UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
***
OFFICE OF THE SECRETARY
***
BRIEFING ON STATUS OF DOE HIGH LEVEL WASTE
VIABILITY ASSESSMENT
***

Nuclear Regulatory Commission
Commissioner's Conference Room
One White Flint North
11555 Rockville Pike
Rockville, Maryland

Tuesday, March 16, 1999

The Commission met in open session, pursuant to notice, at 1:10 p.m., the Honorable SHIRLEY A. JACKSON, Chairman of the Commission, presiding.

COMMISSIONERS PRESENT:

NILS J. DIAZ
GRETA DICUS
EDWARD MCGAFFIGAN
JEFFREY S. MERRIFIELD

STAFF AND PRESENTERS SEATED AT COMMISSION TABLE:

ANNETTE VIETTI-COOK, Secretary of the Commission
KAREN CYR, Office of General Counsel, U.S. Nuclear Regulatory Commission
DR. WILLIAM TRAVERS, EDO
DR. CARL PAPERIELLO, Director, NMSS
JOHN GREEVES, Director, Division of Waste Management
MICHAEL BELL, Chief, PA/HLW, NMSS
ROBERT LOUX, Director, Nuclear Waste Project Office, State of Nevada
STEVE FRISCHMAN
DENNIS BECHTEL, Planning Manager, Nuclear Waste Division, Clark County
TAMMY MANZINI, Lander County
DR. MIKE BAUGHMAN, Lincoln County
JOHN JERVES, Inyo County, California
CALVIN MEYERS, Moapa Band of Paiutes
ROSS MORRES, Liaison, Western Shoshone National Council

P R O C E E D I N G S

[1:10 p.m.]

CHAIRMAN JACKSON: Good afternoon, ladies and gentlemen. Today the NRC Staff, the State of Nevada, and the affected local and tribal governments will provide the Commission with a briefing on their views on the Department of Energy viability assessment of a potential repository at Yucca Mountain, Nevada.

The Department of Energy previously briefed the Commission last month on its high level waste program and viability assessment. In response to Congressional direction and the FY 1997 Energy and Water Development Appropriations Act, DOE issued its viability assessment of the repository Yucca Mountain on December 18th, 1998.

The purpose of that assessment was to provide the President, the Congress, and the public with information on the progress at the Yucca Mountain site. Its purpose also is to identify the critical issues that need additional study before a decision can be made on whether to recommend the site for development as a geologic repository for spent nuclear fuel and high level radioactive waste.

Although there is no specific requirement for NRC review of the viability assessment, the Commission is reviewing the document as part of its responsibility for pre-licensing consultation required by the Nuclear Waste

Policy Act of 1982.

A paper documenting the Staff review has been prepared by the Staff and presently is under Commission consideration.

In addition to the NRC Staff, we will be hearing, as I've said, this afternoon from representatives of the State of Nevada and the affected units of local government and the tribal governments on their respective views on the viability assessment.

The Advisory Committee on Nuclear Waste and the Nuclear Waste Technical Review Board are scheduled to brief the Commission tomorrow morning on this subject.

In order to keep the meeting on schedule, the Commission will try to only interrupt the presentations from time to time to ask pertinent questions, and then I'm essentially asking my colleagues to join me in this, although I'm usually the guilty party, to let you get through, and then at the close of each presentation, I will open the discussion to additional general comments and questions from the Commission.

So I understand that copies of the Staff paper and the viewgraphs are available at the entrances to the meeting, so unless my colleagues have anything to add, Dr. Travers, please proceed.

MR. TRAVERS: Thank you, Chairman Jackson, and

good afternoon.

Today the Staff will discuss our major comments on DOE viability assessment, or VA, for the Yucca Mountain high level waste repository site. As you have stated, the Staff has provided the Commission a paper that presents the results of our review of the VA. In directing that DOE prepare the VA, the Congress specifically directed that the VA include an assessment of four elements; one, a preliminary design; two, a total system performance assessment; three, DOE's plans for the license application, including costs and; four, an estimate of the total cost to construct and operate the repository.

DOE's assessment has addressed each of these four areas.

The Staff's review of the VA, while not legislatively required, has been conducted as an extension of NRC's ongoing activities during the pre-licensing phase of the repository program. Our program continues to focus

on early identification and resolution of technical issues that could impact eventual licensing.

In this regard, our presentation today will focus on those areas where we believe further DOE attention is needed. While we believe that further work is needed in a number of areas, we agree with DOE's decision to continue its site characterization and pre-licensing activities for

the Yucca Mountain site.

Seated with me today are Carl Paperiello, of course, who is the Director of the Office of Nuclear Materials Safety and Safeguards; John Greeves, who is the Director of the Division of Waste Management; and Mike Bell, who is the Chief of the High Level -- I'm sorry, of the Performance Assessment and High Level Waste Integration Branch in the Waste Management Division of NMSS.

With that, let me turn the presentation over to Mike Bell.

MR. BELL: Good afternoon, Chairman, Commissioners, and thank you, Dr. Travers.

Could I have the outline of the briefing, please.

Basically today I would like to outline for the Commission essentially what the Staff did, that's the scope of the review of the viability assessment; why we did it, the objective of the review; how we went about it, the basis of our review; and what we found, and I will summarize at the end.

The VA, as Dr. Travers mentioned, was required by Congress and was to address four specific topics: preliminary design concept; a total system performance assessment of the expected performance of the repository based on information that was available as of last July; a license application plan, detailing the work that would need

to be done to prepare a license application, including the cost estimate for that work; and then total life cycle costs of the construction and operation of the repository.

In the NRC Staff's review, the Staff focused on the first three topics there. We did not particularly look into the cost estimates that DOE prepared.

As Dr. Travers mentioned, the Commission had no explicit statutory requirement to review this, but it's an extension of our ongoing pre-licensing consultation with the Department under the Nuclear Waste Policy Act.

The objective of our review was essentially a forward-looking one, based on the information in the viability assessment and work the Department had planned to conduct between now and the year 2002, when they are currently scheduled to submit the license application. Would they be developing the kinds of information that the Commission would want to see in a complete high quality license application. And we focused on test plans, the conceptual design concept, their total system performance assessment of repository performance, which is the key element of a risk-informed performance-based review of an application, and then their plans for work to get to that point.

The Staff not only reviewed the information that DOE presented, but conducted an independent analysis of the

Department's total system performance assessment, using its own total system code developed by the NRC Staff and the Center for Nuclear Waste Regulatory Analyses.

We did sensitivity analyses to look at what were the most important contributors to performance, and attempted to identify the major elements that DOE was relying on, what the significant issues were that came out of the Staff's analysis, focused on any differences, and identify the relevant questions that needed to be ventilated.

On slide 6, DOE in the viability assessment considered a 25 millirem per year all-pathways standard to the average member or critical group residing in Amargosa Valley 20 kilometers away from the repository, and as the Commission is aware, this is also the performance standard in proposed Part 63, which is now out for public comment.

The Staff did uncertainty and sensitivity analyses to try to identify those parameters, those parts of the models that were most sensitive to performance and used this to focus on the review of the Department's license application plan.

The Department, in the viability assessment, concluded that based on the available information and the analyses that they had done that they should proceed with continued characterization of the Yucca Mountain site, and

basically the Staff's conclusion, after reviewing the information in the viability assessment and considering its own work, we have no reason to disagree with that conclusion in that Yucca Mountain continues to be a site that is worthy of consideration as a future high level waste repository.

In the Staff's review, we identified no new issues that affect post-closure performance of the repository. Basically the kinds of issues that surfaced are all encompassed within the Staff's key technical issues that have been the focus of the NRC's pre-licensing program for the past several years.

In fact, it was gratifying to me personally to see that in the viability assessment, the Department did a croswalk of what they considered the key parameters of the repository performance, and the Staff's key technical issues, and you know, where each of our key technical issues were addressed in the viability assessment. It shows that the Department is paying attention to the pre-licensing guidance that they are getting from the Regulatory Staff.

There were a number of positive aspects of the review of the viability assessment which I will touch on in a minute, and there are some areas where we did identify some major comments that we think DOE needs to be aware of and to take into consideration and attached to the Staff paper is a draft letter to Lake Barrett that lays out these

comments that we are recommending that the Commission approve be transmitted.

We organized our comments along the same categories as the major divisions in the viability assessment.

First I will touch quickly on some of the positive aspects of the viability assessment. It is the first comprehensive presentation that synthesizes all of the site characterization information that has been gathered over more than a decade and a half of investigation of the Yucca

Mountain site, the current conceptual design, and DOE's performance assessments that are currently available.

The review that was done by the NRC Staff was excellent preparation for reviewing a major DOE submittal. It gave us a chance to use some of the licensing tools that we are developing, to -- we used the acceptance, the draft acceptance criteria in the issues resolution status reports that the Staff has been issuing for the key technical issues, and we believe that this worked quite well.

We had a number of technical changes with the Department to discuss key aspects of the viability assessment prior to its being submitted, and the Department provided much of the supporting technical documents that were the basis for the viability assessment in advance of submitting the document.

Slide 10. There are a number of areas when we did our review where DOE's plan of work appears appropriate and, if carried out, they would have information that the Staff would consider would be appropriate for a complete high quality license application. Some examples are on slide 10 and 11, and just let me elaborate on some of these.

Essentially one of the issues that the Staff had considered in the key technical issue of seismicity dealt with the likelihood of a fault rupturing waste packages, causing releases and the impact of that on performance.

Essentially the kinds of models that DOE is using for that, the data are appropriate and the work that is laid out in the LA plan seems to be on the right track.

Another area where initially there was great divergence between the NRC Staff and the DOE Staff was on the flow in the unsaturated zone where initially DOE had very low estimates of the infiltration to the repository horizon, but in the viability assessment, based in part on things like the chlorine-36 data, they are now using estimates of the infiltration rates that are much closer to NRC Staff's estimates.

There are some areas where we are in agreement simply because DOE isn't taking credit for certain phenomena, like we are in agreement now that flow was primarily fracture-dominated in the unsaturated zone and not

through the matrix, and there will not be significant matrix retardation.

I don't plan to go through all them, but let me do touch on the last point on slide 11, essentially for our dose assessments. We are looking at a critical group at the same distance using current data, lifestyles and locations as was recommended in the National Academy of Sciences' technical basis report.

Now let me turn to some of the areas where we do have some more significant comments, and on slide 12, I show a figure out of the viability assessment with the engineered barrier system design enhancements.

DOE not only presented a reference design in the viability assessment, they presented a large number of alternatives to the reference design that are still under consideration.

Now as the designer, they need to have the flexibility to look at alternatives and try to optimize the designs to protect public health and safety. However, there

are so many variables that have a major impact on performance and on the data needs that we think the Department needs in the very near future to reduce the number of alternatives being considered; in fact, identify a true reference design that will be the basis for the license application, because there is just not enough time and money

between now and the year 2002 to investigate the many alternatives that are still open, things like whether or not to use a high or low thermal loading, whether or not to have drip shields, ceramic coatings, backfill, whether or not to have a ventilated repository. Some decisions need to be made if, you know -- unless the Department, you know, is, you know, anticipating that the schedule will have to be extended.

COMMISSIONER McGAFFIGAN: Madam Chairman?

CHAIRMAN JACKSON: Please.

COMMISSIONER McGAFFIGAN: Could I ask a question on this point? I raised it with Lake Barrett as well. What if in the year 2025 they come up with something that clearly is better? Would the process -- obviously we haven't put all these issues having to do with closure, or most of them -- would we at that point -- could they come in and change the reference design through a normal license amendment process?

MR. BELL: Yes. I mean that's --

COMMISSIONER McGAFFIGAN: So you're not -- you're saying that for purposes of applying for a license, they need to have a design in fact that doesn't preclude over the very long lifetime of this repository, if it actually is licensed, that they couldn't continue to incorporate --

MR. BELL: Not at all.

COMMISSIONER McGAFFIGAN: -- improvements that are analytically supported. You are just saying they can have more time to do it.

MR. BELL: That's exactly right, but in fact it's -- I think it's anticipated in the NRC's rules for geologic repository that as the facility gets excavated, they are going to learn things about the site and the, you know, designs may change over the 30 years or so of operation. And I think the proposed language in 63.44, the 50.59-like change, is an attempt to get at this, anticipating that there will be design changes, when are they sufficiently significant that they require coming in for NRC review and amendment to the license, and what sorts of minor changes like spacing of containers or something like that could DOE make on its own.

CHAIRMAN JACKSON: Please.

COMMISSIONER DICUS: A follow-up question to that. You have clearly been sending the message to DOE that they need to converge quickly enough. Do you have a point in time, though, that you would say you must do it now to support a safety case for a license application, should there be a license application, or are you going back away and leave that up to DOE?

MR. BELL: Well, I mean it's basically DOE's decision as to, you know, what schedule they plan to come in

with the license application. Their current announced schedule is March 2002, and to prepare an application to

submit in that time frame, they really need to, by the end, I would say, two years before that have most of the decisions made and so they can do the analysis and start writing their document. So they've got about a year.

COMMISSIONER DICUS: Thank you.

MR. GREEVES: They spoke of narrowing this design down in the May time frame.

MR. BELL: Yeah. Well, they --

MR. GREEVES: So they know this issue, and the last meeting I was at, they have a target for their M&O; contractor to come back with a -- now that's a recommendation, as I understand it, to the Department. But it will be visible. We will all get insight to it.

MR. BELL: Okay, slide 14. This slide may be different from the one that the Commission got in advance. Under the column headed Unsaturated Flow and Transport, an earlier version of this slide had spatial and temporal distribution of flow filled in, and the key here is the areas in the lower part are key parts of the performance assessment, where we still have differences, and the grayed-in areas are -- on the figure, the blue and blacked-in areas, are areas where the Staff doesn't have any significant differences, and the first version of this slide

incorrectly had spatial and temporal distribution of flow filled in. Essentially, as I said earlier, we don't have significant differences with how the Department is currently modeling the flow through the unsaturated zone, mainly because they are now recognizing fast pathways and not taking much credit for matrix diffusion.

CHAIRMAN JACKSON: How does this framework address pre-closure safety assessment?

MR. BELL: This is not the -- this is the post-closure safety case, essentially, with the 25 millirem all-pathway standard or eventually an EPA standard, that is a total system performance standard for post-closure that will need to be met, the major engineered and natural barriers that contribute to that, the engineered system, the geosphere and the biosphere and then the key elements that comprise those barriers. It's a figure we have used before in our PA briefings and is essentially the -- this is the model that the Staff's performance assessment code uses to assess repository performance, and the areas --

MR. GREEVES: For post-closure.

MR. BELL: For post-closure, the areas that are filled in are the areas where we have differences.

CHAIRMAN JACKSON: Do you have a framework for pre-closure?

MR. BELL: We are developing the framework for

pre-closure. In the viability assessment we did not focus on things like surface facilities, pre-closure. We don't think that those are areas on which the viability of the site, you know, would be at risk. Essentially the pre-closure activities and the surface activities are similar to the kinds of things that are done at other fuel-handling facilities, fuel-storage facilities, and the areas that the Staff focused on in the review of the viability assessment were the post-closure.

MR. GREEVES: What is unique to this site, unique about this site, unique about post-closure performance.

CHAIRMAN JACKSON: Dr. Paperiello?

MR. PAPERIELLO: Madam Chairman, most of the operating facilities, the above-ground facilities that would be used to prepare the fuel for placement is essentially the same as for an ISFSF which we are currently licensing, and which we developed standard review plans for. It is my expectation that the licensing criteria and the practices that we look for are those which currently are used for above-ground facilities in which fuel is either stored or manipulated.

There probably will be some mechanical issues in moving the fuel around underground, but I don't see any particularly new technical issues that would be involved and, in fact, if we had to process the application, I would

use the Staff from the spent fuel program office to in fact do the reviews for the above-ground facilities and the handling of the fuel before it is finally emplaced.

CHAIRMAN JACKSON: Now one last question. I notice that there are some technical issues on this chart -- that are not on this chart, you know, seismicity or tectonics. Does that mean that they are not -- that they are not deemed as being important for the repository performance?

MR. BELL: Seismicity and tectonics are some of the release pathways that fall under this direct release and transport column.

CHAIRMAN JACKSON: Okay.

MR. BELL: And they are grayed-in because essentially we don't have significant differences.

CHAIRMAN JACKSON: Okay.

MR. BELL: It's on target.

CHAIRMAN JACKSON: It's on target relative to --

MR. GREEVES: Closure, in terms of the -- well, we the dialogue we have with the Department has made significant progress in that area. Isn't that correct, Mike?

CHAIRMAN JACKSON: Well, let me understand what significant progress means. It means progress relative to your judgment of their approach to making the safety case;

is that the point?

MR. BELL: Well, that's right. In fact, in the seismic area, they submitted two topical reports that the Staff has reviewed, outlining their -- the probabilistic side and the methodology they plan to employ in the license application, and the Staff has concluded that those -- that that methodology would be acceptable if they used it in the application.

CHAIRMAN JACKSON: Commissioner?

COMMISSIONER DIAZ: Well, on the same area, this is something that has been around now for a couple of years. This is difference in the area of, you know, volcanism or disruption of waste packages, and obviously the Staff disagrees with DOE and now with the peer review panel on the importance of the volcanism. What is the major source of the difference between NRC Staff's assessment and the Department's and the peer review panel's assessment?

