UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
***
BRIEFING ON STATUS OF HLW PROGRAM
***
PUBLIC MEETING
***

Nuclear Regulatory Commission
Commission Hearing Room
11555 Rockville Pike
Rockville, Maryland

Thursday, May 15, 1997

The Commission met in open session, pursuant to notice, at 9:35 a.m., the Honorable SHIRLEY A. JACKSON, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

SHIRLEY A. JACKSON, Chairman of the Commission
KENNETH C. ROGERS, Member of the Commission
GRETA J. DICUS, Member of the Commission
EDWARD McGAFFIGAN, JR., Member of the Commission
NILS J. DIAZ, Member of the Commission

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

ANNETTE VIETTI-COOK, Assistant Secretary
KAREN D. CYR, General Counsel
LAKE H. BARRETT, DOE
WILLIAM BOYLE
STEPHAN BROCOUM
STEVE FRISHMAN, State of Nevada
ROBERT LOUX, State of Nevada
NICK STELLAVATO, Nye County
DENNIS BECHTEL, Clark County Nuclear Waste Division
ROBERT HOLDEN, National Congress of American Indians
RICHARD ARNOLD, Las Vegas Indian Center
MAURICE EBEN, Pyramid Lake Paiute

P R O C E E D I N G S

[9:35 a.m.]

CHAIRMAN JACKSON: Good morning, ladies and gentlemen.

This morning, the Commission will be briefed by Mr. Lake Barrett and his staff from the U.S. Department of Energy on the status of the Civilian Radioactive Waste Management Program. In addition, the Commission welcomes representatives from the State of Nevada, Nye and Clark Counties, and Native American representatives who will be afforded the opportunity to address the Commission after the DOE, Department of Energy.

The last time the Commission was briefed by the DOE on its program was September 4, 1996. The last time the Commission heard from the others who are participating in today's briefing was in September, 1994.

With the exception of Commissioner Rogers, none of the other commissioners here today were on the Commission at the last Commission briefing when state and local governments and Native American tribes addressed the Commission. So the Commission has been looking forward to this briefing and I would ask you to bear that in mind as you present whatever your material is that you cannot make assumptions as to what people know and do not know.

The Department of Energy's briefing is a

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continuation of a series of annual briefings by DOE for the Commission regarding the status of its high-level waste program. Since last September, much has happened in the high-level radioactive waste program and we can expect more change in the future.

Legislation that could affect this country's high-level waste program is being considered by the Congress as Mr. Barrett and I both know. In fact, just two weeks ago, on April 29, the Commission and the Department of Energy as well as congressional representatives from the State of Nevada testified before the House Commerce Committee's Subcommittee on Energy and Power on its views on the bill, H.R. 1270. Both the DOE and the NRC are coping with reduced budgets for their respective high-level waste programs although I would say we feel, of course, we are hurting the most. And each agency has taken a hard look at its program.

Briefings such as today's can prove to be very beneficial in times of change and diminishing resources. The free exchange of information in a public forum between the two agencies and the affected parties can help to optimize the utilization of resources and to effectively and efficiently carry out our responsibility for this country's high-level radioactive waste management program.

Mr. Barrett, the Commission looks forward to hearing from you today on the status of DOE's high-level

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waste program and unless the commissioners have anything to add, I would ask you to begin.

MR. BARRETT: Thank you very much, Madam Chairman.

As is customary, I thought I would start the briefing off with four or five visual representations of some of the work that has happened at Yucca Mountain since the last briefing.

If we could start with the first slide, please?

Probably the most significant thing we have done is daylighted the tunnel boring machine on April 25. What I would like to do is show you -- the view that you have in front of you is the south portal where the machine is going to come out and we have about a 30-second video of the machine coming out of the south portal wall.

If you could run the video, please?

[Video shown.]

MR. BARRETT: That was very dramatic. But the real key to the work we are doing at Yucca Mountain as the science and the engineering and the tunnel boring machine was just a delivery mechanism to get into the core of the program, which is the science and the engineering inside the mountain in the laboratory and I would like to show you how we are doing that science in the mountain, if we could have the next slide, please.

This is the schematic of the five-mile loop that

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we did complete and I would call attention to the lower left-hand corner is the thermal testing facility.

Next slide, please.

In the thermal testing facility, we have started some of the thermal tests which we believe are very important to the program and most constituents that follow this program believe that also. And there are two main tests we are going to be doing here.

In the upper left-hand corner is the smaller thermal mechanical test and in the lower right-hand side will be the larger drift scale test. And in the next slides, I will show you what is going on in those two, those two alcoves.

Next slide, please.

This is the 30-meter thermo-mechanical test block where we characterize the rock very carefully. It is probably the most characterized piece of rock in the world.

Next slide, please.

We placed sensors and heaters in the very center of that, sort of in front of the man's helmet is the four kilowatt heater that is placed in the center. We have over 330 thermal sensing points as well as to check the rock expansion and the temperature and the water movement.

Next slide, please.

We started this experiment on schedule last

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August. We are now gathering data.

Next slide, please.

And we are nearing the end of the data gathering of the initial heat-up phase. We are actually gathering thermal profiles through the rock. We can use this to calibrate our models as we go forward.

Next slide, please.

This is the predictions, so we can calibrate real data in the mountain at the repository horizon versus what our models tell us we will find in the models as we move forward in this area.

Next slide, please.

That was the small thermo-mechanical test. We are in the process of preparing for the large drift scale test, which will be a simulation of an actual size of an emplacement drift where we will put heat in the center. We have finished the excavation of the thermal drift. We have drilled over a mile of instrumented bore holes around it so we can follow temperature profiles and see the thermo-mechanical, hydrological effects of the experiment. This is the form being placed in the drift to allow for the concrete liners that we expect to have in the repository.

I believe that is the end of the -- excuse me, the large block test. Next slide, please.

We also have on the surface another experiment

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called the large block test that we finished and that was started up this last February after we went through the budget changes last year. This test, we will heat this block of rock that is about 15 feet high and 10 feet and, Chairman, you saw that when you were there at your trip in the heat there last August.

CHAIRMAN JACKSON: And that was the real heat block test.

MR. BARRETT: And so that has started up.

Next slide, please.

This is a picture of the heaters on the top and we will heat the block up. It is heating up now. And then we will disassemble the block to look very carefully at the

thermal, chemical, hydrologic interactions inside the block of the tuff. So these are just photos of recent activities that we have had in the science area.

When Dan Dreyfus spoke to you last September, the Civilian Radioactive Waste Management Program was in its early stages of implementing the revised program plan, which would be published in June of 1996. Congress endorsed that plan in the '97 appropriations act and the President's 1998 budget request for the program supports its continued implementation.

With adequate funding, we will complete the Yucca Mountain site viability assessment next year and maintain

momentum toward the geologic disposal as set forth in the Nuclear Waste Policy Act. As you have mentioned, the Senate has passed a bill addressing interim storage and the House is presently considering a similar bill. The Administration opposes both of the bills and the President has indicated he would veto either bill if presented in its current form.

Despite its opposition to the current legislation, the Administration remains committed to resolving the complex and important issue of nuclear waste management. Secretary Pena has stated his willingness to work cooperatively with the Congress on nuclear waste disposal issues.

Whatever the outcome, the federal government's longstanding commitment to permanent geologic disposal should remain the centerpiece of the nation's high-level radioactive waste management policy.

Over the last several years, the Yucca Mountain project has been focusing on the major unresolved technical issues. This will permit us, by late 1998, to provide the four components of the viability assessment required by the '97 appropriations act. The viability assessment will give policymakers key information regarding geologic disposal of Yucca Mountain. The Administration has stated that this assessment should be available to inform any decision concerning the site for an interim storage facility.

The viability assessment is not expected to be sufficient for repository site recommendation and licensing. Indeed, the viability assessment will include a plan for additional site investigations and design work necessary for preparing a complete license application. It is important that, in this context, we remain clear that in considering the adequacy and sufficiency of the viability assessment. If expectations incorrectly elevate the viability assessment to a final go or no-go decision on the repository or as an agency action needed for site recommendation, then a decision will be premature and not meet the requirements of the Nuclear Waste Policy Act.

I seek the assistance of the Commission and other knowledgeable groups in maintaining the distinction between the viability assessment and the site recommendation.

Our revised program plan recognizes the need to update the regulatory framework for the repository to reflect policy changes since the enactment of the Nuclear Waste Policy Act, the realities of budget constraints on the program and, in particular, the understanding gained in more than a decade of site investigations at Yucca Mountain.

We have considered these factors in the proposed amendments to our siting guidelines. It is similarly important that these factors be considered by the Environmental Protection Agency and the Commission

respectively in developing radiation protection standards and revising the licensing criteria from a repository at Yucca Mountain. The Department believes that the resulting regulations and licensing process should focus on the issues central to protecting public health and safety and the environment and not require a degree of proof that is beyond what science and engineering can reasonably provide.

It is important that the revised regulations consider the inherent limitations of performance assessment and the uncertainties associated with the analyses of repository performance. Although these analyses provide meaningful insights to the potential performance of the repository system and consequences of disruptive events, the results should not be viewed as predictions of actual repository performance. Used as a tool to organize and evaluate technical information obtained during site characterization, performance assessment can help all parties understand the potential benefits and consequences of geologic disposal.

In December of 1996, we issued a notice of proposed rulemaking to revise our repository siting guidelines as they would be applied to evaluating suitability of the Yucca Mountain site. The approach we proposed focuses on the overall system performance as the basis for decisions about site suitability and repository

development. The suitability decision need not and should not depend on individual attributes of the site outside the context of an assessment of the performance of the proposed engineered repository. We continue to follow with interest discussions by your staff regarding potential changes to the Commission's licensing requirements. Changes that would result in a simple risk-based rule are particularly appropriate. Reconsideration of defense in depth and subsystem performance criteria in the context of an overall strategy for revisions to Part 60 is also appropriate.

We understand the staff intends to provide the Commission with options for possible revisions to Part 60 later this year. We support the staff's position that the Commission's consideration of possible revisions to its licensing requirements should not be on the critical path of the Department's revision of its citing guidelines or any assessment of the viability of the Yucca Mountain site.

To support preparations for a license application, however, it is important that the key requirements of Part 60 be clear by the time we initiate the final phase of license application design, which is currently scheduled for July of 1999. Along with the Commission, we are awaiting the Environmental Protection Agency's proposed radiation protection standard for a repository at Yucca Mountain. We remain concerned that the agency could promulgate standards

for geologic disposal that would contain both individual protection and groundwater protection criteria that are inconsistent with the realities of geologic disposal.

We specifically agree with the view expressed recently by the Chairman that incorporation of separate groundwater criteria would not enhance public safety.

I am pleased to report we made considerable progress since we last reported to the Commission in September. We are implementing a credible plan that maintains the progress toward a national decision on

geologic disposal.

As you have just seen, we completed the excavation of the five-mile exploratory loop on April 25. From this point forward, the work will focus primarily on the thermal and hydrologic testing, confirming our understanding of the rock where the repository would be constructed. In August of 1996, we completed the initial construction in the northern Ghost Dance Fault alcove. This alcove is the first of two that provide access to the Ghost Dance Fault, a major geologic feature in the repository setting. Testing in these alcoves are helping to determine the flow properties and the chemistry of the water in the fault zone.

We intend to construct an additional small diameter exploratory drift into the potential emplacement area to the west of the main tunnel in 1998. This will help

to improve our understanding of the rock characteristics and the hydrologic processes that are important to design, construction and performance of a repository at Yucca Mountain.

As reported to you last September, levels of chlorine 36 well above the expected natural background levels were detected at five locations within the ESF. A total of 189 samples covering more than four miles of the exploratory tunnel have now been analyzed for chlorine 36 and other isotopes. Elevated levels of chlorine 36 were found in eight locations, including the five previously identified. These levels are sufficiently above natural background to suggest that some water has rapidly moved from the surface to the repository horizon in the last 50 years.

The new data are consistent with the earlier results. Rapid penetration of surface water to the repository depth generally correlates with known faults in the bedded tuff overlying the repository host rock.

