UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Title: PUBLIC MEETING ON PROPOSED REGULATIONS (PART 63)

Location: Las Vegas, Nevada

Date: Tuesday, March 23, 1999

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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NMSS PUBLIC MEETING

PROPOSED 10 CFR PART 63

HIGH LEVEL WASTE LICENSING STANDARDS

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University of Nevada, Las Vegas

Tam Alumni Center

Las Vegas, Nevada

Tuesday, March 23, 1999

The above-mentioned meeting commenced, pursuant to notice, at 7:00 p.m.

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P R O C E E D I N G S

[7:06 p.m.]

MR. CAMERON: Tonight, you're going to have the opportunity to hear from the NRC about its recently proposed regulation which would establish the standards that the Department of Energy would be required to meet before a repository could be developed at Yucca Mountain. All of you will have an opportunity then to ask the NRC questions about the proposed rule or to make comments on the proposed rule. We also have a panel of Nevadans up here with us tonight to kick off the questions and answer session that we're going to be getting to after the NRC and DOE presentation.

These panelists represent various government agencies and other organizations that are knowledgeable and concerned about the repository. We are hoping that by having them lead off the comment and question period that will put a context and a focus for your discussions with the NRC on this proposed rule. Now, as I mentioned, we also have the Department of Energy with us who's going to give their perspective on the proposed rule, a perspective that they would like see of the Nuclear Regulatory Commission.

Now, I mentioned that I'm going to be serving as the facilitator for the meeting tonight. Generally, that means I'm going to try to assist all of you in having a good meeting. Specifically, what I'm going to try to do is to

ensure that everybody who wants to talk has an opportunity to talk tonight, and I also want to make sure that the information that the NRC provides you tonight is clear. So if there's any ambiguities with that information, I'll try to assist you in having the NRC or others clarify that for you.

I also want to keep our discussions civil, focused and relevant. And in terms of relevance, tonight's topic is the NRC proposed rule on the licensing standards for Yucca Mountain and this covers a lot ground particularly when you think about implementation issues related to the rule. Now, the ground rules tonight for your participation are pretty straightforward.

When we get to the discussion period, if you want to speak, just raise your hand and I'll recognize you and then you can either -- if you're on this side, go to that particular microphone or I'll bring this talking stick out to you and I would ask you to state your name and affiliation, if appropriate, and that's because we're keeping a transcript of the meeting so that we can use that for our evaluation of the comments that are made tonight.

So we want to get your name for the record. And I'd like to request that only one person speak at a time. This is not only courteous in terms of listening to what the person who has the floor has to say, but also it will make

it easier for our transcriber to get that particular statement or comment on the record.

And finally, I'd like to ask you to be concise and to the point today as best as you can with your comments. I don't want to set a rigid time limit for you tonight in terms of you have so many minutes to speak and then you're cut off. But try to be concise, try to keep your original comments to five or six minutes and then we may be able to circle back to you towards the end of the meeting after we've given everybody else an opportunity to speak.

Now, we're going to be talking about the proposed rules of the NRC. There are a lot of concerns about Yucca Mountain and high level waste in general and even though the topic is the proposed rule that the NRC has, I realize that there's some comments, concerns that you might want to express in general that may be off that point. Well, we're going to listen to those comments. We're going to have them on the record, but we will be going back and using the proposed rule as our guide for our discussion tonight.

There are comment sign-up sheets in the back if anybody who wanted to comment could sign up there. That's only meant as a guide for us in terms of how many people want to speak. If you have something to say just raise your hand, don't worry if you didn't sign up on the sheet.

A couple of final points, we've also requested

written comments on this proposed rule. However, we will treat all of your comments tonight just as we would the written comments. That means that we'll evaluate them in the course of preparing the final rule.

The NRC is here tonight to discuss the proposed rule with you in person and to give others in the community a chance to hear what you have to say about this particular proposed rule.

At this point, let's go down and have everybody on the panel up here introduce themselves at this point. Tim?

MR. McCARTIN: I'm Tim McCartin from the NRC in the Division of Waste Management and my primary work there is in the performance assessment area.

MS. KOTRA: I'm Janet Kotra in the Division of Waste Management, Nuclear Regulatory Commission.

MR. CAMERON: Yeah, and make sure to try to use the microphones if you can.

MS. KOTRA: I, along with Tim, were among the team who helped draft the original proposal that the Commission evaluated and has put out for public comment and about which we're going to discuss this evening.

MR. REAMER: My name is Bill Reamer. I'm also with the Nuclear Regulatory Commission. I'm the Branch Chief of the High Level Waste Branch in the Division of Waste Management.

MR. BROCOM: Steve Brocom of the Department of Energy. I'm the acting Assistant Manager of Regulatory and Licensing Compliance.

MR. MURPHY: Mal Murphy. I'm the Regulatory and Licensing Advisor to the Nye County Nuclear Waste Repository Project Office.

MR. WELLS: I'm John Wells, I'm the Southern Representative to the Western Shoshone National Council.

MR. FRISHMAN: I'm Steve Frishman. I'm Technical Policy Coordinator for the State of Nevada Nuclear Waste Project Office.

MS. TREICHEL: Judy Treichel, Nevada Nuclear Waste Task Force and we're a public interest group working here in Las Vegas, but around the country for people who need information about this project.

MR. von TIESENHAUSEN: Engelbrecht von Tiesenhausen. I work for the Clark County Nuclear Waste Division and my main area of emphasis are technical issues.

MR. VASCONI: Bill Vasconi with the Nuclear Waste Study Committee, a citizen's organization that believes a thorough and scientific study of Yucca Mountain is essential for the safety of the -- health and safety and environmental concerns of the citizens of Nevada.

MR. CAMERON: Okay, thank you and we'll be hearing from all of these people in a few minutes. But the NRC did

bring some other staff out here to make sure that we could be able to answer your questions. There also are people here from other organizations that have responsibilities in the high-level waste area and I thought it might be useful to just have them introduce themselves now. Keith?

MR. McCOWAN: I'm Keith McCowan, Section Chief for Performance Assessment at the Nuclear Regulatory Commission.

MR. McKINNEY: I'm Chris McKinney and I'm in the high-level waste group at Waste Management and I work --

UNIDENTIFIED SPEAKER: Can't hear him.

MR. CAMERON: Okay. We are, as you'll probably hear, supported by an independent research office and we have one of their staff here with us.

MR. WHITMYER: I'm George Whitmyer and I'm the Manager of Performance Assessment at the Center for Nuclear Waste Regulatory Analysis at Southwest Research Institute in San Antonio.

MR. CAMERON: Okay, as you may know and you'll hear tonight, the Environmental Protection Agency has an important role to play in the repository and although we do not have someone with us today to talk about the EPA's substantive role, we do have someone from EPA, the region here with us. Fraser.

MR. FELTER: Good evening, I'm Fraser Felter and I am the Region IX liaison for the states of Nevada and

Hawaii. And I'm here as an observer and listener tonight as well as reviewing the proposed rule for some time and we expect to be in -- well, we are in the final stages now and we're going to be able to finalize this.

MR. CAMERON: Okay, thank you, Fraser. And one of the things that we thought would be useful for all of you tonight is to get an idea of what the different roles and responsibilities of the various government actors and other institutions are.

MS. DAKER: I'm Sue Daker with the NRC Office of Public Affairs.

MR. CAMERON: Okay. We'll talk in a minute, we're talk later, okay. The NRC has an advisory committee on nuclear waste and I'll ask them to introduce themselves.

MS. DEERING: I'm Lynn Deering.

UNIDENTIFIED SPEAKER: Would you stand up, please, so that we can see who you are?

MR. CAMERON: All right. And there's an organization known as the Nuclear Waste Technical Review Board and if you could just introduce yourself.

MR. FARINGER: I'm Dan Faringer. I'm not a member of the board. I'm a member of the staff of the board and I'm here as an observer.

MR. CAROL: I'm Michael Carol. I'm also on the Nuclear Waste Technical Review Board staff.

MR. CAMERON: All right, thank you, Michael. And last but not least, I think last, one of the NRC's on-site representatives is here.

MR. BALKI: My name is Bill Balki. I'm one of the two NRC on-site representatives here in Vegas.

MR. CAMERON: Okay, thank you very much. I think we'll get rolling now. We have an agenda, hopefully. Notice that the time 9:30, the end of the meeting, has question marks on it. That means that we're using that as a placeholder. If you want to stay later than 9:30, we'll stay and talk about the issues with you. And now we're going to go to the NRC for a brief presentation on the proposed rule.

Tim, are you ready.

MR. McCARTIN: Janet is going to start.

MR. CAMERON: Janet is going to start, okay. Great.

MS. KOTRA: Good evening. On behalf of those of us who participated in drafting this proposal, I want to thank all of you for being here this evening and for being willing to share with us your views, your concerns, your questions. We view this as a very important opportunity for you to participate in the decision making process that that agency that I represent will be undertaking or is undertaking with this proposal.

I'm going to provide some brief background. My hope is in a few minutes to give an overview to clarify what the responsibilities of the NRC entails with regard to the proposed repository on Yucca Mountain, hopefully distinguish, as much as possible, who are the other major players in this; that would the Environmental Protection Agency, as well as the Department of Energy, the player with which you're probably most familiar.

I will provide a brief discussion of some of the legal requirements that we know the NRC needs to establish criteria here for evaluating the repository at Yucca Mountain. And I will talk to you some of the multiple decision points where the NRC will view these criteria once they are final to evaluate and to judge DOE actions, vis-a-vis, a proposed repository.

After having covered this in a very hopefully concise fashion, I'll move then to a question which many of you may have on your mind and that is why is the NRC proceeding with new regulations at this time. I hope we have some answers for you as well to have some discussion with you about your views on our decision to proceed at this time.

I'll talk briefly about the schedule we're moving in. You have -- hopefully you picked up as you came in a flyer that will give you the address so that if you wish to

send written comments after the conclusion of this meeting, we will welcome them as well.

And then I'll turn it over to Tim McCartin, my colleague, and he will get into the technical aspects of the rule of what are some of the key things and major requirements, talk about the conceptual approach to this thing as well as the individual requirements and he will wrap up with, you know, what we feel is the serious importance of your presence here this evening and comments you will provide us. We will identify some sample things that we would like to hear about, but we will certainly welcome your comments and concerns on all the aspects of this proposal.

As most of you are aware, the U.S. Department of Energy has the primary role for ensuring public health and safety in its activity to Yucca Mountain. It's tasked by the Congress to characterize the site, prepare an Environmental Impact Statement.

The Department of Energy will make the decision of whether we recommend the site for development of a new repository to the President of the United States. If that decision is upheld and the Congress does not overturn it, the Department will prepare a license application. It will then design, construct and operate a repository and they are also legally obligated to provide long-term oversight.

There are two regulatory agencies that have a role here. We have the Environmental Protection Agency I mentioned earlier. Their role is to establish the overall environmental health and safety standards for Yucca Mountain. And then the U.S. Nuclear Regulatory Commission, that's us.

Our role and this goes beyond what's on the bullets here, but in short, our job is to issue technical criteria, we're going regulate the safety of high-level risk disposal consistent with final EPA standards. We are obligated to consult with the Department prior to the decision of a license application.

We have a statutory obligation to comment on the on deficiencies of their site characterization activities. This, we may get into this issue a little bit because it seems like it's a complicated role. Many times we find it's misunderstood. We do interact quite extensively with the Department, even though they are not an applicant or a licensee at this point. That is because we know that the two years that the law allows us to review a license application may not be sufficient if we have to start from zero in order to evaluate such a complex and technical project as a proposed repository.

Therefore, we have to be satisfied that the site characterization activities are adequate. We have to

interact regularly with the Department of Energy and we do so in a public and open way. As an agency, the staff of the Nuclear Regulatory Commission will make a recommendation as to whether the Commission should decide to authorize construction of a facility at Yucca Mountain and the Commission will decide whether to authorize construction and then once the facility is constructed, to issue a license and the NRC will regulate the operation and closure of the facility.

Next slide. The laws that establish the development, the characterization and development of a proposed repository are quite extensive. I don't have time to go into it in great detail here, but with regard to the subject of this evening's meeting, namely the development of NRC criteria, the Nuclear Waste Policy Act of 1982 which was subsequently remanded in 1987 directed the NRC to establish technical criteria for implementing and EPA standards that provides for a system of multiple barriers and that specify a period during with which the waste must be retrievable.

Why this is important is that Congress recognized that this is a first-of-a-kind facility, this is a major undertaking and the Commission was given the task of deciding how long the waste should remain retrievable to allow for new information or international policy would make a different decision with regard to the disposition of this

waste, that additional period of retrievability will allow for that.

In 1992, the Congress gave the players some additional statutory instructions in the Energy Policy Act of 1992. The EPA was directed to issue new standards specifically for a proposed repository at Yucca Mountain. These standards would govern the protection of the public from the release of radioactivity from the proposed repository at Yucca Mountain and then it gave us very stringent requirements on the development criteria. They're to be health-based. They're prescribed the maximum annual dose equivalent. They are based -- they would based on and consistent with recommendations from the National Academy of Sciences and they are the only such standards that are applicable to Yucca Mountain for protection from radionuclides. This Act also directed the Nuclear Regulatory Commission to conform it criteria to final EPA standards within a year.

Next slide. And I'm showing you something that's very busy and the point I want to make with this is not that you understand all the acronyms. This was developed as an internal schedule for the NRC staff, division of waste management. But I want to illustrate with this is that we have a number of activities during the pre-licensing period. Look down in the bottom corner, the solid line at the

bottom, is the receipt of a license application.

Before that license application comes in our door, we have a lot of review responsibilities that are going on simultaneously. Those include participating and supporting EPA in the development of their environmental standards. We provide a public comment with the National Academy of Sciences that is contracted with the EPA pursuant to the Energy Policy Act.

We have drafted and now a proposed regulation that would implement such a standard. That's the process we're here to talk about tonight. We are -- we have reviewed and provided comments to our Commission on the viability assessment that some of you may be aware of, the Commission has those comments under consideration and may elect to send those comments to the Department of Energy.

We are developing a review plan that will guide our technical staff in the review of DOE's license application and as I said, earlier, we will be developing comments on the sufficiency of the DOE site characterization activities, and we will be providing formal comments on the Environmental Impact Statement that the Department of Energy will provide.

Next slide. Once we receive a license application then the decision is made for the Department to pursue development of Yucca Mountain as a repository for disposal

high-level waste. It will submit a license application to the Nuclear Regulatory Commission. I want people to understand that there is not just one decision that it attached to the submission of this license application.

The NRC will review the application then it will determine whether to authorize construction. The basis for that determination will be a review of whether some of health and safety of the public that will be effected and the NRC will be reviewing final criteria that we are discussing this evening.