MR. BELL: Well, there are two components of the volcanism issue. One is how likely is it where we think we have bounded the problem and don't -- we are within about an order of magnitude of the Department.

Where we have differences is in how we do the consequence analysis. We believe that the kinds of volcanic events that DOE looked at in the viability assessment is less energetic than historical types of volcanism that's

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occurred in the Yucca Mountain region, plus when the waste packages were impacted during a volcanic event, they took credit for the C-22 material of construction that's used as a corrosion barrier in the waste packages that we don't believe they have the data to justify. So those are some of the types of questions we think need to be addressed. It's essentially the kinds of assumptions and models you use in the consequence analysis where we have differences from the Department.

COMMISSIONER DIAZ: It's been now, I think I remember, two years since we discussed about this. Are we convincing them, are they convincing us, or are we getting farther apart? Which way is it?

MR. BELL: Well, we believe we are coming closer together, although the viability assessment doesn't really reflect it. If you look at the LA plan, part of the viability assessment, it doesn't have plans to do additional further work. However -- and I'm getting about three slides ahead of myself -- the LA plan is essentially a snapshot in time. DOE finished writing it last August. In fact, it represents planning and work that's probably about a year old now, and in subsequent meetings and technical exchanges that we have had with the Department, they have identified some plans to do additional work to support their consequence analyses that the Staff considers would address

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our concerns. So we do think that's coming to closure.

COMMISSIONER DIAZ: Well, I think that I would like to see something that, you know, narrows these things down in a logical manner in which, you know, we have seen where the options are, DOE's review panel on where we are, and if there are some issues that need to be addressed, I would like to know what those are.

MR. BELL: Okay. I had planned to go through each of the areas where there were differences in detail in the next couple of slides.

Now one of the things that the Commission needs to be aware of regarding the TSPA is that the Department had its own peer review panel take a look at the peer review --I'm sorry, at the performance assessment for the viability assessment, and the peer review panel wrote a very strong letter to the Department that the Staff actually thinks is -- represents a misunderstanding of what Congress intended in the viability assessment.

We had a conference call with two members of the peer review panel, oh, about a week and a half ago, and we became aware of the letter, and what we learned is that essentially they interpreted the Congressional language to do a performance assessment of the probable behavior of the repository to mean that the Department is required to make accurate predictions of what would happen in the future, and

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the peer review comments essentially questioned the ability of anybody to predict accurately how any repository would perform, you know, many thousands of years in the future,

and I guess we question whether that's really what the Congress intended, especially -- well, the other matter that the peer review questioned was the lack of supporting data for the models in the viability assessment, and the Congressional language was clear that it was based on data available as of July 1998, and so we aren't looking for that kind of supporting information essentially until the license application, and certainly not in the viability assessment.

As I mentioned earlier, we not only reviewed the Department's total system performance assessment, but used our own code to do an independent analysis, and identified a number of areas in our models where there are differences, the extent to which they take credit for the cladding to survive for long periods of time. The small likelihood of having any initial failures in waste packages, the extent to which they took credit for the corrosion resistance to the alloy C-22, based on very limited data, and in fact a number of these areas were areas where the peer review panel criticized the DOE performance assessment, but with the understanding or the suggestion on the part of the peer review panel that they had to have all the answers, you know, at the time they wrote the viability assessment, and

basically we are flagging many of the same issues to DOE in the letter we are suggesting to send, but essentially casting them as areas where the information needs to be gathered in order to support a license application.

The second area, in addition to the lack of data on the waste package itself, is the environment that the waste package has to survive in. There's very limited data on both the amounts and the chemistry of the water that will eventually come in contact with the waste package, and in fact this is an issue that you will hear tomorrow morning about the -- from the technical review board.

One of the reasons this particular issue is so complicated is because of a hot repository design where initially you have boiling conditions, two-phase flow, salts can deposit on waste packages, and then when water comes back in, you have the potential for very concentrated solutions in contact with the waste package.

The TRB, in fact, is recommending a lower temperature design to avoid having to provide the information in the license application.

Now the NRC Staff is not in the position to make a recommendation, you know, essentially a design recommendation to the Department. It's just that if they choose to go with the hot repository design, the information needs are greater.

COMMISSIONER McGAFFIGAN: If the review panel recommendation were accepted, what issues that are -- would -- maybe aren't addressed here would be introduced by a ventilated repository that has a lower temperature? That's not the reference design at the moment, but if DOE were to take the recommendation that they are getting, what implications does that have?

MR. BELL: Well, one of the things that potentially it does, and basically someone has to look in detail at design, is that you may end up requiring a larger area for the repository. It's not -- I haven't, at least, seen the analyses that would say ventilation alone is sufficient, and in order to get a sufficiently low

temperature, you may have to space waste packages further apart and it may require more repository area. And the issue of whether or not there is enough space in the repository at Yucca Mountain is a longstanding one, and I guess is one of the things that has driven DOE over the years to the hotter temperatures.

The next issue deals with the flow and transport in the saturated zone, and again it is a lack of data question. DOE essentially has most of its wells and information about the hydrology of the site in close to the repository, and there's an absence of data between about the 10 kilometer distance and the 20 kilometers where the

critical group is currently considered to reside.

One of the reasons this is very significant is because within this distance, the flow changes from the fractured tough aquifer into an alluvial aquifer, and depending on how much credit can be taken for flow-through alluvium, there is a possibility that significant chemical retardation by the -- of radionuclides by the soils could take place.

CHAIRMAN JACKSON: Question?

COMMISSIONER DICUS: Okay, in our SECY paper where this issue is discussed, it says also that DOE has assigned relatively low priority to this planned work. Now again that seems back like to the issue with volcanic activity bit of problem where we need to perhaps come to some greater closure on it.

MR. BELL: Well, it's an area where the Staff, you know, is in active dialogue with the Department's Staff and contractors. I guess in this case I haven't seen any work plans that would make me make a positive statement as I made about the potential for coming closer together on volcanism. But the -- there is a potential that some of the wells that are being funded by DOE to be put in by Nye County will at least get part of this information and, you know, we may be hearing about that later this afternoon.

COMMISSIONER McGAFFIGAN: Could I follow up on the

Commissioner's question, that the words in the paper are it may be possible for DOE to implement in a relatively short time prior to the license application some additional field work independent of the Nye County drilling program, possibly including exploratory drilling and surface geophysical investigations to specifically delineate and characterize the alluvium along the flow path, et cetera.

Do we have an idea as to how much that would cost? I mean is this an expensive activity, or is this something that's modest compared to other activities under way?

MR. BELL: Well, drilling wells to depth is, you know, not inexpensive, but essentially we are talking about costs of perhaps, you know, $10 million, perhaps, which are, you know, very small compared to the total cost of the project, and if, you know, if the lack of the data leads to a prolonged licensing review, they will spend the money, you know, many times over in just the cost of delay.

COMMISSIONER DIAZ: So can you make a statement on is, you know, the Department moving aggressively to close the uncertainties in these issues, to the point that it will support, you know, the license application in a timely manner? I mean what is the status of the Department's

programs in the case of these uncertainties?
MR. BELL: Well, in the case of this particular --
COMMISSIONER DIAZ: Well, we talk about the

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volcanism and the --
MR. BELL: Well, as I say, we have seen draft work plans on volcanism that would address the Staff's concerns. I haven't seen the corresponding work plans for this flow in transport issue.
CHAIRMAN JACKSON: Would you go on, please.
MR. BELL: Okay. And I guess we have already touched on the igneous activity. And, in fact, I think you may have already gotten into the discussion of the LA plan. The point I did want to make here is that really some of the information in the LA plan at this time is about a year old, and there have been continuing discussions. The Staff came out with a whole round of revisions to its issue resolution status reports on the key technical issues that provided additional guidance to the Department, and I can't say that this has happened in the case of the saturated zone flow and transport, but I know in certain areas when DOE is having these workshops to plan their future work, they use the issue resolution status reports and the acceptance criteria in them to say, well, here, you know, is what NRC is going to look at and the question they want answered, you know, what work do we need to do to make that happen. And I think that's a very positive result, and you know, I'll -- we'll do what we can to try to make that happen in the flow and transport in the saturated zone.

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The last area that we would like to discuss under the heading of the LA plan is quality assurance, and in part it's that the LA plan simply makes a statement that the license application will have to be supported by a quality assurance program that meets Appendix B to Part 50, without any elaboration on what the problems and issues are, and what might have to be done to fix it. And as you heard from Lake Barrett last month, the Department recognizes they have some shortcomings in their quality assurance program. They are taking aggressive action to address some of these issues, and the NRC Staff is closely following their work because the QA program is potentially the Achilles heel of this program, and they can -- you know, have done years of technical work that when they get into the licensing proceeding, if they can't produce the documentation to show that it was done to NRC Appendix B criteria, they, you know, will run into difficulties.
CHAIRMAN JACKSON: Now I understand that most of the data that DOE plans to rely on in a license application currently is designated as unqualified. Now will this be resolved by the time of the projected date of the application?
MR. BELL: Well --
CHAIRMAN JACKSON: As far as you can -- I mean, taking the steps that they are taking now relative to QA,

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what does this mean in terms of qualification of the data?
MR. BELL: The Department, you know, recognizes the problem and is developing plans to fix it. You know, whether or not those plans will be successful is something yet to be determined. I mean we plan to review those

corrective action plans. There is a commitment from --

CHAIRMAN JACKSON: Well, let me give you this -- let me just get to a specific, so that we are not talking in the abstract.

If most of the data that DOE plans to rely upon in the license application is currently designated as unqualified, what in their plans will address that?

MR. BELL: Well, I could give you one example, since we are getting into specifics. The material they are relying for the corrosion resistant barrier, the C-22 alloy, the test specimens that they are using were procured from a supplier who did not have an approved QA program, and the procurement documents that DOE used for the procurement, you know, were inadequate. I mean these are the results of their own audits. This is not NRC Staff's conclusion.

Basically what DOE is doing now to correct that situation is they are going to do their own analyses to verify that the material is, you know, what it's, you know, supposed to be, and so that's a situation that's remediable, but if, you know, the things had been done appropriate from

the start, they would not have the time and expense of having to go back and certify that the material is appropriate material.

CHAIRMAN JACKSON: Does the degree of formality of a Commission hearing process affect the importance of QA in the repository program?

MR. GREEVES: I'm not sure I -- QA is built right into the regulation so they have to do something. As far as the hearing, you know, the Agency has had hearings on projects in the past and, unfortunately, projects have fallen because of lack of QA. Karen may be able to help me remember what those projects were, but I mean --

MS. CYR: I don't think --

MR. GREEVES: -- the standard is whatever the standard is. The criteria you have to make a decision against are not affected by the degree of formality of the hearing.

CHAIRMAN JACKSON: Yes, this is a point of clarity. There are those who believe that the nature of the hearing, you know, has something to do with the standard that has to be met. And I just wanted clarification for the public record. Okay. Thank you.

Carl? I'm sorry.

MR. PAPERIELLO: Yes. We have, just as a point of information on what we are doing, last year we had a whole

series of meetings with DOE at a very high level on quality assurance. They came in the fall with a plan to straighten out quality assurance. I formed, in January, a task group made up of people from all within NMSS, the fuel cycle, not only just waste management, but fuel cycle and spent fuel program office. So I have a group of five individuals, QA experts, who are looking at what DOE is doing to see what they're -- you know, to see whether or not they are implementing adequately the plan.

The plan is not the problem. It's implementation of the plan. We will be out there -- we've already had two trips out to Yucca Mountain. They are reviewing DOE's work, in both March and April. We will be meeting with DOE management at the end of April to get DOE's presentation on

what they think they have achieved to date, but my staff will also be able to tell me what we believe they have achieved to date. We plan on telling the Commission by October. DOE's plan basically shows this problem, they may not have all the data validated, but they should have a program which they are sure works by October, and we plan on reporting back to you, and I will use this task force as an independent oversight so the Commission and everybody should know by October whether or not this plan that DOE has presented is successful.

CHAIRMAN JACKSON: Okay. Thank you.

MR. BELL: Okay, I'm ready to move on to the summary, which is, you know, very straightforward.

The Congress required the Department to issue the viability assessment and address certain key factors. The Department complied with this requirement. In the viability assessment they concluded that work should proceed towards the decision on site recommendation, and that site characterization should continue. Part of the viability assessment was a plan for the remaining work that DOE would do to develop the license application, and Staff has reviewed that plan, has comments which we suggest be transmitted to the Department. But while we have these comments on the details of the DOE LA plan, we have no disagreement with their recommendations. They should continue site characterization.

CHAIRMAN JACKSON: Let me ask you a few questions.

Would consideration of what we understand of the EPA's draft high level waste standard change in any significant way the basis for NRC Staff review of the viability assessment? And if so, in what manner?

MR. BELL: Well, in the sense that having to demonstrate that you need a separate groundwater standard, basically this would make the issues on flow and transport even more significant, and the amount of site characterization information that will be required to show

that a groundwater standard could be met at any point in the plume, which is essentially the sorts of standards that EPA has under consideration, would place a tremendous burden on characterizing the flow system, and I would see that as being the principal impact.

CHAIRMAN JACKSON: You spoke -- you wanted to say something, Mr. Greeves?

MR. GREEVES: Yes, I wanted to follow on that.

The alternative standards people are looking at are two orders of magnitude lower. I mean it came out in the Congressional hearing, and if you have to meet a standard that is two orders of magnitude lower, it would change your investment strategy as to how you spend your money to acquire data. So it is a significant issue. And, as Mike said, in the saturated zone there would be a lot more focus on what is going on in the saturated zone -- correct me if I'm wrong, Mike -- but DOE is not putting that much and counting that much on the saturated zone. If you get a standard that's two orders of magnitude lower, I think that would change your approach to the process, not only in characterizing the site, but what you would be doing with these alternative designs also.

CHAIRMAN JACKSON: Okay. Dr. Paperiello?

MR. PAPERIELLO: Just an observation, Madam

Chairman. I believe that many of the alternative package

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designs that were offered in the viability assessment in large part were driven by DOE's considerations on what they might have to do if there was a major change in the standard, and how can you solve in the next two years a need to have -- get the reduction? If not -- probably you'd get a faster return by looking at the package than trying to do more exploration. Some of the phenomenon that were not considered, like geochemical retardation in the unsaturated zone, probably would take a very long time to acquire the information, turn around and develop a package made out of a much more expensive and corrosion-resistant, might be the fastest way to address the problem.

CHAIRMAN JACKSON: So does that characterize the Staff's thoughts on the level of DOE reliance on an engineered barrier system? I mean are there thoughts that the Staff has via-vis an overall license application of the degree of reliance by DOE on the engineered barrier system?

MR. PAPERIELLO: I think that the -- if -- it's a question of not just relying on the barrier, but how much you can know about it and how fast it's going to -- you can get the information. I think from everything -- and I'm not, obviously, an expert on geochemistry, nor am I really an expert on corrosion --

CHAIRMAN JACKSON: More than we are.

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[Laughter.]

MR. PAPERIELLO: But looking at the amount of time and expense it has taken to acquire information about the geology of Yucca Mountain, it would appear to me that if you had to make a change over a period of a couple of years, that an attempt to do it by relying on the package and the engineered barriers, they might believe can be achieved faster, and clearly that's my -- I'm giving you my assumptions when I see eight different designs, particularly when I see things like drip shields, ceramic coatings ion the package, and this is what makes in a sense the system performance assessment a bit uncertain, because if you are assuming a new package design, like a ceramic coating improves corrosion and survivability of a package, you also need the data to prove that that's correct. And you might have to, in fact, revisit seismicity. I'm just -- again, I'm not an expert and I don't know whether or not seismicity would cause, you know, a ceramic coating to crack a package. I'm just making something up, I don't know. But that would be -- this is the reason why settling on the design is an important issue.

CHAIRMAN JACKSON: Let me ask you two other quick questions.

You mentioned the code the Staff used in its analysis. Is that code fully developed and validated and

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verified? Or is it still under development?

MR. BELL: Well, the code is being is being developed incrementally. It's developed primarily by our contractors at the Center for Nuclear Waste Regulatory Analyses. It's developed under a QA program that has configuration and control and such.

A code that is going to predict performance for tens of thousands of years will never be fully validated. There you can look at parts of the models and run test cases and compare things with analytic solutions and get confidence that, you know, the pieces are working correctly.

CHAIRMAN JACKSON: And all of that has been done?

MR. BELL: Yes. And it's --

CHAIRMAN JACKSON: Let me just ask this last question.

You have mentioned the issue resolution status reports. Did they help you, help the NRC Staff to prepare for the viability assessment issue?

MR. BELL: Oh, very much. They have helped the Staff to focus its review and plan its program --

CHAIRMAN JACKSON: So does this bode well for the suitability review, site suitability review in 2001? Do you expect that to be an integral part of your --

MR. BELL: Yeah, very much so.

CHAIRMAN JACKSON: Let me go down the line.

Commissioner Dicus?

COMMISSIONER DICUS: I have got two or three questions quickly, Mike, five minutes.

Now I am going back to the SECY paper again that we have on this subject, 99-074, in which it states that DOE's estimated expected peak dose is between 0.04 and 0.1 millirem per year, and the NRC's estimated peak of expected dose is approximately 0.6 millirem per year. Now those are low and there may not be a terrible difference, but it's a difference in the terminology that I find somewhat confusing. Expected peak dose as opposed to peak of expected dose. And I understand they really are different because they are based upon different calculation methods.

