedule and show how the Department was going to go about it. I know the states are looking for that. We have got decisions to make, as well, if spent fuel is not going to a repository by 1998.

(A) **Lawrence:** I think that the Mission Plan as we envision revising it would meet the expectations of both Linn and Holmes on that. The Act never says how much waste you need to begin accepting in 1998. It simply says you begin accepting waste for disposal in 1998. Clearly, that is more than just a few assemblies if it is to be meaningful. We do believe that we can lay out a schedule, an achievable schedule, given certain assumptions about how long it takes for a license and how long it takes for characterization--which always will be subject to criticism or debate. We can lay out a credible set of assumptions and then a mechanism whereby in 1998 we would start operation of a licensed disposal system.

Now, as to how much fuel the system accepts, we've got to look at a number of options which we are currently considering and haven't drawn the final line on. For instance, I believe later on in this meeting the Tennessee Valley Authority will be talking about a waste system which they are considering--a disposal package if you will. We are looking at options such as that and, if systems like that are determined to be feasible and licensable, it will have a tremendous impact on what we are able to do and when we are able to begin accepting waste and in what quantities. We don't have all the answers we need for the system right now. We don't have definitive answers on packaging, or what is going to happen at reactor sites, or what is going to happen at repository sites, or anywhere in between. But if we can lay out a credible system which, given the assumptions we have right now, shows how we can meet the schedule and ways we can make improvements or expect delays, that is the best we can do. We can lay out that data and say whether we think this is achievable and meets our objective. And as far as what is the most conservative or most optimistic case, we've got people driving on both sides of the fence on this one. We are going to lay out what we think is the best course for the DOE to satisfy its statutory responsibilities under the Act and give everyone a shot at commenting on that.

(Q) **Cooper:** I want to home in on this 1998 date. The provision in the Act where this is discussed is Section 302(a)(5). If the operation of a repository is not commenced on that 1998 date because we are taking the time to do it right, what is the legal obligation of the federal government?

(A) **Asselstine:** I guess I haven't thought about it too much since I left the Hill, but it does seem to me on quick rereading of the provision that there probably is an obligation to do something to deal with the continued generation of waste. Now, what that specifically is, I don't know. I guess it is really more a question for Mike since the legal obligation flows more directly to DOE rather than to us since they are the ones who have entered into the contract. It does seem to me that part of the arrangement under the Act was a Federal commitment to provide services in return for the payment of a fee.

(A) **Lawrence:** There are some backup activities (such as the MRS) if a repository is not available that could be instituted with further congressional authorization and appropriation. The deployment plan which we will have in our MRS proposal to Congress in June of 1985 will lay out a mechanism-triggering mechanism, if you will, saying when certain decisions would need to be made for the MRS to be in place no later than 1998, providing the Federal disposal system is not available at that point in time. But as to whether or not the MRS backup plan meets the congressional intent, we would have to get additional congressional authorization and appropriation.

On the other hand there are certain activities which do appear to be within our legal authority right now, provided that we have a repository license and are under construction. Both the Act and the contracts require us to begin accepting waste for disposal. Certain people have offered suggestions as to how we could begin doing that at the reactor site, perhaps providing a federal transportable casket. If that is a licensed piece of equipment at that point in time, people suggest that we begin accepting waste, loading it up and perhaps even paying the utilities or, in some other way such as consolidation, providing for packaging or treatment of the waste at the reactor site. We would be accepting waste at the reactor site and preparing the system for shipment to the repository for disposal. We are not saying we are going to do that right now and we are not committing to it, but are considering it as a backup.

You have to look at where you will actually be come the late 1990's. If you have gotten a construction authorization and are finishing that facility but you just haven't physically completed the construction of all of it, it really does not seem to make a lot of sense for the utilities to have to go out and build additional storage capacity if it is a matter of just matching up our acceptance date with when we will actually be able to receive it. So we are looking at these activities as one possible way of meeting our commitment without prejudging the decision of when the licensed repository starts operation.

(Q) **Cooper:** Everyone assumes that there will be a repository in 1998, in some form or another. My question is that if there is not one available for operation, does the department believe there is an enforceable legal requirement and if so, what is it?

(A) **Lawrence:** I am assuming there is a requirement, both contractually and in the law, to begin accepting waste for disposal January 31, 1998.