But before any waste can be received or in place at Yucca Mountain there will be another NRC decision and that will be to issue a license to proceed to place waste. It will provide oversight during the receipt and placement of that waste during the operation of such a facility. After a suitable period of retrievability, currently we have a consideration of the requirements of a 50-year period of retrievability, then DOE would then come to NRC for authorization to permit permanent closure.

That, too, would not be the end of it. There would also be a review based upon new knowledge that may have been acquired during the course of these many years of construction, the waste operations, et cetera, and as it says on this slide, this process allows for new information to be developed along the way. And only at the very end,

supported by an Act and policy commitment to do so, based upon a finding of the Commission that public health and safety isn't protected, we would make the decision to terminate a license. But as you can see, there are many steps before one would get to that.

I think that raises the question, why is the NRC pursuing this criteria at this point. As I mentioned, we're required to conform to final EPA standards within one year of their issuance. We know that we're not going to do that without initiating the development of our regulations in parallel with development of EPA standards. As the gentleman from EPA indicated, EPA is in the process of developing its standards as well. Although those standards are not in place, the finding at the National Academy of Sciences upon which they must be based, have been available since 1995.

The Commission believes very strongly that in order to provide a timely and meaningful public involvement in the development of our criteria, we believe we need our best proposal on what we can expect from this criteria and to cast that very wide for input into the Commission's deliberation. This takes time. It takes time to analyze the thoughtful comments that we expect to receive and to be prepared to make recommendations to the Commission for their consideration for how we might modify through the proposal.

Lastly, as I indicated if EPA issues a standard that is significantly different from what we propose, we will amend our proposed regulation to comply with the final EPA standards when they become available. But what we want very much to accomplish in this period is to get these issues, complex technical issues and policy questions into the public domain to help shape our thinking as we develop our NRC criteria.

What have we done to get to the point of putting out this proposal? As I've indicated, we've participated as much as we could in the development of protective and practical and scientifically demonstrable EPA standards. We proposed new risk-informed, performance-based regulations for Yucca Mountain, and that's consistent with overall agency policy, moving away from restrictive requirements to requirements that concentrate on those which shows the greatest risk from any facility that we would license.

This allows the resources of the regulator as well as the resources of the licensed entity, whether it's a nuclear power plant or a materials licensing or the Department of Energy to focus their energy all on those things that are most important to the protection of public health and safety.

In the absence of the final EPA standard, we would propose an overall safety inspection period we believe is

effective, which has been generally consistent with the recommendations of the National Academy, and which we believe is demonstrative and we're not saying that we have any general theory about Yucca Mountain when I say that these are demonstrable under licensing procedures that we have.

We are now seeking broad public comment on the soundness of the that proposal. And if you're a key representative here this evening and if after this evening's meeting, you have additional thoughts if you wish to send those in writing or via the world wide web, we will certainly welcome those. As I indicated we've opened forum. When EPA final standards are available, we'll deal with all of them.

The last slide for me on the status, the proposed regulation issued on February 22nd, 1999. We do have copies available and I believe Chip will be speaking to that a little bit later. If you do not already have a copy, in the handouts for my address, there's also an address where you can obtain them. You can obtain them from our rule-making Web page as part of our home page on the Internet and they are also, will be available this evening if you want to grab a copy.

The Government Printing Office indicated that public comment period will close on the 30th of May, printed

a 3 instead of 1. Officially the public comment period does end on the 10th of May. And for a particular point of view, while this comment period is going on, we will be using this proposal as a basis for developing a review plan using this structure, but that review plan is also a living document and it will evolve and change as the Commission's decisions on the final criteria surface.

We will be incorporating the final comments we receive in meetings such as this and in writing and we will complete the proposal for the Commission's consideration hopefully by the end of this summer or early fall. And with that, I would like to turn it over to Tim McCartin who will discuss the substance of the work.

MR. CAMERON: Thank you, Janet. We do have copies of the rule available for anybody who wants them after the meeting. Go ahead, Tim.

MR. McCARTIN: Okay, I'd like to briefly go over the technical aspects of Part 63 and touch on four aspects of the conceptual approach.

First and foremost, the repository must include a system of multiple barriers and by that we mean there has to be an engineering barrier and a natural system barrier. Next we have a risk-informed, performance-based rule which means for us that we are setting a risk limit in form of a dose, for both the preclosure and the postclosure aspects of

the repository. This is an all pathway dose from exposure from ingestion, inhalation and direct exposures. The compliance is shown by estimating the potential exposures through a calculation of performance. And there is no need for additional numerical criteria. The risk limit is what we will base the compliance demonstration on it.

Second, in doing the postclosure performance, obviously projected doses over a variable time period were identified on the people at greatest risk. And there is a lot of inherent uncertainty in projecting populations and lifestyles over hundreds and thousands of years, so in the rule we have proposed assumptions and inherent risks to be used for this Critical Group reporting group who are most at risk from potential releases from a repository.

And we identified a farming community approximately 12 miles from the Yucca Mountain site with dietary habits that are consistent with the region. And you'll note that there is not a farming community at 12 miles at this location, but we believe this location could support a farming community and it's reasonable to assume a more conservative approach for a Critical Group.

And lastly, there is a proposal for analyzing the consequences of human intrusions into the repository through a stylized calculation.

On the next slide, I'll just talk a little bit

about the preclosure criteria which preclosure for us means that time period during which the repository is being operated or is going to receive new or emplace new waste, et cetera, that time period prior to permit closure when all the waste is closed.

The performance objective for the preclosure operation is for the surface and underground facility and is to be operated so that the doses for both the general public and workers are consistent with all the facilities that NRC regulates. So they are comparable to the doses that we allow, the limits we have that are comparable doses that we have in other regulations for nuclear facilities.

A demonstration that conformance is based on a safety analysis that needs to be rigorous, comprehensive and systematic, analyzing both what is likely to happen as well as unlikely, but are credible events that could happen during the operational phase of the repository. There is a 50-year period for retrievability and an emergency plan for an accident.

The postclosure criteria, once again, the repository is required to include a system of multiple barriers; engineered and natural. The individual dose limit is an annual limit of 25 millirems per year and the compliance period is over 10,000 years. This demonstration, once again, is done in a rigorous, comprehensive, systematic

analysis of the potential releases from the repository. Also, you'll note that the consideration of natural events such as earthquakes and volcanoes are included in this analysis of potential releases up to the 10,000-year requirement period.

In terms of what kind of comments that we will be essentially interested in, and we tried to put together a list of things that we think we want to hear from the general public. And first and foremost, bullet number one, are the criteria that we put in our rule, are they reasonable, are they protective for evaluating the safety of a repository at Yucca Mountain.

Next, we've obviously made assumptions about potential releases, so approximately 12 miles from the Yucca Mountain site is a farming community. That was done on the basis of assuming that the most likely land releases are going to -- could occur on the Yucca Mountain site and eventually be -- cause exposure using the groundwater pathway. We think that is the most viable release mode for the Yucca Mountain repository. We'd like to hear if that assumption seems to be correct.

Having done that, then we obviously have made other assumptions of the group of people who live near the repository a finding that we believe is conservative. It involves the ingestion of animal products, crops, et cetera,

in addition to drinking water, so it seems to be a conservative approach that that's more of pathway or at least ways to get an exposure, why we believe that's the group at greatest risk.

And lastly, through our regulations, we've certainly been trying to make them clear on what DOE needs to do to demonstrate compliance. If it isn't clear to people what DOE has to do to demonstrate compliance then we also would like to hear about that. That's we revise the rule. It should be clear to everyone what they have to do. And with that, I'll end here.

MR. CAMERON: Okay, thank you, Tim. We're going to get to this gentleman here in a minute, but first of all, we're going to ask Steve Brocom from the Department of Energy to give us their perspective on this proposed rule and then we'll get to the interesting part of the program. No, I'm sorry, that sounded bad, it sounded bad. It did sound bad.

MR. BROCOM: I admit that as I'm walking over here. I'll make some comments on behalf of DOE at the request of the NRC, because we're here at their request to give you some general comments.

Those rule came out on February 22nd and we got it about that time. It's on Internet, by the way, and the NRC Web page as well as available in paper I understand. And

we're working here and we're reviewing very carefully, we're the potential applicant and we will be making comments, you know, in detail in writing to the NRC before May 10th the close of the public comment period.

Our comments will go to the NRC and any interested parties and will also be on the Web page, the Yucca Mountain Web page, and also available in print. I have a couple of general comments at this time about the rule based on our review to date.

We view a risk-informed performance-base nature of the proposed rule as appropriate basis received. That allows us and encourages us at DOE to put our resources on evaluating the items and issues that are most important to the performance of the site. So we think that's a positive approach to the rule.

We feel that the proposed rule is much improved over 10 CFR Part 60 which is the existing rule that's in place. It recognizes what is pretty much of a worldwide consensus from people that have looked at potential geologic repositories in many countries of the world. That the way to value the performance of repository issues is in a total system performance assessment. It is less restrictive and therefore allows us to be more creative in using energy in a protectual way and to design and evaluate the best of possibly performing sites which includes the Yucca Mountain.

And focuses on what is really important. But yet, it does provide visibility on individual barriers, individual elements of a performance assessment.

As to the potential application, you will of course be seeing the special emphasis of the applicant to the NRC. And both will be concerned about having a rule that is implementable and I think you heard the NRC, Ms. Kotra, say that the rule is understanding and we'll make it clear what we have to do to demonstrate compliance. We fully support that.

We also fully support the rule should be health based, truly tied to public health and safety as opposed to a criteria that would not be related to public health and safety. We're going to focus our review in several areas. The rule covers postclosing, operational period of the process before the site is closed. One of the things that we'll be focusing on is the human intrusion scenario.

The rule requires that you have a stylized human intrusion scenario. Put one drill hole that goes through a waste package and goes down to the water table and then you want to evaluate the repository. How that scenario is defined, the fact of what those calculations are going to come in play. How contributions of various multiple barrier, engineered and natural barriers are going to be evaluated. You hear the NRC state that you have to have a

system of multiple barriers.

You also heard that -- I think you heard that after a license is taken or received they perform the confirmation program. I believe you'll have probably some question of how that performance confirmation would be implemented and how it would be related to the evaluation in evaluating the performance of the site.

I think I misspoke, didn't I. I think I said preclosure, did I say that? I really should have said postclosure. That was all postclosure, after you close the repository. For preclosure, the operational period, you heard about the safety, safety analysis. That's one of things that we want to understand better. We also want to understand better how the different design-base events are evaluated and the probabilities are determined.

There is a constant look at performance safety in the regulation and we hope to understand better based on a questions, what exactly is covered by the term -- what is needed in performance safety. Overall, on the procedural requirement of the rule, what we're concerned about is having a process and a regulation in place that allows decisions to be made and a process to be followed instead of never-ending approvals where decisions cannot be made.

So on the whole, we are looking forward to this rule making. We're looking forward to interaction with the

NRC and we will, of course, be providing comments on or before May 10th. Thank you.

MR. CAMERON: Okay, thank you, Steve. One point that Steve made that may be relevant for all of you out there is he referred to the fact that the DOE comment would be distributed to certain parties. And if you do have access to the Internet, you can go to the NRC's Web site and I believe that we're going to post all of the comments that come in on this rule on the web site. So if you want to see what DOE or anybody filed on the proposed rule, you can go to the Web site.

And something that I'd like the NRC and DOE and others to just make sure that we explain to people, Janet, you talked about risk-based, risk-informed, performance-based rules and Steve Brocom just got done talking about that and using the phrase less prescriptive. I think it may be worthwhile at some point tonight trying to explain what all of that means. Less-prescriptive may be sending a different message than is really intended by that.

Well, let's start off the public discussion by going to Steve Frishman from the State of Nevada, Steve.

MR. FRISHMAN: Rather than make any kind of a statement, I think maybe it would be best just to ask --

MR. CAMERON: Can everybody hear?

AUDIENCE: No.

MR. CAMERON: Just lean into it a little bit more, Steve. Is that on now?

AUDIENCE: No.

MR. CAMERON: Maybe try another microphone.

MR. FRISHMAN: Is that better now?

AUDIENCE: Yes.

MR. FRISHMAN: First, let me say that the agency that I work for is the Nevada state agency that's charged with oversight of the high-level waste program in the state. And our agency, the Nevada Agency for Nuclear Projects, was established by the legislature in 1985.

Rather than making any kind of a statement, I think I'd like to ask a question related to the rule to both the NRC staff and also get a response from the Department of Energy because they have been using essentially the same standard, even though it is not yet in a rule.

The proposed rule and the standard that DOE is using in its evaluation right now says that the dose to be calculated that would be used to evaluate the performance of the site would be calculated at a point 12 miles away from the location of the waste. If the concept of a geologic repository is to isolate waste, meaning keep it where it is, then this raises a question about why we need the 12 miles.

Now, you also saw the National Academy of Sciences panel was required to make recommendations about what a

standard should be that then EPA would try to incorporate into a rule. And that panel said that that dose should be calculated at the boundary of the repository. So the question remains why is a 12-mile buffer zone needed if we have a repository where the intent is to contain the waste?

If you look at the other repository under consideration right now, meaning the waste isolation pilot project in New Mexico, the buffer there is only three miles. If you look at NRC's regulation of a nuclear power plant, the buffer is the distance between the plant and the fence around the plant.

So my question first to NRC is why is a 12-mile buffer zone appropriate for this rule when there are other rules that don't incorporate anything like that? And to DOE, why do you think it's appropriate in your evaluations to use that same distance?

MR. McCARTIN: In terms of the NRC rule, when we were deciding on assumptions for the Critical Group, the approach we were using that this is the group of people most likely to be at highest risk and in looking at releases from a groundwater pathway, where is the most likely location that people would come into contact with the potential releases. And we were looking at two things; one, a farming scenario involves the largest number of exposure pathways and then looking at where it would be credible to have

farming, even though currently farming is approximately, I guess 18 miles.

MR. FRISHMAN: There's farming at the 20 kilometer line within the last two years.

MS. KOTRA: It's right there.

MR. McCARTIN: Okay, well, the majority of the farming is at 18 -- currently at 18 miles at this time. We were looking at it certainly is possible at 12 miles, given the depth of the water and the soil type, that farming could exist there and so we specified that particular location.

Now, the other aspect that you were talking about, the National Academy, remember that they looked at a problemlistic Critical Group. And while you could put a group right at the footprint of the repository, there's no reason for them to be there just below where downgradient from the releases where they'd be -- have exposures to just the other side of the mountain where they would get no exposures.

And now you're getting into the part that at least our attempt in the rule was there are certain speculation that you can entertain where you can put people anywhere and you start to become -- you would now be evaluating all kinds of different potential locations.

There really wasn't any reason why would it be likely for someone to put a location right at the footprint.

And we looked at the, certainly the depth to water at the 12-mile location to be consistent with farming.