MR. BELL: I can explain --

COMMISSIONER DICUS: Let me get to my question.

I did find this a little confusing, so if you would explain the difference between our dose estimate and DOE's dose estimate, and then has the NRC Staff done the same performance calculation as DOE, so that we can really compare apples to apples?

MR. BELL: Well, the explanation of the two differences, the Department in the way it interpreted the Congressional direction to look at the probable performance was to take mean values of all the parameters that went into the model, and did a point calculation based on means. And

that's what their dose measure is.

The NRC Staff's model actually uses probabilistic distributions of the input parameters, calculates a distribution of the dose, possible dose outcomes, and our value is the mean of that distribution, and because the systems aren't linear, essentially, the mean of the distribution is a higher value than the point value based on all the means being input. And, in fact, we have gone back and run our model using the means as DOE did, to compare the two, and find that there's about an order of magnitude difference if you do your calculation just using mean values input as opposed to looking at the distributions.

COMMISSIONER DICUS: But when you did that, were we close to DOE and what they found?

MR. BELL: Yeah, it -- our mean number would be lower, but, you know, we would interpret that to say if, you

know, the way we are doing the analysis is the way we would expect the analysis to be done in a license application, and if they did it our way, the number would come up.

COMMISSIONER DICUS: Okay. That's understood.

Okay, the other thing has to do with total system performance assessment and VA, which I understand that was the tool that DOE used to assess the repository's performance in support of the viability assessment. Now once we have moved beyond the viability assessment phase,

does DOE plan to use a different version of the TSPA, for example, a TSPA SR to support site recommendation, or a --

MR. BELL: Very much so, yeah.

COMMISSIONER DICUS: -- modeling case. They have that under process. And then one quick final question.

In the discussion of the repository design in SECY 99-074, it states the Staff has concentrated on, and I quote, at this point, "the design control process being employed by the DOE to document designs and design changes."

Then the paper goes on to say that the NRC Staff has yet to review, and again I am quoting, "the DOE process for the design of the repository." And so I think this latter quote is not very clear to me on what you mean. I wonder if you could clarify it.

MR. BELL: Well, the design control process is essentially a quality assurance issue. Basically criterion 4 of Appendix B of Part 50 requires that the design and the license application be developed under a design control process so that when changes take place, you can be assured that you are still accomplishing, you know, the intended function of a particular component or system, and one of the longstanding quality assurance issues that the Staff has had with the Department is the adequacy of the design control process.

Now the -- I believe that the other statement that

you quoted was not meant in a QA context. Basically we were just concerned about the multiplicity of alternative designs.

COMMISSIONER DICUS: Okay. Thank you.

CHAIRMAN JACKSON: Commissioner Diaz.

COMMISSIONER DIAZ: Now going back to the engineered barriers and the characterization of the site, it seems to me there is almost a Catch-22 according to what Carl was saying in here. The more uncertainty that remains on the site characterization to meet a standard, the more the Department has to rely on engineered barriers which changes the design, which makes the design more expensive, and then less reliance on the original site.

Is all this driven by the standard in itself? You know, because the uncertainties are always there, but if they are below that that would impact on protection of public health and safety, then that would be an acceptable uncertainty. But once the uncertainty impacts on public health and safety, then you drive the, you know, the Department to do more and more things with barriers.

Are the uncertainties, you know, in the design and the repository beyond that that our standard can capture, or are they beyond that which the EPA --

MR. BELL: The lower and lower you drive the performance standard, the more it drives you to a zero

release design, and essentially as Dr. Paperiello stated earlier, you know, the -- that drives you to more reliance on engineering, and I guess to comment on one of the -- part of the way you phrased the question is we are talking about levels here that are far below what's necessary to protect the public health and safety. I mean the NRC's position is that 25 millirem all-pathway actually protects the public health and safety and is well within the 100 millirem per year internationally recommended safety limit. And driving the particular pathway down to the 4 millirems, if you use one dose methodology, or two-tenths of a millirem if you use a different dose methodology, isn't really adding to protection of public health and safety.

COMMISSIONER DIAZ: But it does increase uncertainty on the cost and --

MR. BELL: It certainly does.

COMMISSIONER DIAZ: Okay. Thank you.

CHAIRMAN JACKSON: Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: Could I ask a couple questions about the U.S. Geological Survey comments. You saw those, they were submitted back in November, I believe, before the viability assessment came out. But the thrust of many of their comments is that the models that we are using at the moment are overly conservative. They sort of go against you guys in some sense. One of the comments that I

found here was we have previously seen that the climate models, associated infiltration rates and seepage flow model are overly conservative, and to this list we can add the saturated zone transport model, in their opinion, which assumes only minor dilution of radionuclides once they reach the water table, regardless of climate.

I guess my concern, you know, is the experts about geology see lots of overconservatism in the DOE's performance assessment approach, which I assume gets reflected in ours, which is very similar, and they come to the conclusion that all of this overconservatism is not without cost, naturally, and it comes in the form of engineered barriers that are correspondingly conservative---- we have just been talking about that -- so as to protect against overly conservative estimates of seepage into the emplacement drifts. It is in this connection that the VA credibility is most readily distinguished from site credibility, specifically the concrete drift liners and high thermal load do not seem to us to be reasonable reference design engineered barriers.

So I guess I would ask you how do you take into account the USGS views about some of this stuff which is that the whole thing is already overly conservative, and how does that get filtered into our process, if at all?

MR. BELL: Well, I mean the Staff tries to

consider, you know, all the pertinent points of view, including the source arguments that the GS is making here.

We -- the seepage into the drifts is one of the issues that comes up repeatedly. It's a part of our issue on the amount and chemistry of water that contacts the waste package. It's the -- it's one of the issues that peer review panel also brought up. And there is an opportunity during some of the tests the Department is running over the

next several years to get better information on that, that would, you know, help us determine whether the GS is right or the peer review panel is right, or the Staff is right.

COMMISSIONER McGAFFIGAN: How much of an -- I mean I'm looking at a page, I don't want to quote it at great length, but you know, they come to the conclusion that in any case most water would bypass the waste canisters, and they, I assume -- this is a summary report for their director -- I assume that they have -- they go on, in the next sentence, such behavior has been confirmed by experiments in the exploratory studies facility in which large rates of infiltration have been artificially maintained, et cetera.

Is this all of the margin? You know, it doesn't change the .6 millirems except at the -- a couple digits down, or is this at the heart of it? If you believe the USGS case, would that .6 millirem average peak dose go down

to, you know, a factor of 10 or 100?

MR. BELL: Well, I'd say, you know, we still don't have the information to make a judgment on that, and you know, in the comments we are proposing to send to Lake Barrett, you know, we have -- one of the detailed comments addresses some of the work that we think needs to be done.

COMMISSIONER McGAFFIGAN: I'm just thinking of a later licensing case. You know, if you have the director of the U.S. Geological Survey testifying on behalf of the DOE license application and saying if anything it's orders of magnitude too conservative, that will have some real weight with the Commission, I would imagine, whatever Commission exists at that time. But it would also be nice not to have a violent disagreement at that point with the Staff, between the Staff and the USGS, if it could be avoided.

CHAIRMAN JACKSON: Well, the issue really is whether the safety case is made. The statement is that one approach is more conservative, but the safety case is made, that there is a less conservative approach that makes the safety case where all the Staff's responsibility is to determine if the safety case is made. So at a certain level you could argue as long as that's the case, it doesn't matter.

COMMISSIONER McGAFFIGAN: But we also may be driving -- it may be that the EPA standard lurking out there

is driving them to focus on the package. It may also be even our standard, overly conservatively implemented, may drive them in that direction, and so I just want an honest implementation of the standard.

CHAIRMAN JACKSON: I understand the point you're making.

MR. BELL: Well, it is USGS researchers, you know, who have done the work that came off with the current infiltration rates.

CHAIRMAN JACKSON: Commissioner Merrifield?

COMMISSIONER MERRIFIELD: I hope the Chairman will recognize the degree of seriousness I took her suggestion to withhold to the end.

[Laughter.]

CHAIRMAN JACKSON: Let me, just for the record, say how much I appreciate it, unlike the Chairman and other Commissioners.

[Laughter.]

COMMISSIONER McGAFFIGAN: He gets the gold star; right?

COMMISSIONER MERRIFIELD: Thank you.

I want to make a brief comment and ask a question, and the comment is twofold:

One, I think it is useful to recognize, you know, the degree of Staff work that has gone into this whole

process. These are very technically complex and complicated issues, and I would like to recognize the Staff for that work.

The other part I'd like to mention, I had an opportunity last week, along with Mr. Bell, to tour this Center for Regulatory Waste Analysis in San Antonio, and have to share with you, the Commissioners -- some of them may not have visited that facility -- how impressed I was with the work that they are doing and the importance that I think that work has in the analysis that we are doing in working with DOE in trying to grapple with the issues associated with a potential repository at Yucca Mountain. It's a very impressive facility, and I recommend those who haven't been there to go visit.

My question is this, and it gets back to the issue of the waste packages and the evolution of where DOE is going. I noticed in the Staff evaluation of DOE's viability assessment as it relates to waste package corrosion, there was a comment right up front, and I'll quote it:

"It is unclear whether DOE will be able to acquire sufficient data applicable to conditions at the proposed repository in time to demonstrate compliance with NRC requirements."

That's a sort of very basic issue here. In the visit that I had last week, you know, we have folks who are

working for us down at the center analyzing the different materials that are going to be used for those waste packages. If there is a shifting sand in how those designs are going to come out, it does raise some questions about our being able to be satisfied, and therefore providing us sufficient information. So I guess that's one of the questions. You know, do you still feel that strongly about where DOE is?

And the related question is resource implications. Do we have the staff and money necessary to be able to respond in a timely manner to the -- in the analysis that we are going to be required to do? And if not, do we need to seek more?

MR. BELL: Well, I can answer the second part more directly. I think we do have the staff to do the analysis. The issue on, you know, whether they can get the data is the more difficult one, and it may require say a different approach, bounding assumptions, taking less credit for certain parts of the system.

You know, there are a number of areas of differences in the details of the model, for example. They have a much longer lived waste package and take much more credit for the cladding being intact. But once the cladding fails, their model for the dissolution of the fuel pellets dissolves them very rapidly, more rapidly than in our model.

So, you know, perhaps there are some tradeoffs or differences in models that, as we approach the final licensing, we could reach agreement at the Staff level that that's a more defendable assumption than taking more credit over here.

COMMISSIONER MERRIFIELD: I just want to make for the record my personal comment. It makes it very difficult for our Staff to analyze this fully when we seem to be working on a moving target, and the faster the Department of Energy can come to a decision about how it wants that waste package to look like, that will make it a lot easier, I think, for us to do our analysis and meet our obligation to protect the health and safety as we should.

MR. GREEVES: Just one key example is the thermal load on the repository. If you have a hot repository, it makes your data needs much more difficult. You have to consider coupled interactions of thermally, geochemically and hydrologically. With a cool repository, a lot of that data acquisition activity is a lot easier to obtain. So just that one topic, is it a hot repository or is it a cool repository, changes the data acquisition dynamics significantly. I think you will hear more about that.

Thank you.

CHAIRMAN JACKSON: Okay. Thank you.

We are 45 minutes late.

[Laughter.]

CHAIRMAN JACKSON: Nevertheless, I will excuse the Staff. We will take a five-minute break so everyone can stretch, and then we will move along.

[Recess.]

CHAIRMAN JACKSON: I am happy to welcome to the table Mr. Robert Loux, who is Director of the Nuclear Waste Project Office for the State of Nevada, and I believe you are going to introduce your colleague.

MR. LOUX: Yes, I will do that.

CHAIRMAN JACKSON: Please, we will try to exercise at least as much restraint while you make your presentation.

MR. LOUX: I'll do what I can.

Madam Chairman, members of the Commission, on behalf of Government Quinn and myself, we certainly appreciate the opportunity to be here today to listen to the Staff's view of the VA, and other presenters, as well as give you our own views of the VA.

As you know, our presentation has been cast both in the context of VA and the Commission's role in pre-licensing and as a repository regulator.

In its February 8th, 1999 presentation to you, Lake Barrett, Acting Director of the Office of Civilian Radioactive Waste Management, pointed out that while "the viability assessment is not one of the decision points

defined in the Nuclear Waste Policy Act, its completion is significant because it gives policymakers information regarding prospects for geologic disposal at Yucca Mountain."

So if the Commission has decided to review the technical aspects of the VA, it too can contribute key information to policymakers regarding the prospects for geologic disposal at Yucca Mountain. As has already been noted, there are significant contrasting views about the

message policymakers can draw from the VA regarding the prospects for geologic disposal.

On one hand, the VA states, as Lake Barrett told you, that based on the viability assessment DOE believes that Yucca Mountain remains a promising site for geologic repository, and that work should proceed to support a decision in 2001 on whether to recommend the site to the President for development as a repository.

Uncertainties remain about key natural processes, the preliminary design and how the site would work -- design would interact. Mr. Bell also informed you while the VA reveals no show-stoppers, it does identify areas where additional work is necessary before site suitability can be determined.

On the other hand, as noted earlier, DOE's peer review panel has taken a much less optimistic view. The

panel, in its February 11th, '99 final report, points out that Congress defined the objective of the TSPA to be the assessment of the probable behavior of the repository. The panel's conclusion is that "it is unlikely that the TSPA VA, taken as a whole, describes the long term probable behavior of the repository."

The panel goes on to say that "at the present time the assessment of the future probable behavior of the proposed repository may be beyond analytical capabilities in any scientific and engineering team. This is due to the complexity of the system and the nature of the data that now exists or could be obtained within a reasonable time and cost."

The repository system's post-closure performance as analyzed in the VA relies on the four key attributes identified in DOE's safety strategy: limited water contacting the waste package; long waste package lifetime; low rates of release of radionuclides from breached waste packages; and radionuclide concentration reduction during transport from the waste package.

The first figure that is attached to our presentation -- and I didn't use them as viewgraphs, but they are in the back of the presentation -- illustrates DOE's view of infiltration, waste mobilization and transport in the Yucca Mountain repository system.

Projected repository performance, i.e., individual dose at the accessible environment boundary, relies on each of these attributes combining its expected share to the combined natural and engineered barrier system.

The failure of any one of the components to function as well as predicted will have an adverse effect on total system performance.

This is confirmed by the analysis reported by the Yucca Mountain project to the technical review board in January 25th, 1999 meeting. The analysis was designed to illustrate the relative contribution of the repository system barriers by neutralizing one barrier at a time in successive runs of the total system performance model during the 10,000 year post-closure -- initial 10,000 year post-closure years.

The results shown in the second viewgraph indicate that during this period -- and that is the second graph figure in my presentation -- indicate that during this period the waste package is responsible for over 99 percent

of the expected repository performance, and if it were eliminated from the system, the expected individual dose rate at the accessible environment would be about 1 rem per year within about 2000 years after closure.

In contrast, if the sum of all natural barriers' contributions to performance during the same period were

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neutralized and the waste package were the only barrier, the expected dose rate would be only about 1 millirem per year.

The result of this analysis is significant for a few reasons:

First, it indicates that the proposed repository system does not exhibit defense-in-depth as stated by DOE in the VA to be the property of a system of multiple barriers that are diverse, independent and redundant, such that failure of any one barrier, single barrier, will not result in the failure of the entire system. While the engineered barrier may be planned to illustrate defense-in-depth through dual waste package layers and possible drip shields and backfill, the repository system as a whole does not meet the VA's description of defense-in-depth. An engineered barrier does not function as an independent means of limiting individual doses. If it functions as expected, the waste package only serves to delay the time of peak dose that the natural barriers would permit with or without the engineered barriers. And we do not believe that under any regulatory circumstance, an expected individual dose rate of 1 rem per year to members of the public should be considered acceptable.

We are often reminded of the Commission's stated principle that future generations should not be subjected to radiation doses from a repository any greater than those

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considered acceptable to the current generation from other sources.

The nearly complete reliance of the Yucca Mountain TSPA, VA and waste package and other possible engineered contributors is a contradiction of the geologic disposal concept described in the DOE's 1980 Final Environmental Impact Statement management of commercially-generated radioactive waste.

The EIS states, "Geologic barriers are expected to provide isolation to waste for at least 10,000 years after the waste is emplaced in the repository and probably provide isolation for a millennium thereafter. Engineered barriers are those designed to assure total containment of the waste within the disposal package during the initial period during which most of the intermediate-lived fission products decay. This time might be as long as 1000 years."

Each of the key attributes of the repository safety strategy is subject to broad uncertainty, as exhibited in the VA. The uncertainty in waste package lifetime is said to be about three orders of magnitude, and the TSPA VA shows uncertainty range in dose projections in the 10,000 year calculation about four orders of magnitude, with the 1 million year period at about six orders of magnitude.

The question then is can these uncertainties be

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reduced significantly. The TSPA VA peer review panel

appeared to think that the answer is no, at least in the near future, and at a reasonable cost relative to DOE schedule and resources, and the answer may be never.

Our view, parenthetically, is essentially what more data and information really can be garnered in the next two years to reduce uncertainty at all.

An interesting example of the irreducible uncertainty involved is the assumption about climate change in the TSPA VA models. A relatively small shift in the projected periodicity of a short term super-alluvial climate condition can result in calculated individual peak dose rate being not 1 rem per year, but 5 rem per year.