We worked in critical elements of the repository in waste package design obtaining information needed as input to the design process. Repository design activities addressed thermal management, performance confirmation design, waste handling emplacement and retrieval, development of system structures and components important to safety that have little or no regulatory precedent and

design basis analysis.

The waste package design activities address criticality analysis methodology development, preliminary thermal, structural and shielding analyses, containment barrier fabrication, closure feasibility analyses, conceptual invert design and material selection. These efforts will support designs for components of an engineered barrier system that contributes to isolation and retardation of radio nuclides.

We are also reviewing suggested changes to the licensee support system regulation regarding working with your staff to resolve any comments that we may have. In light of the significant advances in computer technology and connectivity that have occurred since these requirements were last revised in 1991, the proposed change in the Commission's rule appears to be most appropriate.

Our waste acceptance storage and transportation project is focused on planning and long lead time activities that must precede the removal of spent nuclear fuel from reactor sites once a federal receiving facility becomes available. These activities are consistent with the Administration's policy on siting an interim storage

facility.

During the past year, we developed a market-driven approach that will rely on the maximum use of private

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industry capabilities, expertise and experience to provide the necessary services and equipment required to accept and transport commercial nuclear fuel to a federal facility. We are presently working to establish a competitive procurement process to award fixed-price, multi-year, performance-based contracts to the industry.

To address long lead time requirements related to centralized storage, we completed a non site-specific design for a centralized interim storage facility and submitted a topical safety analysis report for this design through your staff on May 1, 1997. We believe that the staff's acceptance and successful review of this report will reduce the time required for subsequent preparation and staff review of a license application.

We are working closely with the Office of Environmental Management within DOE to ensure that near-term decisions related to the stabilization and storage of department-owned spent fuel are compatible with the configurations required for disposal as we know them at this time. We believe that we can safety dispose of the Department's inventory of spent fuel along with the commercial fuel and high-level waste. We intend to enhance interactions with your staff on our plans for the management of this inventory and to identify potential technical and licensing issues associated with disposal that may require

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early resolution.

Though implementation of our revised plan has focused on the program key issues and maintaining momentum of the repository program, within the next 18 months we will complete the viability assessment that will serve as a significant benchmark for the program. The products associated with the viability assessment will provide all parties, including the Commission, a better understanding of geologic disposal at Yucca Mountain and the significance of the data available. It will also help inform ongoing revisions to the regulatory framework and guide completion of the site characterization work.

We intend to keep you and your staff advised of our progress and look forward to a constructive dialogue as we carry out our mutual responsibilities.

Thank you for the opportunity to brief the Commission and I will answer any questions that you may have.

CHAIRMAN JACKSON: Thank you, Mr. Barrett.

I should have announced this before. Because we have quite a few presenters today, I think we are going to try and have a more structured set of Q's and A's than we would normally have. Of course, I am going to take advantage of that and start. But then we will go down the line and try to have everyone comprehensively address his or

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her questions to you so that we can finish in a reasonable time.

Let me ask you, this is relative to your actual submitted statement. On page 1, you talked about a schedule for implementing the process with contract holders to determine what actions under the standard contract would be appropriate to address the anticipated delay in DOE

accepting spent fuel. Do you have a schedule for implementing that process?

MR. BARRETT: We have to file a brief before the Court at the end of the month. In the brief before the Court, we will describe the actions that we were taking under the remand from the Court to the Department. That is currently being worked with in the Department and in this setting I would prefer not to comment.

CHAIRMAN JACKSON: Okay, so perhaps I won't ask you, then.

MR. BARRETT: After the brief is submitted then it might be more appropriate to have that discussion.

CHAIRMAN JACKSON: More appropriate to do that. All right.

Can you talk a little bit more about the schedule for submitting the license application plan? Are you coordinating this plan with the NRC staff?

MR. BARRETT: Yes, we discussed at the last

management meeting and within the last few weeks we did discuss and present our work on that to the staff. The actual date for that, Dr. Brocoum, would you -- do we have a schedule as to when that would be submitted to the staff?

This is Dr. Steve Brocoum, who is the manager, assistant manager for licensing at the Yucca Mountain project.

MR. BROCOUM: I think we have a draft LA plan this fall. Then we will finalize it during fiscal year '98.

CHAIRMAN JACKSON: Can you elaborate on your concerns with the NRC staff's prioritization of the key technical issues?

MR. BARRETT: This is a judgmental issue. One of the things that we believe are quite important in the overall repository context is the design of the engineered barriers and its interaction with the natural setting.

In the KTIs of the Commission, design was one of the ones that were ranked at a lower priority than others when you had to deal with your budget situation as we have had to deal with ours. That is an area we think is fairly important and I know your staff is working in that area as best they can under the budget constraints.

CHAIRMAN JACKSON: This afternoon, the Commission is going to be briefed by the NRC staff on its performance assessment efforts and you alluded to this in your comments.

Can you flesh out a little bit more how the performance assessments of DOE compare to the ones being developed by the NRC staff?

MR. BARRETT: I think Dr. Brocoum or Dr. Boyle might be better able to give you a complete answer to that.

From my perspective, they do reinforce each other, different answers, different approaches. But nonetheless, there is nothing there that is a surprise to me from the briefings that I have received.

Steve?

MR. BROCOUM: I think we have had a lot of interaction with the staff on performance assessment. We have one, I think, planned for July. My recollection is we have a two-day technical exchange.

I think in the last year or so there has been some convergence in the fund. Generally, the staff has had higher releases sooner. Ours had lesser releases later. I think we have kind of converged in the last year as we have taken a higher percolation flux into account.

CHAIRMAN JACKSON: Let me talk to you, and since you are up there, perhaps you can stay. Maybe you could sit down. Since I am questioning you, I will let you rest your legs.

On page 9 of Mr. Barrett's statement, you state that the average percolation flux is in the range of 2 to 15

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millimeters per year. Your earlier estimates of percolation flux were less than 1 millimeter per year. And you also state that accumulating evidence is that water percolates down through the proposed repository host rock predominantly through the fractures in the rock.

These seem to be somewhat significant departures from your earlier results and I guess the real question -- there are two questions. One is, do you think that this new information could significantly affect your schedules for completing the viability assessment and the license application. That's question one. And, second, how has it changed your testing program?

MR. BROCOUM: First question, as you know, the viability assessment is a point in time and it is a status of where we are at that point in time so I don't see that it would change our viability assessment schedule.

With regard to license applications, we have several years of testing to go and analysis and so at the moment we don't see it changing our schedule for license application.

And what are we doing? There are two things. One is we are doing a risk mitigation -- what we call a risk mitigation. We are doing several activities to the tune of about $14-1/2 million of enhanced site characterization including constructing some niches in the ESF, some where

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there is higher chlorine 36, one of them, and the other where the chlorine 36 was not higher. Then we are going to seal up and instrument those niches and see how the water percolates in each one and we are also going to introduce some traces above it.

The second thing which I think is in the testimony is, of course, we are considering east-west drift and that will give us some more information across the block with regard to the percolation of water through the repository.

CHAIRMAN JACKSON: Okay, and one last question. On pages 7 through 12, and this is a follow-on to this, you talk about the various testing programs that you are initiating since the tunnel has been completed. Can you talk a little bit more about how you are actually integrating the results of the various programs into one overall test program?

MR. BROCOUM: Well, the project was reorganized last November and so that under my management we have the engineering, the science, the performance assessment and the regulatory systems all under my responsibility. We have also worked very hard to integrate doing these workshops, what we call abstraction workshops, between the PA, the engineering and the science. These are ongoing right now and the key models, different models, are key to the performance assessments.

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I think we have made a lot of progress in integrating the project.

Is that responsive to your question?

CHAIRMAN JACKSON: Thank you.

Commissioner Rogers.

COMMISSIONER ROGERS: Well, just right on that general subject, the drift scale heater test, what is the duration of that test? How long will that go?

MR. BROCOUM: I defer to Dr. Boyle.

MR. BARRETT: Dr. William Boyle is a team leader that works for me in the area of performance confirmation.

MR. BOYLE: At least two years of heating but it is not completely determined as of this point yet. We are still doing some analyses. It may be as many as four years of heating and then a subsequent cool down period of approximately equal length as the heat-up time.

COMMISSIONER ROGERS: Thank you.

I wonder if you could give me a little bit more about your thinking on this question of bounding values on page 5 of your testimony? I didn't quite understand why you felt that the selection of a set of bounding values necessarily introduces an excessive amount of conservativism. Doesn't that depend on what those bounding values are rather than whether you actually set them?

MR. BROCOUM: Of course it depends on what they

are. But if you tend to, for each parameter, pick the most conservative value, you may be in a position that you either cannot design the repository or, if you can design it, you cannot afford it. It is that kind of an issue. It is a tradeoff between cost, time and performance.

COMMISSIONER ROGERS: Well, it is just that the statement here really says the simultaneous selection of bounding values for many of the key parameters could, you know, compounding of conservativism could cause the analysis to lose its useful insight. It seems to me that the notion of bounding values is very important and, you know, you don't want to abandon bounding values. It is a question of how they are set.

So the emphasis that you just made on their being very conservative at the outset is of proper concern but I am just a little troubled that you might be suggesting that we don't use bounding values. They have to be there.

MR. BROCOUM: Well, we tend to have probability distribution functions for many of these parameters. And in that way, you pick the bound as also a matter of judgment.

COMMISSIONER ROGERS: Yes. That's all I have.

CHAIRMAN JACKSON: Thank you.

Commissioner Dicus?

COMMISSIONER DICUS: Yes, you address transportation in your written testimony and your activities

with the transportation industry and in that you may have answered the question that I have and, if you did, I apologize for that. But the question is, I would like to know what the status of the topical safety analysis report on transportation, what the status of that is?

MR. BARRETT: We don't have a specific topical safety analysis report for transportation. We have a topical -- we have four topical safety analysis reports presently before the Commission. Probably the most significant one is the generic centralized storage facility that we just submitted on May 1.

Prior to that, we submitted a topical safety analysis report for a transfer of facility to allow the utility to either be used at reactors to move from a small canister to a large canister with crane limitations. Also,

we have incorporated that into our central storage facility. If there was ever an off-normal condition that you had to change, take fuel out of canisters for an off-normal event. So we would use it, potentially reactor licensees, 50 licensees could use it or we could use it.

We have also submitted a topical safety analysis for burn-up credit which can be used for transportation certifications under Part 71. Some of the technology could also be used for our criticality safety analyses for the repository criticality safety aspects. This is a concept

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that is currently used in the European nations as well. So we have been working with your staff on that for several years.

In transportation, I think those are the transportation-related ones, unless there is something else that --

COMMISSIONER DICUS: Well, given the work that you are going to be doing with private industry on transportation, is there going to be some sort of a report or analysis that is going to address some of the issues that will surface with transportation?

MR. BARRETT: The most comprehensive part of that would be in the Yucca Mountain environmental impact statement, which we have under way with the draft statement due in '99. That will address the entire environmental aspects of the Yucca Mountain project, including transportation. So that is where it will lead into what the transportation impacts are across the country that would be most explicitly gone through in the draft and final environmental impact statement for Yucca Mountain.

If we ever had an interim storage facility in this country, depending on what the structure is and the statute for that, we would also address there the transportation. Or if that comes after the repository, we could reference the repository environmental impact statement.

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COMMISSIONER DICUS: Okay, thank you.

CHAIRMAN JACKSON: Commissioner Diaz?

COMMISSIONER DIAZ: Yes. Are there any major, long-term testing that might impact on the site selection and license submittal by the year 2001, 2002?

MR. BARRETT: For the repository?

COMMISSIONER DIAZ: For the repository.

MR. BROCOUM: Well, the large-scale drift test will probably be in the cool down phase at that point in time, depending on how we do. We will also be doing the -- 10 CFR 60 requires us to have a performance confirmation program and as we wind down characterization activities, they will be replaced by performance confirmation activities which are designed to show you that the parameters that you are using for your model and performance assessments are, in reality, are within those bounds or distributions.

So basically we will have a performance confirmation period. That goes on for all the time that the repository is operational.

COMMISSIONER DIAZ: Yes, I know. But any of those issues, could they potentially delay site selection if you have a major test that is ongoing and it is not substantially completed?