MS. KOTRA: I'd like to add that I don't want to leave the impression that there is some arbitrary pre-determined buffer zone. That's your term. It's not one that we use in the rule. What the National Academy recommended is that this -- that the group of people most likely to be at risk would be protected and through our analyses, and those analyses in light of the National Academy recommendations are going to be made public. They're going to be published shortly. They have been shared with EPA in the development of their regulations.

If our analysis supported this conservative assumption about a farming community getting a diet that represents what people are eating in that region right now, if that could be supported on the top of the upper crest, that's where we would have put it. You know, what Tim is saying is that based upon cautious and reasonable assumptions about what we know today, we felt that the group at most risk was the group at about 12 kilometers who would be reasonably expected to farm, to draw up water for drinking and for irrigating crops and for growing livestock and that is what we felt.

A group closer in could farm, but they couldn't support the diet that surveys, we understand, have

supported. So there is no 12-mile buffer zone. That is not a term we use in the regulation.

MR. FRISHMAN: Well, let me follow up before Steve answers and that's with just one question. Closer than 12 miles would the doses be higher if people drilled a well and used the water and it was used for farming and drinking?

MR. McCARTIN: Not necessarily. It depends on the assumptions you use in terms of the water demand. Could the doses occur at a slightly earlier time, yes. You're getting into assumptions with respect to if I have the same farming community. Let's say I move them in -- as you get closer and closer there certainly is the potential for the doses to be larger.

MR. FRISHMAN: But concentrations would be higher.

MR. McCARTIN: Not necessarily. It depends on how much water you're pumping. Right now, if I look at say iodine tecnisium, is getting to the Critical Group and virtually there are very likely retarded radionuclides, if I'm at 12 miles versus eight miles, if I'm pumping the same amount of water, right now in our calculations that critical group is getting all the releases of iodine tecnisium. If I move it to eight kilometers, they would still get all the releases. It would occur at a slightly earlier time. So in that case the doses wouldn't necessarily be different.

MR. CAMERON: Okay, let's go to Steve.

MR. McCARTIN: For all radionuclides, conclusions could be different but for those two, the two more dominant ones.

MR. CAMERON: All right.

MR. BROCOM: You know, we're not, we don't, the DOE doesn't write these regulations. These regulations are written by the EPA or the NRC.

MR. CAMERON: Could everybody just make sure they speak closer to the microphone?

MR. BROCOM: We will comply with whatever -- or attempt to comply with whatever distance they come out with. We have, up to now, been using, for example in the viability assessment, a distance of 20 kilometers, 12 miles or so, as a place where we'd make, we'd calculate the doses to people and that's the closest approach of people to Yucca Mountain. The land north of that is mostly government land with no population at all and there's very little population at 12 kilometers.

MR. CAMERON: Before we get to John Wells' statement, Steve Frishman let me ask you, based on your comments, is it the state's opinion, at least from your office's perspective, that the so-called buffer zone be reduced or eliminated or are you seeking information on which to base your comments on that issue?

MR. FRISHMAN: I think it's extraordinary that it

requires a distance of 12 miles and the justification that goes with it. The rule that used to apply to Yucca Mountain said that that boundary or the boundary of what they call the accessible environment, meaning where people could, in fact, contact releases from the repository, the rule that used to apply said a maximum of three miles.

And to me it's kind of extraordinary that you look at the current situation and decide that that's the situation for all future time and it just happens to be a very convenient one. Although the point that I have raised a number of times in the past is if, for instance, this repository were being sited in Pennsylvania, do you think the people of Pennsylvania would in any way put up with a 12-mile buffer zone around a repository and a sacrifice zone that large? I don't believe so.

And I think that this is a case where a regulation is being generated to suit the site. The site is becoming the standard rather than an objective standard being applied to a site.

MR. CAMERON: Okay, thank you and we're going to revisit this issue with all of you.

Do you have a quick statement?

MR. McCARTIN: Yeah, one quick here. I mean, the primary reason we got to 12 miles was the depth to the water table.

MR. FRISHMAN: Do you know how deep the well is, the primary well in Lathrop Wells, which is at your 20 kilometer line, do you know how deep that well was drilled?

MR. McCARTIN: Our understanding at the time we wrote the rule and if information changes things, we will change things accordingly, but our understanding was it was approximately 100 meters depth.

MR. FRISHMAN: The water table is at approximately 100 meters. The well that is a primary well in Lathrop Wells was drilled to almost 300 meters.

MR. CAMERON: Okay, let's go to John Wells and I think we'll be back to this issue again. John.

MR. WELLS: Good evening. I'm here this evening to address the legitimacy of the United States to regulate high-level nuclear waste at Yucca Mountain. The perspective which we bring to the issue is that of a foreign sovereign nation. I do not intend to lecture on the foreign policy of the Western Shoshone government, but rather to attempt to relate to all of you here tonight the importance of this subject to the Western Shoshone Nation and how we relate this issue to the world through our larger foreign policy.

Since the beginning of the nuclear age, the Western Shoshone and the Southern Paiute people have borne disproportionately the burden of the nuclear age. The products of nuclear fission from the development and testing

of nuclear weapons have poisoned vast portions of our territory. The devices of omnicide were transported into our territory by the United States without our knowledge and exploded without our consent.

Today our people suffer health-related effects from these United States and United Kingdom activities. It is from this tragic experience that we now face the latest technological threat posed by the United States in its effort to dispose of 77,000 metric tons of high-level nuclear waste from commercial nuclear reactors and the United States military and possibly more.

A so-called solution to a deep geological disposal will not result in a solution to the waste dilemma. But will rather increase the likelihood that nuclear fission technology will proliferate increasing the risk of nuclear technology to fall into the hands of rogue states and terrorists.

Some of you may be familiar with the treaty of Ruby Valley. In 1963 the Western Shoshone Nation entered into a bilateral treaty of peace and friendship with the United States of America which is the definitive documentation of formal recognition between both our governments. The Western Shoshone Nation never ceded any portion of our territory to the United States, but rather granted specific privileges to the United States within

Western Shoshone territory.

The Western Shoshone Nation was not conquered by the United States or any other nation, nor have we sold any portion of our territory to the United States. This treaty is, as the United States Constitution places it, the supreme law of the land. The legitimate authority to regulate any activities at Yucca Mountain rests with the Western Shoshone government. The authority of the Western Shoshone government does not come from the United States Constitution or the Congress. Our governing authority comes from our longstanding customs and traditions which predate the United States.

These customs have attained the force of law. Together with written treaties, resolutions and the judicial opinions of the Western Shoshone National Council constitute the sum and substance of a constitution of the Western Shoshone Nation.

It is the position of the Western Shoshone National Council that all activities conducted by the United States at Yucca Mountain not within the specific privileges granted through authority of the treaty of Ruby Valley constitute trespass, a physical intrusion and an illegal occupation of Western Shoshone territory and a violation of Western Shoshone sovereignty. Our efforts at the level of the presidential cabinet encompass not only the interests of

the Western Shoshone Nation to protect the health and welfare of its citizens, but also in the interest of all humanity. On this point we will not concede.

Nuclear weapons have been determined to be illegal under international law. The Western Shoshone Nation will not be a party to the continuing development of weapons of mass destruction. It is the policy of the Western Shoshone Nation to set the highest standard possible to protect our citizens from further nuclear threats associated with United States nuclear technology. To this end in December of 1995, the Western Shoshone National Council passed by consensus a nuclear free zone resolution making all of Western Shoshone territory a nuclear free zone. This resolution carries with it the force of law.

In conclusion, the Western Shoshone Nation looks forward to working with the NRC, the EPA and other United States agencies in an effort of mutual support and understanding to learn how we can resolve our understanding nuclear technology problems with an eye to environmental justice. Thank you.

MR. CAMERON: Thank you very much, John. Just one clarification from the NRC staff on John's comments; is there a criterion in the existing rule or proposed rule that deals with land ownership of the repository site?

MS. KOTRA: I'll try and address that. Yes, I

believe we do require that the Department of Energy --

AUDIENCE: Can't hear you.

MR. CAMERON: If you could just speak into the mic.

MS. KOTRA: The proposed requirements as well as the existing generic requirements the NRC has on the books already require that the Department of Energy acquire the legal land title and rights necessary to fulfill their responsibilities to protect the public health and safety in that regulations.

So I would defer to the legal members of our staff to address that in more detail, but I believe that the proposed regulation includes language. Tim's looking for it right now, but we do require that -- we would require that the department obtain those rights.

MR. CAMERON: Okay, then I don't think we need to go into that right at this point. But I just wanted to make it clear that there is a criterion in the rule that has to be met relative to some of the points that John was making.

Are we ready to go onto the representative from Clark County, Engelbrecht von Tiesenhausen?

MR. von TIESENHAUSEN: Does this thing work at all? Okay, is this better then?

AUDIENCE: Yes.

MR. von TIESENHAUSEN: All right, I would like

just to make a couple of comments on the proposed rule and then also some general comments, and up front, since I'm almost surrounded by lawyers here I'd like to state that the comments I make are not representing policy statements for Clark County, only our commission can make those.

Since mid-1990 Clark County has had an active technical program. The major emphasis of Clark County's program has been in the evaluating and commenting on DOE site characterization efforts. In addition, Clark County has independently looked at issues of concern. An example is a base-case water evaluation for northwest Clark County which was done in 1993. The purpose of the study was to establish baseline water conditions within potentially effected areas.

Clark County is concerned that the concept of the Critical Group may not fully encompass the potential hazards to all residents. We would also like to know how the treatment of infants and/or children would be handled in those calculations. Clark County is also fully aware of the fact that the EPA has been less than prompt in fulfilling its congressional mandate to issue radiation protection standards for Yucca Mountain.

We are, however, still concerned that the issuance of a licensing standard for Yucca Mountain by the NRC prior to the issuance of standards by the EPA will skew the final

outcome in favor of NRC standards. This is not in concert with the time sequence set up by Congress.

Clark County agrees that the deletion of sub-systems requirements is a step in the right direction. The important issue is to maximize the protection of the safety and health of residents. Setting performance requirements for sub-systems could lead to a less than optimum design. The main problem is that the sub-systems are not independent of each other and in many areas are effected by the same variable.

It is also our understanding that the NRC has no choice but to follow the EPA standard when it is issued. This would, we assume, include a separate standard for the protection of groundwater. Both the NRC and DOE need to be very conscious of their respective roles in the Yucca Mountain program. Constant care needs to be taken by both parties to maintain a relationship that clearly delineates between the licensor and the licensee.

Clark County has also been very concerned with the depth of the quality assurance issues that have plagued the DOE program. While the NRC staff now seems to share that concern, recent policy statements by the Commission do not sound as strong as the problems warrant. There were a couple of questions that were asked in the standard that NRC specifically asked for public comment on. One of them I've

already made concerning the Critical Group.

The other one with regard to the human intrusion scenario, Clark County agrees with the proposed approach. While it would not be possible under current technology to penetrate an intact waste package by drilling, the time frame selected by the NRC, 100 years after permanent closure, would give a better test of the natural system and a longer time frame.

Another question that was asked was on the appropriateness of a strict quality assurance program and Clark County feels that it is imperative that DOE be required to implement a quality assurance program based on Appendix B criteria of 10 CFR Part 50. And we will have written comments submitted by the deadline. Thank you.

MR. CAMERON: Thank you. You mentioned children and infants and I wondered if the NRC staff would want to address how the proposed rule deals with that issue.

MR. McCARTIN: What we are doing is we are looking at doing some dose estimates looking at infants. From our analyses to date, which we are still doing, there are different sensitivities for infants but also involves different intakes. They don't drink or eat as much as adults and they also drink different kinds of food, more milk, for example, than the average adult. And what we see to date is the doses are somewhat comparable. And so we

believe the 25 millirem dose amount would be protective of infants as well as adults.

MR. CAMERON: Okay.

MR. McCARTIN: We're continuing those analyses sensitive to that, but to date, there appears to be -- the doses would be roughly in the same area.

MR. CAMERON: Okay, thank you, Tim. Let's go to Bill Vasconi, with the Nuclear Waste Study. Bill?

MR. VASCONI: Yes, first of all, I'd like to state the fact in my case, I've worked here in Nevada for 37 years and of that 37, 17 or 18 was spent at the Nevada Test Site. It is my understanding that the NRC is trying to communicate to the public on how it would propose to implement dose-based standards required by the statute for this site and I want to thank you for coming here, letting us express our views and letting us participate. It is appreciated by me.

The NRC is totally independent from the Department of Energy and the licensing arena is not going to be a cake walk for DOE by any means. And one of the things I want to stress is NRC's existing generic regulations currently contain quantitative limits such as those cautioned against by National Academy of Sciences. NRC will need to make revisions to its regulations in order to be consistent with the new risk-based standards for Yucca Mountain, EPA

standards.

And although the NRC may not know all the details of the EPA's final standards at this time, the National Academy of Sciences' recommendations with which EPA must be consistent, have been public for more than three years and rest assured, I feel that the EPA and the NRC has carried on numerous conversations.

The other thing is, this is a first unless you're considering the WIPP project, Yucca Mountain is a repository for high level waste. DOE's biggest challenge or NRC's regulations, EPA standards. I like the fact that there's a means to modify, a means to change, a means to amend. After all, we're putting this thing together, the Yucca Mountain project, with today's technologies. Who's to say what they'll think of our efforts in 300 years. I give our educational system a little more credit than that. But it a viable solution to a national problem and we're using science; science for safety, science for environment, science for oversight and review.

Well, we heard that the natural background for the average citizen in the United States is 300 millirem. Well, at Nevada test site and Yucca Mountain we're proposing the 100 millirem which is -- the public is three times greater. We're proposing a 25 millirem standard, well, that's 12 times, the public dose would be 12 times natural background.

So not knowing all I should from all this millirem stuff, I did take a quick look at some things.

A chest x-ray is 10. Mammogram is 30, cosmic rays that you get annually is 31, the human body, 40. Radium in the household is 200. Well, you know, when I was a kid growing up they talked about the people that painted numbers on watches were radium, radium wristwatches so they illuminate at night. And I can also remember when I was a kid that they had a machine down at the shoe store. You went down there and stood underneath it and you can look down and you could see the bones wiggling in your toes. Any of you guys old enough to remember that? I spent a lot of time in that. I don't know what kind of radiation I got from that.

But I want to say that overall I believe that we're going in the right direction with this. The limits, as I see them, according to some of the national standards are in line and I say more power to you. Let's make the adjustments as necessary, but at least we're moving in a direction we can all understand. Thank you.

MR. CAMERON: Thank you very much, Bill, and I think we'll probably hear more about some of those comparative dose numbers that you just gave us during the discussion later on.

Mal Murphy, Nye County, where the potential site

located. Mal?