While the DOE has said that the VA has been written independent of regulatory consideration, it must be recognized that the results of the TSPA VA are being evaluated within the context of regulatory and safety standards, whether specific standards for Yucca Mountain repository exist or not.

We have said earlier that an expected individual dose rate from Yucca Mountain repository at 1 rem per year is unacceptable, and since the preliminary release path from the repository is into a currently potable groundwater, it is also unacceptable that expected doses to the public resulting from the repository contaminating this drinking

water supply would exceed existing national standards.

Much of the technical presentation of the viability assessment is based on data, analysis and codes that do not meet the Commission's quality assurance requirements for licensing, as was spoken of earlier.

The DOE is now engaged in the intensive program to repair shortcomings that have been observable in the program since its beginning in 1983. This repair effort cannot be completely successful. It's clear that some of the information in the VA and its sources will not be properly qualified for use in a license application, although it may be needed to meet -- may be needed to meet a completeness standard and not to further expand the already broad range of uncertainty in the performance assessment.

The TSPA VA reveals the expectation of very rapid groundwater flow from the repository location of the boundary of the accessible environment assumed in the model would be at 20 kilometers from the edge of the repository. It is clear from the model realizations published in the VA that highly soluble radionuclides released from the repository can arrive at the 20 kilometer boundary in as little as 500 years after release. This indicates that the groundwater travel time from the undisturbed Yucca Mountain site to the accessible environment is thought to be as rapid as 500 years by the DOE. The medium and mean values for the

model realizations are slightly below and above 1000 years, respectively.

The matter of groundwater travel time from the repository location to assumed distance boundary of the accessible environment as shown in the TSPA VA raises two regulatory issues, one for the Commission, of course, and one for DOE.

For the Commission, the groundwater travel time that can be inferred from the TSPA VA model realization is in conflict with the Commission's subsystem performance requirements for groundwater travel time in Part 60.

Likewise, the Secretary of Energy, we believe, should disqualify Yucca Mountain from site consideration for development as a repository because it meets the groundwater travel time disqualifying condition in the DOE guidelines.

Because the travel time has been inferred from realizations of the DOE's Yucca Mountain performance model with numerous realizations indicating travel time less than 1000 years, the tests of regulatory language, fastest, likely and significant pathways have all been met.

In summary, the VA reveals a number of important factors regarding potential safety of Yucca Mountain high level waste repository system. These include a repository system that fails to demonstrate defense-in-depth; an overwhelming reliance on engineered barriers to compensate

for waste isolation deficiency and unresolvable uncertainties and unnatural conditions at the site. Within ranges of known uncertainties, expected dose rate to the public can be at unacceptably high levels, and a site that does not conform to existing Commission licensing requirements and DOE site recommendation requirements with regard to undisturbed groundwater travel time from the proposed waste emplacement location to the accessible environment.

In conclusion, Madam Chairman, the viability assessment suggests a number of issues for the Commission's consideration during its review, and these include first, is defense-in-depth meant to be applicable to the full repository system, or only to subsystems such as engineered barriers, as DOE seems to believe.

Secondly, how does the Yucca Mountain repository system as described in the VA reconcile with the geologic repository concept of multiple barriers and waste containment in isolation established in the 1980 EIS that selected deep geologic disposal of high level nuclear waste as the preferred alternative in its record of decision.

Thirdly, what level of uncertainty is appropriate and acceptable regarding key safety factors at the repository system in determining reasonable assurance that the repository will meet established safety standards.

Fourth, is the use of incomplete data and analysis in the license application preferable or not to the use of unqualified data and analysis?

And last, does the Commission have a pre-licensing duty to inform DOE that Yucca Mountain site, based on current information, does not conform to the established licensing criteria, at least the current standard.

Thanks for the opportunity to present our views today, and we would be happy to answer any other questions you may have.

CHAIRMAN JACKSON: I did have a couple of questions. Can you tell us what level of groundwater protection the state uses today for naturally-occurring radionuclides such as radon, uranium, and radium, and how do they compare with the levels projected based on the TSPA?

MR. LOUX: Well, the state has adopted as a matter of delegation from the EPA, the National Safe Drinking Water Standard as applies to all of the states' aquifers, and indeed there are state regulations independent of the EPA delegation authority that does not allow any degradation of

aquifers at all. So in our view, use of the aquifer as a part of system performance, system management is defined in the VA, does not meet and would not meet the Nevada state regulations.

CHAIRMAN JACKSON: Does the state have any

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pre-closure safety concerns or any transportation concerns?

MR. LOUX: Well, I guess the real answer is yes, depending on how long you want to talk about these sorts of things.

Clearly I think that in the pre-closure safety issue, I think the state has a number of concerns related to seismicity at the surface facilities, given the magnitude and the nature of seismic events that are occurring in the region on an ongoing basis. As I'm sure you are aware, in January, there were swarms of 4.7 and above events in the immediate vicinity of the proposed facility.

As it relates to transportation, I suspect that that might be a topic for another discussion. There are numerous concerns that we have got with the existing transportation regulations as well as the concept as DOE views the system, and it would be very lengthy to go into them today.

CHAIRMAN JACKSON: You talked about what's missing. There was an implied statement about DOE's plans for additional testing and analysis. I mean are you -- do you feel that the uncertainties can be reduced by DOE's plans for additional work or not?

MR. LOUX: Well, I would let Steve -- by the way, and I failed, I apologize, to introduce Steve. Steve Frischman is with me today. He's a technical policy

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coordinator for the office, and I will let him follow up in a moment, but you know, statements have been made in recent meetings and even by DOE itself as well as the peer review panel that much of the uncertainty as it relates to the natural conditions cannot be resolved any further; that it's unlikely, especially given the short time period remaining, at least as DOE views the characterization period, that they can be reduced very much at all. It appears that DOE believes there's more promise in reducing uncertainties in the engineered barrier system.

Steve, do you have anything to add?

MR. FRISCHMAN: Yeah. I think your Staff is correct in pointing to, among other things, the necessity for a much better understanding of the saturated zone hydrology, because there is, depending on who's looking at it and how, there's a large reliance on that, and especially if there is a separate groundwater standard, then it's going to require a great deal more understanding than there is now.

Now also given the very high reliance or heavy reliance on the waste package, first as your Staff pointed out, there doesn't seem to be a rapid movement towards trying to lock in on something that is analyzable.

On top of that, the current favored waste package corrosion-resistant material has not got a very long history

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in terms of experience with that material. The laboratory experience with it is considerably less. An analog has been looked at in a non-analogous situation, and some credit is

being taken for that in people's thinking.

Also the instability issues of an alloy different from corrosion are far from understanding, so this -- I think maybe DOE has been charitable to itself about -- in the VA, about three orders of magnitude uncertainty in its overall view of lifetime of that waste package. It may have a lot of uncertainty attached to it just because the engineering world has virtually no experience and for the type of claims that the Department is trying to make, I don't think that experience is achievable in -- you know, even if the licensing period were considered to go through closure.

CHAIRMAN JACKSON: Okay. Do you believe that the NRC is providing you with sufficient access to our regulatory process?

MR. LOUX: Yeah. Yes.

CHAIRMAN JACKSON: You do. How do you think we should judge the effectiveness of our program? You know, what outcomes should we be measuring?

MR. LOUX: Well, I think one of the measurements that you might examine in perhaps a different way than you are thinking is the view and the role of the public as they

look at the independence of licensing proceeding as a whole, and I think that perhaps you will learn a lot more about that with the upcoming meetings out in Nevada that are going to be taking place next week. But I think that the independence of the Commission and the independence of the Staff from the project is going to be very key to any sort of public credibility licensing process, and so from my perspective, that's one that has to be carefully looked at.

There already is a view that in fact that all these federal agencies, if you would, all interact together and they are very intertwined, and I think that the Commission and the Staff has to work extremely hard to demonstrate its independence from the project and not be perceived as helping the project along, trying to make it work.

All of those sorts of things are comments we hear regularly from the public, that there appears to be a joining or a meeting of minds, if you would, between the Commission and DOE. And I think, of all things, that's probably the most critical portion that I can think of off the top of my head.

MR. FRISCHMAN: Can I add one point?

CHAIRMAN JACKSON: Yes. Go ahead.

MR. FRISCHMAN: Yes. Let me give you a concrete example that came up just very recently of where people may

be concerned that your staff is taking sort of a personal interest in a license application to the extent that if they think the department's approach may be too conservative and so on, the staff will inject itself in and essentially suggest that our way may be better for you than yours.

An example of that was in the last meeting of the Technical Review Board when the second figure that we presented here was presented to the Technical Review Board, and I must say they were quite wide-eyed when they saw it, and as I was, too.

Your staff later responded, we don't think it's that bad, meaning we don't think the situation is that bad,

we don't think the reliance on the waste package is as great as you claim that it is.

Well, this makes some of us, including some members of the public who were in the audience, begin to wonder are you the regulator or are you the co-author of the license application?

COMMISSIONER McGAFFIGAN: Could I --

CHAIRMAN JACKSON: Yes.

COMMISSIONER McGAFFIGAN: It strikes me, in response to that, that that's the function of the staff if they're in the room and they have opinion to say it. Obviously the U.S. geological survey is a couple orders of magnitude in yet another direction thinking that the

geologic environment is going to provide lots of protection.

So would you have them stay mute if they have a, you know, something to contribute?

MR. FRISCHMAN: I would have them stay mute until they evaluate the basis for this analysis because that's the first any of us had ever seen of it, and it was explained as simply as we explained it to you in our presentation here, and if there is some basis for your staff thinking the situation is not that bad, I would think we should all be privy to that basis before we get a simple statement that actually came as almost a recovery after a lunch break. We don't think the situation is as bad as you portray it.

COMMISSIONER McGAFFIGAN: I honestly think the the record of previous Commission briefings here have pointed out the differences between the staff and DOE on this matter, and it isn't surprising to me that the staff has run some runs under our Code that might -- maybe not exactly the one that was here -- that might let them be able to reach the conclusion that, quote, it's not that bad. That's an ongoing -- I mean, you know, we've had all these meetings in public, and I'm pretty sure that this is not a new conclusion on the staff's behalf.

MR. FRISCHMAN: Well, what I was trying to portray was here's an independent Federal advisory committee getting a presentation from the Department of Energy, the potential

applicant, showing what they believe to be their situation with their case, and the regulator, not in a formal presentation, the regulator feels compelled to respond by defending the subject of this independent review to a greater extent than it feels it itself can defend itself. And I'm not saying right or wrong in terms of what your staff has done or not done; what I'm saying is the impression that is conveyed is that your staff thinks it can write a better license application in terms of success in getting a license than the Department of Energy can, and the public is not very impressed by such signals that they receive.

MR. LOUX: Well, I guess to further emphasize the point that you make, you know, USGS is a DOE contractor. I mean, you don't want us to confuse your staff with being a DOE contractor, I assume.

COMMISSIONER McGAFFIGAN: No, it's -- but I'm not -- I'm just telling you that our staff has historically told the Commission in previous briefings that perhaps DOE doesn't have to, you know, rely on as perfect a waste package as perhaps they're being pushed to rely on, that that was what our code was telling us. At least that's my

recollection of what the staff has said in previous briefings.

MR. LOUX: I guess our point is that this is an

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area that I think everyone needs to be very concerned about and very cautious about, because there is a very large perception, at least with the public in Nevada, that there is very little difference between the two.

CHAIRMAN JACKSON: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: Yes, I want to weigh in in support of the comment that Commissioner McGaffigan made. I mean, I think our staff -- it is unfortunate if the public and you took that interpretation from some comments from our staff. Since I've been here, and it's been about four-and-a-half months, I can say I believe our staff takes very seriously the role that we have as an independent regulatory body that will weigh whether we believe this is safe or not, and if we don't, we're not going to approve it, and I think that's consistent with the views taken -- that certainly I would take as a commissioner. I can't imagine any of the other commissioners would feel any differently.

We have a very bright staff with their own basis of technical knowledge, and I can imagine a circumstance in which they would weigh in -- would make a comment of that nature, but I don't think one should take from that that we are in some kind of a cabal with DOE to make sure that we're bound and determined to get this site licensed.

I think very clearly, we are going to make an independent evaluation of the health and safety of this

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site, and if we do not believe it is safe for the individuals who live around it, we're not going to support it.

MR. FRISCHMAN: I think you have to recognize the situation where such an interpretation as I tried to describe to you is easy to come out. One is, the people in Nevada have no experience with the Nuclear Regulatory Commission other than what they have seen over the years relative to an advocacy by the Department of Energy for the Yucca Mountain site.

Also, the only real experience the people of Nevada have in decisions regarding nuclear issues is through the Department of Energy, which has been a self-regulator and a self-serving one at that in most cases.

So I point out to you that the situation is one where our sitting at this table recognizing your responsibilities all together, and I think fairly and clearly recognizing, doesn't get translated to the people of Nevada who are ultimately the recipients of whatever decision you make.

MR. LOUX: I guess just our point one more time is that it would be important for I think credibility of the whole process for a great deal of effort to be made in trying to stress and demonstrate that independence at every opportunity.

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CHAIRMAN JACKSON: Stressing it within the context of the prelicensing consultation that the Nuclear Waste Policy Act in fact calls for.

MR. LOUX: Right.

CHAIRMAN JACKSON: All right. I think what you're saying is that it's and issue of perception on the one hand and our making clear what our legal duty and requirements are on the --

MR. FRISCHMAN: Right. And I think it's probably unfair to assume that the people of Nevada understand that one little line in part 60 that I presume will remain in part 63 regarding any interaction constituting informal conference. Well, I would submit that you'll find few people in the State of Nevada who would either understand that language or its implication.

CHAIRMAN JACKSON: Tell me a little -- elaborate a little more on what you mean by defense-in-depth for a repository.

MR. LOUX: Well, as we understand 60 and its basis, it is a system of redundancy, a system in which if one of the components does not perform as modelled or predicted, that you do not have system failure.

The way that the VA is set up and the way that we have looked at their performance is that all of these things have to work in sequence and together, that if any one of

them fails, the system goes down -- at least that's how we're viewing it.

CHAIRMAN JACKSON: So you're saying it goes beyond redundancy in the engineered barrier system itself?

MR. LOUX: We think it applies to the entire repository system, just not the engineered barrier system.

MR. FRISCHMAN: If I can add an observation to that, and this is a conversation that I've had occasionally with your staff, and that's I have asked in the past whether it's appropriate to apply the concept of ALARA to a repository, and the answer keeps coming back in various forms but suggesting that concept of ALARA probably doesn't apply here because ALARA really applies to operating systems. My view of the repository as presented in the viability assessment is that post-closure, it's still an operating system because performance relies entirely on the -- almost entirely on the operation of the waste package, and it is understood that through time, that waste package performance is going to decline to the point where ultimately, it has no performance whatsoever.

So what you have is a long-term operating period for the waste package, and it seems to me that the fact of closure doesn't end operation for the concept of the repository as presented in the viability assessment. It operates using a mechanism that is intended to fail. And

for defense-in-depth, I don't see it. All you're doing is delaying, using a metal container to delay the appearance of the true ability of the site, and as we see from that EIS, the true ability of the site is supposed to be in the forefront, and it's supposed to operate -- it is supposed to operate essentially consistently through time for purposes of waste isolation. The operating piece of the repository is the container which provides, under the language, containment as a front-end redundant safety measure to protect against the very energetic fission products.

So the point that we are making is the site does not stand up to its portion of defense-in-depth, and the site is the -- is the fundamental and mainstay of the concept of geologic disposal and it's not there.

MR. LOUX: It's maybe one percent of performance in DOE's model.

CHAIRMAN JACKSON: Commissioner Diaz.

COMMISSIONER DIAZ: Yes. The issue of defense-in-depth, of course, you know, you've got to take defense-in-depth in steps, and, of course, if you can delay something for a long period of time like, you know, decay, then that certainly works in your favor.

I mean, you can't take defense-in-depth as one system failing and the other one just taking its place. It is a concept in which every one does a little bit of the job

all the time and one of them actually, you know, eventually is the last barrier.

Now, in the concept of a reactor, the containment, okay, we do have models that assumes the containment failure, just like we assume that there will be leakage from the repository. As long as it is within the bounds of public health and safety, that still could be a licensable, you know, concept as long as it meets a certain standard.

MR. FRISCHMAN: But what we tried to point out in our paper here, that even -- you know, given the presentation in the viability assessment, if the waste package failed within 10,000 years, you would have a dose at 20 kilometers of on the order of one rem. A number of thousands of years out, when the waste package has failed, you have a dose on the order of one rem, meaning that's telling you that you don't have a geologic barrier that keeps you within a range of protecting health and safety if your other barrier goes away.

COMMISSIONER DIAZ: I hate to say this, but maybe your expectation of the viability assessment were larger than ours.

[Laughter.]

MR. FRISCHMAN: I would hope so.

COMMISSIONER DIAZ: Because it is not supposed to provide all the answers; it is supposed to say we have

gotten to a certain point, and yes, we -- you know, the Department recommends and I think the staff agrees that it is sufficient to continue. But it is not a complete answer. We hope to have better answers when, you know if and when --

MR. LOUX: And our concern is with a decision within two years or three years and a limited budget, much of which or some of which is going to have to be spent on trying to qualify data, what more information can you gather? We don't think there is a heck of a lot more that you can really know in two years, if you've spent nearly 20 years in whatever to get where you are now.