MR. BARRETT: What we have is we don't know now of any test, any specific test, that is on the critical path

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for -- when you say site selection, site suitability, recommendations of the Secretary to the President, that would be in the 2001 time frame.

We don't know any particular test that is on that critical path. But we are doing much testing, we are doing saturated zone testing, unsaturated zone testing, laboratory testing, fuel testing.

As we learn from these tests, as we have learned, for example, on the chlorine 36, we will learn things. We keep a dynamic program that is flexible and adjusts on what we learn.

If we find something requires more time, we will take more time. We are not going to meet the schedule, regardless of what we find. But, right now, based on the work we have done so far, we have not seen anything that is going to knock those schedules back.

Tomorrow or this afternoon I might get a call from the project that there is something they found that could. So I don't want to say we are just not on the schedule, no matter what, but there is not any one particular test that is the critical path to that. It is a combination of a lot of things as we are testing. We have schedules that have over 4000 nodal points that take us out to license application and those are dynamically controlled in a management system and sometimes it takes longer and

sometimes you do them shorter but, overall, when you look at it and we status this every week in Steve's office, that we are on track at this point. But that doesn't mean it can't change.

CHAIRMAN JACKSON: Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: I noted in your statement and your formal statement as well the concern that we not become a critical path item, that we get our Part 60 revision complete by July of '99. You are well aware that that depends on EPA and we are a dependent rather than an independent variable in that.

What is your sense as to EPA's timing? Do you have any sense of that at the moment?

MR. BARRETT: I really don't. I know that EPA is actively working on it and the status I really --

COMMISSIONER McGAFFIGAN: I also noted your comment that you supported the Chairman's testimony for the Commission at the hearing with regard to what an appropriate standard might look like, particularly with regard to groundwater.

If it weren't for the interim storage piece of this legislation that is before the Congress, if the legislation were -- if it is possible you were to partition it to those parts that are focused on Yucca Mountain and trying to clarify Congress's intentions with regard to

permanent disposal, are those parts of the legislation, as I say, put aside interim storage and forcing interim storage to a certain site and certain timing, there is another part of the legislation in S. 104 and in 1270, H.R. 1270, that sort of looks at Yucca Mountain and sets a standard different in the two bills and lays out various provisions that are intended to deal with Yucca Mountain, not with interim storage.

Has the Administration done any thinking about those parts of the bill?

MR. BARRETT: As you are well aware, sir, the Administration is an amalgamation of many different agencies

and groups. There was a lot of discussion early on in some of the early versions of the bills, which those did evolve and become more acceptable, let me say. The early versions, that was basically a show-stopper. Those did evolve in the Senate to something that was more to the Administration's view.

To my knowledge, there has not been in the Administration isolating that one item and saying would that be totally unacceptable or not on its own. So the answer is, I don't know and I don't think it has evolved to that because the interim storage issues have been overriding.

COMMISSIONER McGAFFIGAN: The licensing support system, I noticed your testimony there as well. It is our

responsibility to change the rule and I guess we have an advanced notice of proposed rulemaking out on the Internet. We are using the Internet to do our rulemaking.

If we can ge to the point where we are using the Internet rather than obsolete, massively expensive systems, whose responsibility will it be to enter all of the data into the system? Is this primarily a budget item for you the way you see LSS moving forward?

MR. BROCOUM: I think for all Department of Energy data, it will be our responsibility to enter that and we are now scanning our data, all our data, and by the end of 1999 all our backlog will be now in an electronic forum, both in the retrievable and searchable text format and in the image form. So we will have the ability to go whatever direction we decide to go using electronic data recovery systems.

COMMISSIONER McGAFFIGAN: That looks like it is proceeding well? That is what you are saying to us.

The last are multipurpose canisters --

CHAIRMAN JACKSON: He was about to make a comment.

COMMISSIONER McGAFFIGAN: Oh, I'm sorry.

MR. BROCOUM: I think, from our perspective, both sides, both the NRC staff and our staff are feeling pretty comfortable with the direction everything is moving.

MR. BARRETT: I would add one thing to that. I think an important point will be in our viability assessment

we have as a goal, not as a commitment but an internal goal to have the entire viability assessment suite of documents which will be a million pages, probably, when you add it all up, available on, you know, electronic media, that we can kind of experiment with that, so that whole package can be available to all the constituencies to analyze, look at, come to their own conclusions and evaluate the data that is there.

So there will be a test case coming up very shortly as to huge amount of information in electronic media that it would be user friendly to all people who might wish to use it. So we are working toward that and that is part of where I personally watched as a test as to how well this is going to work.

COMMISSIONER McGAFFIGAN: The last question is on the multipurpose canister program which was terminated. But what is the -- clearly, we would be better off if we could get spent fuel into canisters that could be transported as well as used for storage. There are private sector efforts to do that.

But what is the ongoing involvement of the Department in any fostering of license applications to us for multipurpose canisters? Can you explain that?

MR. BARRETT: For dual purpose, which will be storage and transportation, we do not. The only thing we

are considering doing is taking that to the third stage, which we call multipurpose although it should be really tri-purpose would be probably a better jargon for that, where it would be storage, transportation and would be able to be used in the disposal context as basically the inner structure to the final waste disposal package.

That is the only thing we are considering doing and we are negotiating with Westinghouse, who was the chosen company, to see if there was some appropriate arrangement in the context of the market-driven approach that we presently now have.

We believe that the dual purpose technology is in the marketplace and there is no need for any government involvement to develop that at this point.

COMMISSIONER McGAFFIGAN: On the multipurpose side, how will that get into the marketplace? The previous program you had with Westinghouse, does that technology belong to the government and can be basically licensed to anyone or does Westinghouse have primary access to it? How did that particular contract work?

MR. BARRETT: The contract, okay, was a fixed-price contract and we would pay for it. Therefore, the design is wholly publicly owned, let me say. If it was government money that did it, it would be publicly owned.

So the design was delivered by Westinghouse last

year and that exists and that is publicly available and we have made that available to any vendor, anybody that wishes it.

Westinghouse is proposing to go on to certify that and go through the Part 71 certification process, which is a very important test on the viability of such a concept. Our original approach was that we would pay for that fully and then it would be government owned and anyone could fabricate it at that point. Now, the way we are going to integrate that in with the market-driven approach is we would not dictate or mandate that the regional service contractors, that would be the market-driven contractors, what canisters they will use. But the way we did it to provide the multipurpose canister, which will probably cost hopefully a little bit more but more than a dual purpose because it could do more, to allow that to work in the market while we would say any offsetting costs to the Department of Energy in the disposal program would be returned to the vendor.

Now, generally, the canister internals in a waste package are around $200,000 to a quarter of a million dollars, so there is a lot of money involved there. This could be returned back in the future. But the uncertainty would be from a Wall Street investor point of view, how much more does it cost me to go to a multipurpose canister and what is the likelihood of my return on investment because

you really don't know if it is going to work until we go through the licensing process with you on the waste package internals and dealing with things, long-term criticality and those matters that we do not know the ultimate answers yet until we go through that process.

So we were trying to work it that way and let the market decide on the risk whether to go with a multipurpose canister or not. That is how we are trying to integrate it in. Those are the discussions we are having with

Westinghouse within the confines of the existing contract, that we could work out a structure that would be appropriate.

COMMISSIONER McGAFFIGAN: Thank you.

CHAIRMAN JACKSON: Thank you, Mr. Barrett. Thank you and your colleagues for a very informative discussion.

MR. BARRETT: Thank you, Madam Chairman.

CHAIRMAN JACKSON: We will move on and invite the representatives from the State of Nevada, Mr. Loux, Mr. Frishman, also Mr. Stellavato from Nye County and Mr. Bechtel from Clark County. If you could all come forward, we will begin with the discussion from Mr. Loux.

MR. LOUX: Dr. Jackson, members of the Commission, I am Robert Loux and I am the director of the Nevada Agency for Nuclear Projects. The agency was established by the Nevada legislature in 1985 to carry out the state's duties

and responsibilities under the NWPA and I have been the agency's director since it was established and previously ran the program from the governor's office prior to -- or since the passage of the Act.

We certainly appreciate the opportunity to meet with the Commission at the same time that the OCRW and management is providing you with an update of its program. It is our hope this will broaden the perspective from which the Commission considers some of the issues which will come before it in the near term.

As you correctly pointed out, our last presentation was in September '94, shortly after the OCRWM program, proposed program approach had been outlined with the Commission. In 1994 in our presentation, we discussed the topic of OCRWM's licensing approach relative to the proposed program approach. With the issuance of the 1996 revised program plan, the issue remains the same. It appears to us that the OCRWM intends to submit less than a complete license application to receive repository construction authorization.

The Yucca Mountain project managers have begun to speak of the license application as "the initial license application" for construction authorization with two additional update license applications to follow, one to receive and possess and one for repository closure. OCRWM's

statutory and regulatory basis for this approach was recently outlined to the NRC staff and is attached to my written statement in annotated form. And Steve Frishman of my staff will discuss that with you at the conclusion of my presentation since we think it is rather significant.

OCRWM's phased approach to licensing as contained in the revised program plan is in conflict, in our view, with the regulatory approach of Part 60 and this should be studied very carefully. In Part 60, it is clear that the Commission's disposal decision is to be made with the issuance of construction authorization. Conversely, the OCRWM licensing approach would have the Commission taking incremental steps toward a disposal decision which would occur after its review of the license amendment for repository closure.

If this were to take place, the Commission's determination of reasonable assurance of compliance with the EPA standard would not be made until after as much as 100 years of repository operation and all the waste had been emplaced. And let me just indicate from a public

perspective, I don't think there is a greater issue that could impact public confidence in any sort of licensing process than the program plan. Generally the view of the public is that this is tantamount to essentially an unlicensed repository during the first 100 years of

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operation and they believe further this essentially excludes them from the final disposal decision in the licensing process and makes generally the licensing decision somewhat of a moot issue in the sense that, after 100 years of operation, their view is it is very unlikely this material would then be somehow dug up and moved somewhere else if it was found not to be in compliance with the EPA standard.

Since the passage of the Nuclear Waste Policy Act nearly 15 years ago, the Commission has repeatedly reminded the OCRWM that it must submit a complete and high-quality license application in order for it to be reviewed in the short time mandated in the Act. The Commission should inform the program of its meaning of a "complete and high-quality application" in accord with Part 60 as written.

The program also will be issuing a Yucca Mountain viability assessment, as we heard about earlier, in September of 1998. In our view, the Commission really has no role in assessing the viability of the site since the intent of the exercise is to inform an investment decision regarding whether or not to pursue a repository development at Yucca Mountain. Also, according to OCRWM, the viability assessment is completely independent of regulation.

The Commission's sole responsibility regarding viability assessment should be to decide the extent to which it wants to review and comment on the design or performance

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assessment reports as it does with all of the prelicensing documents when participation is not required by law.

If the Commission uses the viability assessment as an opportunity to make an early statement regarding the sufficiency of information for a license application, it will only serve to reinforce the widespread misinterpretation that viability assessment is somehow a statement of the suitability of Yucca Mountain for a repository development.

Regarding OCRWM's siting guideline amendment, as you are aware, in order for the guidelines or any subsequent amendment to be finally promulgated, the Commission's concurrence is required by the Nuclear Waste Policy Act and as a condition of the Commission's original concurrence. At the time the Commission asked for its concurrence, which according to the current schedules would be sometime prior to February 1998, it is likely that there will not be a final new EPA standard and there surely will not be a final revision to Part 60 in place. In our view, the Commission should withhold its concurrence in the guidelines until these final rules are in place since unless the current Part 60 is used for a basis for concurrence, there is no basis for the Commission's action and if the current Part 60 is used, the decision will have to be reevaluated after Part 60 is amended to conform to the new EPA standard.

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My final point today is that, given changes over the last two decades in highway and rail conditions and technologies and the ability of terrorists to willfully disrupt transportation of spent nuclear fuel, the Commission should consider opening a broad-based public review and dialogue regarding spent fuel transportation risk both for

normal and non-normal conditions and events.

The existing cask certification standards and criteria and safeguard regulations should be reviewed and revised as necessary in the context of the outcome of a public dialogue. Such a review is timely in that the large numbers of spent fuel shipments could begin in the near future, as indicated, if pending new legislation for interim storage is adopted.