MR. MURPHY: Thank you, Chip. As you just indicated, I represent here tonight the situs jurisdiction as we call it. Nye County is the local government that has jurisdiction over the ground in which this nuclear waste may ultimately be disposed of, and accordingly we represent the residents, the people who are most directly and will be most permanently effected by this project in the world.

No one else in the world ever will be more directly effect by Yucca Mountain than the residents of Nye County. So we are very, very acutely conscious of the impacts of this project and we're very protective of our jurisdiction and our ability, continuing ability to oversee it in a scientifically rigorous and conservative way.

The county, as most of you here are already aware, I think, is neutral, substance neutral with respect to Yucca Mountain. Nye County didn't ask for this project and doesn't -- hasn't in the past and doesn't seek it today, but on the other hand, as a formal matter, at least, the county is not opposed to it. We're very jealous of that neutrality because Nye County feels very strongly that being neutral is the only way that we can assure that our voice is heard in an objective and serious manner by the federal decision makers who are ultimately going to be responsible for deciding whether or not Yucca Mountain will, in fact,

operate as a repository.

But as I said, Nye County didn't ask for Yucca Mountain, but by the say token, Nye County has no legal ability to say no. We do not, for example, have the ability to file a notice of disapproval as the State of Nevada does and consequently, again, we think the best way to protect Nye County citizens is to remain neutral, do objective science, conduct rigorous oversight and insist that the Federal Government and the Department of Energy, its principal agent, do it the right way.

We conduct a broad program of oversight including most particularly an independent scientific investigations program, and most recently this year an early warning drilling program where Nye County has drilled its own monitoring wells in the vicinity of the Amargosa Valley, a 40-mile wash, the area between Yucca Mountain and the population centers to determine for ourselves what's going on with the geology and hydrology in that area. And ultimately as a way to provide out citizens with a trip wire, if you will, to provide that early warning eventually in case something does turn out to be different than what we expected originally.

We operate on the principle of conducting objective science under conservative principles and we insist that the Department of Energy do the same and the

NRC, I might add, do the same and do it correctly. We do this so that we can draw our own conclusions and so that Nye County does not have to rely on anyone else in the program whether it's the federal government or the state or anyone else to assert and protect its own interests.

With respect to the proposed Part 63, let me begin by saying that we -- first of all, everything I'm saying here today is preliminary. We have not -- none of our views on Part 63 have gone through the appropriate internal programmatic reviews that will eventually be required. We will be filing formal comments prior to the May 10th deadline. We'll be sharing them with all participants and we'll be sharing those comments with the public by posting them on our own Nye County Web site where all of our information is always available to the public.

But we start by saying that at least to date, we have still seen no reason to depart from what we originally said to the National Academy of Sciences committee I think at the first public meeting they held here at the Alexis Park Hotel in Las Vegas. And that is that we, Nye County would prefer that both the EPA standards and the Nuclear Regulatory Commission's licensing regulations be stated as a release standard rather than a dose criteria, principally because we think it's an easier more direct and more simple way to measure whether or not the repository is performing

in the way that it should be expected to perform.

But we understand, we don't agree with what Congress did, but we understand that in the 1992 Energy Policy Act Congress removed the discretion to make that decision from both the EPA and the NRC and mandated a risk-informed, health-based standard. They didn't -- so that the NRC no longer has the ability, we wish they did but they no longer have the ability to express their licensing standards in the form of a release criteria, that Steve Frishman raised on behalf of the State of Nevada, for example.

And they would still be able to draw a five kilometer or three mile or whatever it is circle around the repository, call that the accessible environment, measure the radionuclides that are breaching that boundary, if you will, and determine whether or not the repository is performing adequately and thus, is in compliance with the regulations. We would prefer that approach, but again, recognizing the Congress removed that discretion from the agencies, we have to deal with the regulatory scenario that we were handed by Congress.

Given that, we do agree with a risk-informed, performance-based approach, again, preferring, if you will, release criteria to a dose standard. We agree with everything the NRC has said about the advancements, for

example, and the capabilities of conducting performance assessment. We agree that much more is known about Yucca Mountain today than was true 15 years ago.

Some of that's good and some of it is bad and we're still learning and I'm sure everyone involved will continue to learn a lot more about Yucca Mountain before this licensing decision is made. Some of it will be good, some of it will be not so good from the Department of Energy's perspective at least.

With respect to the definition of the Critical Group, Nye County probably agrees with that. I would tonight give that sort of a qualified approval. I don't -- as I sit here today, I have to frankly tell you that we do not see 300 years in the future or 30 years in the future, a farming community located 20 kilometers or 12 miles if you will, from Yucca Mountain essentially at the Lathrop Wells intersection. We think it's more likely -- we think the scenario you are more likely to see there is a commercial, light industrial and those kinds of activities rather than agriculture.

However, because, as the NRC points out in the written material that accompanied the proposed regulations as well as what we've heard here tonight, because assuming a farming community, assuming people living that 12 miles or 20 kilometers from the site growing essentially their own

food and having a diet that is consistent with the diet in the region today, is a conservative approach.

Because those people would -- assuming there is an agricultural-based community in that area, those people would almost by definition, be more potentially exposed to radionuclides than would people living or would people working in a light industrial or light commercial area and not growing their food in that area because that accordingly provides a more conservative approach, we agree with that and we would tentatively at least would approve of that.

We agree with the NRC that the groundwater pathway is not only the most probable but perhaps is the exclusive pathway to the public from Yucca Mountain and for that reason, we do not support the NRC's position that additional groundwater protection standards are not necessary.

We can see no reason at this point in time to treat the Yucca Mountain project any differently under the Clean Water Act than any other similar project which would be required to comply with separate groundwater protection standards expressed in terms of maximum contaminant levels, et cetera.

That may, you know, I agree with the NRC that that perhaps does not, as a technical matter, give a great deal of additional protection to the people of the members of that Critical Group. Nevertheless, because groundwater is

so critical and so important and so bottom line, if you will, to the people in that area and would be to people similarly situated in any area of the country, we can see no reason to depart from current Clean Water Act -- or I'm sorry, not Clean Water Act, Safe Drinking Water Act protections and therefore, it's the county's position that additional groundwater protections should be required.

We do not have the expertise in house within our or the county's employees or our contractors to take a position at this time as to what level of protection, what's the figure of merit, if you will, what numbers should be expressed, but we do think there should be some additional groundwater protection expressed in the regulations.

And in one other respect I want -- and I don't think anyone else has touched on it, the supplementary information or the material sent out by the NRC calls for some comment on it, but I do want to express in the strongest possible terms Nye County's opposition to any notion on the part of the NRC or conducting the -- eventually conducting the Yucca Mountain licensing proceedings as an informal rather than a formal evidentiary hearing.

We think that for this first-of-a-kind licensing proceeding anywhere in the world that would be the height of irresponsibility to depart from formal due process based

evidentiary hearing procedures and to instead license this facility on the basis of an informal, almost essentially a rule-making process. And we strongly oppose any further attempts to water-down, if you will, the protections that Nye County currently enjoys, the State of Nevada, other units of local government, the public interest groups and the public itself would enjoy in the form of the licensing process. That's all I have, Chip.

And I do want to also acknowledge and thank the NRC for taking the time to come out here and get the public's view on these important subjects and particularly on going all the way up to Beatty in Nye County on Thursday and hearing the view of, as I said, the people who are most directly and will be most permanently effected by this whole program.

MR. CAMERON: Okay, thanks. Thanks, Mal. And I think that we're going to have to -- all right, we've now raised a number of important issues that we want to hear comment from you on. But the last one that he talked about, the adjudicatory hearing, I think it might be useful if some time during the night if the NRC can just sort of elaborate on what the existing process is that Mal referred to. But let's go to Judy Treichel, Nevada Nuclear Waste Task Force and then we'll go out to you.

MS. TREICHEL: Thank you, and I'd like to get out

to the audience as quickly as possible. This is a very difficult thing to just have to sit and look at.

I think that the key word that we keep hearing over and over meshed in with all of the mushy language about being less restrictive and less prescriptive and all of those other words is doses. And when Bill Vasconi was talking about the sort of radiation that you get in background where you get radon in your home or you get a certain amount from flying, this is an additional burden. This isn't something you can compare. You can't cut off part of your radon because you're going to get this.

I guess you could stay off of airplanes in order to compensate if you were going to have your very own repository, but this is something that's given to you additionally to what you get and the other stuff that you get primarily is with your informed consent. And I think what Nevadans are worried about is that they may not be able to make their consent and I don't agree with that. I think we live in a democracy. But I don't know that the public here, many of whom, the majority of whom oppose a repository, like moving away from the restrictive requirements and as Steve Brocom said, less prescriptive so we can be more creative in engineering.

We've been told for years and years and years that the reason that the Department of Energy was here and the

reason that any of us are here in this meeting tonight is because Yucca Mountain was the best place in the country to have a repository, and then that slipped to well, it's adequate or is probably suitable. And there's still a determination going on, we think, about whether or not this is suitable. Well, it would seem to me that in order to be able to be suitable for the nation's high-level nuclear waste repository, we've got a very big country here and it may or may not be the right thing to do to bury it, but in order to have nuclear waste disposal, disposal means it's gone.

We shouldn't have to be dealing with doses. We shouldn't have to be dealing with -- I had handouts outside. I hope some of you picked those up. These are DOE's versions of how this would work and there will be doses given to people from Yucca Mountain. The NRC could fix that up by having a rule that did not allow doses or didn't allow releases.

In Sweden, they are contemplating a repository that would have less than 1 millirem being released from a repository at the repository, no buffer zone, and for as long as the material remains dangerous. This cuts off at 10,000 years. Many of you may not know that the peak doses are expected to be out around 100,000 years, between 100 and 200,000 years and some people will ask, "Well, why are you

concerned about that?" Well, it would seem to me, and I'm sure that the Western Shoshone would agree, that you are supposed to be concerned about what you do and its impact on others.

There's only one other thing I want to say. Within the language of this rule, when deciding whether or not to issue the construction authorization which actually winds up being the license, if it's allowed to be built, I don't think any of us believe that it wouldn't happen as a repository, that while they're considering this, they are to weigh the environmental, economic, technical and other benefits against the environmental costs and consider available alternatives.

While I have a hard time seeing the people in Amargosa Valley, the people across the country, 52 million of them within a half a mile of all of the transportation corridors are going to have many environmental, economic, technical benefits that need to be weighed as a result of making this decision.

So it would seem to me that the licensing rule would need to be getting tougher instead of getting weaker and more restrictive and less prescriptive and it also seems to me that if this was done in order to offer a lot of time for public comment, that the NRC would have certainly given us more than 90 days and in fact, they gave us less.

The Government Printing Office could have gotten them off the hook and given us 90 days, but they changed that and it's now less than 90 days. There's going to be a public comment period when the EPA comes out with its proposed rule, it's proposed standard, so I don't think there's a big rush here. I think it's a case of trying to be accommodating. And when somebody goes in to get a driver's license, you don't find that guy that rides in the car with you being particularly accommodating. You sort of have to pass all of his rules.

So I would like to get to the public and see what they've got to ask.

MR. MURPHY: Chip, could I follow-up the one point that Judy made with just a question. Did I understand you earlier, because she's right about the 90-day comment period. You know, it's not a big deal to us because we have the resources, the government's participating in this process have the resources to get our comments together and submit them, but did I understand you correctly that it was the Government Printing Office that screwed up and put the wrong date in, that it should have been expressed as May 30th and it was actually printed as May 10?

MS. TREICHEL: No, they gave them the other dates and NRC pulled them back.

MR. MURPHY: How did we get less than 90 days?

MR. CAMERON: Let's hear from NRC.

MS. TREICHEL: It was never meant to be 90 days.

MR. McCARTIN: It was never 90 days. We put the rule in as a 75-day comment period. Seventy-five days was a May 10th closing date and that's what went to the GPO. They inadvertently changed -- it was a typographic error on their part and put in a 3 rather than a 1. So you see May 30th rather than May 10th.

However, that's fairly typical for our regulations, to have a 75-day comment period. If, indeed, that comment period is too short and people need more time, they can petition the NRC and ask to extend the comment period.

MR. CAMERON: And Judy, is this a formal -- were you formally requesting that the comment period be extended?

MS. TREICHEL: Sure.

MR. CAMERON: All right.

MS. KOTRA: Chip, if I might add, in addition to -- and I recognize that for those of you for whom this is the first exposure to this rule, this is not necessarily relevant. But as soon as the NRC staff had developed a proposal for the Commission's consideration, the Commission asked us to post this on our Web site and it was posted pretty much as you see it in the proposed rule in October.

So it has been in the public domain as soon as we

could with the blessing of the Commissioners of the Nuclear Regulatory Commission, make it available to the public, and we will certainly entertain requests for extensions of the public comment period.

MR. CAMERON: Good, because I think we just heard one right there. You've heard a lot of issues raised by the panel and let's go on to you for issues that you have of your own or want to talk about some of the issues that the panel raised, that's fine. Who would like to start us off with a comment or a question? Yes, sir.

MR. RUPERT: Thank you. I'll just stand here and talk to the panel. My name is Arthur Rupert and I do work for TRW at this project and I'm proud to say that we're very fine people. They are very concerned. If anybody happens to know in regards to the sites around the country where the waste is presently stored, what is the dosage of the radiation that is leaking out of the containment facilities or the canisters presently?

MR. CAMERON: Okay, thank you. NRC, any -- Bill, do you want to try to handle that?

MR. REAMER: I'm not sure I'm answering your question exactly so ask it again if I don't. But I think the question is what is the permissible dose from the other -- from other locations or sites where high level waste or spent fuel is stored and managed. Do I have it correct?

MR. RUPERT: The concern that I'm trying to address is if in fact there is some sort of leakage being exposed in the environment, is there a way for the public can determine how much that is either through the science that's involved in monitoring it or that's reported to the public and, if so, is it comparable to what the proposed repository's amount of dosage that would be taken into the environment?

MR. CAMERON: Is the point behind this question is to compare the appropriateness of using a repository to store and unload this waste as opposed to having it on all of these individual sites? Is that what's behind your question?

MR. RUPERT: I think it's kind of obvious that people would like to know if there is radiation leaking out at some place around the country, what is the amount that's being leaked, and if it is being leaked what is being done to control it. If it's posing a health risk, how do you curtail all of the locations where the health risks are involved or potentially involved?

MR. CAMERON: Okay, we get the point on that. Bill.

MR. REAMER: I can speak to facility that are regulated by the Nuclear Regulatory Commission. Any facility that is regulated by the Nuclear Regulatory

Commission is subject to dose limits, release limits, that they must meet. It's part of their license, it's a part of the regulations. The monitoring occurs at any site so there's knowledge, there's information about what the releases are, what the doses are. If the doses exceed what the regulation will permit, then action has to be taken to bring the doses down to under the limit.