MR. FRISCHMAN: You might be better off licensing these under an independent spent fuel regulation -- I mean, if the geology is providing virtually no performance contribution, you might be better off licensing under the independent spent fuel assessment.

COMMISSIONER DIAZ: Certainly some uncertainties are not going to disappear within a year, but there is an issue that we have to wait for what I call data convergence. When that data is convergent, then you can really start assessing better what the uncertainties are you have to deal with. And I think what we are hearing is that there have to be some convergence of data that makes more, you know, sense

of what the boundaries are, and that's what our expectations are.

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MR. LOUX: Well, hopefully there will be less in the four to six orders of magnitude that's in the VA of uncertainty.

CHAIRMAN JACKSON: Let me give a -- Commissioner Dicus.

COMMISSIONER DICUS: Let me go briefly back to the Chairman's first question on naturally occurring radioactive materials that may be present in aquifers, and in fact Nevada is a delegation State. If I recall correctly, that also requires mitigation systems if a level of naturally occurring radioactive materials is above the EPA limit if the State is a delegation State. Are you aware of any mitigation systems that may exist?

MR. LOUX: No.

COMMISSIONER DICUS: Does that mean no, there aren't any, or you're not --

MR. LOUX: I'm not aware of any.

COMMISSIONER DICUS: Okay. I may ask that question of local governments too.

MR. LOUX: Okay.

CHAIRMAN JACKSON: Commissioner Diaz, any further?

Commissioner McGaffigan.

Commissioner Merrifield.

Thank you very much.

MR. LOUX: Thank you.

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CHAIRMAN JACKSON: Let me call forward the representatives of affected units of local government: Ms. Manzini, Mr. Bechtel, Mr. Baughman, and Mr. Jerves, I believe, three of you representing counties in Nevada and one, Inyo County, in California. Am I correct?

And, Mr. Bechtel, since you're in the middle of the table, you get the --

MR. BECHTEL: Well, I guess we're -- maybe we could have Mr. Baughman --

CHAIRMAN JACKSON: You want Mr. Baughman to speak first? Okay.

DR. BAUGHMAN: Thank you, Madam Chairman, Members of the Commission. My name is Mike Baughman. I am here representing Lincoln County today. With me at the table to my far right is Tammy Manzini. Tammy is from Lander County, Nevada. To my immediate right is Dennis Bechtel. Dennis is with Clark County, Nevada. And to my left is John Jerves. John is with Inyo County, Nevada. I'd also like to --

MR. JERVES: California.

DR. BAUGHMAN: California. California.

[Laughter.]

COMMISSIONER MERRIFIELD: You just got annexed.

[Laughter.]

DR. BAUGHMAN: We'll see who does the annexing.

[Laughter.]

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It does happen regularly. It does happen, much to their chagrin.

[Laughter.]

Let me also recognize a couple of people in the audience, because there are three or four folks who have traveled a great distance. Bill Olquist, and I'll just ask

them to raise their hands. I can't see whether they're -- Bill is the Lander County Commissioner. Jason Pitts, who is actually in your media room, is here representing the chairman of the Lincoln County Commission, and he is responsible for the graphics and the presentation here that we're providing you today. Eve Coverwell is in the audience. She is from the city of Caliente, here on behalf of the mayor and also representing Lincoln County. And finally Pete Cummings is in the audience. He is here on behalf of the mayor of the city of Las Vegas.

Collectively we are here representing the ten units, affected units of local government that were designated by the Secretary of Energy as having a clear stake in the outcome of your decision about whether or not to license a repository in the State of Nevada. I would just note parenthetically that we depend upon you a great deal to protect our public health and safety. Certainly we are on the front lines of this issue in terms of the long-term fate of these materials, and we are obviously very

concerned about the fate to our generation and the generations to follow, both from a public health and safety standpoint and from an economic standpoint.

Let me just begin by noting that the four of us will go through a rather quick presentation and we'll try and keep you on schedule. I will go through and let you know who we are and what we've been up to, kind of what our concerns are. Dennis will then focus on the VA and give you some of our perspectives in particular on the VA. Tammy will then give you some of our perspectives on NEPA. And we see the NEPA and the VA process being very closely linked. John Jerves will then address issues concerning regulatory compliance, which does include transportation. And then I will wrap up.

With regard to the introduction, collectively the ten units of local government in Nevada and California represent about 1.3 million persons. If you're following the news, we are one of the fastest-growing regions in the United States. People find our area a very popular place to come to live, to work, and to play. Tourism is a very important part of our economy, and obviously public perception of our region is very important in terms of whether they choose to come there or not.

There is a map in a presentation booklet which I think you were provided which does give you a pretty good

sense of where we are, the geographic relationship of the different counties. I would note that Nye County is the host county. The representatives of Nye County were unable to be here today due to some scheduling conflicts, but clearly they are a very key player in all that you do and all that we do.

The ten counties are also in a region which has historically been the recipient of various forms of radioactive exposure or exposure to things radioactive. Obviously the weapons tests, we are a site for low-level radioactive waste disposal on the Nevada Test Site, also a site in the Beatty area.

In the Department of Energy's current programmatic EIS we are one of the sites that has been identified as kind of a central repository or depository for future waste

streams of low-level waste, and the expectation is that we will have a great deal of more shipments coming in over the next 30 years of both low-level waste and potentially high-level waste, and I would note that we are concerned about the cumulative effects of exposure both from a historical standpoint, current shipments coming through and then obviously future sources of exposure.

The AULGs represent one of the fastest-growing regions in the Nation. That is important because one of the uncertainties and the assumptions that is made in the VA

perhaps has to do with the stability of the population or how the population might change over time, and we would suggest to you that if growth continues at the rate it has, most of the United States will be living in and around Las Vegas.

[Laughter.]

That's kind of a far-fetched assumption, but certainly going strictly by the trends, that does seem to be possible.

What have we done? The affected units of local government have been basically funded by the Department of Energy. Oh, I guess that's about 1987 or so. They have developed various capabilities. In virtually every case they have county staff, some of which are with you today. They have retained consultants. They have advisory committees. I would note that the advisory committees are typically made up of a crossection of technical people, lay people. They have met in many cases for six, seven years now. They have put in really thousands of hours in trying to understand the nuclear fuel cycle, the waste-management issue, and the potential for impacts to occur in their areas.

The counties have engaged in independent research. They have relied a great deal upon our university system. The University of Nevada - Las Vegas, the University of

Nevada at Reno -- they have hired consultants, both local, national consultants, consultants with national reputations. Earlier we heard comments about the Nye County area drilling program. I think that is a very good indication of work that is being done in the technical area. Nye County is working to fill some real data gaps. Unfortunately we do not have representatives of Nye County here, so if you start asking questions about the early warning drilling program, we're going to be a little shallow on answers.

Risk assessment. The counties out there have engaged and have retained primarily experts, the University of Nevada at Las Vegas research center to conduct independent risk assessments using the RATRAN models to help them understand what the implications of transportation both by rail and truck through their communities are. A lot of effort has been spent on socioeconomic impact assessment and monitoring largely because of the tourism base of our economy and the concern that negative perceptions about the area can reduce visitation, which could have a very serious effect on the economy.

I would also note that in the rural areas of our State, they are becoming the playground for Las Vegas, much as you would have here in the D.C. district where you might go out to recreate in some of the rural areas. The rural areas surrounding the Yucca Mountain area are becoming the

playground for Las Vegas. And so if we have a problem in those areas again perception plays then on perhaps whether people are willing to visit there.

The counties have been involved in review and comment on DOE, NRC, a whole host of documents. We have provided recommendations to the Secretary of Energy and to the Congress, and we have designed and implemented effective public information programs.

I would underscore the view that again we are on the front lines, that the elected officials that are here today and those that we represent take very seriously their role in keeping the public informed, helping them to understand what this project is all about and this program and help them to make informed decisions about how to respond to the Yucca Mountain proposal.

And let me just digress for one moment, because I failed to recognize that your staff on October 22 participated with us in Nevada in a workshop, which was really a precursor to this presentation today. The purpose of that workshop was to help us understand exactly what it is NRC is doing, how they perceive their role, some of the nuances of what they're doing, and some of the very specific techniques that they're employing to exercise, you know, the fiduciary responsibility that NRC has with this program.

It was a very useful endeavor. We have the Center

for Nuclear Waste Regulatory Analysis involved, video, teleconference -- or videoconferencing, and we had a very good exchange. It was very helpful. And much of our presentation today in part is based upon what we learned in that October 22 meeting.

What are we concerned about here today and what will underscore the presentation? We are very concerned about uncertainty. Certainly the State of Nevada has pointed that out. Your staff has pointed that out. We are very concerned about uncertainties and whether those uncertainties are too great to go forward. Coupled with the uncertainties then are unanticipated consequences. Our greatest fear is that through all of this we will license and build and begin operating the project and something will happen that we didn't anticipate, we will not have prepared for mitigating that kind of an impact or consequence, and we in Nevada will get left holding the bag.

We really charge ourselves and we would certainly challenge you to look beyond if we can the uncertainties in a quantitative assessment and really try and anticipate, you know, what might otherwise have gone unnoticed. And let's be creative then about how we design perhaps conditions to a license and remediation to be sure that we don't get left holding the bag.

Mischaracterization of impacts, the failure to

consider impacts, and the failure to identify impacts are all kind of grouped together. That has a lot to do with scoping and what the DOE may consider in their EIS, and we'll hear from Tammy on that, and what you may then as a result include within your own EIS that you adopt.

I talked about failure to identify and commit to implementation mitigation measures. Obviously if you don't

identify them, you're not going to commit to them.

Finally, insufficient AULG input to comments on key documents. We do have a concern that the NRC adequately incorporate or provide for opportunities for the affected units of local government to influence your decisions then that you carry forward in terms of the licensing process. For example, on the EIS, or even in the VA, the comments that you've gotten today from staff on the VA we think would have benefited greatly from input from the affected units of local government, kind of that give-and-take process. And although we have had a chance to have engaged the staff along the way, perhaps a formal shot at providing your input prior to you getting your comments would have been appropriate.

With that, let me --

CHAIRMAN JACKSON: Have you raised those concerns before?

DR. BAUGHMAN: I know we raised them in the

workshop in terms of when we learned a little bit about process. I think this is probably from my sense with the Commission this is the first time we've formally raised them before the Commission.

CHAIRMAN JACKSON: But you're saying that you feel that perhaps one needs to go over to a more formal mechanism for having you provide your input.

DR. BAUGHMAN: Yes. If you're going to prepare a, you know, a formal Commission piece, this is our Commission response, in a letter, you know, obviously something you're providing the Congress, obviously you're going to adopt an EIS or whatever. We think that all of those formal decisions, and that may be different than simply just the licensing activity, but just a formal decision to submit a letter of comments would benefit from our perspectives. I think the State would probably feel the same way.

CHAIRMAN JACKSON: You're aware, I hope, that we haven't formally transmitted anything to anyone.

DR. BAUGHMAN: I understand.

CHAIRMAN JACKSON: And so part of our motivation in having you come is to in fact offer the opportunity for you to --

DR. BAUGHMAN: We appreciate that.

CHAIRMAN JACKSON: To give us the benefit of your perspectives and insights.

DR. BAUGHMAN: Okay. Thank you.

CHAIRMAN JACKSON: Okay.

DR. BAUGHMAN: With that I would like to turn it over to Dennis, and he will provide you some of our specific perspectives on the DOE viability assessment.

MR. BECHTEL: Thank you very much. For the record again I'm Dennis Bechtel. I'm the planning coordinator for the Clark County, Nevada Department of --

CHAIRMAN JACKSON: You own the engineering company?

MR. BECHTEL: This is just a hobby for me.

[Laughter.]

I really appreciate the opportunity to meet with you today, and I would echo Mike's comments. I think the workshop that your staff put together and allowed us to interact with was excellent and provided some perspectives on issues that we need to concentrate on.

What I'd like to do initially is just kind of emphasize the importance of the viability assessment document to the affected governments. We are kind of the context that this whole program is being undertaken. We're the end of the funnel, the bottom line, and we -- it is important for us to rely on regulators and others to make sure that they understand that this is a -- it's a very mechanical process, but it takes place in the context of

people and communities and economies, and that can't be emphasized too much.

I'm going to go very roughly to the overheads. What I'd like to do is kind of just kind of summarize some general comments and then provide some specific issues that we would like for you to consider in your review.

We -- Clark and others -- are in the process of undertaking a more formal review of the viability assessment, and we will be providing some more complete comments at a later time, and would be willing to I mean obviously provide the Nuclear Regulatory Commission with our concerns that I hope that you will consider.

A key concern that the affected units of local government have is that the viability assessment will be misinterpreted as an affirmation of Yucca Mountain as indeed a suitable site for the permanent storage of spent fuel and high-level waste. The NRC in its role as regulator needs to emphasize to Congress and others that the VA is indeed a very preliminary step on the long road as we see it to site suitability determination.

This is especially important this year when this document may be employed to justify changes in the program, and I'm referring to H.R. 45, the interim storage legislation. It is incumbent upon the NRC to ensure in its role as a regulator that Congress is apprised of the need

for considerably more data, analysis, et cetera, before the suit suitability determination is actually made.

CHAIRMAN JACKSON: Let me ask you a question here. You know, the USGS has, you know, in preparing its report on the viability assessment, indicated its feeling that a plain-English description accompanied by simplified calculations could be of great value to the public, helping increase understanding and having the DOE analyses more readily comprehended by the public. Do you agree with that?

MR. BECHTEL: I think as in most things where you're dealing with a highly technical subject I think it's important that the public be able to understand the basis for decisions in a way that they can understand it. And coupled with that is a lot of opportunity for the public at meetings to ask questions. So I would agree that I think that this is true of a lot of, you know, government programs I guess where we all get involved down in the weeds and sometimes the public has a more general view of expectations and understandings, and I think that is definitely important.

CHAIRMAN JACKSON: Please.

COMMISSIONER DICUS: Let me follow up on that, because we did put that same question to DOE when they were here briefing us, and as I recall -- I may need some help here -- but I think they said they weren't planning to do

that. And perhaps that needs to be revisited, because we did raise it with them at the time.

MR. BECHTEL: Yes, I would agree that this is a subject that requires many -- not just meetings. Too often meetings are just kind of DOE conveying information to the public and with the public comment period at the tail end, but some actual, you know, workshops and interactions to be able to get into, you know, detailed concerns that the public would have.

DR. BAUGHMAN: Madam Chairman, if I just might follow up, perhaps to aid both the Commission and DOE in understanding perhaps how to focus this kind of an effort, because the concern might be do we convert all this to layman's terms, which is obviously an overwhelming endeavor. We might pay particular attention to the kinds of questions that the public will ask, for example, when you come to Nevada in a few weeks, your staff, let's listen to the concerns they have, let's convert the kinds of information we have that address those questions into layman's terms, so that at least they can read about, understand, the issues that they are concerned about. And that maybe boils it down some.

CHAIRMAN JACKSON: Um-hum. Do you feel that we also need to take that admonition in terms of more of a plain-English approach?

DR. BAUGHMAN: I would certainly think so, Madam Chairman. If they don't understand what you're doing, they have no sense that you're protecting the public health and safety.

MR. BECHTEL: They need to have an understanding of your role, too, you know, what your role is in the process. It's a very important role, and I think it's important for the public to understand that.

COMMISSIONER DICUS: If I could --

CHAIRMAN JACKSON: Please.

COMMISSIONER DICUS: Just a slightly different subject that is on your slide here. I think -- rest assured I think there's a pretty good understanding of what the purpose of the viability assessment is and what it means. And it's not an answer, it's a statement where we are right now. And I think it brings out many of the uncertainties and what has to be the going forward if we can come to a license decision. So I think that's understood, but I appreciate your bringing it out.

CHAIRMAN JACKSON: Please, Commissioner.

COMMISSIONER DIAZ: If I may go back to the previous issue of the communication with the public, I think you have a vital role.

MR. BECHTEL: Yes.

COMMISSIONER DIAZ: And especially, you know, to

have people understand --

MR. BECHTEL: Um-hum.

COMMISSIONER DIAZ: What the role, the independent role of the NRC is, because we might say it, but I think, you know, your role in that is very vital to the community.

MR. BECHTEL: Oh, yes. And we, as Mike indicated, we take this responsibility of communicating as best we can to the public very strongly. But I think it's, you know, we're kind of a surrogate at some time, so it's important

for the NRC and others to convey that.

CHAIRMAN JACKSON: We can't ask you to do our jobs for us, but we can ask for you to help us.

MR. BECHTEL: Other issues, my general comments, recently the DOE's being required to expend considerable resources to correct a number of quality-assurance problems. Of course that was discussed earlier. It is important for NRC to monitor these problems and thereby determine whether these in fact affect any broad conclusions that are reached in the viability assessment. Once again Congress should be apprised of these inadequacies and the extent -- what needs to be done to correct these inadequacies as well.

CHAIRMAN JACKSON: So let me make sure I understand. You feel that we need to address the issue of whether the QA concerns affect broad conclusions of the VA.

MR. BECHTEL: Right. Um-hum.

CHAIRMAN JACKSON: Okay.