I thank you for the opportunity to present some of our thoughts and observations to you today. After Steve discusses quickly the attachment to my written presentation, we of course would be glad to answer questions.

CHAIRMAN JACKSON: Thank you.

Mr. Frishman.

MR. FRISHMAN: I am Steve Frishman.

I wanted to bring this to the Commission's attention since this is very recent information from the April 30 NRC and DOE management meeting. Those are meetings that are held periodically at a level above technical

exchanges so that management can get at sort of technical policy issues on a very regular basis, which we believe is a good idea. It also becomes revealing sometimes when we see handouts like this as part of the management discussion between the potential license applicant and the regulator.

I wanted to annotate some of this primarily to show that as we began to point out back in 1994, the Department's view of the important steps in a licensing decision appears to be very different from how we interpret 10 CFR 60 and apparently how the Commission has used its own interpretation in such other rulings as waste confidence. It has to do with when the disposal decision is made and whether it is an incremental decision leading up or incremental set of decisions leading up to something or whether the decision at the time of construction authorization is really the decision that must be supported by reasonable assurance that whatever standard you set for reasonable assurance.

What we see developing is that the standard of reasonable assurance is expected by the Department to change through time. That you start out with a lower level of expectation and move up. This doesn't seem to be consistent with the way 10 CFR 60 is written and I think was intended to be written and has been used by the Commission in other ways.

I guess to get the example of how the Department describes its strategy, if you look at page 14 on how much is enough, you see their description of the three levels, what they call sufficiency, and levels of sufficiency is not an issue in 10 CFR 60. You see, they call the initial license application for construction authorization while Part 60.31 speaks to a license application for construction authorization.

Then if you go to the updated license application for receive and possess, Part 60.33, doesn't speak to an updated license application. It speaks to an amendment of the construction authorization which was the original decision of the Commission.

Then if you go further, you see the updated license application for closure, once again in 60.51. It is referred to as an amendment for closure.

If we move on to page 16, using the language of

Section 114, you see that in Section 114 it speaks to site characterization information and preliminary engineering and the rest of the phrase out of the act is engineering specifications for the facility. Engineering specifications denotes, to me anyway, something more than just a conceptual rendition of a repository.

If you look down at the bottom of the page, you see in the Department's thinking, engineering specification

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has become preliminary design and that takes it even farther away from what I would view as engineering specifications. It is clear that the Department intends the design to be evolutionary. They have already made it very clear that the design at the time of viability assessment will likely not be the design for a license application. And the design for a license application, according to their own strategy, is not going to be complete. If I recall the last discussion that I heard, they were putting some level of percentage of completeness on it for license application.

If we go to page 17, again, Part 60.24, the Department is trying to sort of convince itself and others of the case for the information that is available for a license application will be whatever they have available. Well, your Part 60 says information not available but information that is reasonably available.

The significance of this is that if it is information available, that would be DOE's judgment of what should be available. If it is information that is reasonably available, that's your judgment. So I think it is important that this distinction be kept in mind because you, as a regulator, should have the judgment on what is reasonably available as opposed to what is presented in a license application.

And in the second part of that, for 60.101, the

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Commission did much more in 60.101 than just say that it contemplates there will be uncertainties and gaps in knowledge. This is an area discussing what it takes for the amendment to receive and possess. And if you look at all of the language of that particular part, you are speaking that the Commission may take uncertainties and gaps of knowledge into account, provided the Commission can make the specified finding of reasonable assurance as specified in paragraph A. Well, that was the reasonable assurance for a construction authorization.

So finally we have what I think is maybe the most interesting and the one that should probably draw your attention most and that has to do with Part 60.21. If you look at the text of Part 60.21, rather than the word "study," it contains the words "research and development" and if you apply this to a topic such as determining the thermal design or the thermal loading design, there is a big difference between study, because the drift scale testing that si going on now really is an experiment and it is intended to be a scientific and an engineering experiment; it is not research and development.

So I think clarification on the part of DOE as to your intent regarding the difference between study and research and development in 60.21 is probably pretty important because, ultimately, it may lead to a level of

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information and also sort of a philosophical approach to license application that will be very much at variance between you and the Department. And I think the last time

we brought this up, the general and sort of informal response to our concerns about DOE's view of phased or incremental licensing decisions as opposed to what we read in Part 60, the response informally was we don't really see enough in DOE's written material to understand that that is what they are trying to do.

Well, from our perspective, we think we saw enough then. We have seen more and more and when I saw this handout on April 30, I figured that this is probably maybe the most important thing that we can show to you at this point in terms of the possibility of a disparity between your whole approach to the significance of decisions at various steps throughout the repository development process and the Department's idea of what those steps should be.

CHAIRMAN JACKSON: Thank you.

MR. FRISHMAN: Thank you.

CHAIRMAN JACKSON: Commissioner Rogers.

COMMISSIONER ROGERS: Well, I am just a little puzzled at your distinction between study and research and development but I am not sure quite what the issue is there.

MR. FRISHMAN: The issue is that "study" implies, in the context of this program, implies that you are still

in a site characterization mode. The purpose of site characterization is to provide information for a license application. Research and development is trying -- you know you have a problem, trying to figure out how to, through design and other types of experimentation, resolve a problem rather than finding out what the situation is that you are in in the first place.

We know and you have heard today that the thermal testing information is certainly not going to be complete by the time of license application. The intent is that it will go on for more. And that is still in the realm of site characterization.

If you are going to use the thermal output of the fuel as part of a repository design, that is site characterization. You should know what you intend to do on the way into a license application as opposed to picking some number and later, after a construction authorization is granted in the context of the way we read 10 CFR 60, later come in with numbers that may indicate you have a different situation on your hands and maybe indicate that using the thermal output is maybe detrimental to waste isolation as opposed to positive to it in the long term.

So the distinction is that studies in the scheme of the repository program, studies are site characterization and it makes that one use of the word makes it clear to me

that the Department intends to continue what is really site characterization under both the Waste Policy Act and Part 60 through the licensing process so that you don't have the ability to make reasonable assurance decisions based on the level of data that is necessary for those decisions.

I know it sounds esoteric. We have been talking about this for a long time. But we also understand that the Department is in a situation where it knows that it is not going to be able to complete under other circumstances what would have been called site characterization.

CHAIRMAN JACKSON: Commissioner Dicus?

COMMISSIONER DICUS: No questions.

CHAIRMAN JACKSON: Commissioner Diaz?

COMMISSIONER DICUS: No questions.

CHAIRMAN JACKSON: Commissioner McGaffigan?

COMMISSIONER McGAFFIGAN: I am trying to understand the significance of, in reading Part 60 as you went along here, of your concern with regard to the incremental approach. Because reading Part 60, it looks like different words rather than initial license application, updated license application, they use the words "amendments" but it is clear that Part 60 as it currently exists that there will be amendments at the point of receive and possess and the point of closure.

So what point of significance are you laying on

the fact that they are not calling it amendments, they are calling them updated license applications? Could you explain that again?

MR. FRISHMAN: I guess it is back to incremental in terms of levels of information that would be available. What they are suggesting is that when the sequence from construction authorization to licensee receive and possess amendment for closure that there would be a building base of information, not necessarily a building base of confidence, as the rule seems to imply. It is that the standard of reasonable assurance in the Department's thinking, what this implies, would at each step be a result of new information as opposed to confirmatory information.

So at the beginning, let's just put maybe percentage numbers as an illustration. At the beginning, reasonable assurance is 65 percent with the construction authorization. Well, with new information, if you get to a license to receive and possess, well, maybe it is 75 to 80 percent. Maybe with the amendment for closure it is up to what I think the perception is, and this is not to put any number on it because it is a whole qualitative thing, I am just trying to show you a scale. By the time you get to an amendment for closure, it might be at 90 percent. Whereas, we view 10 CFR 60 as needing that 90 percent to start with and additional information is confirmatory to give higher

confidence in that 90 percent, as opposed to an incremental growth in what is an acceptable level of reasonable assurance.

I don't think it is that subtle. We have been discussing this for a long time.

COMMISSIONER McGAFFIGAN: The words probably can be interpreted in several ways. But at each point in the process, again looking at Part 60 as it currently exists, there is the condition that the Commission may include such conditions as it finds necessary to protect public health and safety, common defense and security, environmental values. It sounds a little bit like you are arguing what the license conditions should be and I am sure we will have, if this moves forward, there will be a massive discussion at each phase of the process as to what the license conditions would be but what do you envision if this goes forward? Do you envision greater license conditions early or greater license conditions late in the process? That is built into every license.

MR. FRISHMAN: Right, and we understand that. I think from the outset what we are trying to do is make the Commission's expectation for the license application, which is the first license application not an amended one for the license application, we want that to be -- the expectation to be that that will be a thorough and as complete as

possible license application, meaning that it requires few conditions, meaning that the requirements of the rule are met as near as possible. So it mitigates the need for the Commission to try to make up conditions to say, okay, well, you are deficient here so therefore we expect at the next step that you will have done more work to bring it up to our expectation.

Well, the condition is only because they didn't meet the expectation in the first place. Or there is uncertainty that it will meet the expectation.

MR. LOUX: It assumes responsibility, the Commission's or DOE's, to describe what those ought to be. And under DOE's scheme, they believe it ought to be them.

CHAIRMAN JACKSON: But I see three things that seem to be nested in what you are saying. One is you are saying to us you would like us to lay out more explicitly what we mean by complete and high-quality applications and what constitutes an application versus license amendments, application for license versus license amendments. And that we need to exercise care in terms of what is performance confirmation versus continued site characterization.

Is that a summary of what your fundamental points are?

MR. FRISHMAN: Yes, that is a summary.

CHAIRMAN JACKSON: Okay. Okay.

Well, I thank you very much. I think we will hear from other representatives at the county level.

Mr. Stellavato.

MR. STELLAVATO: Thank you, Chairman Jackson and Commission members. Last time we saw you, you had a hard hat on going in the tunnel on the train and that's a different environment than here.

CHAIRMAN JACKSON: You never saw me again.

[Laughter.]

MR. STELLAVATO: That was the only time I've seen you was in the tunnel.

So we submitted a written statement but the commissioners want to thank you, my county commissioners, for the opportunity to make a presentation and I am not going to read the written statement.

Since I am the on-site rep, I am going to try to cover a little bit of our technical program and the first overhead is up there and our technical program is designed with this in mind, is it safe. And everything we do is to try to develop information for the residents of Nye County when they ask me questions about what the DOE is doing.

We addressed key issues that can affect repository design and performance. We try to identify areas that we feel additional work ought to be done in. We are evaluating DOE's scientific program and then we are obtaining our own

scientific data to do an independent analysis of Yucca Mountain.

Next slide.

The present program that we are working on is we are going to continue our pressure, temperature and relative humidity monitoring in the tunnel. We initiated a gas sampling program last year in a hole called ONC-1 that Nye County drilled in 1994 and this is one of the sources of our data sets. And at DOE hole NRG-4 we instrument.

We have been monitoring the tunnel and the ESF and a lot of the information I will present today is based on

the ESF data set for relative humidity, temperature and pressure because it has a big impact on repository design and the mountain performance and so I -- we have been recording that data set since 1995.

Next slide.

Just a little background on Nye County's program. We negotiated with DOE on-site protocols similar to the NRC protocols with the DOE for on-site reps and we developed the Nye County QA plan, since we are gathering data and if we ever want to use it in a licensing hearing following NQA-1 criteria and for efficient data distribution we decided in 1995 to put all our data on a web site and I have the address on there. All of our data is on there. Every month we post a new data set. Anybody is free to come in, get the

data and do with it whatever you want.

We drilled, like I said, the ONC-1 hole in December '94. That was a deep hole into the saturated zone. Then we instrumented that hole and a DOE hole right along the north ramp tunnel alignment. NRG-4 is about 50 foot off the tunnel alignment. ONC-1, I have a map that later I will show you, is located just off the south portal. So it was down gradient and so we had two data points to look at effects of the tunnel on the unsaturated zone at Yucca Mountain.