And that's universal and that's the same standard that would be applied to DOE if there were a repository located at Yucca Mountain. Does the answer the question?

MR. CAMERON: Okay, you can follow up then. Let's go on to another subject.

MR. RUPERT: I don't know if it does but hopefully what I'm trying to drive at here is that if there is a problem, hypothetically I would have to state that what is more important, having numerous sites around the country exposing the environment continually allowing this stuff to spew out over decades with waste that's going to be there, unless there is some sort of a facility available to put it away where it will minimize the entire country's exposure concerns to the radiation.

MR. REAMER: Well, what's important is that people are protected, that standards are set that are protective and that facilities are licensed against those standards and that the standards are enforced and whether they are

enforced at one site in Nevada or whether they are enforced at 100 sites throughout the United States, they have to be set, they have to be enforced, they have to be met.

MR. CAMERON: Okay, this is one of those issues that obviously goes to the choice of disposal solution rather than the proposed rules. So we do have that on the record.

How about anybody else at this point, anybody else have a comment or a question? Yes.

MS. WHITE: My name is Deanna White and I'm with the Sierra Club Council of Nevada and I just wanted to try to make a couple of points. I want to echo the concern that the comment period is too short. It may have been posted on a Web site in October, but I know that most of our folks here aren't aware that it was on the Web site in October. So that's great for the folks that are in the know, but it doesn't help the rest of us out there very much.

The second is I want to echo another concern that I first brought up and I have some limited experience on Yucca Mountain, not everyone knew this, but what I can see happening is that it seems like we could create a set of rules and set standards for determining a suitable site and then we find out Yucca Mountain doesn't meet them, so we change the standards, we change the rules and I just want to, I guess, express concern that we make the rules and set

the standards based on the best available science and then find out if Yucca Mountain meets them or not in a fair and equitable manner, not to make the rules fit what Yucca Mountain can or can't do.

I think that we would all benefit much more from that than from trying to make the rules fit Yucca Mountain instead of making Yucca Mountain fit the rules. So I guess with that, I'll turn it over to someone else.

MR. CAMERON: Okay, thanks, Deanna. Can someone from the NRC address the issue that was alluded to earlier about why we're changing the rules at this point and try to address Deanna's comments? Tim?

MR. McCARTIN: Well, the approach we've taken is that the National Academy of Science came up with the recommendations for standards for Yucca Mountain. We're trying to implement standards somewhat consistent with their recommendations. Also, the EPA is in the process of eventually coming out with a standard which we would conform to, but there was not a -- we did not change -- we hopefully will change the rules for better science and better implementation. But we did not -- what we were trying to do was as Steve Brocom alluded to, provide flexibility to the Department to do that best job they could with the goal being the performance standard which is a health-based standard.

The dose, we would like to keep the doses as low as possible. They have the flexibility to design it in a number of ways and that flexibility is there, rather than putting in the old rule and certain prescriptive requirements that they had to meet regardless of their impact on the dose or the final performance standard.

MR. CAMERON: Janet?

MS. KOTRA: If I might add to that, that both EPA and NRC are engaged in this because the Congress passed a law that said that the standard should be based upon the protection of the individual. That is a change from the way that the standards were set up before, but that's one that's been dictated by the Congress subject to the recommendations of the National Academy of Sciences, as Tim mentioned.

We also believe that we have learned a lot in the last 15 years about assessing performance of a repository, and whether that repository is at Yucca Mountain or somewhere else, we would want the standards and the regulations that implement those standards to reflect that value added in terms of what we have learned over the last 15 years.

MR. CAMERON: Does anybody else out there have anything to say about that particular issue, about the change in standards?

Steve? I think Steve Frishman grabbed his mike

first and then Steve Brocom wants to go ahead. Steve, do you have something?

MR. FRISHMAN: Yeah, a couple things. One is, we, representing the state, participated in a meeting with the Commissioners of the Nuclear Regulatory Commission last week, these people's bosses. And we raised one issue and that's that it appears from the Department of Energy's analysis that right now, under the existing NRC rule, not the proposed new rule, under the existing rule, Yucca Mountain does not comply with one of the specific criteria.

And we suggested or recommended to the Commission that they inform the Department of Energy of that because this is the existing regulation and it appears that pretty clearly that the site does not comply with that regulation. DOE has a very similar requirement in its site recommendation guidelines which are essentially DOE's rules for, you know, what a suitable site must be.

The data from the DOE's own work again indicates a violation of that standard. I guess my question to both is one; the same question or recommendation we posed to the Commission and that's that under existing rule is it the Commission's duty to inform the Department of Energy that their site does not comply with the existing rule and to DOE, our governor has already told the Secretary of Energy of the finding that the site violation, the standard and the

site should be disqualified.

The DOE answer was, "No, it doesn't." But they didn't point to where in their work it shows that it doesn't and we can point to where their work shows that it does. So to DOE; what is your current response to why the site has not been disqualified under existing rules?

MR. CAMERON: Okay, let's -- Steve Brocom, you were going to make a comment any way. Why don't you do that and if you want to respond to Steve Frishman's points, go ahead and then we'll go to the NRC and back out to the audience.

MR. BROCOM: Let me make my first comment. My first comment was just I want to make sure that, you know, the audience understood that the reason --

MR. CAMERON: I guess you've got to get real close to the mike.

MR. BROCOM: Am I better?

MS. KOTRA: Yes.

MR. BROCOM: Okay. Just want to make, the first part, what I wanted to say before Steve Frishman talked was that, you know, I want to make it absolutely clear because I'm not sure it was clear to everybody that the reason EPA and the NRC have changed the rules because, you know the Congress passed an act in 1992 that set the sequence of events which required, again, both the EPA and the NRC to

follow the advice in a sense of the National Academy of Sciences and modify their rules. So I just wanted to make that clear.

With respect to what Steve Frishman was saying, we have to evaluate the site to see if it meets our guidelines. If it meets our guidelines and the Secretary decides that the site is suitable, he will recommend it to the President and that's called the site recommendation. If it doesn't meet our guidelines or for some other reason the Secretary decides that the site is not suitable, he will disqualify the site. That is a decision that the Secretary of Energy makes.

With respect to violating, and I'll let the NRC talk about that, but in our opinion it doesn't violate -- first of all, we haven't applied for a license to the NRC yet and secondly, the wording in the NRC regulation is quite different than the wording in our guidelines.

MR. CAMERON: Okay, Janet Kotra for the NRC?

MS. KOTRA: Yeah, I wanted to take a little bit more time to talk about this, but in the interest of time I left it out of my formal remarks, but there are very sound reasons why the Commission is moving to bring in the new science that we have acquired over the last 15 years and let me just touch on it, I'll make it quick.

But the generic regulations that are on the books

were based upon analysis and work that were done in the late '70's. They were proposed in '81 and they were final in '83. They assumed EPA standards would limit cumulative releases. Now, we've had some discussion here that there may be some people who would prefer that the standards limit those, but the fact is that discretion was taken from us.

So our generic regulations do not implement what the Congress required. They didn't specify a biosphere, a Critical Group, separate treatment for human nutrition, the topics that have been discussed here briefly this evening as recommended by the National Academy of Sciences so they're not adequate in that regard for the current situation.

They have, as mentioned, they were before we gained extensive experience with the type of modeling and calculations that has become available and with which we've become fluent and the NRC, as an independent regulator, has developed its own capability so that we can adequately evaluate the capability of the Department of Energy.

The specific requirement that Steve Frishman has alluded to when he says it's performance objective in that standard, I'm not going to go into detail about what that existing regulation required, but they were not designed to implement dose or risk-based standards as the Congress required and they don't reflect the unsaturated conditions that exist in Yucca Mountain. This was before there was a

law that said that Yucca Mountain should be characterized exclusively.

And lastly, there is contained in there a statement that says no limit required. I guess the point I'm trying to make here is that if the decision was made to pursue a site somewhere else in the country, we would still be changing our regulations to reflect many of these factors. So this is not something that has been done just because of Yucca Mountain.

MR. CAMERON: Okay, thanks for that clarification, Janet.

MR. McCARTIN: Chip, can I ask a quick question?

MR. CAMERON: Sure, go ahead.

MR. McCARTIN: Yeah, we've heard two comments now for extending the public comment period and we're hearing it's is too short. I guess the question I have if the comments would take, well, what's long enough, because we can come back with 90 days. We have 75, we can change it to 90 days. That may not be long enough. Could we just get -- for the two people that asked, just an idea of what would you consider a sufficiently long time?

MR. CAMERON: Judy, do you want to -- do you have any idea what would be long enough?

MS. TREICHEL: Well, we're asking for six months or 180 days from DOE on their draft EIS. You've got a rule

on the street. The EPA is going to have something out and I don't know what all else will be coming out for comment, but for people who don't have staffs in order to work on these things, you've got all the time in the world because you're still going to have to put this thing together when EPA gets out with it and they're going to have their own public comment period. So I don't think six months is unreasonable, which I have, you know, virtually a several hundred thousand year project.

MR. CAMERON: Okay, I'm getting an affirmation of the six-month period from Deanna back here who spoke earlier.

Sir, did you want to comment?

UNIDENTIFIED SPEAKER: I talked to Mr. Rice and I'll be here in this case. I've been in Nevada since 1970, so I've been around for a little bit. My understanding is that above-ground testing began in the '50's and continued on into the early '60's and then I believe, then they went to underground testing. And then they did underground testing for about another 30 years past that time.

Now, we're talking about, you know, a 25 -- how much does a nuclear weapon, you know, detonated underground produce in the groundwater. I mean, we already have, you know, a great amount of nuclear waste in the ground. That stuff, when you release a bomb that goes through all the

strata and here we are talking about things stuffed in a can and worrying about the small amount released in the community which has -- the closest I can call it is like a cherry patch and I think we could maybe make sense here.

But I guess my concern is what exposure levels have we had over the past. I'd like to see like a graph of how much radiation is in the air, how much has resulted in the nuclear weapons over the past 50 years and to see what type of exposure we've had. That would help me make up my mind.

Also, what type of radiation we have in the groundwater that Clark County or Nye County has reported over this past 50 years. That also helps to make up my mind on the rules and regulations.

I think also transportation of this waste, I think since Nevada's economy has changed from mining and agricultural to more of a recreational economy, then we're looking at people traveling through Nevada. We're looking at hotels. We're looking at a long street up in Nye County. We're looking at a lot more people coming into Nevada, using Nevada, and so I think the regulations should look at those considerations. Outside of that, I don't have any problems with it.

MR. CAMERON: Okay, thank you. Does anybody on the panel want to --

MR. MURPHY: I think Bill Vasconi had his hand up first.

MR. VASCONI: I wanted just to add a little something to that, too. That the United States has detonated 1,032 nuclear devices. Two of them weren't tests. But the Nevada test site has seen 928 events. There was three in the Atlantic, 106 in the Pacific, 17 elsewhere. But of those events at the Nevada test site, the 928, 24 were with Great Britain, United Kingdom. Those were underground.

A hundred of our events were air deliverables. So, yes, there's 828 nuclear devices that were detonated, not all of them, but the majority of them did, detonated underground. Some one-third of them were in the water table. The studies of the water aquifer, to my knowledge, I'm hoping someone else can give me more, and that it is a closed water aquifer, but your question on how much radiation is on site, a great deal. Some of it is element radiation which will be there for several thousands upon thousands of years.

Yes, there is tritium that depletes itself over a period of time, six years, half life, whatever. But you have a very large concentration of a nuclear dump at the Nevada test site and realistically, cosmetically, on the surface is what you're going to clean.

My concern is yours, the DNA of water, where does water start, where does it discharge and perhaps someone on the panel or someone with the expertise can assure us that that is a closed water aquifer in the testing area.

MR. CAMERON: Okay, thanks, Bill.

Mal, did you have comment? Could you put this in the context, try to put this in the context of the rule, if possible. I mean, that might be helpful to try to take Tom's comments and wrap them up like that if you could.

MR. FRISHMAN: I can make at least one attempt at that and that's that if you look at the estimated residual radiation from all of the underground testing and compare that to the amount of radiation in a 70,000 metric ton Yucca Mountain repository, the Yucca Mountain repository is one to two orders of magnitude greater than all of the residual from all of the underground testing.

So it's not adding a little to a lot. It's adding a lot to a little even though what is there already is considered -- you know, is certainly not a little. It's just that the commercial waste and the remaining DOE waste is very much larger than the calculated residual that's already there.

MR. CAMERON: Okay, thank you. Mal?

MR. MURPHY: Yeah, that's one of the points that I was going to make. We're talking about several hundred

times more radiation, you know, that is going to be disposed of in Yucca Mountain than the cumulative radiation produced by all the underground tests.

But the other point I want to make is that contrary to a lot of people's assumptions in this who are, you know, tangentially aware of this program pretty much throughout the rest of the country, I guess, I don't know how many people are guilty of this in this state, but Yucca Mountain -- but the Department of Energy is not going dispose of high level nuclear waste at Yucca Mountain at the Nevada test site.

Yucca Mountain is not on the Nevada test site. It is outside the borders of the Nevada test site. It's within the jurisdiction of Nye County. It's within the jurisdiction of the State of Nevada. Those jurisdictions are somewhat contracted and you get into all sorts of, you know, legal ramifications about exclusive federal jurisdiction, et cetera, et cetera.

But this waste isn't being put at the Nevada test site. It's being put outside the boundaries of the test site and if any of the radionuclides disposed of at Yucca Mountain do escape and it's not -- you know, there is a reasonable argument that, you know, that it might never get out of there, but if it does, it's not going back onto the test site.

It's coming downgradient right down toward Amargosa Valley, eventually toward California, but it's not going to go back up to Yucca Flats and Jackass Flats back to where the junk is already. It's coming our way. And that's the reason why we are concerned about it, why we want to ensure that -- and do everything we can within our power and within the funds that we're -- that are made available to us in the federal program, we want to ensure that the department and the Nuclear Regulatory Commission, the EPA and everybody else does it right. Because this is a -- this is not like the nuclear testing program and it isn't in the same place that the nuclear testing program was conducted.

MR. CAMERON: Thanks, Mal. We'll go on here to Earl Dickson and then we'll go to the floor. Earl?

MR. DICKSON: Thank you. I'd like to follow on with the groundwater issue. The Department of Energy in their test site program is currently studying the impact of underground nuclear testing which tests were conducted close to the boundary shows that it could be off site and migrating, they just don't know yet.

The question I'd like to pose before this NRC rule making process is the thing you need to wait for or give consideration to is the determination by the State of Nevada and the Department of Energy about the compliance boundary for the impacts from nuclear weapons testing which should

have particular implications would they not that groundwater resource available into the future for an entity like Las Vegas where if the Hoover Dam, Lake Mead fills in with sediment in the next 1500 years. The Farmington area and Lake Mead, I think will be pretty full of water.