MR. BECHTEL: The original objective of the site characterization phase was to ensure that scientific analyses were conducted with sufficient rigor and backed by adequate data to ensure that suitability would be determined for permanent storage. What has happened, however, is that the time schedule has driven the process. We are therefore concerned that, to provide one example, that expert elicitation may be used as surrogates for greater analysis. It should be ensured that conclusions reached for licensing have a strong basis in scientific analysis rather than dependence on analogous behavior. And I know the DOE peer review committee also felt that there was quite a bit of need for more data and less dependence on experts.

The VA and site characterization analyses have been performed adjacent to a site that has undergone a considerable odyssey -- considerable nuclear testing over the years. In addition to the need to consider the cumulative effects, the viability assessment and the site characterization phase need to consider that other things have happened on that site that need to be factored into a total analysis.

There is, however, some of this is a question of the adequacy of the site to contain radioactivity to the accessible environment for the time periods contemplated.

And evidence for example of plutonium migration a relatively far distance from a testing site, presence of chlorine-36 in the repository levels as examples, demonstrate the need for more data analyses to determine the site suitability. NRC should encourage these uncertainties to be addressed.

Another general comment I have is with regard to the engineered barrier system as well. Analysis presented in the VA indicate that geologic and hydrologic barriers do not provide adequate protection by themselves. Therefore, it seems as if the equation has shifted from realizing that the data is going to be present for a very long period of time and that the engineered barrier system seems to be taking up the slack on at least for the shorter term. So I guess our concern is that the original idea was to have some confidence in the natural system to take care of the longer time period, and they seem to be swinging more to a consideration of am engineered barrier system. And I think that's --

CHAIRMAN JACKSON: Do you feel that represents a lack of confidence in the natural system or a conscious decision to take less or no credit or less credit for geologic barriers to simplify the license?

MR. BECHTEL: Well, there is a component, I mean, the waste canister does have a place in the total system. But I think it seems to be where the inadequacies are with

regard to an understanding of the saturated hydrologic system, and I think our concern is that because it would take more time to develop data to better understand that, that the engineered barrier system seems to have taken on a stronger component because we do have some body of experience on the deterioration of metals. And so I think our concern is that that is kind of replacing the original objective of the permanent repository. I think that the State addressed that as well.

With regard to more specific comments on the VA, I just have several. The use of conservatism in the assumptions in the VA appears to be uneven. Some assumptions are highly conservative. As an example, no dilution occurs during pumping. Others are nonconservative, amount of dilution, for example, in the unsaturated zone. And some are controversial, the amount of credit to be taken for cladding as a barrier. The effect of the individual assumptions and the differing degrees of conservatism on TSPA from the point of the VA results cannot readily be assessed but could be considerable.

The data bases for many of the models that make up the overall performance assessment methodology is limited, in some cases highly limited. Some of these data deficiencies might be critical to the veracity of assessment results. For example, the corrosion rates for a

corrosion-resistant waste package material. Others might be less important, overall dilution of the saturated zone. Research and analysis in all areas of significant data deficiency will be necessary to determine which are important and which are not.

Some of the analyses appear to be off-target with respect to which data and modeling conditions are important. For example, the loads of local chemical and physical conditions that can exist and produce aggressive localized corrosion processes such as crevice corrosion is more important than general corrosion rates, the overall conditions in the repository. It is apparent from all analyses that the identification and characterization of failure and degradation phenomena that attack unique points of system vulnerability are most important. The vernacular of the tale controls the action. Further DOE action to identify and characterize these areas of unique vulnerability is needed.

Then finally, the overall uncertainty in the TSPA-VA results for expected performance at 10,000 years spans four or five orders of magnitude. This uncertainty range stems from inherent variability of performance parameters such as permeability, lack of data which can narrow and focus assumed ranges of parameter values. There are hundreds of parameters involved in the complexity of the

system. It is unlikely this uncertainty band could be

significantly narrowed by actions such as acquisition of additional data and refinement and validation of models. The benefit of such activities, however, will be to validate the results of TSPA analyses that are brought to the licensing process. And I mention it's unlikely in the short time period data collection that these are going to be corrected.

CHAIRMAN JACKSON: What other suggests would you offer, or do you basically believe this is unattainable?

MR. BECHTEL: Well, I don't think it's necessarily -- I think the uncertainty range has to be reduced by less of a compliance on the schedule, and I think if this is -- this is truly a scientific undertaking. There's a lot about the system we don't know. There's a lot about doing this we don't know. And I think it's important that science be able to be performed to determine whether in fact this site will contain waste for a long period of time. And I think under the current schedule I don't think we're going to be able to get at that. I think it's just impossible. And it's going to cost money, and that's another question, I guess. But I think that's the only way that we're going to be able to reduce the uncertainty.

DR. BAUGHMAN: Madam Chairman, if I might just add, this may be an area where the perception of your staff

getting too close to the DOE staff and the perception that perhaps you in a sense are helping to write the application, or might be doing work that finds it way in the application becomes an issue, and it's kind of a double-edged sword. Clearly if your staff are able to provide DOE guidance on those areas which will yield the greatest benefit in terms of reducing uncertainty in producing a license application which then might help you as Commissioners approve or not approve a facility, but basically to protect public health and safety, then it seems to me to be to our advantage to have you folks interacting in that regard, particularly if it helps to focus the work in such a way that we don't spend money on wasted endeavors, which we have spent a whale of a lot of money on wasted endeavors.

I think there's been a lot of work done that's been, you know, pretty much wasted. And obviously as they move into the home stretch, if the key issues are going to be addressed, there's going to have to be some coalescing around what those are, and unfortunately that takes on the appearance of some form of collusion.

CHAIRMAN JACKSON: Okay.

COMMISSIONER McGAFFIGAN: Madam Chairman.

I appreciate your willingness to try to condense, but one of the slides you slipped over was number 22. You also seem, if I'm reading it right, to be joining the

consensus from this independent advisory board, et cetera, that reads: Increasing acceptance that a cooler repository would avoid many of the difficulties and uncertainties in modeling resulting from a hot repository.

Do I interpret that phrase to mean that you guys are endorsing a hard look at a cool repository?

MR. BECHTEL: Might I add that there was supposed to be one other person with me on this. But we are not -- I don't think this is -- reading it now, I can see where you might get that impression. But we are not promoting one

type of repository design over another.
CHAIRMAN JACKSON: I see.
MR. BECHTEL: So we'll just leave it at that.
CHAIRMAN JACKSON: Okay.
MR. BECHTEL: And I think, just to kind of summarize, once again the viability assessment is very important. The public and Congress, which also has an imperfect understanding I think of the technical difficulties of trying to characterize a site, need to understand that a lot more work needs to be done, and not having the work done properly is I think a bit of a disservice to the citizens of Nevada and California that might have to live with this, the results of these analyses.
CHAIRMAN JACKSON: Okay. Thank you.
Ms. Manzini, are you next up?

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MS. MANZINI: Yes.
I'm Tammy Manzini, and I am the program coordinator Lander County, one of your more rural affected units of local government, and I'm here today to speak about NEPA regulations and compliances that are directly related to the Yucca Mountain EIS, and as everybody else, I appreciate the opportunity to be here to comment before the Commission.
So with that, I'd better get started. And I'd like to start by bringing to your attention some of the language that is contained in the Nuclear Waste Policy Act that reflects key NEPA regulations that we feel that the NRC needs to recognize and address, and one of the sections is 407(a), which is on slide 27, which states: "In general. Issuance of a construction authorization for a repository or monitored retrievable storage facility under Section 405(b) shall be considered a major Federal action significantly affecting the quality of human environment for purposes of the National Environmental Policy Act of 1969."
And section (b) states: "Preparation. A final environmental impact statement shall be prepared by the Secretary under such Act" and it specifies 42, "and shall accompany any application to the Nuclear Regulatory Commission for a construction authorization."
Section 407(a) and (b) imply that:

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Construction authorization is the major federal action of the EIS being prepared by DOE.
The EIS is to be prepared so that it coincides with the license application submitted to NRC.
The EIS must support the decision to issue a construction authorization.
Because the decision to issue a construction authorization lies solely with NRC, it appears that DOE is preparing the NRC's EIS.
CHAIRMAN JACKSON: Now actually if you go back to your viewgraph 28 --
MS. MANZINI: Um-hum.
CHAIRMAN JACKSON: Where you refer to the NEPA requirements under the Nuclear Waste Policy Act --
MS. MANZINI: Um-hum.
CHAIRMAN JACKSON: It does explicitly say that the EIS is something that the Secretary of Energy is to prepare. It's not NRC.
MS. MANZINI: Right.
CHAIRMAN JACKSON: And you know that Congress

intended for the NRC and DOE to cooperate in the development of the EIS to avoid unnecessary duplication on interrelated actions. So can you elaborate a little bit more on your concerns in this area?

MS. MANZINI: I feel that the concern is I don't

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know whether or not the AULGs have had any interactions with NRC pertaining to what their role is in the EIS preparation. We have had numerous conversations and discussions with the DOE on the EIS. And as such I am not myself familiar with what you guys are -- between the two organizations you are doing to interact with each other on the EIS as far as any information to avoid duplication is concerned.

CHAIRMAN JACKSON: So the issue is one of transparency of the interaction.

MS. MANZINI: Right.

CHAIRMAN JACKSON: Not that there is an interaction at all.

MS. MANZINI: Well --

CHAIRMAN JACKSON: The law drives the process.

MS. MANZINI: Right.

CHAIRMAN JACKSON: To that interaction, because in fact you talk about on your viewgraph 30 --

MS. MANZINI: Um-hum.

CHAIRMAN JACKSON: You know, then you quote from section 407(c), and it states that any such environmental impact statement, the one, you know, to be prepared by the Secretary, shall to the extent practicable be adopted by the Nuclear Regulatory Commission --

MS. MANZINI: Right.

CHAIRMAN JACKSON: In accordance with the relevant

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Code of Federal Regulations.

MS. MANZINI: Um-hum.

CHAIRMAN JACKSON: In connection with the issuance blah blah blah of a construction -- so the point is that the law is directing us to the extent practicable.

MS. MANZINI: Exactly.

CHAIRMAN JACKSON: To in fact adopt the EIS that the Secretary prepares. So that's what the law directs us to do. So I guess the question I'm trying to get at is not to argue with you about that, but rather to understand is the concern the transparency of the nature of the interaction that the NRC has with DOE in terms of the potential adoption of DOE's --

DR. BAUGHMAN: Madam Chairman, maybe Tammy, if I can just respond as well, you may be familiar with the concept of third-party EISs, and in Nevada we have a lot of mining. And in the mining industry the Bureau of Land Management will be the responsible agency, the mining company will put up the money, the Bureau of Land Management will choose the preparer of the EIS, will oversee the preparation of the EIS, the mining company is the funder. And then subsequently the BLM issues the decision.

In your case you're like the BLM. You're going to issue the final decision as to whether or not the project goes or doesn't go. The difference here is DOE is in

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essence funding the project. They're choosing the contractors. They're deciding what gets included, what

doesn't get included. Then they're giving it to you, and you under law then are expected to take it and with some fairly strong language adopt it to the maximum extent practical under some very tight time constraints. Our worry is what influence are you able to have in terms of preparing an independent -- or a document that independently meets your own needs as the regulating agency versus the needs of the project proponent.

CHAIRMAN JACKSON: Okay.

MR. BECHTEL: Or how you may consider our comments or our concerns with the document.

CHAIRMAN JACKSON: Okay.

COMMISSIONER McGAFFIGAN: Could I just -- and I'm just trying to understand -- if DOE issues an EIS, a draft -- they first have scoping, then they have a draft environmental impact statement. I understand the scoping has already occurred, hasn't it? And the draft environmental impact statement is due later this year. Then they under statute have to consider the comments that they get during that comment period, and then the final EIS comes -- is part of their license application, in which case I suspect you guys will be further commenting on whether the final EIS adopted your comments.

And then we to the extent practical, it doesn't say maximum, to the extent practical, adopt that EIS, as we do in a reactor proceeding, we're doing license renewal at the moment, we don't get an EIS, but we get an environmental document from Calvert Cliffs, from Baltimore Gas and Electric or from Duke, and we work off of that document in our public interactions so that we don't replicate the wheel.

So I think it's partly -- it may be again one of the -- it strikes me that there's going to be more than ample opportunity for you to make the case in any proceeding that the comments and how DOE chose to respond to them in the final EIS to make that case -- you don't like how they did it, you can tell us. And you can make a case that this part of the EIS shouldn't be adopted and we need to do more analysis or whatever. But maybe at some point we need to get an understanding of how the EIS process is going to work in practice, but it's not unreasonable the way the Congress laid it out here. We ultimately have to make a judgment as to whether the EIS is submitted. Jeff is the expert.

COMMISSIONER MERRIFIELD: No, no, no, I'm not. In this case I was going to ask, Madam Chair, I mean, it's not my understanding that we're a mere rubber stamp, and maybe -- perhaps counsel can help us understand what our role is in that process and provide a little clarity here.

MS. CYR: You may have to ask the staff, because I don't know exactly what the role is, but the idea here is because they're both Federal agencies, they're both subject to NEPA, they both have the obligation to do a thorough EIS -- they issue sort of a -- which is represented by the CEQ regulations when that situation occurs where you have two Federal agencies to the extent that you in a sense compile the data once and rely on it, and it's useful to both agencies, you can -- the CEQ provides for that.

So that's really what -- the process that's underlying the statute was if DOE has the obligation to carry that, then the NRC to the extent of the data that's

gathered and informs their decision can also inform our decision, we can rely on that data in informing our decision. But you're right, we have an independent responsibility to have an EIS that supports our decision, and to the extent that it's not, the data that's prepared or that DOE has gathered is not adequate, we have to do a supplement in a sense to what they've done in order to have a sufficient process to support our decision.

And I can't speak to the extent to which the staff has had ongoing -- you'd have to ask them to talk about it in terms of the details of how they interacted with DOE so far in terms of understanding what the scope of the data gathered that they're doing to help inform that so that in a

sense it can maximize the extent you can up front gather that data to inform us. But we clearly have an independent responsibility once they've submitted that application to us to look at that document and see where the gaps are, what additional information we need to support decisions that we need to make and to gather that information and document that information in support of the decisions that we have to make.

CHAIRMAN JACKSON: Does the staff have any comments to illuminate this discussion?

Mr. Greeves has been nominated.

[Laughter.]

MR. GREEVES: The best that I think I could add at this time is we are aware we have the responsibility. The staff has a plan to follow the EIS process. We've gone to the scoping meetings. We are in dialogue with DOE, and we have people assigned to follow this issue. And I think as Karen mentioned, we independently do a number of EISs, we know what an EIS looks like, and I think the Act sets up a goal where only one Federal agency prepares the EIS. They don't want both of us doing the same thing.

CHAIRMAN JACKSON: But you're prepared, if it comes to that, for the staff to issue a supplemental EIS.

MR. GREEVES: Yes. I think that's what Karen identified.

CHAIRMAN JACKSON: Right.

MR. GREEVES: To the extent it was deficient, we would make up the difference.

COMMISSIONER McGAFFIGAN: May I ask, are we a formally consulting or commenting agency on the DOE EIS?

MR. GREEVES: I'm going to need some help from OGC on that, or actually what our characterization.

Mr. Bell has said in the background that we are a commenting agency on the DOE EIS, which is a type of agency, as you know, under the CEQ guidelines. I guess he's going to --

CHAIRMAN JACKSON: Are you going to illuminate further?

MR. BELL: Michael Bell, from the NRC staff.

CHAIRMAN JACKSON: Can you talk more directly into the microphone? Thank you.

MR. BELL: Okay. Michael Bell from the NRC staff. There is a subpart within part 51, I don't recall if it was (g) or (j), that deals with how we're going to adopt DOE's EIS for Yucca Mountain. It's already been determined we want to be a commenting agency as opposed to a cooperating

agency, since there was a view that that might compromise our independence. I guess my understanding of the process under the Nuclear Waste Policy Act is there's a lot that happens with that EIS before it ever gets to us.

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The EIS is subject to judicial challenge before it even goes to the site recommendation stage. Then it accompanies the site recommendation to the President and the President's recommendation to Congress and it's part of the decision if the State wants to object, and the framework laid out in the Nuclear Waste Policy Act has a lot of consideration of that environmental impact statement before it ever would get submitted to the NRC as part of a license application. And I think the staff's intent really would be if there were deficiencies in the EIS it's to try to get the Department to supplement it rather than have NRC supplement the EIS as a part of the --

CHAIRMAN JACKSON: Well, NRC requirements which implement the CEQ regulations are codified in 10 CFR Part 51, and the question then becomes are you expressing reservations or concerns about those NRC requirements that have been codified in Part 51.

MS. MANZINI: Actually I wouldn't say we're expressing reservations concerning that. If you look further on we reference that particular section that you're talking about. I think what the main concern here is that the AULGs pertaining to the EIS had a question and I -- later on in this presentation it will be addressed also -- had a question as to what role the NRC was going to be playing in the implementation of the EIS.

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Until today as a matter of fact I wasn't aware that you were interacting with the DOE for this. And I don't know of anybody else that is either. I was assuming that you got a copy of the EIS issued by the DOE like the rest of us would, and at that time that you would either adopt it or supplement it or amend it or whatever it takes to --

CHAIRMAN JACKSON: Mr. Bell, would you go back to the mike and explain what it means to be a commenting agency as opposed to a consulting agency? I think that would provide -- or a cooperating agency.