Besides, ONC-1 has two probes that we monitor for pressure and temperature in the saturated zone, packed off so we can monitor effects of some of the pump tests the DOE have done in the Seawell complex just southeast of the track. And then the TBM data set is an important data set and we were the first ones to monitor pressure, temperature and relative humidity constantly. Every 15 minutes, we take a reading since 1995 so we've got a complete record of the mining and the ESF. This is an important data set because it led us to some of these early interpretations that we have gotten.

Next slide.

This is just a map of Yucca Mountain with the two upper and lower repository blocks. But the main thing is the tunnel alignment which is in red and now they have

finished it on the south ramp. You can see ONC-1 is just northeast of the south portal and right along the Bow Ridge fault and then NRG-4 is just 50 foot north of the north ramp. It was a very important data set that helped us calculate and look at the permeability of the mountain, large block permeabilities and by pressure responses in the unsaturated zone.

Next.

Then from the data we collected, relative humidity data and temperature and pressure data in the ESF, we were able to calculate and get some idea on moisture loss out of the mountain due to the ventilation system in the mine. We simulated long-term repository ventilation effects from thermal and vapor concentration gradients across the tunnel as the TBM moved down the mining the tunnel. Let me go back. The instruments were on the TBM itself so as the TBM moved, our instrument package moved right along with it so we got a record from the beginning all the way around the tunnel, which is important.

As you can see here, this is the tail end trailing gear of the TBM and we have three instruments located on that trailing gear. You can look through and you can see the tunnel at the end of the TBM. The TBM is behind the

person who took the picture.

Then from the pneumatic data that we collected in

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our two wells, that is that air pressure data in the two wells, we could identify and see a rapid pressure response in the subsurface as the TBM moved around the tunnel and in ONC-1 we saw a pressure response two kilometers away as they started down the main repository horizon. So this slide is just a slide of ONC-1 and it is just a typical pressure wave data set that we collected.

If you go to the next one, it is much more -- as you can see here, not to go through a lot of discussion but this is NRG-4 and a lot of discussion as the early barrier, everybody thought the barrier of the Paint Brush tuff non-welded unit was a barrier and we even pressed the NRC back two, three years ago, the NRC staff on pneumatic pathways issues and we had a workshop in Nye County and in Las Vegas that we sponsored for the pneumatic pathways workshop for the State of Nevada and Clark County, because we thought it was a big issue.

As you can see here, the mountain does breathe and as you are coming down to the lower probes at the top of the slide, they are very subdued and very little response. As it went through the Paint Brush tuff non-welded unit, you can see what happened to -- that is a vertical bar -- you can see what happened to the pressure response to our lower probes in NRG-4. They started to respond instantaneously with this surface pressure response. The surface wave is

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the bottom blue wave there and so through this we can calculate some bulk permeabilities of the mountain based on how fast we respond and the amplitude of that response.

So this is some of the data that went in with our ESF data to come up with some ideas and some proposals. So from the findings, we basically confirmed what I think everybody knew back in the mid-'80s, that the mountain is more permeable than they had anticipated. Any work in a fractured system like this, it is very permeable and the PTN, although it does dampen the pressure response and probably does deflect some flow coming down to the repository horizon, wherever it has faulted or fractured, it is going to permit migration of percolation into the repository horizon, as the chlorine 36 data has shown quite dramatically.

Then the flux rates are higher than they had predicted and .1 or 1 millimeter a year flux seemed extremely low in the mid-'80s and as you see now in Lake's presentation, we are looking at 5 to 15 and possibly higher with focused flow in the fractures. So that has a big impact on the model calculations and the transport calculations.

Then the faults and fractures do act as conduits for flow and we saw that because our hole ONC-1 was the first hole drilled through a fault, one of the main faults,

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the Bow Ridge fault. We do see pressure responses in the subsurface coming through some fracture set running from across the TBM, the tunnel alignment, into the subsurface and our lower pressure probes have shown our responses.

Next slide.

In all the indications we are looking at more reliability, relying more on engineered barriers and possibly less on geologic repository isolation and due to

higher flux rates, faster fluxes and a fractured system that breathes and we knew it breathed in '82 and '83 from some of the early wells, USGS 6 and 6S that were drilled back then and the USGS talked about those wells would blow and they still blow and suck depending upon barometric pressure.

So our data confirms that and we are looking now from the amount of moisture we saw drying out and how open the repository is, we have been looking at an open repository concept that I think somebody needs to look at and do some detailed engineering on because some of our calculations have shown if you leave that repository open and let it breathe naturally with the heat load that you are putting in there, you are going to keep the repository dry, you are essentially drying the mountain out from its own thermal drive and you keep the canisters dry and the temperatures are maintained low, just above or right around ambient for a long period of time.

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Just a couple more slides here on this natural ventilation. That slide needs to be turned another way. The tuff cylinder is the repository. All right.

This is just a conceptualization of what we are looking at. You are basically putting a heat source in the tunnel and you have an exhaust shaft. Many old mines have used this type of natural phenomenon for their own ventilation. In some places, they would start a fire at the bottom of a shaft to get the ventilation circuit going and then you would maintain the natural ventilation. You are basically doing the same thing, putting a heat source in the mountain and it looks like right now it will drive its own thermal and suck the ventilation circuit will be complete if you just manifold it and get the air out.

So these are just a couple more slides on some of our early runs and these are preliminary model runs that we have done and we are in the process of writing some much more detailed, three-dimensional model runs. But this one, the saturation, and you see we started at 75 to 85 or better saturations and with the open repository we can maintain saturations below natural. And as you move away from the tunnel alignment, where the canisters are in place, you are basically driving the saturation form of the moisture out of the mountain continually.

This is just the temperature curve. Again, you

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start out above this degree C and, as time progresses, you are dissipating the heat with the natural ventilation.

So in summary, if the DOE are going to rely more on engineered barriers, we feel that we would like to see someone do some more detailed engineering than our staff can do to just analyze or evaluate the phenomenon of open repository concept. It will also maintain -- the canisters will remain dry and you can get back in any time and do something with the canisters if you need to.

But we realize that present law is to close the repository sometime. I don't know how you handle that but engineering wise we would like to see this concept at least looked at an analyzed because I think it has some merit if, you know, you are worried about repository performance.

CHAIRMAN JACKSON: You have propagated these ideas to the DOE and to the Congress?

MR. STELLAVATO: Yes, we have talked to the DOE about these ideas and the NWTRB, we have talked to them about these ideas and we have not addressed the ideas of anything, policy, but just technical analysis based on the

data we are getting.

CHAIRMAN JACKSON: Commissioner Rogers?

COMMISSIONER ROGERS: No.

CHAIRMAN JACKSON: Commissioner Dicus, Commissioner Diaz, Commissioner McGaffigan?

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COMMISSIONER McGAFFIGAN: No question, really. He answered it at the end. Current law does seem our regulations clearly contemplate closure.

CHAIRMAN JACKSON: That's why his committee talked to the Congress.

MR. STELLAVATO: Yes, I am not proposing this. What I am saying is someone needs to look at the engineering aspects of this. This is not the policy right now.

CHAIRMAN JACKSON: As Commissioner McGaffigan said, I think in an earlier and different context, we are creatures of the existing law.

Mr. Bechtel.

MR. BECHTEL: Madam Chair, members of the Commission, I appreciate the opportunity to speak to you today and the Clark County Commission appreciates the opportunity to provide input to your very important work here.

What I would like to do, for the record, my name is Dennis Bechtel and I am a planning manager for Clark County Department of Comprehensive Planning, Nuclear Waste Division. What I would like to do today, and I realize you don't have a lot of time -- unfortunately, my presentation didn't make it.

CHAIRMAN JACKSON: We noticed.

MR. BECHTEL: I did, though. So what I would like

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to do is maybe submit some formal comments when they arrive to Secretary Hoyle.

What I would like to do is discuss briefly four points. Since there are new members here, what I would like to do is discuss briefly Clark County's interest in the activities associated with the Nuclear Waste Policy Act and our involvement, describe particular concerns that Clark County has regarding the Department of Energy's approach to site characterization and viability assessment, to discuss briefly the revisions that have been proposed to Title 10, Part 2, Subpart J of the licensing support system, work that we have been involved in as well as others, and to evaluate the responses to the Nuclear Regulatory Commission's strategic assessment and rebaselining report, which we tracked.

Clark County has been involved in nuclear waste activity since about 1983, me primarily. We were involved for a number of years with the state of Nevada's program. We were funded by the state. Then in 1987 with the amendments act, Clark County requested and received affected unit of local government status from Department of Energy.

I might add that there are actually 10 affected units of local government, including Nye County. Unfortunately, over the last two years the Congress has not seen fit to fund our programs. Clark County and others are

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currently working on FY '95 money, if you can believe it. At one time, I had a staff of about 17 people. Now we are down to about four or five and we had a lot of work in progress that we have had to kind of cut off. We are a little more optimistic, maybe, that funding would be

available in '98 but we will see how that works out.

Clark County, you might wonder. Clark County, by the way, includes the city of Las Vegas and has about 1.3 million people. It is the largest growing county in the United States, I believe. Because of -- we are victims of geography in a lot of ways. Although we are south of the site a considerable distance, we are concerned that a lot of the transportation decisions will go right through our community. So transportation, as you can imagine, is an issue of concern to our board.

We are also interested, we are a tourist-based economy and how the effects of the transport of the material primarily would affect people's decisions and desires to come to Las Vegas, you might say.

Most recently, we have been concerned about DOE's efforts to initiate and, say, privatize the transport of nuclear material. We have a number of concerns with regard to that. We feel in many ways DOE is abrogating their policy responsibilities. It is not clear in our mind how this whole thing is going to work.

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We as local governments would be first responders if there is an accident and it is unclear how DOE and the private sector would interact with local governments on issues like -- you know, trying to work out routing, emergency response issues, things like that. So I think we feel there needs to be a lot more rigor when you are considering a very sensitive program to transport material around the country. I might add it is not just a Clark County issue; that is an issue that would be of national importance.

We are also very much concerned about the interim storage legislation that has been proposed. I think we feel that the -- that in the interests of reaching a time line that things are going to get rushed, primarily with regard to, you know, transporting the waste. And so we feel -- we are concerned that in the interest of solving what we feel is kind of a hypothetical problem at reactor sites, it has been proven that material can be stored safely in dry cask storage, that the transportation issues are not going to be well thought out and there is going to be this rush to judgment that may put the public around the nation at risk.

Other issues we are concerned about are just some of the manifestations of DOE site characterization and viability assessment program. One concern we have are the proposed revisions to 10 CFR 9.60, general guidelines to the

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recommendations for sites. As you are aware, of course, this proposal was brought forth December 16, 1996, and the idea was to provide that a total systems assessment of the performance of the proposed site to specific regulatory design within the geologic setting of Yucca Mountain would be compared to the applicable regulatory standards to determine whether the site was a suitable for the repository.

We have two primary concerns with regard to that. DOE's proposals to deviate from Section 1.12(a) of the Nuclear Waste Policy Act and a process that has been defined by Congress to determine site suitability and as well from our perspective of local government, the elimination of several important pre-closure characteristics in the proposed revisions. The Nuclear Waste Policy Act, as you are well aware, in Section 1.12 established guidelines for recommendations of candidate sites for site

characterizations. To quote the original 10 CFR 9.60, such guidelines shall specify detailed geologic considerations that shall be primary criteria for the solution of sites and various geologic media.

It further states, however, that such guidelines shall specify factors that qualify or disqualify a site from development of a repository and we feel the objective, as we understand it, was to examine those individual factors that

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could contribute to the failure of a repository to contain these highly dangerous wastes from the public for thousands of years.

Section 1.12(a) went on to specify certain qualifying and disqualifying standards for a number of functional areas including transportation and safety, which of course is of primary concern to us.

It is interesting to note that DOE as late as September 1995 felt that these standards were adequate and, once again, I think our concern that the schedule being proposed is driving a lot of simplification of very important site suitability issues.

DOE, by moving, as indicated in their notice of proposed rulemaking, is limiting the individual performance measures given in 10 CFR 9.60. This, we feel, is in direct conflict with, as I indicated, their September 1995 statement.