So in the proposed ruling process, how much consideration or time do you think you need to give to the investigation underway to determine the live boundary for the impacts on the resource given to nuclear weapons testing?

MR. CAMERON: That's a good question, Earl. Tim?

MR. McCARTIN: Yeah, I guess a short answer to that is in setting the dose limit. The public dose limit in NRC's regulations is 100 millirem. But for the high-level waste disposal we set it at 25 as a fraction of the public dose limit, accounting for potential other sources of exposure. And so there is a -- that's why we don't set the Yucca Mountain standard at 100 millirem for potential for other sources. It's set at 25, so that -- I mean, that's the short answer. I don't know if that covers your concern.

MR. CAMERON: Any other comments up there from the rule-making perspective on the comments that Earl made?

MR. McCARTIN: We're certainly not aware of, at this time, doses from weapons testing that would make a significant contribution beyond, like I say risk.

UNIDENTIFIED SPEAKER: The risk is unknown. There's not enough data.

MR. CAMERON: Well, the fact of the matter is the risk is unknown and there's not enough data. Okay, Janet?

MS. KOTRA: From a rule making perspective, one of the things that we do ask for in this notice is for other groups or other pathways that we've not adequately considered. We, in making the evaluation that the farming community that has ingestion pathways and food pathways in addition to drinking water or from the drinking water through those additional pathways is most conservative.

We would look at the pathways you're describing where the water under Yucca Mountain is being taken and providing initial water supplies for an ever-expanding Las Vegas, that we would believe that that would be not as high a risk as that coming from someone who is getting, you know, a sizeable amount of food and livestock, et cetera.

But if we have not adequately considered a pathway or that there is another Critical Group that we need to take into account that might be a better candidate, then we want to hear about that.

MR. CAMERON: Okay, thank you, Janet. Ian.

MR. SAB: My name is Ian Sab. I'm the assistant to Chief Branding Owl for the Shoshone Government. I don't want to over-step my authority since I do have a member of

council here represent the Western Shoshone government. But I did want to ask that the comment period be extended and to point out that in our research -- we have a nuclear risk management for Native Community projects, which deals specifically with the Western Shoshone-Paiute community and we do our research on the above ground testing health effects is that we have exposure listings seven times greater than that of farming communities.

One thing I want to point out to you is that we're going to be gathering on Yucca Mountain next month and I couldn't tell you how many thousands of years we've been doing these types of gatherings where we have ceremonies that we pray and we commune with our environment, but I expect that we're going to be turning those off for quite a long time and probably in and around Yucca Mountain. I would like for you to consider moving or adjusting your figures to reflect some of those facts. I really can't say much more beyond that.

We have nuclear reactors at least around the country that may shut down and licensed for additional reactors has been denied, and that's I think the bottom line on nuclear waste.

MR. CAMERON: Okay, thanks again. This study that you talk about is being funded by National Institute of Health and at some point if we could find that study would

be available for people.

MR. SAB: Sure.

MR. CAMERON: Just so we can have the news about that particular subject. I think we'll be looking Yucca Mountain and rules and a couple of other sites.

We have some other names. Steve Schmidt? Hi, Steve. Do you want to use this? All right.

MR. SCHUMAN: Hello, my name is Clause Schuman and I'm coming here tonight from Paso Robles, California. Paso Robles is in San Luis Obispo County which is the site of Diablo Canyon Nuclear power plant and I wanted to let you know that we are concerned about Yucca Mountain. Why is Yucca Mountain so inseparable from the transportation. There would be no Yucca Mountain repository unless transportation was to take the high-level nuclear waste from the compartments to Yucca Mountain and these are things we are upset about.

When I say we, I am San Luis Obispo, I am a member of the Green Party, San Luis Obispo Chapter. I'm also a member of the Rio Race Information Committee, which is a citizen group and an environmental organization group concerned with high-level nuclear waste. And I'm also a member of the San Luis Obispo management committee which I believe is the only independent topic committee in the United States.

And I was asked by the committee to present the management committee, I was asked to write a paper for on-site storage options. I have a bunch of comments and also a couple of questions if I may. One is directed to John Wells, who was at the nuclear power plant, it's also built on Indian lands, Shuman Indians there and we're also strongly opposed to that.

In addition, I wanted to also comment shortly, when I looked around the room, there's a lot of young people here and I think overall there are about, probably about three generations presenting here. What we are talking about a product which will grow the vegetation out in the next 8,300 generations.

I think that this should give us something to think about. Also, at the present time at Diablo Canyon power plant there are 1,300 spent fuel assemblies stored in the spent pool there. Each one of those assemblies contains long lived radioactivity included or 10 nuclear bombs. The transportation, as you know of 21 or 20 spent fuel assemblies, that would be about the equivalent of 200 atomic bombs with each load going on the way to Yucca Mountain.

This is something you also want to keep in mind. It's not only that people of County have to think about, I think the people know the transportation routes. There are 300,000 (indiscernible). In this, one of the reports that

we were allowed to make (indiscernible).

My first question would be recommend that NRC to have a town hall meeting here tonight, but what about are you planning town hall meetings in every community along the transportation routes?

MR. CAMERON: Is that a rhetorical question, or Bill, do you want to answer it? The question needs to be answered.

MR. REAMER: The answer is, no, we're not planning meetings along the transportation route. Now, let me say one thing about this proposed regulation. This proposed regulation applied to a potential repository at Yucca Mountain. It does not apply to the transportation of spent fuel to Yucca Mountain.

The transportation of spent fuel is governed by an already existing regulation on our books which protects basically the public based on very stringent requirements for the package that the spent fuel will be carried in. And we have carried spent fuel on the highways and the railways in this country safely for a number of years under those requirements.

MR. SCHUMAN: Are you aware that the European transports the nuclear contaminants?

MR. REAMER: Yes, I am aware of that.

MR. CAMERON: And you had some, a couple of other

questions?

MR. SCHUMAN: Well, yes, I have a specific question, also a technical one, which I'd like -- the industry, the nuclear industry is based in increase fuel.

What are the effects of this on the cladding?

MR. CAMERON: Okay, does anybody -- this is sort of off the rules it appears to me, but does someone, anybody have any opinion on that? Tim?

MR. McCARTIN: Well, certainly cladding has been a part of the performance evaluation that there's been different measures of effectiveness of cladding for reducing release rates from spent fuel. It will have to be evaluated and we would expect an evaluation of that in the license application.

MR. CAMERON: Okay, Steven, you have a final question.

MR. SCHUMAN: It's Clause. I just want to say that we -- in San Luis Obispo County, that we do not favor transportation to Yucca Mountain at this time. We feel that there are too many problems with transportation of high-level nuclear waste. We would actually favor the prolonged continued on-site storage at the nuclear power plants for at least a minimum of maybe 40 to 100 years.

It certainly would give us much more time to talk about the problems still consistent with the Yucca Mountain

project as well as problems of transportation. And I believe that the Secretary of Energy made an interesting proposal, I don't know whether it was a specific proposal, but remarks that he said that the nuclear industry would be much more interested in the thing if the Department of Energy would compensate the nuclear industry for the additional cost of storing materials at the plant sites.

We think it's a very interesting idea. I don't know who came up with the idea itself some time ago and also whether the federal and proposing that maybe there would be a possibility for you to consider to compensate the nuclear industry for profit losses in exchange for remedial problems on a certain section of particulars.

MR. CAMERON: Fine, thank you for that interesting idea. David?

MR. AVIE: Hello. I'm David Avie and I'm a systems engineer. I have a small company who does all kinds of analysis of large systems and small ones. I just want to make a comment, being here for the first time and being in Nevada for just one and a half years, it is obvious that there are two halves that are discussed tonight and they don't seem to touch one another. They're truly parallel.

One is best described by what Admiral Brickover used to say at one time. You know if we just study something and endlessly study it, and study it, and study

it, eventually at the end of all this study, you'll get a pile of reports and nothing will be done materially.

And so I see this as a strong possibility because we could study Yucca Mountain and all aspects of nuclear waste from now till doomsday and maybe it's a good thing. Maybe it is and maybe we would them generate new ideas, but it is obvious, at least to me, that Yucca Mountain is not going to work because the other parallel half that's in Nevada are so much against Yucca Mountain, no matter what you show them, not matter what you describe to them by way of the thickness of the vessel, the canisters, no matter how you would explain with the simplest common engineering terms, how you can get this Yucca Mountain or any other kind of structure in this state to be stable and to have the proper temperature and be safe and so on and so on, it just won't go.

The people here, perhaps justifiably so, the government did over the years, not knowing anything about nuclear energy and other things, so people are not likely to believe what the government is saying, emotionally. The ideas that argue this, not here but in California and in the northeast we always knew that the State of Nevada, the people there will not accept Yucca Mountain.

Well, so will these two lines be forever parallel? I hope not. I hope that there could be some meeting of

these parallel lines whereby we begin to explain exactly what is going on in terms of the engineering. When I see -- when I hear Judy talk about millirems that's being developed or is existing now in Sweden, then I hear from TRW folks that they can't meet it, you know, I just wonder is it really the cost effectiveness that we're talking about.

If we could have thicker walls of these containers, be a foot wide and all lead and whatever else is necessary, would this do it? Is it really just a cost factor? I would recommend that there be a small amount of not high-level radiation material, but a small amount taken, a sample from San Onfre for example, and placing it there and begin to learn how to work with it. Maybe it's being done now, I don't know, to increase the level. Make it understandable, make it understandable.

All I heard here is various people regulate these things, but when the TRW gentleman asked the question, how is it being released now in some nuclear power plant, no one seemed to know the exact number. So we talk about regulation. This is the regulation. If you want people to believe what you're saying, you have to show them examples and taking a trip out to Yucca Mountain won't do it sufficiently.

You have to explain how come you have radiation. You have to show what it is, what thickness does it take to

really contain it, what are the temperature problems, how do you solve that? And if you begin to explain and then there's so many questions that come up, then you say what the DOE chief said the other day, leave it where it is and cover it up with some new material from the design that Sweden has.

But maybe not. Maybe it should stay as it is. We all are developing new ideas and not even hearing.

MR. CAMERON: Thank you, David, let's go to Gary Vesserman for some more comments on science and engineering, I think. Gary.

MR. VESSERMAN: Yeah. My name is Gary Vesserman. I'm currently with a company up in Salt Lake City called Fusion Information Center. That company puts on the market a reactor demonstration kit where for instance radioactive soil can be made to reduce the radioactive soil by 90 percent. This is the photograph of the plain that uses the radioactive soil. And you can thank me for having come up with this. It's not done yet. But the analysis shows that it offers a possibility of another process. That being a merely high and low model of this particular process.

I know about 10 technologies that are testing for getting rid of radioactivity. Some of them are farther along that they are (indiscernible) recommendation. You people are all wasting your time talking about Yucca

Mountain because I predict that by the time this is opening, five, ten years from now, we'll be well on the road to eliminating nuclear waste fuel.

And I think that's all I need to say.

MR. CAMERON: Okay, thank you, Gary and Gary has brought information about his process. If anybody wants to speak to him, he'll be here after the meeting. Okay, oh, yes, yes.

UNIDENTIFIED SPEAKER: Hi, my name is Dawn (indiscernible) and I'm a student at Chaparral High School and I have a couple of questions about nuclear war. I also have some questions about the transportation of the waste, the toxic state, how anyone can be sure that it will be safe, but I know that you guys don't want go into that.

But I also have a question about Nevada already is targeted by different countries like if we ever got into war, because of our Air Force Base and Hoover Dam. Wouldn't they also target Yucca Mountain just because of, it's such a large mountain and nuclear waste is kept there. Wouldn't it be better to have it more centralized instead of such a target?

MR. CAMERON: Yeah, that raises the issue, I think, that was talked about in the proposed rules slides about natural disasters. Could the NRC address the question of that type of issue as well as the natural disaster issue?

Tim, and could you speak, whichever one of you or both, just speak into the microphone so everybody can hear you.

MR. McCARTIN: Putting nuclear waste in Yucca Mountain makes it a potential target for a nuclear attack?

MR. CAMERON: How do we consider things like that in our rules?

MR. McCARTIN: Well, it's not considered in the rule. Nuclear war is not part of the rule making from a targeting standpoint. I would assume that if they're targeting our waste repository, there are a number of other items like power plants, major cities, chemical plants, et cetera, that are targets for nuclear weapons. I'd think we have a lot more problems other than the waste.

I'm not an expert on nuclear targeting, but we have not factored a nuclear war into it.

MR. CAMERON: And now, let us go to the other NRC staff. And please, Janet, I think you're going to have to really speak into that.

MS. KOTRA: When the decision was taken by the Congress that development of a deep geologic repository was the national policy for disposal after consideration of a number of other options, it was believed that we wanted to isolate this material as long as possible, as far away as possible from access so that you could go deep within the

earth to take the material away from the surface. That is part of the national policy. It's reflected in the laws that we, as regulators have to operate under.

We believe that the surface facilities and maintenance of hazardous material, nuclear waste at the surface wouldn't have any more of a threat on the long term. Certainly in the short term, as regulators, we are responsible for seeing to it that this is managed and stored safely and we believe that it is. We have not explicitly taken into account nuclear targeting.

We do look at other disruptive events. We require DOE in its analysis to look at other disruptive events such as natural disruptions. The National Academy of Sciences has advised the EPA and we have read their report, that predicting human behavior far into the future for the purposes of intrusion is not feasible and, therefore, we have an assumed conclusion on that. But as Tim has indicated, we have not exclusively considered nuclear targeting.

We believe that by -- that the national policy assumes that by placing this material deep within the ground that it is safer there over the long haul than at the surface where it's more accessible in a large number of facilities. I hope that answers your question.

MR. CAMERON: Okay, Bill, if you want to comment

on that, go ahead.

MR. VASCONI: Yeah, I'd just like to make one comment on the targeting. Mary Manning is here in the audience tonight. She's a reporter. She did a story on the National Resource Defense Council here some time ago. Nellis Air Force Base has 1450 nuclear devices. Of those 600 aren't designated in the inventory, 175 are bombs and 675 are air launch cruise missiles, so when you talk about nuclear here in the valley and you're worried about something blowing up, you've got 1450 nuclear devices within about eight miles of us right now. So don't be too concerned about spent fuel in a truck going down the highway.

MR. CAMERON: I'm not sure it's real comforting.

MR. MANIKEY: Hi, my name is Brett Manikey. I'm a Ph.D. in nuclear engineering. I work here at the OLB. I actually have a question. What is it exactly that the state thinks that DOE does not meet the criteria, they do not meeting under the current generic criteria and why is it different in the new one?

MR. CAMERON: Good question. All right, Steve.