MR. BELL: Yes. If we were a cooperating agency, it would essentially -- the EIS would essentially be a joint document. NRC and DOE would prepare it together. Basically the way the framework is set up in Part 51 now is DOE prepares it. We will comment on it during the public comment period just like the State and local governments and other interested parties. Presumably, you know, staff thinks our comments will carry a lot of weight because eventually we do have this statutory responsibility to adopt.

CHAIRMAN JACKSON: And if NRC -- let's cut to the chase -- if NRC is not satisfied or DOE does not adopt or make changes in conformance with NRC's comments, what then happens and how does that affect the authorization we have

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to give?

MR. BELL: At this point I'm beginning to feel like a lawyer with some of these questions.

CHAIRMAN JACKSON: Karen, can you illuminate?

MS. CYR: I apologize, because I can't recall exactly in terms of the statutory framework exactly when and how the comments, but I think Mike is right that because that accompanies that and we have a particular statutory role as DOE moves through the process to provide our comments that those comments will go to all of the aspects of whatever they're providing as they go. So I think our comments at that time are expected to comment not just on whatever their site characterization report is but to the extent the EIS accompanies that as well. But I will have to provide you more detail on that, because I just don't have the statute in front me at this time.

COMMISSIONER McGAFFIGAN: Madam Chairman.

CHAIRMAN JACKSON: Please.

COMMISSIONER McGAFFIGAN: You know, I guess we're all learning a little bit --

CHAIRMAN JACKSON: Good.

COMMISSIONER McGAFFIGAN: From the outline of the law here, because it is a little extraordinary. Could you explain or maybe Karen, the judicial review provisions that are already in statute that the final EIS is -- there's an

expedited process in it presumably whereby it can be challenged and the court has to -- I mean, is there -- has the law already set time lines for the courts to make decisions, because they don't tend to cooperate very much in making quick decisions in this country. How does the current time line envision if it's challenged that all this would be together in time for a license application or a site-suitability determination in 2001, 2002? Do we know?

MS. CYR: I can't answer that for you; no. I mean --

COMMISSIONER DIAZ: Well, obviously the staff is going to have to define this.

CHAIRMAN JACKSON: Well, I think I'll make one direct suggestion. I think (a) we need clarification, and you can come back to the Commission. But as you provide that clarification to the Commission, this is (b), you need to provide that clarification to these folks.

DR. BAUGHMAN: And, Madam Chairman, if I just might, when you talked about the role of NRC and its legal staff, you indicated that you will be providing comments to the DOE on the sufficiency of that document and, you know, whether you think it meets your needs and what not. That's a very important point where we would like to be able to provide you with input, because your comments will probably carry more weight and get more attention by the Department

of Energy than anybody else's, because it has to ultimately be your document as well.

And I have to note that in the workshop that we have with the NRC staff as I recall they were rather unclear as to whether or not the NRC would seek any input in helping to shape their comments, you know, public input to help shape your comments that you might then give to the DOE in response to the draft EIS, and we would very much appreciate the opportunity to do that.

CHAIRMAN JACKSON: Karen, you had --

MS. CYR: Well, 51.109 provides for how the EIS would be used in our proceedings, and it provides at the time we issue notice of hearing, that's after we have the

application, that at that time we will state our position about whether or not it needs to be supplemented and there will be an opportunity for people to file comments on that. And if we file then a supplemental EIS there will be opportunity for comment.

We will provide all of our -- we will go through in a sense an EIS process at that time. So there's a -- 51.109 provides in the context of the licensing process how a structured process by which the Commission will go about adopting or supplementing the EIS that has been prepared by the Department of Energy.

Now with respect to the earlier part in terms of

the DOE getting to that site -- going through the site -- and getting to the application stage, I'd have to get back to you with some more detail.

COMMISSIONER McGAFFIGAN: It strikes me that the question that was just asked though is the question there will be -- under statute and CEQ guidelines there will be a comment period of some length on this document when it is -- the draft EIS.

MS. CYR: We would comment to DOE.

COMMISSIONER McGAFFIGAN: And we would comment to DOE, and I think the question is whether -- and typically comments get sent, as yours do, the last day that they're due, I suspect. And so therefore, you know, you'll be working on your comments right up to the last day and we'll be working on ours and there will be two parallel tracks, and I think your question if I'm translating it for you is is there a way to build in a period where your comments would be completed and we could look at them before submitting our comments just to take those into account given the weight that our comments according to Mr. Bell may be given by DOE. And that again would be unusual, but it's maybe something to think about.

CHAIRMAN JACKSON: Okay. Why don't we in fact then ask Karen to research that issue relative to --

MS. CYR: I don't think we currently have

any positions on how we would go about providing our comments back, but I think --

CHAIRMAN JACKSON: But the question of whether there's anything that would preclude --

MS. CYR: Us from taking other people's --

CHAIRMAN JACKSON: From taking other people's views into account as we prepare our comments.

MS. CYR: Nothing occurs to me, but we'll look into that.

CHAIRMAN JACKSON: Right. And then we can pass that along.

MR. BELL: Madam Chairman.

CHAIRMAN JACKSON: Yes.

MR. BELL: One of the issues that came up in the discussions back last October was the intent of the NRC adoption was not to give the commentors a second bite at the apple. There is a process in the law for judicial review of the EIS, and if that judicial review was carried out --

CHAIRMAN JACKSON: Now you're talking like a lawyer.

[Laughter.]

But you said you weren't.

MR. BELL: Well, if that judicial review is

carried out and, you know, some party is unsatisfied with the outcome, the intent was not then that they could come

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again and raise the same comments to NRC.

CHAIRMAN JACKSON: Well, let's -- I think what we need is clarity of, you know, laying out of how the process really works.

MS. CYR: We'll provide you an outline of exactly --

CHAIRMAN JACKSON: Right. And then we can also share that, I think, with them.

COMMISSIONER McGAFFIGAN: Just one last -- every time Mr. Bell opens his mouth -- but if they don't exercise their right to seek judicial review do they still have the right to challenge in our process?

MR. BELL: That's --

CHAIRMAN JACKSON: We don't need to do this now any longer in an ad hoc way. I think we need to get the answer. And we'll just ask Karen and the staff to come back to us with that information, and then we will also share it with the local governments.

COMMISSIONER DICUS: I think we should thank them for bringing us such a sticky wicket.

[Laughter.]

CHAIRMAN JACKSON: I do thank you, because, you know, it's clear the kinds of issues. But I now ask you to kind of if we can move along apace here --

MS. MANZINI: Move along. I can do that.

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Okay. Go to slide number 30, pertaining to the section 407(c)(1) States. Any such environmental impact statement shall to the extent practical be adopted by the Nuclear Regulatory Commission in accordance with Section 1506.3 of Title 40, Code of Federal Regulations, in connection with the issuance by the Nuclear Regulatory Commission of a construction authorization and license for such a repository or monitored retrievable storage facility.

CHAIRMAN JACKSON: If I may, I hate to do this to you, but I actually believe that the discussion we've just had takes us along to about slide, you know, 34.

MS. MANZINI: Okay. Okay. NEPA compliance -- why is this relevant to the NRC?

Will the Yucca Mountain EIS be adequate to support a decision to issue a construction authorization given the current uncertainties about the repository's performance and design? Such uncertainties include for example:

Issuance of new repository siting guidelines.

Final repository design which is key to the proposed action.

Completion of postclosure and preclosure safety case.

Issues include, among others:

Site specific transportation impact analysis along corridors in and around the Yucca Mountain site.

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A thorough cumulative analysis which takes into account past, present, and reasonable foreseeable impacts from radiological exposure associated with NTS operations.

A worst case scenario involving credible but unlikely events which lead to a substantial breach of waste

packages and release of radioactive materials.

And these are just some of the issues. I'm quite sure there will likely be a lot more. And as you know --

CHAIRMAN JACKSON: Does your county itself conduct worst case analyses as part of the environmental review prior to approving new construction or similar decisions?

MS. MANZINI: Our county -- what we do normally on our oversight issues in our county, like I say, we're relatively small. Our funding is not, you know, to the extent where we can do these type of studies. However, what we do do is we focus on issues that would pertain mainly to our county such as transportation, emergency response issues, due to the fact that we have had high-level nuclear waste shipments through our county through another DOE program which was the foreign reactor shipments. So what we do is we focus on issues that pertain mainly to us, socioeconomic issues.

CHAIRMAN JACKSON: No, I understand, but I'm asking in doing that do you include in that consideration of worst case scenarios --

MS. MANZINI: Um-hum. Yes, we do.

CHAIRMAN JACKSON: Okay.

And also on any of these issues, as you are aware, the NRC has the authority to require that these be included in the EIS.

Continuing on, on 36, the extent to which these and other issues of concern are addressed will be better understood with the release of the draft EIS this summer.

To wrap up -- conclusions -- there is a need to better understand NRC's rule with respect to NEPA --

CHAIRMAN JACKSON: That's clear.

MS. MANZINI: -- compliance.

[Laughter.]

MS. MANZINI: I had to bring that up, right? With respect to the DOE EIS for the Yucca Mountain Project NRC clearly has the authority and obligation to provide guidance for its preparation. Such guidance needs to consider incorporation of site-specific impacts along transportation routes near Yucca Mountain and technical data and analysis which influences overall system performance and final repository design.

NRC should provide opportunities for the AULGs to discuss relevant issues which need to be addressed in an EIS which is adopted by the NRC.

CHAIRMAN JACKSON: Thank you.

MS. MANZINI: Thank you.

MR. JERVES: I am John Jerves and I am representing Inyo County, California, and I am standing in for Brad Mettam, who was unable to attend. Normally I would say that I do not deal with the technical issues but rather more with the policy issues of this program, but I will do my best to respond to any questions and if I can't I will refer to my colleagues as well here at the table.

My colleague on the right, Mike Baughman's reference to Inyo County, Nevada is perhaps reflective of the tendency to forget that Yucca Mountain is indeed a regional issue -- the Department of Energy and the United States Congress also tend to fail to see the importance of California's role in this issue and we hope very much that NRC will not also make this assumption about it being an

exclusively Nevada issue.

In Inyo County we are concerned primarily with groundwater issues and especially the linkages between the aquifer under Yucca Mountain and the water supplies that reach the surface in Death Valley, which is one of the key economic foundations of a primarily desert county.

With that introduction I would like to refer to the slides.

The AULGs do not oppose a performance-based standard. We do feel a dose-based standard that requires

hypothesizing on the lifestyles and habits of some future critical group introduces too many areas of conjecture and contention.

The exclusive use of total system performance assessment to determine repository performance does not provide for defense-in-depth. It also requires the use of stacked and abstracted models in an analysis of system performance that is not easily comprehensible by the public, and may I emphasize that comprehensibility to the public is an important factor in acceptability.

CHAIRMAN JACKSON: Let me go back to this. Explain to me the sense in which you mean that the quote/unquote "exclusive use" of the TSPA does not provide for defense-in-depth.

MR. JERVES: Well, I was just going to say that we are referring specifically to a belief that we have that there should be a groundwater travel time standard that should be maintained as part of the requirements for repository performance. That is much easier for the public to understand -- if you have a specific standard that refers to groundwater protection than it is for the public to understand a total system performance approach.

CHAIRMAN JACKSON: Okay. Why don't you move on.

MR. JERVES: The decision by the NRC to release proposed standards prior to the release of standards by the

EPA, while this is intended to provide DOE with a standard to use as a goal, creates confusion in our view as to what the eventual standards may be and also who controls the different portions of the regulatory environment.

CHAIRMAN JACKSON: Do you recognize that the NRC is required to adopt standards issued by EPA?

MR. JERVES: Yes, I do.

CHAIRMAN JACKSON: And intends to modify the proposed Part 63 as necessary?

MR. JERVES: I understand. It's the signal that it gives I think that is more our concern.

I might insert at this point a question to the NRC, because I understand that there are ongoing negotiations between the NRC and EPA and DOE in this regard, and we of course are wondering as to when we might expect to see a standard released that would guide the future activities of the Department of Energy.

CHAIRMAN JACKSON: I think those negotiations are basically DOE's and EPA's administrations -- OMBs.

MR. JERVES: I see. I would like to make some comments on transportation.

The 10 AULGs collectively represent the end of the funnel, as one of my colleagues as said for transportation to Yucca Mountain. We feel that the DOE budget for

transportation planning has been -- well, we have noted that

the DOE budget has been substantially reduced and now additional low level waste transportation to the nuclear Nevada test site including potential intermodal shipments increases the importance of this transportation planning.

Low level waste transportation routes will likely set a precedent for high level waste shipments, particularly in an effort to avoid the metropolitan Las Vegas area and this will imply using longer routes in rural areas on non-interstate roads, and it will relocate transportation routes to areas where there is less well-established emergency response capability.

We do believe that radioactive materials can be transported safely providing that transportation planning and preparation is done in a timely manner and done cooperatively with the local governments and provided also that sufficient resources are available to prepare local jurisdictions for routine transportation and potential impacts.

Finally, I would say that we support the licensing support system and the continued maintenance of an LSS administrated by the NRC.

CHAIRMAN JACKSON: Thank you.

MR. JERVES: Thank you, Madam Chairman.

DR. BAUGHMAN: Madam Chairman, if I might just conclude with some closing conclusions and recommendations,

and this is beginning on page 48, just a couple pages.

I think the first bullet we have addressed. Obviously we are looking for increasing opportunities and continued opportunities to interact with your key points.

The second bullet, NRC should encourage DOE to increase its emphasis upon early identification and resolution of transportation issues. I think everyone has been downplaying the issue of transportation. It's kind of "build it and they will come." I can assure you that that is a wrong assumption and Commissioner McGaffigan referred to the schedule and litigation and what is going to hold this thing up. This is the sleeping gun -- so to speak --

I mean -- or the smoking gun I should say.

If we don't address this issue it is --

CHAIRMAN JACKSON: The sleeping gun.

DR. BAUGHMAN: -- is sleeping.

[Laughter.]

DR. BAUGHMAN: Transportation is under wraps and nobody seems to be addressing it.

CHAIRMAN JACKSON: I asked a question, as you may recall, in the earlier panel did people have a concern about preclosure and about transportation.

DR. BAUGHMAN: Yes. Thank you.

The third bullet -- NRC should require DOE to reduce uncertainties within the draft Yucca Mountain

Environmental Impact Statement. That may seem premature to you right now. There is a direct linkage between the analysis contained within the EIS and the analyses within the VA so we have uncertainties in the VA. We have uncertainties in the EIS -- the very EIS that you are expected to perhaps adopt to the extent practical, and we would encourage you to move that along.

NRC should encourage DOE to provide comprehensive inclusions of measures to mitigate impacts within the DEIS. This is an important point. In the workshop with the Staff, it became apparent to us and our understanding was that when this final EIS is litigated on the DOE side, it is litigated -- the Court will decide what then needs to be addressed to kind of bring the NEPA process to closure and presumably the DOE will prepare the supplement to do that.

That EIS will identify, is required to identify measures to mitigate impacts and DOE will then prepare a mitigation plan or something like that.

Our concern is when you then prepare a license or a construction authorization and subsequently a license which you can condition -- you can condition that license -- is we would like to see important issues of mitigation and things that we think need to be mitigated included as conditions to that license. If they are not addressed in the EIS, the DOE EIS, they will not come to you. If you do

not include them or ensure that they are a part of your EIS that you subsequently adopt, it may be a very hard case to make then to get them into a condition of a license and in fact Staff suggested to us that it was their sense that if it wasn't included in the EIS or identified by DOE and subsequently in your own EIS, the chances of its making its way into a condition in a license were probably slim to none.

So we would encourage you to remain very open-minded about identifying mitigation measures and we would like to see those woven subsequently into the license as conditions. That is our guarantee that that mitigation will be implemented.

CHAIRMAN JACKSON: It strikes me that that comment again plays back into all of us having clarity of understanding.

DR. BAUGHMAN: Yes.

CHAIRMAN JACKSON: Of the NEPA process, of the EIS, how you make input, et cetera, where along the way, et cetera.

DR. BAUGHMAN: Finally, I would just point out that, and it is not here but certainly the counties in the state of Nevada have all encouraged DOE to extend their planned review period for the EIS. They are currently envisioning 90 days. Certainly you are going to have to

respond. You might want to consider advising the DOE that you think 90 days is too short as well. We are asking for six months -- 180 days.

Thank you, Madam Chairman.

CHAIRMAN JACKSON: Thank you very much. Let me just make sure my colleagues have no additional questions. Commissioner Dicus?

COMMISSIONER DICUS: It is not a question but kind of a comment. It is on the transportation issue and we do hear you. The Chairman indicated she has asked the question. We have asked the question. DOE and others -- I recall one of the briefings asking something about they were going to do a report on the transportation. I didn't get all that good an answer, but it is on the drawing board. clearly it doesn't get the attention perhaps because of the other technical issues that are going on, but we understand

its importance.

It is my understanding, and I was involved before I came to the Commission in Southern States Energy Board's Transportation Subcommittee, that there is going to be a pretty strong outreach program. Certainly the state can do some route designations into local governments, and so I am looking at your Slide 46 and do you have reason to believe that is not going to happen or you are wanting to emphasize its importance -- because in Slide 46 you indicate that it

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can be transported safely so long as there is transportation planning and preparation and sufficient resources.