We are concerned about this because, as you are aware, the qualification standards were divided into pre-closure and post-closure areas and of particular concern to Clark County are the socioeconomic and transportation criteria noted in the current version of 9.60. For example, the criteria for potentially adverse conditions states a potentially adverse condition is one that could cause the transportation-related costs and environmental impacts or

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risks to public health and safety from waste transportation operations to be significantly greater than those for other comparable siting operations.

Realizing that the original 9.60 was meant to compare sites, I think it is our feeling it didn't necessarily preclude an investigation of issues such as these. And I think the larger issue, I guess, is while site characterization is important, this is also taking place in the context of communities and people. I think we felt that the preclosure conditions spoke to those issues.

To go on, in the absence of standards and regulations determined by the EPA and the Nuclear Regulatory Commission, there is an uncertainty in understanding how DOE can design a program and collect appropriate information to determine site suitability.

There has been a great -- there will be a great reliance on the use of models. The use of models to predict the performance of a natural and engineered barrier system for thousands of years into the future is, at best, we feel, tenuous based on perhaps the inadequate availability of information by which to calibrate and validate that model. I have done some groundwater modeling in the Las Vegas Valley and it is the old your answer is as good as the data you put into it. So I think that is a concern that we definitely have, that there is not enough time to gather

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that data.

Also a third issue to try to summarize, realizing

you don't have a lot of time here, with regard to the proposed 10 CFR, Part 2(g), the licensing support system issues, Clark County has been involved since about 1984 on the original negotiated rulemaking on -- for the licensing support system and more recently has been part of the advisory board in evaluating the -- how this system could be implemented.

We are currently reviewing the revised rulemaking that was just recently released, so I have some kind of ill-formed thoughts, I guess, on it. But a couple of things maybe to present to you, a major concern with the proposed rule, as we see it, change is the important structure that appears to have been lost that would ensure data and information relevant to licensing would be managed and available to ensure the timely and comprehensive review of potentially relevant information for licensing. I realize, you know, the technology has improved considerably since we were originally talking about this a number of years ago but it is still a little uncertain, in my mind, how we are going to be assured that data will be available in a timely way and that all parties will be able to access that data.

One of the things that I see missing in the revised rule that I think could maybe provide some rigor to

that would be the retention of the licensing support system administrator. I think you need somebody to -- in the Nuclear Regulatory Commission to manage the system. I think that is very important. This function may, I realize, you know, we are talking about a lot of data and but it will probably serve as an auditing function if nothing else.

I think we don't want to get to the point where, you know, licensing may take place and then realize we don't have enough information or it is not organized in a way that can be useful to all parties.

I think from a perspective of a small player in this total issue, I think the addition of an administrator would be essential to kind of level the playing field to ensure that information is available for all interested parties. I think also there has to be some consideration as to how the public or citizen organizations in the case of Nevada -- in the case of Nevada some of the rural counties would be able to participate in the discovery and review of licensable documents.

While new information systems may facilitate the dissemination of information, there is a cost in obtaining that and I think we need to make sure all potential parties have the resources and the ability to be able to participate in that. I think maybe that needs a little strength in the proposed rule as well.

On the plus side, we are happy the rule speaks to the advisory committee. You know, I think the work of the advisory committee with the assistance of, say, Chip Cameron and John Hoyle, I think hopefully has been useful to the NRC and to the process and I know from the perspective of Clark County and I am sure the other affected counties, if they are funded in the future, that we would like to retain our ability to participate in that.

I think it is extremely useful. It is a good reality check for NRC, I think, just on a lot of the -- you know, where the rubber meets the road, I guess. You know, the folks are going to have to live with this, potentially live with this repository if it happens. So we think that the advisory committee is a useful way to do that.

My final comments are with regard to the strategic assessment rebaselining project and we would like to commend the NRC and your leadership for, you know, bringing these issues up. I think a lot of them required revisiting and I think they are an important step in, you know, are we doing things right now or do we have to do things differently.

I know there was an attempt to get the public involved. Speaking as a person who has been in government for a number of years, I don't know what the secret is to get the public out sometimes but I do think if this -- if you are planning more things like this in the future, I do

think, and I spoke to this at one of the meetings, that you need to hit the popular press more. I mean, people don't read legal columns and stuff like that. That's true for Clark County. We have the same notification requirements but we need to make sure the public knows that something is going on out there.

In our case, Clark County has a steering committee made up of seven citizens and we have governments within clark county, incorporated cities and what we did, we had a subcommittee of that sit down and just look at the issues. What I wanted to give was just kind of a public perspective.

In fact, the citizens were the only ones who participated in my subcommittee but we submitted comments and hopefully those were useful. We did get your summary document and had a chance to look at that and I think our citizen members were pleased that they, you know, were able to provide some meaningful input to the process.

Your support of the DOE working group recommendations, I think, was good. It actually went beyond what we had recommended. We felt with all your many duties and funding crush and everything, you were better off maybe just kind of doing what you're doing. But I think it is important for the Nuclear Regulatory Commission to get involved in as many oversight issues as possible, if only for the reason because things radioactive, rightly or

wrongly, are feared by the public and to know that an important oversight body is watching that I think is good. We were supportive -- we were hopeful that your funding levels will be maintained so you are able to do all these duties.

That's about all I had to say. And, once again, I appreciate the opportunity to provide input to you all.

CHAIRMAN JACKSON: Thank you very much, Mr. Bechtel.

Commissioner Rogers?

COMMISSIONER ROGERS: I have no questions.

CHAIRMAN JACKSON: Commissioner Dicus?

COMMISSIONER DICUS: No questions.

CHAIRMAN JACKSON: Commissioner Diaz? Commissioner McGaffigan?

COMMISSIONER McGAFFIGAN: My questions were more or less answered.

CHAIRMAN JACKSON: Well, I thank all of you gentlemen. It has been very useful insight and input and we will certainly take note of all of this as we shape our process here.

I guess I would like now to call to the table Mr. Arnold from the Las Vegas Indian Center, Mr. Holden from the National Congress of American Indians and Mr. Eben from the Pyramid Lake Paiute Tribe.

And since we don't know if the placards are correct, maybe you could identify yourselves for us.

MR. ARNOLD: As much as I would like to tell you that I am Robert Holden, I am Richard Arnold, to tell the truth here.

[Laughter.]

MR. HOLDEN: I am Robert Holden, director of the Nuclear Waste Program for the National Congress of American Indians.

MR. EBEN: And I am Maurice Eben.

CHAIRMAN JACKSON: Okay. So who would like to begin?

MR. HOLDEN: Madam Chairman, Commissioners, if I could, NCAI is a national tribal government organization and, in deference to tribal representatives, I would ask that Mr. Arnold and Mr. Eben proceed in that order, if possible.

MR. ARNOLD: Thank you.

My name is Richard Arnold and I am Southern Paiute. I am the spokesperson for the Consolidated Group of Tribes and Organizations, which are a conglomeration of 17 different tribes and organizations that have historic and cultural ties to Yucca Mountain.

What is very interesting in hearing a lot of the dialogue and testimony provided this morning, because I

think while a lot of what was directed at the science, there also too is a human element.

For us, for the Southern Paiute People, for the Western Shoshone People and for the Owens Valley Paiute and Shoshone people, Yucca Mountain plays a vital role in our culture and in our afterlife. It is something that is viewed upon as being very historically important to us, especially culturally.

We have been involved, actually, with the process since 1985 and through a whole variety of activities including literature reviews and cultural affiliation studies to ensure or try to identify the tribes that had the ties to the area. One of the difficulties with that, however, is that for us as Indian people, we look at ourselves as being interrelated all throughout the Great Basin and so although I identified myself as Southern Paiute, Mr. Eben who is Northern Paiute, we are all the same so it is very difficult to try to distinguish those kinds of ties.

The cultural affiliation study that was done identified tribes actually that were not only in Nevada but Owens Valley in California, which is in Inyo County in kind of that strip there. Utah, in southern Utah, and then northern Arizona, being the Kaibeb Paiute Tribe.

I think the main driver behind all this actually

was the American Indian Religious Freedom Act, federal legislation that allows us basically and guarantees us our right to practice our religion and all of the other cultural nuances that go along with that. Beyond that, there was a Native American Graves Protection and Repatriation Act. Although to date there hasn't been any burials found there, it doesn't mean that they don't exist but, beyond that, under that law, there are also items that are identified under that as cultural or sacred items, items of cultural patrimony and so there are currently those activities that are going on right now in working with the tribes and trying

to identify those things so the tribes are actively working in that respect.

There is also some executive orders that ensure and require government-to-government relationships between the federal entities and the tribal groups. Then, also, most recently one executive order, 13007, that allows access to sacred sites and there have been sacred sites identified actually early on, even in some of the historic literature, some of the sites that were used close by Yucca Mountain.

I give you all this information really only in hope that it is kind of again helping you to understand perhaps the position of the Indian people and showing the human element to this.

What we have initiated, though, there have been

some studies because, interestingly enough, when I look at the scientific studies, and being brought up very traditionally, I can also appreciate through our traditional stories, there are a lot of similarities of things. We had knowledge of underground water systems that people now talk about. We have knowledge of so many different things.

But try to imagine if you will, English being my second language, trying to describe radiation to somebody that doesn't know the concept of radiation by the term radiation. However, imagine trying to identify that, and often times I act as liaison or interpreter of some of those things. The elders were identifying it as an angry rock.

It doesn't matter what kind of cask that you design, anger is anger and you put an angry rock inside of a cask and it still remains angry. You bring it from another area, you bring anger from another area into that. And to some people that maybe aren't from the mind sets that the three of us are, I think it may be kind of difficult to understand. But it is something that is just as believable to us as perhaps maybe your respective religions or values would be. The same holds true.

We do hold tribal update meetings because we feel that it is important to be involved in learning about the updates of the project and so we have had that implemented. One of the nice things we have, I have to say, is that we

have been able to identify and recommend that there be a preservation in place policy relative to artifacts, which is very helpful to us.

However, I think, all too often Indian people are oftentimes thinking that our concerns are just archeological and so they see artifacts and they think of Indian people. But they forget that we are human beings too and that we have just as many concerns and similar concerns as what everybody else does.

We have also done interpretative work and we do make periodic recommendations to DOE at these meetings and responses are given back to us. We are also very interested and have been working closely in monitoring the progress of the environmental impact statement and looking at how we are going to have the concerns of the Indian people also brought into that.

Just as I heard some of the other presentations that were made, we as Indian people have the same concerns. Transportation is a tremendous concern by the Indian people and the Indian tribes. I think if you look at the reservations within the state of Nevada and actually in the Great Basin and even into the three surrounding states of

Nevada, that the tribes are in very remote areas. Oftentimes they don't possess the necessary infrastructure to host activities that would have them prepared for

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emergency response, for example. They don't have the training. We heard about the affected counties, actually, of some of the tribes. While that was, in all due respect, nice for the counties to receive that, the tribes did not, the tribes that were inside of those counties.

There are jurisdictional problems with that, as you can imagine, because of the tribes' sovereignty and the trust responsibility from the different agencies in trying to work on those government-to-government relationships.

Funding, I think, is critical for us also in terms of the preparation, response and oversight that is necessary for the project and the magnitude of the project. But I must also point out that since our last visit here, which has actually now been a couple of years ago, some good things have also come out from our previous presentation to you.

Some of the things now that we are getting more updates and things, however a lot of the paper becomes very voluminous and we think of all the trees that are losing their lives because of all the paper that is coming out but, nevertheless, we receive the documents from the NRC and that is very helpful. A lot of it is in very technical jargon that sometimes is way beyond us and I commend the people for writing it that have the command of those big words but, for us, it doesn't make a whole lot of sense.

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But I think there are, just in closing, a few other things I would just like to touch on. One, I just want to reiterate the trust responsibility between the NRC, actually the Department of Energy and any other federal agency or federal entity that would become involved that has that responsibility to the tribes. The other is that if funding is restored, I think the tribes need to definitely be involved in that and not be left out of the loop.

I heard about the advertisement and that, too, I think is something that is very critical in trying to get people in public participation. One of the things that a lot of the tribes have is either tribal newsletters or newspapers and/or working through the National Congress of American Indians is another good vehicle to get information out to the tribes.