(Q) **Davis:** Just a follow-up on the same subject...if the 1998 date is deemed to be

unattainable, will that adversely affect the ongoing NRC waste confidence rulemaking? Perhaps you could also give us a status report on that critical rule making?

(A) **Asselstine:** The Commission issued a proposed decision in the waste confidence proceeding and put it out for comment because it included elements that participants in the proceeding had not had prior opportunity to comment on--most notably, reliance on the Nuclear Waste Policy Act. The comment period is closed and we are now reviewing the comments. I don't know when the Commission will reach a final decision but I would not anticipate it being too long. I would say maybe within the next two months.

In terms of not meeting the deadline established under the Act, I can just express my own view. I think you will recall the Commission's preliminary decision at the original waste confidence proceeding was addressed to whether there is confidence that a disposal or long-term storage option would be available in the 2007 to 2009 time frame. While we didn't say we would pick a specific year, at least a majority of the Commission felt confident, based upon the record developed in the proceeding and the additional benefits of having a statutory framework for the waste program, that at least by that time we would expect to see a repository in operation. Given the fact that Mike is talking about perhaps a couple of years extension in the schedule laid out in the statute, that would still fall well within the time frame we considered in the waste confidence proceedings. So I am not sure, at least based upon a preliminary reaction, that there would be a major impact, but clearly that is an element that would need to be considered.

(Q) **Berick:** Section 8 of the Act requires the President to make a determination within two years of enactment--now less than ten months away--as to whether or not defense waste will be comingled with commercial waste. There is nothing in the Mission Plan that even suggests that the program is considering the impact of defense waste, except to say that there won't be any impact. My question is two-fold. One is whether we are going to see something more in the Mission Plan about defense waste being comingled and the impact of that on the program; and secondly, is it the Departments' position that it could adequately fulfill its economic, management, and NEPA objectives by having a defense waste program that was comingled and did not have, at any point, an impact on the commercial program?

(A) **Lawrence:** There will be more in the Mission Plan concerning the defense waste program, although the ultimate decision whether or not the defense waste goes to the commercial repository will not be made until 1985. We will have more in the Mission Plan as to how we would handle receipt of defense waste if it were to come there. We think it can be accommodated in the repository without impacting our other responsibilities and requirements. Obviously to the extent that we have to be accepting defense waste along with commercial waste, our acceptance rates may be affected, but we think that can be accommodated and we are looking at some possible ways of doing that right now.

(Q) **Berick:** My question on NEPA requirements is that the Mission Plan says the repository acceptance schedule (the spent fuel acceptance schedule) from the commercial program will not be interfered with in any way by the acceptance of defense waste. Do

you believe you can make adequate NEPA determinations on the defense waste side with that kind of restriction?

(A) **Lawrence:** Initially there may be an impact on the acceptance schedule because of accepting defense waste. I think that ties in with the statements I made earlier that perhaps the full range of services and capabilities required could be provided if we were to get a limited work authorization in 1991 going to a repository in 1998. If we cannot assume that then we have to look at what we could have in place in 1998. It would be more limited and, therefore, in the initial phases of operation would affect acceptance rates. In the long term, it should not, and we could accommodate the defense waste.

(Q) **Carter:** It seems to me that you could have two rather different kinds of waste programs--one which would be quite adequate from the standpoint of taking care of the nuclear waste generated from the nuclear program as we know it today. This assumes a fixed number of reactors, no prospects for further orders, and the possibility that the program will phase out over the next 25 years or so. The other program would be one that could adequately support an expanded nuclear industry. Now my question is 'if the aim is to have a program supporting an expanded industry, is it going to be adequate to have a scenario unfold in which you have a shrinking number of potential host states and finally have one host state forced to accept a repository, perhaps with a Congressional override?'. If it unfolds in that way, is this going to serve the political interest of the industry?

(A) **Draper:** I guess I don't fully understand the question because, as far as I can tell, the program as it is now structured will result in two repositories. According to the limitations as I understand them, one of those repositories would be adequate to serve about seventy reactors. The second would presumably have a similar capability, so that there is plenty of capacity in the two repositories that have been proposed. If there suddenly were a resurgence of orders, I would presume that we would then initiate a search for either additional repositories or make provisions to expand the first ones.

(A) **Lawrence:** I was just going to point out that once you have a second repository sited and under operation the 70,000 metric ton capacity limit is gone and, therefore, assuming you have sufficient geology to take greater quantities, two may be sufficient.