DR. BAUGHMAN: Well, we have been advised -- I don't know, we have been advised by our own DOE folks in Nevada for example to not look to Section 180(C) for example in the Act which addresses this as our likely source of funding to get the job done because DOE I think is concerned that there won't be that much money to be spread over the nation to address this issue, and we ought to be thinking about our unique avenues as affected counties and states and through the NEPA process perhaps to gain other forms of funding to get the job done, which is a clear signal to me that DOE views themselves as they are going to be constrained in trying to meet the needs across the nation.

MR. JERVES: I would emphasize the reference to doing it in a timely manner. Going back to 1989, when the first effort was made by the Department of Energy to open the WPPSS site, the preparations that were made by that time for emergency response along the routes to the WPPSS was woefully inadequate and certainly we would not want to see a repetition of that when it comes time to ship to this facility.

CHAIRMAN JACKSON: Commissioner Diaz.

COMMISSIONER DIAZ: Just a quick comment and response --

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CHAIRMAN JACKSON: Please.

COMMISSIONER DIAZ: -- to some of your concerns in the state government.

I think people keep looking at defense-in-depth and I think it might be worthwhile for the staff and the Commission to consider how do we address the issue of defense-in-depth at the repository in very common terms, so that we can dialogue or discuss it, and that seems to be an underlying issue that maybe we need to get back from the staff how we deal with that.

CHAIRMAN JACKSON: That is a good idea, to discuss defense-in-depth within the repository.

Commissioner McGaffigan.

COMMISSIONER McGAFFIGAN: No questions.

CHAIRMAN JACKSON: Commissioner Merrifield.

COMMISSIONER MERRIFIELD: No questions.

CHAIRMAN JACKSON: Well, thank you very much. I'll excuse this panel. We have one more.

I would like to call forward Mr. Calvin Meyers, representing the Moapa band of Paiutes -- did I pronounce it the right way?

MR. MEYERS: Yes.

CHAIRMAN JACKSON: And Mr. Ross Morres, who is the liaison for the Western Shoshone National Council.

Mr. Meyers, why don't you begin? Good afternoon.

MR. MEYERS: Good afternoon, ladies and gentlemen.

Thank you for having me here and the one thing that I would like to really bring to everybody's attention in this room is that the only way I am able to get here is because I was -- I got an invitation to travel to the tribes. I used to do this because we got funding through the state. The state didn't refund us anymore because their funds got cut back, but we have more at stake than anybody in this room and the reason why I say that is because the land that we live on is the land where we came from. It is important to us.

It is important to us because we have a feeling we have no place to go. If our land is ruined, we will have to die along with it.

I used to be on the steering committee for the county, which was good. At least I got some of my views across to the county people about how we view the land, what we think about this project.

The biggest thing we think about the project is that like this meeting we are at the end and to most tribal people, it's like we are just the speed bump in your highway to get the thing to Yucca Mountain.

I have this -- it is called a Rapid Cultural Assessment. It is for the intermodal transportation to low level waste in the Nevada test site. This book here we had

done within 10 days at very little cost but the only reason why we had a chance to do it is because the Nevada test site people had allowed us to. They had funded us to do this study.

The Yucca Mountain Project -- I have not received anything from them for about four or five years. The Yucca Mountain Project believes that we are just a nuisance to them -- and we are, because they are putting right in the middle of where we used to live at. We used to roam that country where the Yucca Mountain Project will be at.

Another thing that I have always talked about was the transportation of nuclear waste. It is not going to magically get there. It has to go on the road or rail and those roads and rails go right through my reservation, and we are not advised of anything.

The United States, of which you are part of and which DOE is a part of, have a fiduciary responsibility to the tribes which they are not living up to as of this day.

I feel strong that they do not take, the Yucca Mountain Project people do not take what we say seriously and like I said we are just like flies on the wall. We are pests -- and we are not.

We have as much right as anybody else, which you people call public -- we are not public. We are higher than public because the Government put us that way. You have the

fiduciary right, responsibility to the tribes. You don't have it to the state or the county or the cities, but they get more listening to than we do. We don't even get funded. We don't have -- we don't actually have enough people to do a real lot of studies. The only studies that we do is looking at what comes down the road and what we can actually find out, and most of the things that I find out are from other people. It's not actually DOE.

DOE does not come to the tribe and does not inform us of what is going on, and when they send like the EIS, the draft EIS that they did before, they expect us to comment on these technical things that they want to do, yet they don't want to give us the funding to find out what they are really talking about, so you can't in my mind make a decision if you are uninformed on what the project is.

I have lived on the reservation almost all my life. It is not a place that you people would know. The reservation is not just like living in Washington, growing up in Washington, D.C. It is a matter of pride of who you are, where you come from and where you are going.

We cannot -- one reason we cannot leave our land is that that land is part of us. The land that you people want to, are thinking about polluting is part of us. The land itself is part of us -- the animals themselves are part of us. The air and the plants are part of us -- and we

can't separate that and I am telling you this because I want you to know the way that we think.

It is not that we want to be a nuisance. It is that we have to be heard too. We have to be told what is going on, what is going to affect our lives, because as I said we cannot live anywhere else, because when we move somewhere else, part of us still stays at home and it is that part that when a lot of the older people it is because they want to come back to where they have grown up and that is where they expect to live their last of their lives.

One of my biggest problems is that having nobody and no staff to read a lot of these -- like this assessment -- I don't even know what it looks like, but yet we are supposed to know, we are supposed to be able to comment and we should be able to. It's not that we can't. It's just that we just don't have -- we don't have funding, we don't have the people to do it.

The people that are doing the projects do not let us know what is going down, what is coming up, so that is one of our -- I guess what our biggest problem is is lack of participation from their side

MR. MORRES: Madam Chairman --

CHAIRMAN JACKSON: Please.

MR. MORRES: When Secretary Richardson came to Nevada recently, were you invited to be part of the group

that --

MR. MEYERS: No. But that is essentially what I wanted to say. Thank you.

CHAIRMAN JACKSON: Thank you very much. Mr. Morres.

MR. MORRES: Yes, good afternoon.

CHAIRMAN JACKSON: Good afternoon.

MR. MORRES: Pretty nice tepee you folks have here.

[Laughter.]

MR. MORRES: You know, I would like to give you a little of my background first. I spell my name Ross Morres with an "e" -- you know, like Morris the Cat, only with an "e" --

CHAIRMAN JACKSON: Right. That is my husband's name too.

MR. MORRES: Oh, great. I am a descendant of the Wocca River Paiute tribe of Nevada, and I kind of echo the

sentiments that my colleague Calvin has just expressed.

I am not college degreed either, but I have considerable hours of post-graduate work in Business Administration. I am a World War II Veteran, having commenced my military career in the United States Navy in 1942 and concluded my Service as a purchasing and contracting officer with the Nevada Air National Guard some

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36 years and eight months later.

Upon return to my home of birth in Carson City, Nevada in 1946, I subsequently served as the Executive Director of the Nevada Indian Commission on the staff of the Honorable Paul Laxalt, Governor of the State of Nevada.

I then served on the staff of the Honorable Michael O'Callahan, the succeeding Governor of the State of Nevada. I was assigned by Governor O'Callahan as the Director of the Civil Rights Office of the Nevada State Highway Department, predicated upon my knowledge and experience gleaned from administering Federal construction contracts with the Air National Guard.

Based upon this background I accepted a position at the Civil Rights Office of the Department of Defense here in Washington. Since there were and currently are many issues that are and should be addressed by the United States Congress, I felt that this was a great opportunity to lobby for the indigenous people of the State of Nevada.

Because of my relationship with Chief Raymond D. Yowell of the Western Shoshone National Council, representing the Western Shoshone Nation, I agreed to function as a liaison here in Washington, D.C. to the U.S. Congress and Federal Departments on matters which affect the Western Shoshone Nation's indigenous people and specifically the original indigenous native lands pursuant to the Treaty

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of Ruby Valley between the United States Government and the Western Shoshone Nation as ratified in 1863.

Having said all that, it gives great pleasure to be here today to express the concerns of the Western Shoshone National Council, considering the Western Shoshone Nation is not Federally recognized as an Indian tribe. Unfortunately I was not asked to represent the Western Shoshone National Council until last Wednesday and thus I am kind of ill-prepared, so I will address the Western Shoshone National Council concern that is a big issue with the Western Shoshone Nation, of which I have some knowledge, but first, Chief Yowell extends his apology that he could not be here today because of this is the calfing season out there and he has already lost a couple of calves.

Secondly, someone from the Western Shoshone National Council is more knowledgeable about the issues before the Commission here was unable to come.

Third, I offer my apology that a more astute representative could not be here and that is why I am here.

Fourth, I ask your indulgence in listening to what I have to say and not just to hearing some phantom exhortation. The primary and primary issue of the Western Shoshone National Council and representing the Western Shoshone Nation is the fundamental right of ownership of the land vested by the Creator such as God directed Moses to

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bring his people to the land flowing with milk and honey.

A treaty between the Western Shoshone Nation and the United States Government was consummated and ratified by the U.S. Congress in 1863. This treaty between two nations is known as the Treaty of Ruby Valley, and Article VI of the United States Constitution states in part, quote, "This Constitution and the laws of the United States which shall be made and pursuant thereof and all" -- and parenthetically what does "all" mean? -- well, the American College Dictionary defines "all" as "the whole of with reference to quantity" -- and continuing on, closing my parenthetical, "all other treaties made including the Treaty of Ruby Valley or which shall be made on the authority of the United States shall be the supreme law of the land and the judges in every state shall be bound thereby and anything in the Constitution or laws of any state to the contrary notwithstanding."

However, the United States Government and the United States Congress failed to recognize this supreme law of the land and their responsibility to the Western Shoshone Nation.

The President directed that all Federal Departments coalesce with American Indian tribes on a government-to-government basis to seek solutions on issues of concern. I believe the Nuclear Waste Policy Act

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stipulates that the appropriate Federal Department and Agency consult with the various American Indian tribes.

Therein lies the delusion or perhaps better said as a deception. Somehow an Indian tribe to have standing as a player in a government-to-government negotiation must be a Federally-recognized tribe. The Western Shoshone National Council posed the question why does an Indian nation exercising and governing as a sovereign nation pursuant to a bonafide treaty have to be Federally recognized to do business with the Federal Government?

Time permitting, there is an answer. Mr. Lake Barrett, Acting Director of the Office of Civilian Radioactive Waste, provided a briefing as recorded in the unofficial transcript of a meeting to this Commission on February the 8th of 1999 here in Rockville, and perusing Mr. Barrett's recorded briefings, I don't recall nor had I read any question posed by a Commission member wherein the land title was discussed.

With respect to the Western Shoshone National Council, the United States Government presumes that the 29 million acres of Indian treaty land has been acquired by gradual encroachment, a new aspect of United States law called due process, then might makes right, irrespective to honor. The fact that the Western Shoshone Nation signed a treaty of peace and friendship and the United States

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Government does not view that a crime or offense has actually been committed to, to which the United Western Shoshone Nation is the victimized recipient, and most disturbing is the fact that the Commission has not seen cause to raise this issue of land title although it has been raised many times.

In my review of the unofficial transcript of DOE's program viability assessment, the title issue is not a component. I realize this is a political issue and not an agenda item in the licensing application process, but it

should be.

As an agent for the United States Government, those Federal employees having the authority to approve the licensing application may be held as collaborators by circumventing the supreme law of the land, notwithstanding the fact that the Nuclear Waste Policy Act is contrary to the United States Constitution.

This is paramount to the Western Shoshone National Council. The Western Shoshone Nation has not sought redress from the courts of the United States to date.

This concludes my remarks, and I want to thank you for the opportunity to speak on behalf of the Western Shoshone Nation and if you have any question, I will try to answer it.

CHAIRMAN JACKSON: Thank you very much.

Commissioner Dicus?

COMMISSIONER DICUS: I don't have a question, just a quick comment I would like to make.

First of all, I would like to thank the NRC Staff for all the work that you have done on this, but I would like to thank the representatives from the state together with the Affected Units of Local Government and our Native American representation for coming. I know it is a lot of effort to be here and to prepare for this sort of thing, but I think this has been very useful.

I think we have learned some things. Your insights have helped a lot, so I just wanted to thank you for coming.

CHAIRMAN JACKSON: Commissioner Diaz?

COMMISSIONER DIAZ: Ditto.

CHAIRMAN JACKSON: Commissioner McGaffigan?

COMMISSIONER McGAFFIGAN: Pass.

CHAIRMAN JACKSON: Commissioner Merrifield?

COMMISSIONER MERRIFIELD: I guess I would say the same thing. I guess you raised -- in the last presentation you raised an interesting question about our raising the issue of the land title. This is a new issue for me. Certainly I'll encourage our legal counsel to take a look at that and it's something we'll certainly have to consider in the future, so I appreciate your bringing that issue forward

to us.

MR. MORRES: If I may offer one suggestion. The Commission may or may not be aware of the Indian newspaper that is published, "Indian Country Today" -- and you will find a lot of things in that paper of what occurs to the Indian nations throughout this country.

We have problems in Alaska, in Washington state. There's even some discussion going on up on the Hill that there is a proposal to tax the Indian gaming when, as my colleague, Calvin, has just expressed, the support of Indian tribes in this country is a treaty responsibility that the Federal Government doesn't adhere to.

We go to the Appropriations Committee and we asked for some -- or the Western Shoshone Nation asked for some money to define their boundary rights and as a volunteer lobbyist I discussed it with members of Congress and it passed the House side and went to the Senate side and there was some discussion about the Interior's appropriations request, so it went to a conference committee, and during

the conference committee -- I don't know if you are familiar with the Snyder Act --

CHAIRMAN JACKSON: Yes, we are.

MR. MORRES: Your attorney's not here but she probably is.

CHAIRMAN JACKSON: We are familiar with the Snyder

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Act.

MR. MORRES: The Snyder Act provides that appropriations will be provided for the general welfare of Indians. Somehow or another in the Department of Interior the Secretary has been defined as a trustee of Indians. How did he become a trustee? If he is a trustee, why doesn't he provide that trusteeship that he is supposed to do?

But nevertheless, getting back to this appropriation, it went to a conference committee and because the Western Shoshone National Council is not a Federally recognized tribe the Interior opposed it and as a consequence even though the Snyder Act is on the books, that portion of the budget was deleted, and there are many other situations with respect to that. You may have read in the papers where Mrs. Shalala has had to ask for additional money in the health care for this year, for this next year, and there are various, various appropriations for Indian tribes that are based upon treaties but the Federal Government doesn't seem to want to recognize it, and this is just for your information.

I am not trying to belabor you or chastise you, but there are some serious concerns with the indigenous people of this country, particularly with the land values. If a developer wants a piece of land, no problem -- just go and take over -- just a bunch of Indians, you know, just

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like Calvin and I, you know. We are tag-alongs. We have a short presentation and we are the last ones on the list whenever something functions, says, oh, well, wait a minute, what about the Indians? We were always the tag-alongs, but what contribution did Indians make to this country? We had lousy immigration laws.

[Laughter.]

[Applause.]

CHAIRMAN JACKSON: Well, thank you very much.

Let me say the following. There is always an issue in terms of placement, you know, on the schedule, but it is never the intention of the Commission by virtue of placement on the schedule to imply any lesser or greater importance of any given group's presentation.

MR. MORRES: I am not trying to chastise you. I am just saying that --

CHAIRMAN JACKSON: -- and because I am particular. You know, I am very sensitive to this issue of how all people are treated, and so I just wanted to assure you of that.

MR. MORRES: Well, I appreciate it.

CHAIRMAN JACKSON: And your participation was not an afterthought in this particular briefing but a forethought.

MR. MORRES: We appreciate that very much and I

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don't mean to insult you or --

CHAIRMAN JACKSON: No, I am not insulted at all.

MR. MORRES: What I am suggesting is that historically you can look at any issue, whether it is education with the Johnson-O'Malley Act --

CHAIRMAN JACKSON: I understand.

MR. MORRES: Indian people are the tag-alongs.

CHAIRMAN JACKSON: Well, I think what you have is a Commission here where at least a number of us come from backgrounds that particularly sensitize us --

MR. MORRES: Yes, I appreciate that.

CHAIRMAN JACKSON: -- to those issues, but I would like to thank the NRC Staff, the State of Nevada, the Affected Units of Local Government, and our representatives of Tribal Government for making the effort today to come here and the Commission as you can see, I hope you can see, benefits greatly from these kinds of sessions, very comprehensive, and today's presentations provided an excellent discussion of various important aspects of the DOE viability assessment and the overall Yucca Mountain activity because aside, obviously, from the technical and programmatic issues, I think that we have been made strongly aware of at least three additional issues -- one tied into program and that is the EIS process under NEPA; the issue of land titles, as the Commissioner has mentioned; and I think

the larger issue that has come out of ensuring the participation of all affected parties in these deliberations and how we can best ensure that, and so I think we have to take that into account, and so you can be assured that all of this -- you know, we have been sensitized to all of these things, and they are going to be useful to us in the ongoing work that we have in our responsibilities under the Nuclear Waste Policy Act.

So unless my colleagues have any additional questions or comments, this meeting is adjourned --

MR. MORRES: I would like to make one more comment, if I may. I want to thank the Commissioners very much for the awesome job that you do have ahead of you and we just wish you well.

CHAIRMAN JACKSON: Thank you.

[Whereupon, at 4:54 p.m., the briefing was concluded.]