Then basically the last thing is that as, basically, the oversight body, I think it is critical to maintain your oversight and input into the process, just as we would like to be involved in the process as well.

Thank you.

CHAIRMAN JACKSON: Thank you very much.

I have less in the way of questions but rather to note the points you have reiterated and also in particular your comments relative to within the context of an EIS of the transportation issues and how that might affect your

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communities as well as issues related to emergency planning. I am very familiar with the executive orders relative to the government-to-government relationship so I thank you for bringing that to our attention.

Commissioner Rogers?

COMMISSIONER ROGERS: Well, just one question. Some years ago, there was a question about the ability to access an LSS and to get the information and so on and so

forth. The NRC, as I recall, contributed some computers, more personal computers to some groups. Do you have anything to say about how effective that was, whether that turned out to be useful and whether there was anything of that sort in the future that you could suggest?

MR. ARNOLD: Sure. First of all, it was helpful in those tribes that were able to access the computers. Currently, though, what we are trying to do, and not to try to downplay anything we are doing by any means, but I think that oftentimes with some of the tribes and trying to keep up with all the technology and things, sometimes we are a few steps behind and that. So just in looking at some of the situations now, just trying to access and get on the Internet, for example, in some of the remote communities, you then incur large bills by having long-distance calls every time you are trying to access it.

So some of it has become cost prohibitive. So it

was almost in one sense like a double-edged sword in that we got -- some of the tribes got computers and that was nice and they looked pretty. But then, you know, to then go maybe to the next step.

So I think part of that could also be addressed by either having a funding mechanism of some sort of some other kind of computer support or somehow to access some of those things. But definitely it is a way of trying to get that -- a way of getting Indian people into the loop of things, if you will.

CHAIRMAN JACKSON: Commissioner Dicus?

COMMISSIONER DICUS: No questions.

CHAIRMAN JACKSON: Commissioner Diaz? Commissioner McGaffigan?

COMMISSIONER McGAFFIGAN: Just on that last point, we may need to get some T-1 lines. The modem is going to be the limiting factor, it seems like to me, in this LSS system.

CHAIRMAN JACKSON: Well, I would like to thank you again and to thank all of the participants.

Were you making a separate --

MR. EBEN: Yes.

CHAIRMAN JACKSON: Oh, I am so sorry. I apologize.

Mr. Eben.

MR. EBEN: Thank you very much.

Before I start with our statement, a lot of it is going to be repetitious for you, our tribe just recently got pulled into this nuclear transportation issue and it is very disturbing listening to Mr. Arnold. I have heard Mr. Arnold's name for a number of years and I just met him a couple of weeks ago, last week I guess in San Diego. And that is part of our problem, is there are a couple of groups in Nevada and we were totally in the dark when it came to some of this information.

CHAIRMAN JACKSON: Actually it would be helpful, I think, to us, in terms of interacting with the publics that we need to interact with, if you might think about and suggest a mechanism that you think would be useful for us to be sure that we reach all populations we need to reach.

MR. EBEN: Well, I was going to suggest that with the National Congress of American Indians, they were the ones who basically helped us the most along with our lobbyists and friends back here, Dorsey & Whitney. It was a

quick game of catch-up and then we were told we probably will never catch up, so we just need to go on forward from this point. And our issues out at Pyramid Lake are tied to the water.

We have an endangered specie, it's the cui-ui, Cui-ui-Ticutta and the ta cutta mean eater and the ta cai is

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a trout and that is the Walter River Paiutes and they have been involved directly and indirectly.

I am going to go ahead and read my statement.

Good morning, my name is Maurice Eben. I am an enrolled member of the Pyramid Lake Paiute Tribe and currently serve as a Tribal Councilman. Our tribal offices are located in Nixon, Nevada. The Tribe appreciates this opportunity to present our statement to the Commissioners of the Nuclear Regulatory Commission.

The Pyramid Lake Indian Reservation was surveyed in 1859 and was confirmed by executive order in 1874 by Ulysses S. Grant. The Tribe has been through many social, economic and cultural changes since the reservation was created.

Since time immemorial, we Indian People have had a respect for the land that we walk upon. At no time has that caretaking responsibility changed. Indian People are still the rightful caretaker of this land. As we proceed and continue our discussions from this day forward, we will remind you of this responsibility and stand by the prayer and sincerity to our Creator in allowing us to continue the responsibility.

We feel that as our race, the four races on this earth, that was our job and it hasn't been taken away yet no matter what human beings say, so we continue on and that is

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what we need to remind you folks of, that is our spiritual job.

I am a descendent of the two major tribes of the Great Basin, the Cui-ui-Ticutta of the Northern Paiute and the Timbisha of the Western Shoshone. The Cui-ui-Ticutta are from the Pyramid Lake region of the Great Basin and the Timbisha Shoshone of the Death Valley region of the Great Basin.

Due to the Indian Reorganization Act, our parents were forced to enroll their offspring with one tribe. My parents chose my father's tribe. Although I was brought up in Northern Nevada, we traveled to Death Valley on a regular basis to enjoy my mother's side of our family. Both my parents spoke their respective languages. Both my parents attended the Stewart Indian School in Carson City, Nevada. After my birth, I lived on the Pyramid Lake Paiute Indian Reservation and as most families, we moved to the Truckee Meadows where my parents could find jobs. Truckee Meadows is where Reno and Sparks sits and it is a shared area with the Washoe tribe, between the Cui-ui-Ticutta and the Washoes.

The Reno Sparks Indian Colony sat on land donated by a kind-hearted elderly non-Indian lady for the three Nevada Tribes, Paiute, Shoshone and Washoe. The colony residents were mostly related to each other or knew family

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from respected reservations or the Stewart Indian School. We were brought up around great uncles and aunts, grandparents and cousins to most degrees. The extended family truly was a common part of life at the colony. Fortunately for me, I was taught some of the Coyote stories

and legends of the three tribes from the Reno Sparks colony. The Washoes are mostly from the Sierra Nevada Mountain area with ancient ties to the Great Basin before moving into the mountains. The Western Shoshone came into the Basin about 10,000 years ago in search of food. The Paiute people, according to scientists, were in the Great Basin for about 15,000 years.

The 400,000 square miles is bordered on the east by the Wasatch Mountain Range in Utah, the Snake River in the north and the Sierra Mountains on the west and as far south as the Mojave Desert.

The Timbisha people lived and died in the region of the Sierra Nevadas to the west to as far as the Colorado River to the east. Of course, I would be centrally locating them in Death Valley, Death Valley being our winter home and the Wildrose Mountains and the Hunter Mountain range to the west of the valley and Beaty being north and Yucca Mountain to the east being wintering homes.

Following the traditions of other Great Basin peoples, burials took place on the eastern side of valleys

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and in rock crevices and in outcrops on the sides of the mountains that at one time were islands in the Lahotan Inland Sea. These burial caves are found throughout the Great Basin and are known to grave robbers too. Mr. Jack Harrelson of Grants Pass, Oregon, was one of those grave robbers. He was convicted in the State of Oregon for taking two bodies from graves found in areas of the Great Basin which are similar to Yucca Mountain. As with the Southern Paiute, the Timbisha share common cultural beliefs and legends such as Coyote being the jester. The morals are the same as both Northern and Southern Paiute.

Before the Euro-American arrived here, we were just a People, as Mr. Arnold had mentioned. We were at times I want to say borders of contention because we did battle over certain areas and lives were lost but not in the sense of warfare in Europe. Nobody lined up in rows and chased each other. Sometimes a wounding of one person was enough.

I would like to say for the record there is an ongoing effort by many tribes to correct their histories. In the past there have been some attempts to change tribal history by a few misguided tribal members. This was done with the thorough knowledge of a number of anthropologists and ethnohistorians with only the publication of their work in mind instead of accuracy and truth.

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You have to put in mind, when we were doing this last night, I think I was still suffering from jet lag, so there are a few words missing. It kind of threw me off.

So the process taken in identifying and notifying affected tribes is purposefully flawed. There is a concerted effort by federal agencies today to change the history of the Great Basin People. The Bureau of Land Management and the State of Nevada Museum have taken a position that the first inhabitants of the Great Basin have only been in the region for 1,000 years. There is no known scientific data to support this theory. Nonetheless, they are attempting to use their theories against us.

I would request that the Nuclear Regulatory Commission study all the ethnohistories for accuracy and factual material. Without the truth from the original inhabitants of the Yucca Mountain region is an insult to the

entire process. The history of the Timbisha People should be studied very closely for its accuracy. Most important, the archeologists doing the history of the Great Basin tribes should also be investigated.

The changing of one spring, the name, could throw the whole concept off. As most of you are aware, there is the name, Tono Pah. The word Pah, it means water, no matter what dialect you say it in or if you change it a little bit, it just means water. In Tono Pah's case, it means bad

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water.

Cui-ui-Pah was the name of the Lahotan Inland Sea before it was ever named, I guess, and Cui-ui being our main food substance. And so you will find in the Great Basin, pah, and it refers to water and, as Mr. Arnold had mentioned, water is very, very important to our religion let alone to us as a human being.

The history of our people in the Great Basin is from oral histories and from scientific. According to the time measurement of the Great Basin Curvilinear attributed to petroglyphs found in the Great Basin, our people have been in the region for up to 15,000 years. Many of our ceremonies are the same and are practiced during the same time of the year. The Cry Dance is done when a death occurs and the meaning of the dance is the same with the Southern and Northern Paiute. Legends of how the pine nut got to the top of the mountains is the same with the same outcome and meaning. The Park Service told the Indian People they were no longer welcome to pick pine nuts in the Wildrose Mountains and in 1944-1945, the site chosen by the People was Yucca Mountain to pick pine nuts. The National Park Service didn't want to assume the responsibility for the Indian People back then. As a matter of fact, they wanted our families to live in tepees although tepees were a Plains Indian home. I think it kind of demonstrates the lack of

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knowledge during that time toward our people.

The commissioned a genealogy to be done to prove that the Shoshone people weren't from that area and the further it went back it proved that Great Pine Dog's family did come from Death Valley so they stopped it and that stops the process and we don't think that is really the right way that our people should be looked at.

With most ceremonies, there comes a negative side. I jumped ahead.

There is something I carry for our people and it is some of the legends and it is this particular piece that I am going to read is that legend and it was named the Ghost Dance and it goes a lot further back than the 1870s but it is written in this area of around 1870.

The story of the Ghost Dance and of Wodziwod's vision. And as most people know, Jack Wilson or Wovoca is always associated with the Ghost Dance because after Wodziwod had passed away, Wovoca picked it back up and tried to revitalize it.

But the gentleman, the man who did get the original vision, was Wodziwod and he was from the Walker Lake area.

The story of the Ghost Dance and of Wodziwod's vision was one of many histories told to us by our elders from the Paiute side. In this vision, he saw the return of

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our brothers who had traveled to the other side of the world. As prophesied, our older brother was in chains, put

there by our little brother. They had new things we would not understand. Their dance would help us as one people to understand each other's ways.

The understanding of our mother earth would come from the Red People. Should this dance be done correctly, this dance would bring water in its many forms to cleanse and bless us. Wodziwod's vision showed the dance steps and the songs. The vision showed the clothing required to be worn and what they should be made of, deer hide with long fringe on the front of the shirts to shake off the sickness and to be shaken through the fringe to the mother earth. Those shirts have become what is called ribbon shirts now and it has kind of lost its ceremonial value. You know, I see basketball coaches wearing them. Maybe they're trying to get some of that luck. I'm not real sure.

With most ceremonies there comes a negative side and in this case the Ghost Dance, it was said that four men would come out of the East who will turn our dance into its opposite. Wodziwod's vision was one of love and peace. The vision meant the dance would be turned into a war dance which did happen and it led to Wounded Knee with the massacre of an entire unarmed people.