(Q) **Davis:** Given Mo Udall's call for strong leadership and perhaps centralized control over a dedicated, mission-oriented program, I was wondering, in your capacity as a member of this alternative financing and managing committee, what we can expect by way of recommendations from that committee to improve on the DOE's waste office.

(A) **Draper:** The Alternative Methods of Managing and Financing Panel has now met twice. It is far too early to say what our conclusions might be. We have organized ourselves to evaluate a number of things. There is a [facilities] subcommittee that will look at the construction difficulties that are likely to be encountered. There is another [subcommittee] looking at management in a broad way, and a third looking at finance. I would expect that the full range of alternatives that have been suggested, from

leaving it right where it is in the Department of Energy to separating it out in some way as a quasi-government corporation (or perhaps even as a private operation) will be considered. It is just too early to say which of those will be suggested.

**Mike Lawrence:** I would like to take the opportunity to follow up on all the comments made this morning concerning the lack of a permanent director. Obviously, it is clear that the organization does suffer somewhat from the lack of a permanent director. Nevertheless, I think the implications that the program is going without leadership or floundering because of that are just not true. We have had the benefit of Bob Morgan's leadership in the program and I have worked closely with him. But even more important than that, the Secretary has paid specific personal attention to the program. There are frequent meetings with the Secretary (I see him more than weekly) concerning issues and program direction, and he has shown a very strong interest along with the ability to go ahead and make the tough decisions and say we are going to move on with this. So even though we are lacking a permanent director--and that should not remain the case much longer--I don't think the implications that the program is without leadership are really founded. A lot of people who are in this room are involved in the program and know that a lot of work is going on directed toward the Mission as we have laid it out. I think that is going to continue, perhaps with some course corrections; but I don't think the implications that it [the program] is without leadership are founded. I think we have a sound program getting a lot of attention within the Department and it is proceeding on a good course.

**(Q) Frishman:** You mention three major areas of concern having to do with costs, the relatively high short-term costs, and how to generate cash. Has the industry thought about the possible advantages of committing to the early payment of the one-time fee under their contracts with DOE? That would put a large amount of cash into the system at the front end and may provide a solution that would not result in an increase in fees or additional borrowing from the Treasury.

**(A) Draper:** I haven't done any sort of poll of utilities with spent fuel that was discharged prior to 1983 to determine what the various utilities are thinking about. All I have is some anecdotal information from a DOE poll which is in the very early stages of return. It looks like several of the utilities contacted were thinking of paying up front. I would suggest that decision will be made almost exclusively on the basis of the financial condition of the utility at the time. So I really have no useful information.

**(A) Lawrence:** At last count, I believe ten utilities indicated that they intend to pay prior to the end of the two-year grace period which is, I believe, June of 1985. Those ten utilities represent on the order of 400 million dollars, which is roughly equivalent to the decline in revenue projections through the 1987 time frame covered by the recent cancellation and deferrals of reactors. It is our hope that with that and other economies we can maintain the program without having to raise the fee or add an inflation factor to that fee in order to maintain a balanced program.

**(Q) Cotton:** Regarding contingency planning in the Mission Plan...will you also plan for the

possibility that in 1998 you may not have a repository and may not be able to get an MRS on line either? It seems to me a full-blown analysis has to look at all the options and that based on the history of this program, it is a distinct possibility.

**(A) Lawrence:** We'll have to look at that. I can't tell you what the answer is today, but we will have to look at that.

**(Q) Frishman:** On the Mission Plan...let me ask very specifically, does the revision scenario or set of scenarios you are looking at require a limited work authorization or not?

**(A) Lawrence:** The base case will not. However, we believe that when it is time to start construction we would like the opportunity to present our case to the NRC as to why we think a limited work authorization is reasonable and would not prejudice the licensing decision. If they were to accept that and revise the rule accordingly, that would be a case where we could speed up the program by approximately three years. But we cannot assume that in our case now, because they are on record saying they do not think it is appropriate.

**(Q) Frishman:** Let me follow up just a little. Throughout your responses today, I think I heard you referring to a schedule problem because of surface facilities, but you haven't really talked about underground facilities. This brings up the question that you are going to have to resolve with the NRC regarding limited work authorization--that is, what is safety related?. You seem to be talking about things that are safety related.