MR. FRISHMAN: It's a provision that requires that groundwater travel time from the waste to the accessible environment, meaning where it can be accessed by people. It sets a minimum time and this is sort of a surrogate for how

well or at least in part how well the site would perform. If you have very slow moving water and water is going to be the carrier for the waste, then there are advantages.

And the Nuclear Regulatory Commission has a rule, now its existing rule says that for the fastest path of likely radionuclide movement, that period of time must be greater than 1,000 years. The DOE's siting rule has a similar provision and instead of saying fastest it says, likely and significant path of radionuclide movement, but it's still down to the groundwater travel time from the waste to where people could access it.

The Department of Energy's data in the viability assessment that Steve Brocom talked about shows that that travel time is as little as 500 years and maybe even less in a large number of the cases they analyzed. The average in their own analysis is on the order of 1,000 years, which means about half of them, half of the cases they analyzed are faster than 1,000 years. So their own data are showing that this criteria is violated in the Department of Energy's guidelines and rule. It also -- the site does not comply with the existing NRC rule.

And in the proposed NRC rule that provision has been completely eliminated and I think what you'll hear them say is, what the Department of Energy likes about that is it gives them flexibility, and what the NRC will say about it

is that it's too prescriptive. What they actually say when they're talking among themselves and I have heard many times is, "Why would we want to disqualify an otherwise good site?"

MR. CAMERON: Could we have some comment from the NRC in terms of how the proposed rule addresses that concept, that groundwater travel time?

MR. McCARTIN: Well, the groundwater pathway will have to be properly characterized because it is the most important pathway. The requirement in the rule is to meet the dose standard. Now whether the -- depending on what -- we are not focusing on a particular numerical value for the groundwater travel time and there's no requirement on a particular numerical value that they need.

Now, one of the things that one can look at in terms of focusing on what's important to performance in terms of is it the travel time, is it the retention capability of the groundwater travel path and there's other things other than just travel time and one of the things, as Janet tried to allude to, is some of these -- and is mentioned in the rule, some of these requirements.

There wasn't a nexus with performance. Just because you met a groundwater travel time, didn't mean you had a good site, didn't mean you met the regulation. And that's one of the reasons we opted to -- we agree with the

National Academy of Sciences, these were requirements that didn't have a lot of bearing on performance. We want to see the dose requirement in that. And so basically, that's the primary reason why.

MR. CAMERON: Okay, Judy.

MR. McCARTIN: But, I guess one final thing I mean certainly in a 10,000 year standard, 1,000 years of travel time is only one-tenth of the performance period. So whether you see the dose at 2,000 years or 3,000 years our focus is on what the dose is, not necessarily the time period.

MS. TREICHEL: Well, I think also what the problem is as far as the lay person out there who doesn't work at this full time and have a technical staff at their beck and call, is when you've got these particular regulations, these particular provisions that have to be met, it's much easier to see whether the thing meets those or it doesn't instead of the sort of mushy language where it's like going from a situation where you have to pass every single test in order to be certified to do a particular job and because you're not making out very well on a couple of those, they change it to, well, you know, if you come up with a pretty decent average, you'll be all right and that's what it looks like.

And it's really quite a double-cross on Nevadans, because they've been putting up with this. We, who live

here, have been putting up with this for about 15 years and we began with that set of rules. It was like when we walked on the field for a game, those rules were in place and we were told over and over and over, "If this site has a disqualifier, if it does not have all of the qualifying conditions, it's out of here."

And we got the thumbs-up, thumbs-down speech I don't know how many times and we were continually told, "These are the rules. If this site doesn't make it, we leave Nevada, we're long gone." And this is what we're seeing and it comes down to this sort of mushy thing. And that's why nobody at that end of the table can tell us what would disqualify this site, what would make you turn down the license and you'll say, you know if the license application isn't good, but still, when you're evaluating that license application, you're going to be doing a whole lot of averaging and it's not going to come out to be Yucca Mountain.

The best we can hope for is one hell of a good canister inside that mountain and if it's that good, it could be inside the mall.

MR. CAMERON: Okay, thank you, Judy. Let's go to Bill and then we'll go back to Tim.

MR. VASCONI: Yeah, I just -- I'm a good old boy but I'll tell you what, I hear these scenarios on 5,000,

10,000 years. See, I'm not thoroughly convinced in my mind that we're going to have coal reserves or oil reserves in 5,000 or 10.000 years.

I still see the potential of Yucca Mountain as a stewardship that should be monitored, retrievable. I'm not talking monitored for temperature. I'm talking monitored for water. I'm talking about utilizing it as a study area because some day retrievability could be an asset to the State of Nevada because there will be nuclear power if there is means available now to clean that up and reuse it.

Someday it will be desperation that makes people go back in there and utilize our high level waste.

MR. CAMERON: Okay, thanks, Bill. Let's go to back to Tim's point on --

MR. McCARTIN: Yes. Our primary concern is public health and safety. I mean, we believe a dose standard is the easiest way to demonstrate public health and safety. I understand the concern about the sub-system requirements that are no longer in the proposed rule. When those were first proposed, it was not -- very little work on performance assessment had been done, as Dan had indicated. And it was comforting to have a check list, as you somewhat indicated, that here are some things we want to see, 1,000 year groundwater travel time, 300 year containment time, et cetera.

However, as we went through years after the promulgation of Part 60, what you see is groundwater travel time, we had spent a very, very large effort to define exactly what we meant and how it would be calculated. We never came to closure on that. We were debating that and discussing it with the Department of Energy to try to understand what we meant and what was expected. What you see in the calculations today by the Department and some of the NRC performance assessment is a surrogate for the groundwater travel time.

It was not regulatory defined and so we were going through that. I think that was part of the rationale behind the National Academy of Sciences looking at all this work that was being done and really it wasn't improving the overall performance assessment. It wasn't improving the public health and safety significantly and that's why, gee, you're spending all this time and effort on that and it really isn't improving the calculations. And whereas right now we have an approach for estimating travel times and see certain things in terms of the water transport but we're also taking into account what is equally as important is retardation mechanisms for the radionuclides.

MS. TREICHEL: That's because your stuck with Yucca Mountain. You could be looking at other sites and not have that many questions.

MR. McCARTIN: No, geologic disposal is performed primarily because there is a tremendous retardation capability of geologic materials for a large number of radionuclides. Not all radionuclides but the vast majority of radionuclides are retained in geologic systems for long periods of time and that's what geologic disposals went to, not just the travel time.

MS. TREICHEL: Well, then the thing that shows -- that we've got here that shows what's being relied upon, it shows the geologic system is doing about two percent and you're looking at DOE's contribution of the barriers out there and almost all that barrier is the waste package and the cladding around the fuel and the mountain accounts for almost nothing.

MR. McCARTIN: No, no.

MS. TREICHEL: Well, I don't want to argue among us because there may be people out there --

MR. McCARTIN: Sure, but one quick thing though that I would like to point out that we are -- would hope to -- we realize the requirement of multiple barriers isn't as clear and we'd like and we will be providing guidance on that, but one has to be very careful that analyses done to date have been done to understand the results and the computer program and how they came about, not necessarily to demonstrate multiple barriers and there's many things that

are done in the computer codes for efficiency purposes and other things that aren't reflected in the contribution of the geologic system.

For example, often we use a very reduced set of radionuclides in the calculation of performance. Why, because the nuclides we don't include are nuclides that are highly retarded in the geologic system and they never get out. We don't include them in the calculation for efficiency purposes. Also, and most of the calculations to date, iodine and tecnisium are very mobile in the system but those, as you see, are the iodine tecnisium, the other radionuclides, all the other nuclides that are there are not getting out.

When they show curves like that, they're showing what caused the dose, rather than the contribution of the system but all the nuclides that are retained in the soils and don't lead to dose are zeros, so you don't see that contribution. So I think sometimes it's a proper depiction of what the dose is coming from, but not necessarily an accurate depiction of how much the geologic system is retaining radionuclides and not letting them move. But that's an area that we need to -- we realize we need to do a better job on.

MR. CAMERON: Okay, Janet, do you want to --

MS. KOTRA: Yeah, I just want to address two

things that Judy mentioned.

MR. CAMERON: And just -- I hate to remind you but just make sure your --

MS. KOTRA: Very briefly, and that is we've endured a significant amount of criticism for all of the sub-systems performed in the criteria and particularly groundwater travel time because it did not relate directly to the public health and safety. People were asking, "Well, what does that mean in terms of how much at risk am I from a 1,000 year groundwater travel time?" And nobody can tell you unless you specify certain assumptions.

The groundwater travel time in and of itself means nothing if you don't know what the doses is to the individual who is at the other end of that travel. And I think that so there has been -- a lot of arguments have been advanced for why the standards should reflect protection of individuals and I think that is part of why the Congress directed us to go in that direction.

I want to answer directly the question that you asked is what would it take for the Nuclear Regulatory Commission to find Yucca Mountain not acceptable and that is an absence of reasonable assurance that the public health and safety will be protected, pure and simple.

MR. CAMERON: And that absence of a reasonable assurance would be based on what?

MS. KOTRA: The criteria that we're here to discuss tonight and the Environmental Protection Agency which is tasked for setting the environmental standards.

MR. CAMERON: That's what underlines the importance of these standards for everyone. I guess you did bring up the EPA and it sounds like it would be useful for people since we talked about our being consistent with the EPA standards, Steve started us off with what he called the 12-mile buffer zone. We're talked about sub-system performance standards, all from the perspective of the NRC rule.

I don't want you to speculate about this but do we know what the EPA's -- would the EPA's approach to the 12-mile buffer zone or sub-system performance requirements be different or the same as the NRC's?

MR. FRISHMAN: We're not allowed to know but I'm sure someone in this room does.

MR. McCARTIN: There's an EPA representative here, isn't there?

MR. CAMERON: Yeah, I'm standing here beside him. He's not going to tell us anything about it, or is he?

UNIDENTIFIED SPEAKER: I can't speak to -- I'm sorry, but I'm just not authorized to speak for EPA now. We will be increasing our reviews of that in the very near future. And I'd hope to have it do it before that. So you

will be getting it very quickly. I am not a technical person. I just wouldn't begin to try to address something like that. So, bear with us, please, it's something that's coming very quickly.

MS. TREICHEL: Without revealing the standard can you tell us how long the comment period is?

UNIDENTIFIED SPEAKER: Well, I can tell you EPA has been in a superfund. They came out of the superfund background. And if people request extension of time period, we are rather generous with that. So all you have to do is ask.

MS. TREICHEL: All right.

MR. FRISHMAN: Chip, I'd like to add one point on this -- on the EPA rule. And there's been a lot of mention that we're using -- we're now having to revise everything because we're using a health-base standard and it's because Congress made us do it. Well, there's a little history to that that needs to be understood.

And that's that the groundwater travel time standard and a number of the other prescriptive requirements were okay until before that when the Department was saying, "We can meet any standard." And what really happened was in about between 1990 and 1992 it was discovered that Yucca Mountain did not meet the release standard of EPA for one radionuclide. And that caused first an effort by the

department to get EPA to change that rule and EPA didn't change it.

And the second effort was to get the National Academy of Sciences to recommend that EPA change it. They would not recommend. The Department went to Congress and then Congress said that we will write a new law that uses a health- based standard to get around the fact that Yucca Mountain violates the existing EPA standard. That's why we're in the situation we're in right now where both NRC and DOE are saying, "Look what Congress made us do."

Well, they went and told Congress what they wanted Congress to make them do because the site violated the standard back in 1992.

MR. CAMERON: I think that there's some serious disagreement with that version. I'm not saying that you're wrong. I just think that people feel differently here and I'm not sure that it's going to illuminate the proposed rule to go into that at this point. So let's go for a question right here.

UNIDENTIFIED SPEAKER: Those are the questions I reviewed those immediately. I was wonder why 50 years and why it can be feasible what happens after 50 years to make it un-retrievable.

MR. CAMERON: I think that's a comment that perhaps Bill Vasconi raised earlier. But any comments on

how does the proposed rule deal with retrievability and what's the rationale for it? Tim?

MR. VASCONI: Fifty years.

MR. McCARTIN: Right, well, I mean, retrievability was a requirement and also directed by Congress and it was felt a reasonable thing to have during the operational phase of the repository, but once you opt to close the repository, the retrievability option would no longer be a requirement. You're not going to try to keep open the tunnels at Yucca Mountain for any perpetuity.

MR. CAMERON: Does that answer your question?

MR. MURPHY: Chip, can I make a comment on that?

MR. CAMERON: Yes, Mal.

MR. MURPHY: This gets a little bit -- this goes to the descriptive versus flexibility arguments in the rule as well. Nye County has, in some of the work it's conducted over the past couple of years, developed a theory under which we believe that -- and I don't want to use the word "open" because that's not right, but we believe that a repository in which, designed in such a way that the waste is naturally ventilated and thus kept cool and dry as a result of natural ventilation is perhaps, and we don't know for sure yet, but is perhaps a better and thus more certain and safe way to operate a repository if one is going to be built at Yucca Mountain than by eventually closing it and

sealing it up and letting all the heat generate inside it, et cetera.

Now, if -- and we would like to see both the statute and the regulations eventually adopted in such a way as to provide enough flexibility to deal with that sort of a design concept. If you're going to design a repository and operate a repository in a way which allows it to be naturally ventilated for a long, long period of time, thousands of years rather than 100 years, then it would not be difficult to keep the waste somehow retrievable for the same period of time.

The 50 years, I believe is just an arbitrary period that Congress came up with in the Nuclear Waste Policy Act that directed the federal agencies running this program to maintain the waste be retrievable for a period of 50 years. I don't -- I don't think, I'm not a technical person myself, but I don't think there's ever been any technical reason, expressed to me at least, for 50 years as a period of retrievability. I don't know where that period came from but it's in the law, isn't it?

MS. KOTRA: The law, the 50 years is not in the law.

MR. MURPHY: But it's in the regs, yeah.

MS. KOTRA: The 50 years is not in the law, but you're right, it's a law that required the NRC to specify

that and I believe you're right, there was not a technical basis. It was, at the time, a generic determination on what would be reasonable. But clearly, the department is the one who makes the determination in their license application how long they want to keep it open, and they, at public meetings and at international conferences in the last -- I don't want to speak for Steve, but asserted that there's a willingness to keep it retrievable for considerably longer than that.

MR. MURPHY: It's 50 years in the new regulations though.

MS. KOTRA: It currently is, yes. At least, that's the minimum. It's a minimum.

MR. MURPHY: Well, that's what I'm saying, you know, we would prefer to see that eliminate. We would prefer to see no minimum period of retrievability.

MR. CAMERON: Okay, and being retrievable forever. That's a comment.

MR. MURPHY: We would prefer to see the regulations allow the department and other participants in the program to design a repository, I'm not saying that it has to be retrievable forever. We would prefer to see regulations which did not tie the department's hands in designing the repository so that it should be retrievable forever.