Our dance would one day return and be brought to

us by the ones who came to the Great Basin to get it. Over the years, gifts have been sent to the Cui-ui-Ticutta and the Tagi-Ticutta from the people who had taken our dance to their homes. Seventeen years ago, our dance returned to the Great Basin and was given to Stanley Smart, a Paiute, Shoshone, Pit River lineage. The prophesy told the dance would be given to a snake person, who we were before the name Paiute was put on us. Wodziwod's vision is only a piece of the total prophesy believed by us. It is believed that when the four races return to the basket we will be able to make the sound the Creator is waiting for us to make. And I think, as many people are aware, there is a movement toward Indian religion and right now we are waiting and it is pretty hard. We have a lot of non-Indians coming around us that are being shown by some of these misguided tribal members. It is not that time yet but we are waiting.

The basket that we were created in is the Great Basin. So the return of the other three races obviously is happening and, you know, we are waiting for that time so that we can train our brothers.

It is our understanding that since our creation we have always followed the south end of the lake we call Cui-ui-Pah, which is Pyramid Lake. Our culture is tied to the ancient inland sea known as Lahotan Lake. 14,000 years ago, the climate of the Great Basin was wet and full of lakes.

During the Pleistocene Era, 1.8 million years ago, there was over 27 million acres of lakes. Today there are only 2.5 million acres.

Five thousand years ago, the inland sea started to dry up. The Lahotan Inland Sea covered the vast area of 8,000 square miles and was 900 feet deep. During the drought period, the water slowly drained south and east. On the east side of the many valleys, the sands were halted which became one of the areas used to bury our dead. During periods of high water, the cliffs exposed by the ever-beating of wave after wave, the volcanic uplifts helped to make natural burial chambers. These chambers were prepared with loving care by placing mats made of tule reeds, food

stored in willow woven baskets, blankets made of rabbit hides were made to keep the bodies warm. Clothing was made for the journey home. The cave would be used, when it was necessary, by placing another body on top of a previous grave. This practice was used up until recently.

As I mentioned earlier, Mr. Harrelson, the grave that he robbed came out of Elephant Mountain which is almost identical to Yucca Mountain but in a smaller version. The way the bodies were on top of each other, one being 2,500 years, the other about 1,200 years old. We have these type of graves on our reservation in the same format that I just read.

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The Tribe is currently directly involved with an issue with the nuclear industry that includes the Departments of Energy, Defense and Navy and the private sector. The project is known as the Nuclear Weapons Nonproliferation Policy Concerning Foreign Research Reactor Spent Nuclear Fuel. This program will result in transportation of spent nuclear fuel through our tribal lands. Although it is known that transportation is an old practice, the issue of involving our Tribe is new. As a matter of fact, the record of decision was issued on May 13, 1996, but the Tribe did not receive official notification from the federal government until January 1997. Furthermore, we received a notice from the State of Nevada on October 3, 1996, inviting the tribe to a meeting in San Francisco to discuss shipment of foreign nuclear fuel.

The National Environmental Policy Act was violated. No consultation occurred between the federal government and the Tribe. Had DOE followed the spirit of executive order 12898 pertaining to environmental justice, they would have been on notice to at least contact the Tribe. The DOE never did. At this point, we do not visualize any consultation occurring in the near or distant future. This treatment between two governments is all too familiar. We request that the Commission seriously consider and reconsider its authority which is vested toward federal

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agencies responsible for carrying out the obligations of the federal government.

When an Indian Tribe is affected either directly or indirectly by any project involving the nuclear industry, the seriousness of impacting the environment must be the primary consideration and not secondary. This nuclear energy and nuclear waste is not part of our Indian society to which we belong. This makes it harder to understand and accept. Although the science and technology can be taught and shared, there is a fundamental an conceptual difference that exists between natural law and the man-made written laws. It is important to us to demonstrate to you that we are unique but we do not feel any superiority to you. All we expect is equal treatment from you just as you would treat your relatives and families.

We would like to acknowledge the efforts of the National Congress of American Indians over the years for their monitoring of and providing education to Tribes on the effects of nuclear waste. The Tribe is willing to work with the federal government and its regulatory agencies to come to a common understanding but only as long as the consultation process is done fairly and legally. We will support the NRC in its efforts in the development of an Indian policy as other federal agencies have done in compliance with the President's executive memorandum of

April 29, 1994, to all heads of departments and agencies regarding government-to-government relations with Native American Tribal Governments.

Thank you.

CHAIRMAN JACKSON: Thank you very much.

Commissioner Rogers.

COMMISSIONER ROGERS: No questions.

CHAIRMAN JACKSON: Commissioner Dicus? Commissioner Diaz? Commissioner McGaffigan?

Mr. Holden.

MR. HOLDEN: Thank you, Madam Chairman. And again good morning, Chairman and Commissioners.

I was going to read a statement from the Nevada Indian Environmental Coalition Executive Director, an inter-tribal organization which many -- to which some of the Nevada tribes belong and they were going to issue a statement. But that did not arrive by fax last night. So once I get that, I will certainly forward it to you and will forward to you the written statement that I have. It is in different pieces right now.

But thank you again for allowing me to be part of this panel. NCAI is the oldest, largest national tribal government advocacy organization in the country. It was formed in 1944. The purpose was to offset attacks by various jurisdictional entities, states, counties and in

some instances the federal government who did not look upon tribes as viable governments base don the treaties and agreements that they had signed over 100 years ago, backed by the Constitution and backed by Supreme Court cases. We are, as I said, an advocacy organization and in instances such as this we do represent some of those tribes who are unable and do not have the resources to be here as well as those tribes who may have the resources but asked us to speak with them.

I want to thank the Department of Energy for its cooperative agreement that we have, similar to an agreement that the National Conference of State Legislatures, Western Governors Association and similar organizations have. It has allowed us to disseminate information, to conduct meetings about the issues and concerns of tribal governments and the native peoples and the denigration of their cultures in many instances.

Unfortunately, that cooperative agreement has come under the budget knife, as we all know happens, and we have been cut two thirds a couple of years ago and are still under a freeze and as you are well aware a freeze is the same as a cut in each increasing year for funding impacts.

I also do want to thank the NRC and its staff for working with the NCAI and working with tribal governments in providing resources and information on its many programs.

Some tribes have invited the NRC representatives to community meetings, community presentations to talk about the issues that fall under the NRC's jurisdiction. Mr. Chip Cameron in the General Counsel's office has worked with us on the LSS, as Mr. Hoyle, Mr. Greeves have been part of a program that you referred to regarding providing computers to tribes. Let me say that was greatly appreciated, as Richard Arnold indicated. Let me also say, these were 386s and exponentially the capability of computers has enhanced and I don't need to say much more about that. But in terms

of those might be seriously outdated at this point. But we do appreciate that effort when it came because that was, honestly speaking, that was more than the tribes had at that time so anything helps.

That is where we are coming from.

Much has happened. There has been much DOE activity in the Yucca Mountain area since I was last here. But unfortunately not much has happened in terms of tribal resources and the ability to participate in the process.

As I said the last time I was here, in regard to what Mr. Eben was stating, not being able to participate, that is quite important in the cultural resources protection area. Last time around we notified -- we had notified the NRC that Yucca Mountain project officials were working under a flawed cultural resources study that they had done by a

non-Indian from the University of Michigan. Those concerns seemed to have gone unheeded, even though as a cultural workgroup, which Mr. Arnold is a part of, it has not always been embraced by all of the tribes in that area and even though respectful deference is given to those tribal cultural people, it is the tribes to whom the federal government has its trust obligation on a government-to-government basis. So we would look for the federal agencies to find some way to live up to that moral and legal obligation to ensure tribal participation.

Impacted tribal governments may still opt to enact transportation regulatory codes which will enable them to participate and monitor transportation activities, though there is significant federal preemption in these areas. The stakes are too high for the tribes to be left on the outside and no matter when they decide to avail themselves of the process, they have the right to participate to whatever extent feasible. The NCAI feels it falls within the trust responsibility of the DOE to provide resources and assistance if a tribe so desires.

As you have heard, some tribes may wish to participate under the cover of an intertribal organization such as the Nevada Indian Environmental Coalition. The choice is that of the tribes. The NCAI still has on record resolutions from the NIEC which asked us to provide

information and work with those tribes within their organization to monitor activities for them and to provide them with updates from the various participating federal agencies.

I must say that DOE has at times made attempts to find resources for the tribes. Dr. Dreyfus a couple of years ago met with tribal officials and the short story is that nothing ever became of that. The Yucca Mountain Project Office had funding available and then they didn't a short time later. The came back to the tribe and said, yes, we do, and then that was pulled back also. So it has been sort of on a I yo-yo string as far as the tribes being asked to participate realistically and then being denied. So that is something we are dealing with. So there is a little bit of mistrust on the part of the tribal governments and rightly so if you can put yourselves in that position.

The State of Nevada and counties have received impact dollars and the tribes whose land and cultures are at risk are yet to receive funding and are unable to assess the thousands of documents emanating from site characterization studies and thousands more to come. They don't know if the non-Indian scientific approach is sound or not. They can't

evaluate DOE's scientific programs. As a matter of equity, as a matter of legal and moral obligations, we would urge the NRC to implore the DOE to correct this longstanding
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error and provide resources to impacted tribes until there is at least a funding level equitable to the states and counties and that should be viewed only as the beginning of the tribal participation in this process.

The funding we are suggesting is not special interest or pork barrel project. In our mind, it should be a staple within DOE program budget items, not only with DOE but with NRC and other agencies across the board. This is also not a matter of lobbying but an attempt to ensure participation by the necessary parties. The federal government should accept its role to provide assistance as part of the trust responsibility under treaties and agreements.

To go back to transportation for a moment, if I could, in regard to spent nuclear fuels and radiological waste shipments, we are urging the NRC to establish protocols requiring tribal notification. I would point out that many of the corridors through whose jurisdiction these shipments traverse or will travel in the future are coming from near ground zero in regard to readiness to respond to radiological transportation accidents. We all know that it takes years for an emergency response organization to reach a state of readiness. We, along with the tribes, have made the DOE aware that the tribes retain the jurisdictional ability to enact hazardous materials transportation codes
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and may opt to exercise this authority.

The NCAI is working with DOE transportation external coordination work group and within that group have urged funding and training and technical assistance to tribes and tribal responders but this has not really reached what is necessary to bring tribes in regarding emergency response activities. Once again, the State of Nevada and counties have received impact dollars and the tribes whose land and cultures are at risk have yet to receive funding and are unable to assess these documents. So we just wanted to reiterate that.

This is quite important because it is not you and I and the DOE who have so much at stake and the word stakeholders is an understatement in this instance. Their homelands are being altered at this very moment, altered to a state which, based on the work done, is not recoverable for many generations.

You and I will go home tonight and perhaps file these papers and our thoughts away for the time being but these people will return to their homelands and will wake up every morning and wonder the fate of the birthplace of their culture where their Creator placed them.

There is a limited opportunity to carry out a fair and just policy and implement decisions which enables them to protect and preserve their homelands and birthright and
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to maintain their way of life. But they and their progeny will look back on today as just another instance when their message went unnoticed.

I appreciate this opportunity.

CHAIRMAN JACKSON: Thank you very much.

Commissioner Rogers?

COMMISSIONER ROGERS: None.

CHAIRMAN JACKSON: Commissioner Dicus, Commissioner Diaz, Commissioner McGaffigan?

Well, I thank each of you and all of you for your input. I take note of what I have heard, which I always feel is useful to play back and that is the need for cultural understanding. The cognizance of our responsibilities under the various laws and executive orders, the special sensitivity to transportation issues, the need for consistency of interaction, the need for access to information, including the use of information technology and the issue of funding. We are probably in the same boat you are as far as that is concerned.

I thank you again. I also thank the representatives from the State of Nevada and from Nye County and Clark County and, of course, the representatives from the DOE. As you know, we are briefed regularly by our staff and other organizations involved in the high-level waste area. But hearing directly from all of you is helpful to

the Commission as we determine the status of DOE's efforts and the direction of our own program.

The statements of all of the participants in today's briefing and in the discussions surrounding the statements, you have described the issues and concerns that all of you have, which overlap but are also unique to each group associated with the high-level waste repository program. It is important that we continue to maintain clear communications between, obviously, DOE and NRC but among all the affected parties so that we can use the resources available appropriately and carry out an effective program.

Again, the Commission thanks everyone very much and, unless there are further comments, we are adjourned.

[Whereupon, at 12:02 p.m., the briefing was adjourned.]