**(A) Lawrence:** We would like the opportunity to lay out what we'd like to do with a limited work authorization and then present our best estimate as to why we feel it would be appropriate for the NRC to grant it without prejudging their final licensing of the repository. Then it would be for them to decide.

**(A) Asselstine:** I think the Commission has said thus far that our regulations don't provide for it. I think a number of us are not enthusiastic about it. Basically there are two concerns. One is the concern that any of the work might create difficulties or problems or foreclose alternatives. That would be of particular concern for a first-of-a-kind facility of this type. The other concern is a more general one--the more you invest in a site the more you want to carry through with that particular alternative.

I think in the past most of us had assumed that the request would focus on construction of the underground facilities. But by and large yes, if we look at the reactor area, safety related areas are something that we have not allowed as part of a limited work authorization. We've only allowed those items that would not affect the open safety review which is not completed until the normal licensing process is finished.

#### QUESTIONS FROM THE FLOOR

**(Q) Tomonto:** Could you comment on the process that is being followed in order to come up with a Presidential finding on the comingling of defense and civilian nuclear wastes by January 1985? How is that going? What is the schedule for this finding?

(A) **Lawrence:** This is being performed by the Assistant Secretary for Defense Programs. He is doing the study and we have just begun looking at some of the assumptions. It involves far more than just repository siting. Consideration must be given to such things as national security. We are not far enough along with our interaction with them to comment further, but they have been working on it for a number of months now.

(Q) **Tomonto:** Mike, is it their responsibility or is it a co-responsibility?

(A) **Lawrence:** They have the lead responsibility on that. We are making sure that our program and plans can accommodate the defense waste. We are setting up the procedures whereby they would pay their full cost or full share of the repository cost if defense waste goes there. But it is their lead.

(Q) **Bradhurst:** I represent Nye County which is the location of the Yucca Mountain site. It regards the position of local governments in the decision-making process as well as in the assessment of this program. As I look at the Nuclear Waste Policy Act of 1982, it appears to me that local governments are not really involved at all. The Act seems to be silent for the most part on the participation of local governments. From my perspective representing a local government it appears to me that the local government impact during the construction phase as well as the operations phase (and certainly the closure phase) will be most severely felt at the local level. My question is to those of you who were involved in the development of the Act. What was your thinking in terms of participation of local government?

(A) **Brown:** I think Congress was reluctant to dictate too extensively how states should handle internal participation. At one point the House side had a provision calling for a repository review panel within each nominated state designating around ten constituencies that were to be represented. Many states had already established review panels and felt Congress ought not dictate that type of participation. So Congress chose instead to establish participation and impact assistance provisions at the state level, allowing the states themselves to work out representation and distribution of money. As I say, I think the motivation was a reluctance to dictate to the states how they were to involve their local communities.

(A) **Dravo:** I, of course, worked for the House side, and I think that is the right answer. There were a lot of proposals and discussions about cities and counties. But trying to find one generic way of working out all those problems at that level was not something that Congress, in the end, felt capable of doing in a rational way.

(A) **Bradhurst:** If I might just add...it seems to me when we get down to the selection of sites we are talking about just a couple of local governments at best. As I said earlier, at this point in time, it looks to me like local governments have to go 'hat in hand' to the state or federal government to be involved in the process. In Nevada we are fortunate because, at this point in time, we have a good relationship between local and state government; but who knows what will happen in the next ten to fifteen years?

**Special Address:**

IMPLEMENTATION OF THE NUCLEAR WASTE  
POLICY ACT OF 1982

**MORRIS K. UDALL**

**Speakers:**

**MICHAEL LAWRENCE**  
U.S. Department of Energy

**JAMES ASSELSTINE**  
U.S. Nuclear Regulatory Commission

**DANIEL EGAN**  
U.S. Environmental Protection Agency

**HOLMES BROWN**  
National Governors Association

**Panel:**

**DAVID BERICK**  
Environmental Policy Center

**LUTHER CARTER**  
Resources for the Future

**THOMAS COTTON**  
Office of Technology Assessment

**EDWARD DAVIS**  
American Nuclear Energy Council

**ANDREA DRAVO**  
House Interior Committee

**STEVEN FRISHMAN**  
State of Texas, Governor's Office

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State of South Carolina, Governor's Office

**BEN COOPER**  
U.S. Senate