MR. CAMERON: Okay, Steve.

MR. FRISHMAN: I just want to mentioned something about, you know, current thinking on a design, that we're looking for having a repository that could be monitored and retrieved because it wouldn't be closed up for hundreds of years perhaps, or that the future generation can decide when they want to actually close it.

MR. CAMERON: Thank you. Good question. We have a question back here and then here and perhaps over there.

Carol, do you want to ask a question or do you want to kick us out of here?

MS. STEDDMAN: I want to thank you all for coming. But I'll take my turn. I do have a question.

MR. CAMERON: All right, let's go back here for a question and then we'll finish up.

ANDREW: Well, my name is Andrew (indiscernible) from Chaparral High School to start off. I'd just like to say that it seems like we're involved with Yucca Mountain and whatever wrong has happened or whatever right has happened, you know, it seems like a bad place for a repository.

Now, it's granted that we should have this nuclear waste in one place rather than 100 other places around the country. But the idea behind it and the main thing I've been seeing is that these rules have set down a lower standard. When they should be changed in a way to inform

the public and to reassure them that this repository will be safe.

Now, the question is, why if this site is good but has its faults, can't we make these rules to restrict the amounts of radiation emitted from the repository. The idea of making the mandate aspects of the repository more efficient or impenetrable I should say. In essence, are we doing everything that we can to make sure that what we have our hand in is off crusading for the faults of Yucca Mountain?

MR. CAMERON: Does anybody want to tackle the whole relationship between waste handling and all that other context. Tim, I think you got the drift of the question, right?

MR. McCARTIN: Right. I guess there's times that people would like us to try to regulate a zero-release facility and although we'd like to think nothing will ever escape from Yucca Mountain, it is impractical to make assumptions that you can build something for thousands of years that will continue to operate to keep it at zero release. And so we have set a dose limit of 25 millirem which is consistent with the limits we have that at other comparable facilities, low-level waste facilities, et cetera. We believe that is protective of public health and safety.

So we believe it would be somewhat deceptive to try to get people to think that we could actually build a high-level waste repository that would be zero release for thousands of years. But you know, a 25 millirem dose is an acceptable dose limit in the NRC regulations, not just at Yucca Mountain, but at other places around the country. If we meet that requirement, we feel the public health and safety would be protected.

MR. CAMERON: Okay, thanks, Tim. Let's go over here for a question and I think we can have a couple more and then we'll finish up. Yes, sir.

MR. RUPERT: Is there any way a zoning plan or even a dose of, that there's a natural analog that can be studied or has been possibly studied already to give you the dose requirements for the environment this for analog it's operating in if it exists and use that as the starting point for the Yucca Mountain project?

MR. CAMERON: Okay, Tim, Janet or both.

MR. McCARTIN: Well, we currently are looking at and have looked at and DOE actually is doing some work at Pina Blanca, which is a uranium ore body in a unsaturated tough environment in Mexico to look at, at least the transport of uranium in a unsaturated tough regime. And generally, it appears that the uranium has migrated very, very little.

However, there is always problems with looking at natural analogues. You try to pull as much information as you can from them but you control very little above the boundary conditions, et cetera. We're looking at it as best we can. You get some insights primarily in terms of the long-term fate of uranium transport.

MS. KOTRA: I would add to that that we anticipate that the Department will support its arguments for why it believes its application is sufficient by drawing on research around the world of natural analogues if it chooses to do so. We are aware of other analogues. We have studied, through our independent contractor at Pina Blanca, but there are others. We would look to that as supporting or buttressing evidence for the safety case that they will make and if there's evidence out there, it's incumbent upon them to advance it.

MR. CAMERON: Okay, thank you very much. Let's go to Carol Steddman.

MS. STEDDMAN: First of all, I'm Carol Steddman and I want to thank you all very much for coming to the meeting. I'd especially like to thank the out-of-town visitors, who have a distance to address the local population. We want to thank you. I want to also thank the panelists from local government organizations. We have numerous venues and a most extraordinary report. We've been

having town hall meetings for 15 years. We've had numerous, numerous town halls on the Yucca Mountain question.

Last December there was a poll taken in Las Vegas. The position of the citizens is now to oppose Yucca Mountain is 75 percent. About five years ago it was at 54 percent. During the election of '96, it was at 63 percent. And now it's 75 percent.

Does this make any difference to the regulation procedures? I don't know. I'd like to know if this makes any difference in your licensing decision?

MR. CAMERON: Okay, great. Good question. I think it's pretty straightforward. Let's go to Bill Reamer.

MR. REAMER: As a legal matter, no, it does not make a difference because it's not a consideration that we are allowed to take into account when we make the decision. What we are allowed to take into account is public health and safety, not the preferences of the citizens and I don't mean to say that what you have said is falling on deaf ears.

It's -- I understand what you're saying, but it's not a consideration that I can consider within the Nuclear Regulatory Commission in making the decision. What I can consider is public health and safety. What I can do is come to meetings with you and discuss the proposals that I make and the actions that I intend to take and explain why I think they are protective and hear what you say in response.

MR. CAMERON: Okay, we're going to go to a couple other panel members on this question and then ask Carol for a follow-up. First we'll go to Bill and then to Steve.

MR. VASCONI: As I understand it she was saying the percentages of people who don't want the Yucca Mountain project to continue, right?

MS. TREICHEL: Right.

MR. VASCONI: Well, you know, you can get anything you want to out of her survey and I've seen some of the surveys, I've been a part of some of the surveys. And sometimes it depends how you ask the question. But the bottom line on it, no, the majority of Nevadans do not want the Yucca Mountain project. But the second part of that question should be; how many of you think it's coming here anyway?

Then you will find out that well over 90 percent say it's mandated by the federal government enacted by Congress and the Yucca Mountain is going to become a reality. Well, in that point in time you should say, "What is plan B, Nevada?" "What's plan B?" What kind of equity, what kind of entitlement, what kind of benefits are you going to get for the siting of Yucca Mountain in Nye County?

And another thing to keep in mind is the longer you wait on these surveys, the less response you'll get from second, third or four generation Nevadans because in Las

Vegas right now, 50 percent of the people in this town have been here less than 10 years. They're all from some place else.

The majority of them probably had nuclear power in their state. See, Nevada has no nuclear power. But Nevada will assume a certain percentage of nuclear power over the power grid, but Nevada will also assume to buy cars made in Detroit, steel out of Gary, Indiana or Japan or produce out of California, all of which have nuclear power.

The bottom line on it is, they'll take all the money the tourists want to give them, but don't ask Nevada to help with a national issue even though Nevada's motto is, "Battle born, all for our country." They're all for themselves.

MR. CAMERON: Okay, thank you, Bill.

Steve?

MR. FRISHMAN: I think maybe this does play into the Commission's responsibility of whether you think the site in inevitable, I don't, but whether you do or you see that the public has a very strong opinion against the project. I think where that comes into, where that comes into the regulatory scheme is in -- it's an expression of expectation and if the public is very, very concerned about this and about the safety of this, I would think that that can be translated to an expectation that the standard of

reasonable assurance will become tighter and tighter.

I think this would be the response to very heavy public opposition and that's that nobody can define reasonable assurance. We look at the amount of uncertainty that exists in the performance assessments right now and I think just about anybody would tell you if that uncertainty persists, you can't get reasonable assurance except from somebody who just totally ignores the uncertainty.

So it seems to me that the response to great public concern opposition would be a necessity to be even more and more rigorous in the subjective sides of a licensing decision. That's the response. Because what it comes down to is that like it or not, I don't know anybody who, at least from the standpoint of people who are really concerned about this project, I don't know anybody who believes that once you get a license application that a license will be denied.

MR. CAMERON: Janet, is there a comment that you would like to make?

MR. MURPHY: Chip, Chip, could I just make a -- just sort of give the flip side of that and maybe I shouldn't do this because we don't want to get involved in discussions of political philosophy or anything like that. But look at it from Nye County's perspective, if you would. We want the decision with respect to whether or not Yucca

Mountain is going to be operated as a repository to be based on science and science alone, not on public opinion.

Think of it from the point of view of a county of 30,000 people living in the shadow of Clark County and Las Vegas. And public opinion is fickle, it's transitory. We do not want to live under a regulatory scheme where if all of a sudden the people of Clark County change their mind and think it would be a wonderful idea to put some undesirable, maybe not Yucca Mountain, but some undesirable facility up there in Nye County and they took a poll and 95 percent of the people in Nevada said, "Yes, it's a good idea." And the only five percent who said, "No, it's not a good idea" are the folks who live in Nye County. We don't want to live under that system.

We want this decision to be based strictly and exclusively on technical and scientific merit and that is the direction I am given in the nuclear waste -- in overseeing this program. That's the direction we're given by the Nye County Commissioners and that's the direction I'm given by my principal manager of the nuclear waste repository project office. We insist that this be made, that this program be conducted on the basis of objective, rigorous, science based on conservative principles.

I appreciate that 75 percent of the people -- I'm not a resident of the State of Nevada. So I don't get to

express those opinions. I certainly sympathize with the point of view of people who do express those opinions, but we do not want this, these decisions made based on those kind of poll results.

MR. CAMERON: Before we get to Janet for final comment on this issue, let's let Carol do a follow-up.

MS. STEDDMAN: Is it a correct (indiscernible) Nye County facility. I understand that we don't have to (indiscernible) even with a geological repository. Okay? For nuclear waste. They decide not to do it, I don't know how much science they've had, how much longer they wanted to study it, how many presidents, or projects within agency (indiscernible) because the people do not want it, they do not trust it.

Now, a response to Bill about money, let's take another look. We went to DOE meetings last spring when they cut the budget. Do you remember the budget?

MR. VASCONI: I can't hear you. There's something going on with -- can you hear her?

MS. STEDDMAN: Okay, Bill, we went to DOE meetings last spring when they were cutting the budgets, remember it?

MR. VASCONI: Okay.

MS. STEDDMAN: Okay, the second part of my question is to the NRC, let us say that Yucca Mountain seems to be okay and we'll approve it, the construction goes on.

You have the casts lined up, et cetera. Our wonderful Congress decides they must cut budgets. What are you going to do? I understand you will be monitoring the construction, et cetera, et cetera, but last spring we were told that the quality control standards on approximately (indiscernible).

My question is, what is the guarantee that there's going to be the financial investment in the area?

MR. CAMERON: All right, then, I know Janet, you have a comment from the last discussion and I think that this is an important question that everybody needs to hear answered, and I'd like to go to you to answer both of those questions and then maybe we should take a short break before we go on with the program. No, that's a joke.

(LAUGHTER)

MR. CAMERON: That proves that we have veracity. Okay. But at any rate, go ahead.

MS. KOTRA: I just wanted to react to the suggestion that the Nuclear Regulatory Commission would adjust the stringency of standards as a function of public opposition. That's not something that we legally or morally should entertain. We regulate a wide range of activities and facilities for medical use of ratio isotopes to nuclear power plants. There's a wide range of public fear, acceptability, support, knowledge, ignorance.

We have to make our judgments on the science that Mal alluded to. We would be failing in our jobs as public servants if we did not. The fact is that public opposition will play an important role in this and there are opportunities for public participation in many steps in the process. I can speak for the agency that I represent that the public comments we've received are treated with a great deal of seriousness.

That does not mean that we can abdicate our responsibilities to make the judgments and recommendations to our commissioners based upon science and what is believed to be in the best interest of public health and safety.

MR. CAMERON: And the answer to the second question.

MR. MURPHY: Let me just clarify what I said, too, if I could, Chip. I didn't mean to suggest that public opinion shouldn't play any role in this process, of course it should. But those are decisions, policy decisions that need to be made by Congress and by state legislatures, et cetera.

What I'm saying is that we do not want public opinion to intrude itself in the technical -- in the adoption of technical licensing standards or the application, the technical applications of scientific standards or in the conduct of Steve Brocom's performance

assessment.

We want those kind of decisions made based on science. Should Congress take into consideration the fact that 75 percent of the people in the State of Nevada do not want Yucca Mountain? Of course it should. And should the state legislature, of course, it should. But I don't want to -- let me give you just another hypothetical.

You know, considering it from your point of view as a resident of Clark County and the point of view of a resident of Nye County or any resident of central Nevada, if the state engineer, who in the process of adopting new standards, which were applicable to inter-basin transfers of water, should the state engineer decide that on the basis of scientific principles of hydrology or should he decide it on the basis that Clark County has all the people and they want the water and the heck with Central America?

Now, the state legislature has to take those kind of things into consideration, but we don't want the scientists to.

MR. CAMERON: Okay, that's an important clarification. I really think we need to try to wrap up here and I want to get to the answer to the question of the implications of budget cuts for future monitoring the repository if there is one. Tim?

MR. McCARTIN: Yeah, I guess the -- and I'll take

a stab at this and that is that right now information is being collected to evaluate the feasibility of the Yucca Mountain repository. If a license application is submitted and construction authorization is granted, there will be a lot of information gathered as the repository is constructed.

If a license is granted to receive the waste and place it, there's more information gathered about the behavior or the performance of the Yucca Mountain repository. It's a performance confirmation period as we call it. We look on it as a very long time period of gathering a lot of useful information to somewhat validate, did we perceive things correctly. If not, that's why the retrievability option is there.

And as far as I know, I've never gotten a sense at the Commission that we've put clauses in our regulations that we do not take serious, that we would not implement if we need to for public health and safety, and I think that performance confirmation period, we will not have all the answers, reasonable assurance we will have public health and safety will be protected.

But this performance confirmation period, I think is very important. If something happens during that that changes your view, maybe you have to do something different.

MR. CAMERON: Okay.

MS. STEDDMAN: What do you do if you run out of money?

MR. McCARTIN: If we believe we do not have a sufficient budget to protect the public health and safety, we have to go to Congress and say, "We need more money."

MR. CAMERON: Okay, I'm going to have one more question from this woman here, who has not had an opportunity before and then we need to wrap up.

NOELLE: I just want to ask, we're heard all different kind of rumors --

MR. CAMERON: Let me bring you a microphone, okay?

NOELLE: My name is Noelle. I wanted to ask you if you could clarify something. We've heard many different rumors of how much money has already been spent at Yucca Mountain. I heard it's 3 billion or 2 billion or what is it that's already been spent to try to prove the it's going to work there? Do you know that?

MR. BROCOM: 3.2, 3.2 billion.

NOELLE: Pardon me?

MS. KOTRA: 3.2 billion.

NOELLE: $3.2 billion then. Okay.

MR. CAMERON: Maybe that's a good exclamation point to adjourn the meeting on. You've been an incredible audience and we've had an incredible panel and I thank them and thank you.

(APPLAUSE)

MR. CAMERON: I'd also like to recognize Judy Goodwin of the NRC staff for all the work that she's done.

(Whereupon, at 10:20 p.m.,the public meeting concluded.)